1007141

REVISIONS TDRR 01580				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED. PER TDRR 01709	6-26-63	AT. WK

PART NO.	DESCRIPTION	REQD.
1008101	Frame, Tray 1	1
1006774	Insulator, Wrapost, Female Miniature	127
1006781-2	Contact, Wrapost, Female Miniature	127
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1
1010620-1	Pin, Guide	20
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	30
1008098	Screw, Socket Head, Externally Relieved Body	1
1008099-1	Washer (Special)	30
1008099-2	Washer (Special)	1
1008092	Washer (Special)	30
MS 16624-15	Ring, Retaining	30
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

1007151	
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		DATE
APPROVED		6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE

FRAME ASSEMBLY,
TRAY 1

SCALE	UNIT WT.	CODE IDENT.

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NASA DRAWING NO.
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SHEET 1 OF 1

INCHES
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APOLLO G&N Specification
PS-1007141 A
29 April 1964
Class A Release
TDRR 08051

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 1

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals MIT	Approvals NASA
-18-6	A	11698	1,2	WK	

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 1

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 1 for use in APOLLO Guidance and Navigation equipment.

29 April 64
MIT/IL DATE

4/28/64
NASA/MSC DATE

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 1

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 1, Drawing 1007141, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007141	Final Test Method for Frame Assembly Tray 1

DRAWINGS

APOLLO G&N

1007141	Frame Assembly Tray 1

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APOLLO G&N Specification
PS-1007141 A
29 April 1964
Class A Release
TDRR 08051 .

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 1

Record of Revisions

Ⓜ

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
[illegible]	[illegible]	[illegible]	[illegible]	WK	

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION
FOR
FRAME ASSEMBLY TRAY 1

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 1, Drawing 1007141, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007141	Final Test Method for Frame Assembly Tray 1

DRAWINGS

APOLLO G&N

1007141	Frame Assembly Tray 1

3. REQUIREMENTS

3.1 GENERAL SPECIFICATION. Unless otherwise specified, all of the requirements of Specification ND-1002210 shall apply as requirements of this specification.

3.2 DESCRIPTION. The tray is to be used in the Power and Servo Assembly as a mounting frame and as an interconnection for the modules used in the Gimbal Servo Electronics Assembly.

3.3 FUNCTIONAL REQUIREMENTS

3.3.1 Insulation Resistance. The insulation resistance test shall be conducted from each individual connector pin, with the exception of L4 of connector 45A1-P1, to the assembly frame. The resistance from each connector pin to the frame assembly shall be equal to or greater than 100 megohms.

3.3.2 Continuity and DC Resistance and Shorting. The continuity and dc resistance and short test shall be as specified in JDC 09691 of FTM1007141.

3.4 PERFORMANCE AND PRODUCT CHARACTERISTICS

3.4.1 Service Life

3.4.1.1 Operating Life. The assembly shall meet performance specifications for at least 2000 hours of operation, excluding the supplier's test time of the completed unit.

3.4.1.2 Shelf Life. The assembly shall be packaged as specified in MIL-P-116, Method 2, and shall have a shelf life of at least 5 years, without operation, at ambient room temperature after final acceptance at the supplier's facility.

3.4.2 Reliability. Design objectives require maximum reliability of the assembly during its period of useful life. Every effort shall be made to design and produce units capable of meeting a maximum failure rate of 0.2 failures per million hours.

1007141

PART NO.	DESCRIPTION	REQD.
1008101	Frame, Tray 1	1
1006774	Insulator, Wrapost, Female Miniature	149
1006781-2	Contact, Wrapost, Female Miniature	149
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
101622-1	Connector Receptacle	1
1010620-1	Pin, Guide	20
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	30
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer Thrust	60
1008099-2	Washer (Special)	1
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1008145	Pin, Spring	30
1004207	Drive Cylinder	30

REVISIONS TDRR 01580

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED. PER TDRR 01709	6-26-63	AT. WK
	B	REVISED PER TDRR 02865	8-28-63	

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

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APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
L. E. Larson Jr	

FRAME ASSEMBLY,
TRAY 1

SCALE	UNIT WT.	CODE IDENT.

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1007141

SHEET 1 OF 1

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APOLLO G&N Specification
PS-1007141 B
29 April 1964
Class A Release
TDRR 08051 .

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 1

Record of Revisions

Ⓜ

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
- -	[illegible]	[illegible]	[illegible]	WK	
2/9/65	B	16228	1	WK	WJR

This specification consists of page i
to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 1

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 1, hereafter called the assembly.

1.2 CLASSIFICATION. The requirements for Part Numbers 1007141, 1021211-011 and 1007531-021 shall be designated as Type 1.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007141	Final Test Method for Frame Assembly Tray 1

DRAWINGS

APOLLO G&N

1007141	Frame Assembly Tray 1
1007531	Frame Assembly Tray 1
1021211	Frame Assembly Tray 1

1007141

REVISIONS TDRR 01580				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	WK
	B	REVISED PER TDRR 02865	8-28-63	
	C	REVISED PER TDRR 03000	9-12-63	WK

PART NO.	DESCRIPTION	REQD.
1008101	Frame, Tray 1	1
1006774	Insulator, Wrapost, Female Miniature	149
1006781-2	Contact, Wrapost, Female Miniature	149
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	20
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	30
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer Thrust	60
1008099-2	Washer (Special)	1
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1008145	Pin, Spring	30
1004207	Drive Cylinder	30
1007088	Assembly, Buffer Resistor Module	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
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Jack Barnard

MIT/IL APPROVAL	DATE

FRAME ASSEMBLY,
TRAY 1

SCALE	UNIT WT.	CODE IDENT.

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SHEET 1 OF 1

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REVISIONS TDRR 01580

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED. PER TDRR 01709	6-26-63	AT. WK
	B	REVISED PER TDRR 02865	8-28-63	WK
	C	REVISED PER TDRR 03000	9-12-63	WK
	D	SUPERSEDED PER TDRR 03773		EPK WK

PART NO.	DESCRIPTION	REQD.
1008101	Frame, Tray 1	1
1006774	Insulator, Wrapost, Female Miniature	149
1006781-2	Contact, Wrapost, Female Miniature	149
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
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1010620-2	Pin, Guide	2
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1008095	Screw, Jack	30
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer Thrust	60
1008099-2	Washer (Special)	1
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1008145	Pin, Spring	30
1004207	Drive Cylinder	30
1007088	Assembly, Buffer Resistor Module	1

REV D REPLACED BY REV E

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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Jack Barnard

MIT/IL APPROVAL	DATE
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FRAME ASSEMBLY,
TRAY 1

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SHEET 1 OF 1

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REVISIONS

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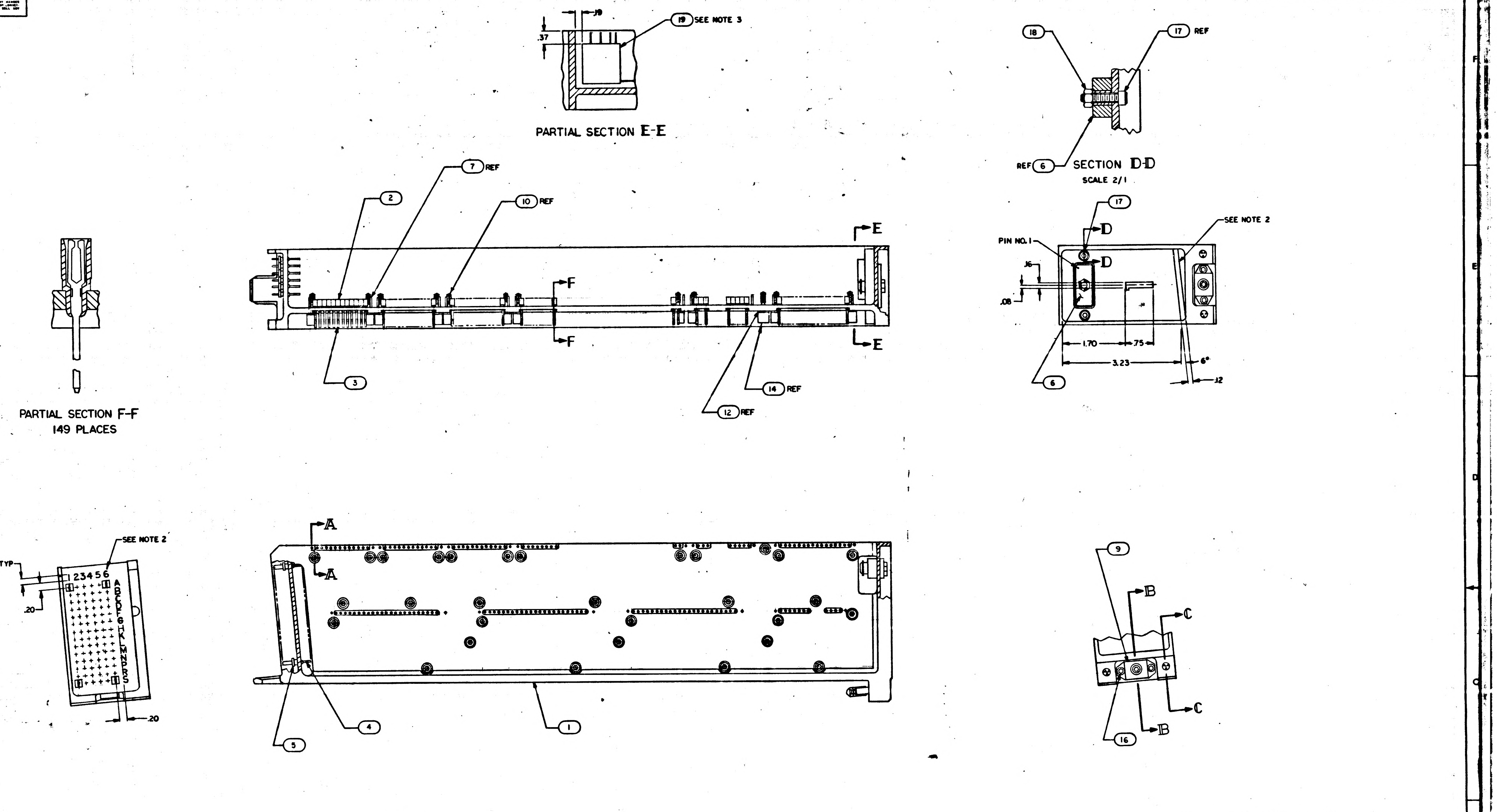
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10 REF
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12 REF
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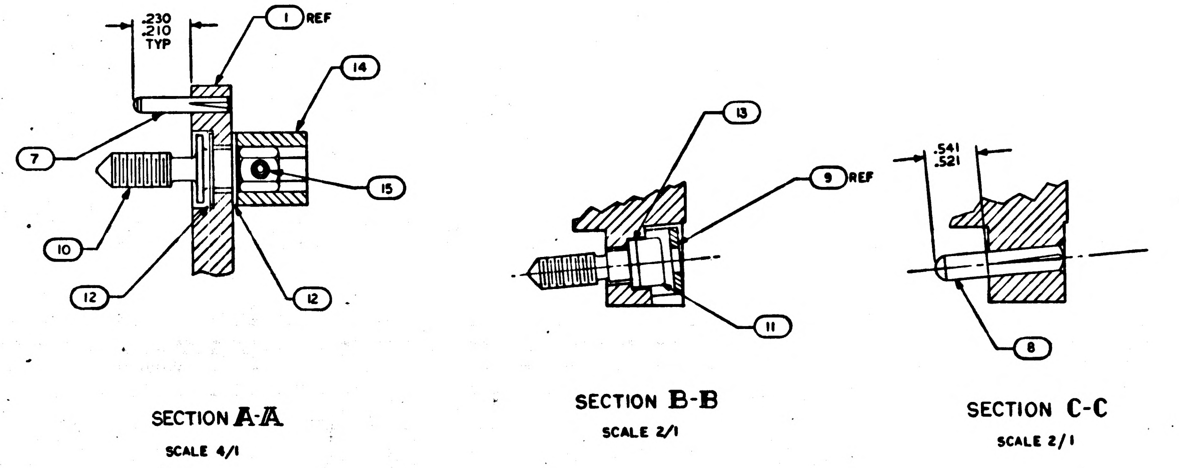
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SCALE 4/1
SECTION B-B
SCALE 2/1
SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK PER ND1002019 WHITE.
3. BOND FIND NO 19 TO FIND NO.1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136

REV E REPLACES REV D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010091	WIRING DIAGRAM	REF
1	1007088	BUFFER RESISTOR ASSY	19
2	MA21045 C 04	NUT SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET, HEAD	17
2	MS16995-10	SCREW, CAP, SOCKET, HEAD	16
30	1008145	PIN, SPRING	15
30	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
60	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
30	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
20	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT BLADE EDGE CONNECTOR	4
149	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
149	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008101	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
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CHECKED 4 Oct 63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL 10-8-63

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HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 1

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007141
SCALE 1/1
WT
SHEET 1 OF 1

1007141 E

MASTER

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REVISIONS			
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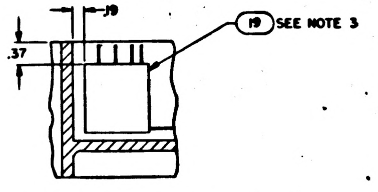
F	REVISED PER TDRR 04784	11-20-63	



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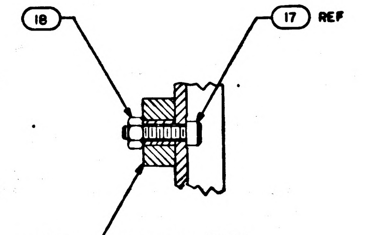

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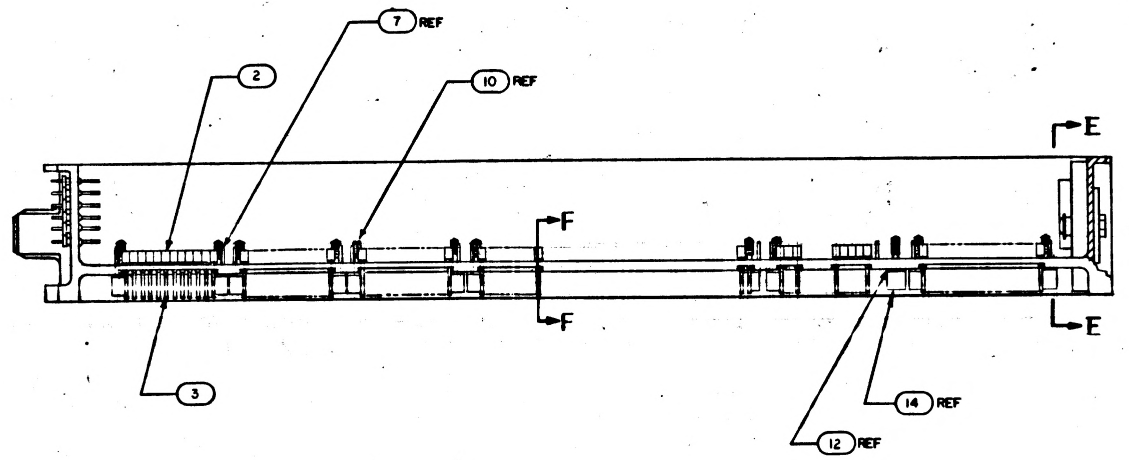

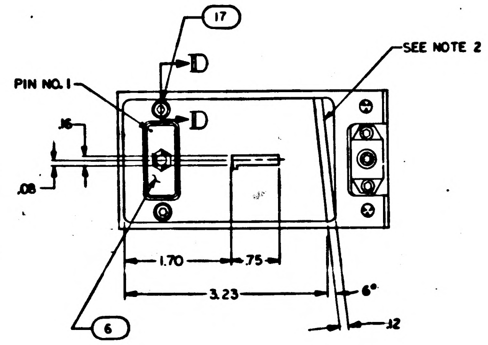

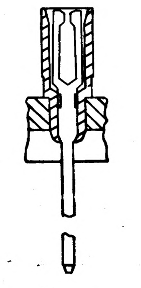

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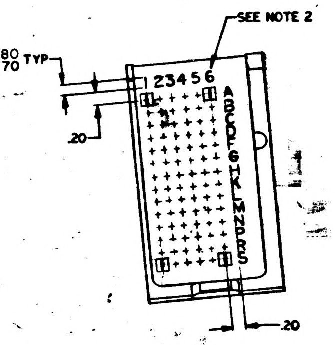

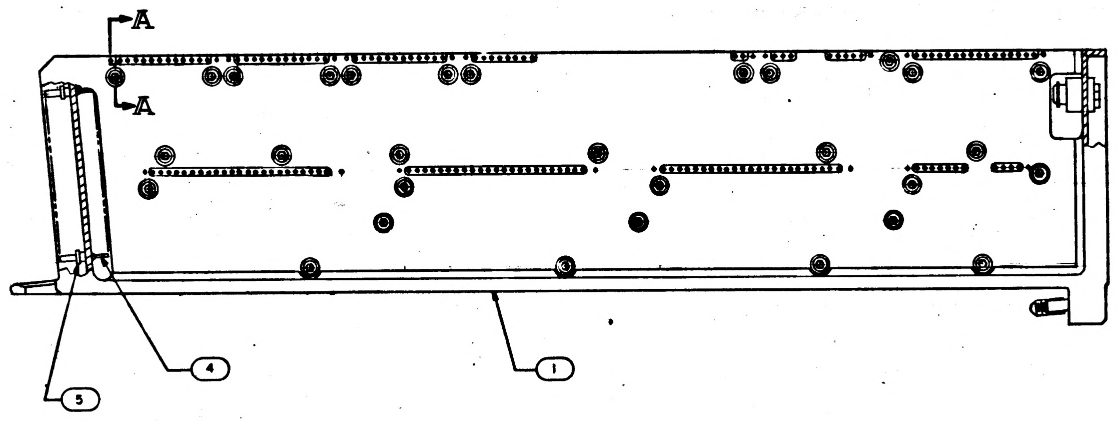

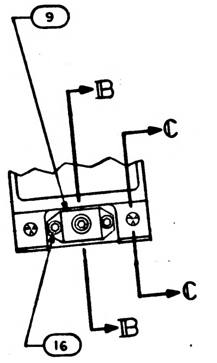

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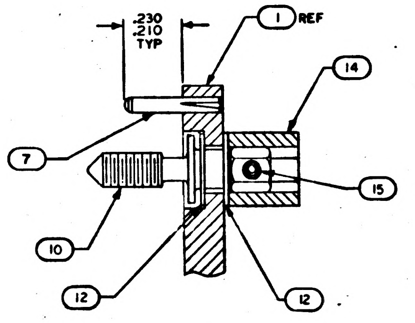
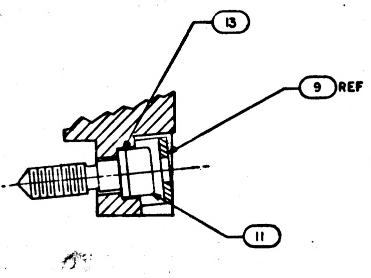
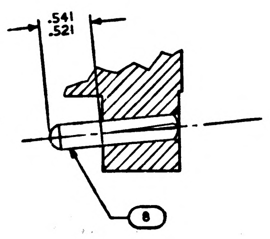
1	1015741	WIRE LIST AA	24
1	1015740	WIRING HARNESS D	23
1	1015739	WIRING HARNESS C	22
1	1015738	WIRING HARNESS B	21
1	1015737	WIRING HARNESS A	20
1	1007088	BUFFER RESISTOR ASSY	19
2	MA21045 C 04	NUT SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET, HEAD	17
2	MS16995-10	SCREW, CAP, SOCKET, HEAD	16
30	1008145	PIN, SPRING	15
30	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
60	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
30	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
20	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT BLADE EDGE CONNECTOR	4
149	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
149	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008101	FRAME	1

LIST OF MATERIALS







NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK PER ND1002019 WHITE.
3. BOND FIND NO 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2, 3, 4 AND 5 PER ND1002136
5. BOND FIND NO'S 20, 21, 22, 23 AND 24 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME

SECTION A-A

SCALE 4/1

SECTION B-B

SCALE 2/1

SECTION C-C

SCALE 2/1

MASTER

1007151	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN W. Horgan DATE 8-19-63
CHECKED 4 Oct 63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-4-63
MIT APPROVAL 10/8/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY I

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007141
SCALE 1/1
WT
SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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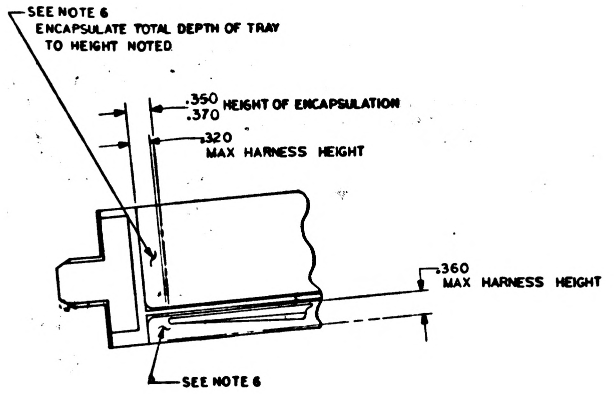
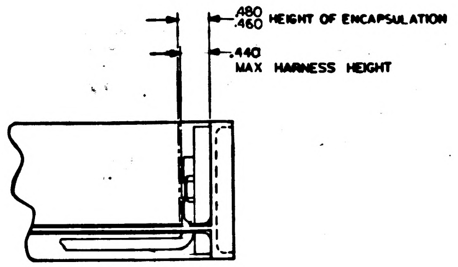
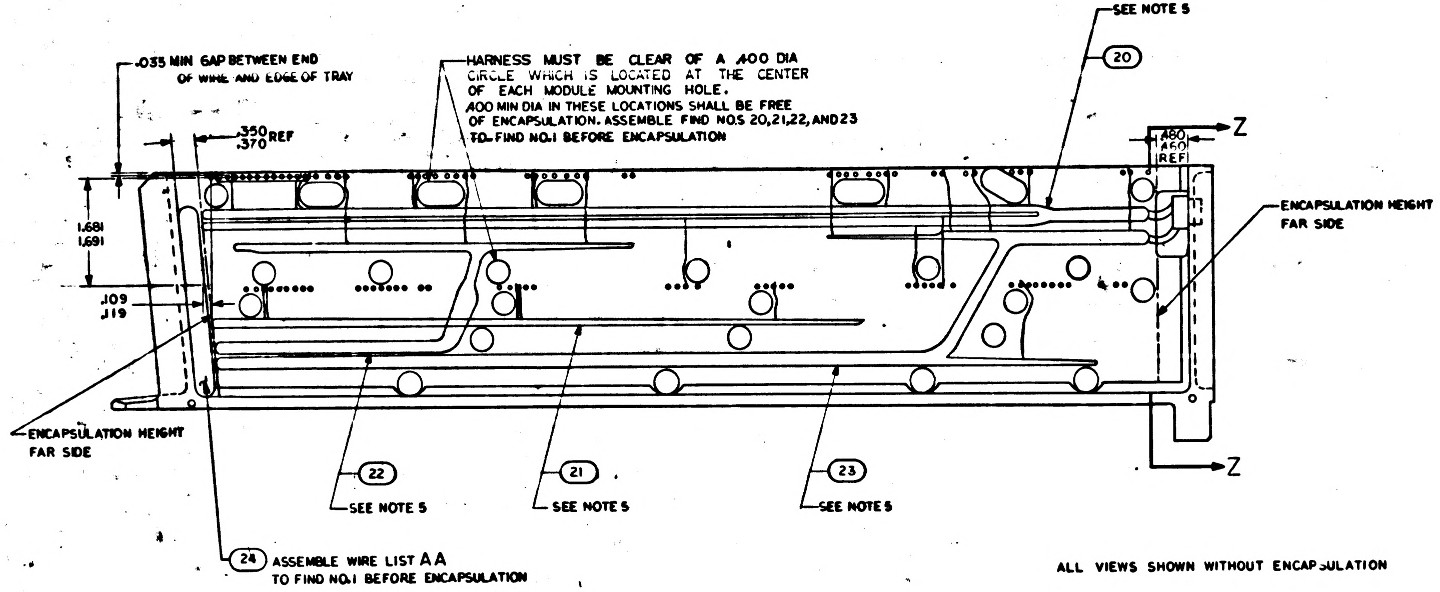
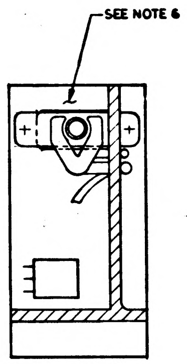

SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.350 .370 HEIGHT OF ENCAPSULATION
.320 MAX HARNESS HEIGHT
.360 MAX HARNESS HEIGHT
SEE NOTE 6


.480 .460 HEIGHT OF ENCAPSULATION
.440 MAX HARNESS HEIGHT


.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350 .370 REF
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE.
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20,21,22, AND 23 TO FIND NO.1 BEFORE ENCAPSULATION
SEE NOTE 5
20
.480 .460 REF
Z
1.681 1.691
.109 .119
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
Z
22
SEE NOTE 5
21
SEE NOTE 5
23
SEE NOTE 5
24
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION



SECTION Z-Z

REV F THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

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NEXT ASSY	USED ON	MATERIAL	DRAWN A. Dzuzski DATE 11-7-63 CHECKED APPROVAL 11-20-63 APPROVAL	FRAME ASSEMBLY TRAY I	
APPLICATION		HEAT TREATMENT	NASA APPROVAL	CODE IDENT NO.	SIZE E
		FINAL FINISH	MIT APPROVAL 11/20/63	SCALE 1/1	NASA DRAWING NO. 1007141 WT SHEET 2 OF 2

1007141 E

INCHES
PHOTOGRAPHIC SCALE ONLY

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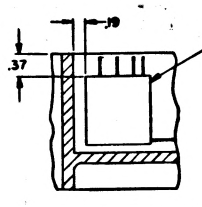
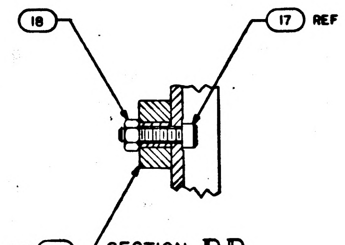
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR 3773	10-8-63	[illegible]
F	REVISED PER TDRR 04784	11-20-63	[illegible]
G	REVISED PER TDRR 06473	3/11/64	[illegible]

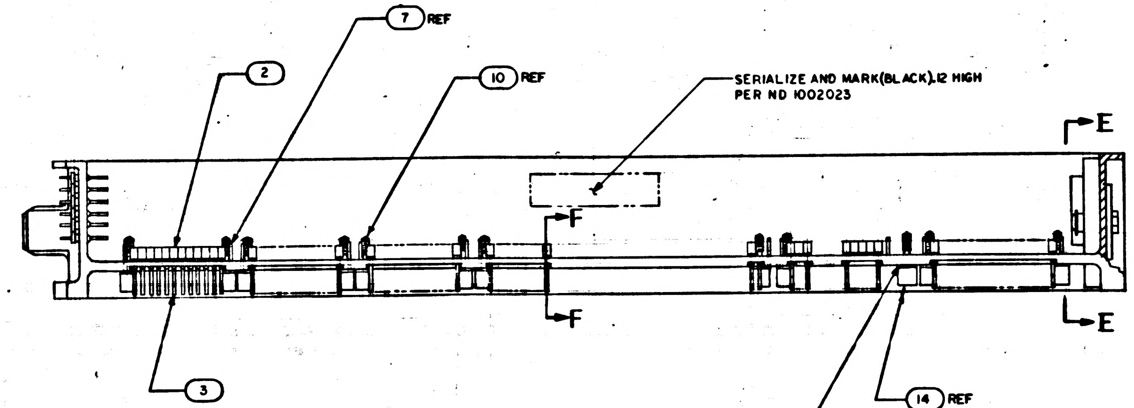


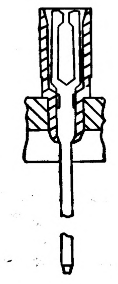
PARTIAL SECTION E-E



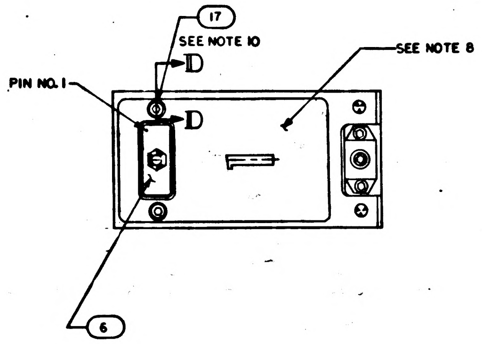
SECTION D-D

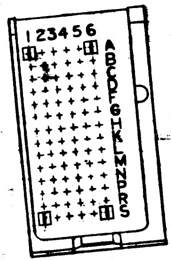
SCALE 2/1

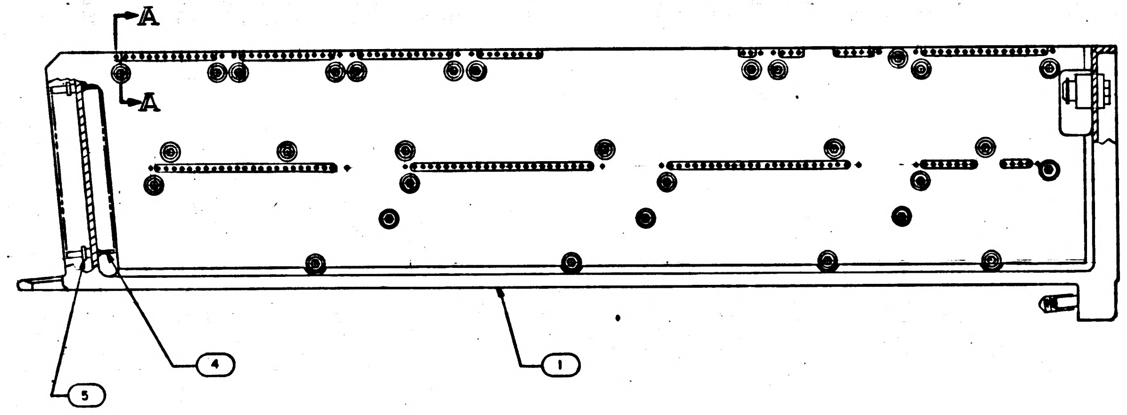


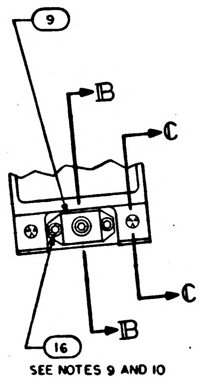


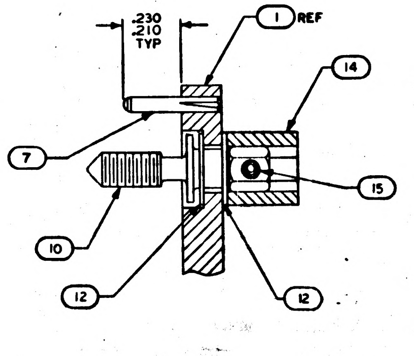
PARTIAL SECTION F-F
149 PLACES





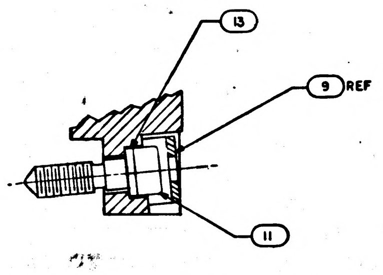






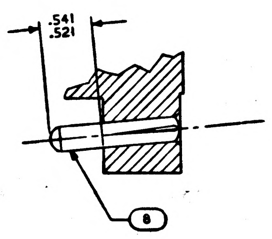
SECTION A-A

SCALE 4/1



SECTION B-B

SCALE 2/1



SECTION C-C

SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK PER ND1002019 WHITE.
3. BOND FIND NO 19 TO FIND NO.1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136
5. BOND FIND NO'S 20,21,22,23 AND 24 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NO.S 16 AND 17 TO FIND NO 1 TO BE 5.0/5.5 IN.LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005 ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60 ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

TERMINATION CHART	
FROM	TO
45A1E7	45A1J1-12
E8	-3
E9	-33
E10	-17
45A1E11	45A1J1-18

REV E REPLACES REV D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010091	WIRING DIAGRAM	REF
1	1015741	WIRE LIST AA	24
1	1015740	WIRING HARNESS D	23
1	1015739	WIRING HARNESS C	22
1	1015738	WIRING HARNESS B	21
1	1015737	WIRING HARNESS A	20
1	1007088	BUFFER RESISTOR ASSY	19
2	MA21045 C 04	NUT SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET, HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET, HEAD	16
30	1008145	PIN, SPRING	15
30	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
60	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
30	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
20	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT BLADE EDGE CONNECTOR	4
149	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
149	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008101	FRAME	1

LIST OF MATERIALS

1007151	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN W. Horgan DATE 8-19-63
CHECKED [illegible] 4 Oct 63
APPROVAL [illegible] 10-9-63
APPROVAL
NASA APPROVAL [illegible] 10-9-63
MIT APPROVAL [illegible] 10-63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 1

CODE IDENT NO. | SIZE E | NASA DRAWING NO. 1007141
SCALE 1/1 | WT | SHEET 1 OF 2

1007141 G

MASTER

INCHES
PHOTOGRAPHIC SCALE ONLY

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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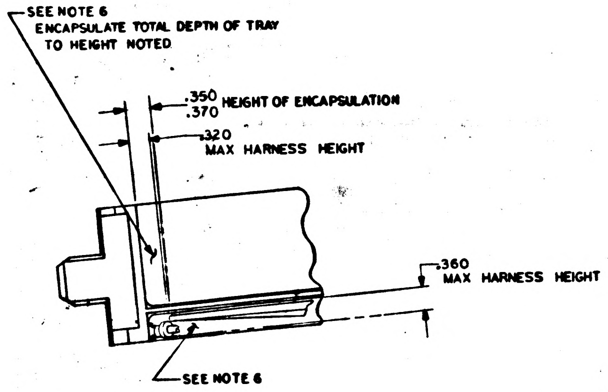
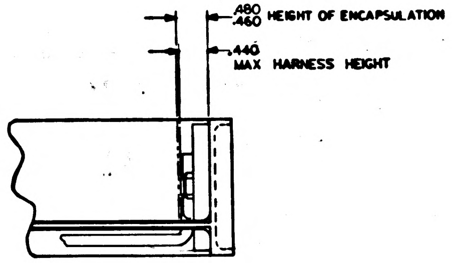
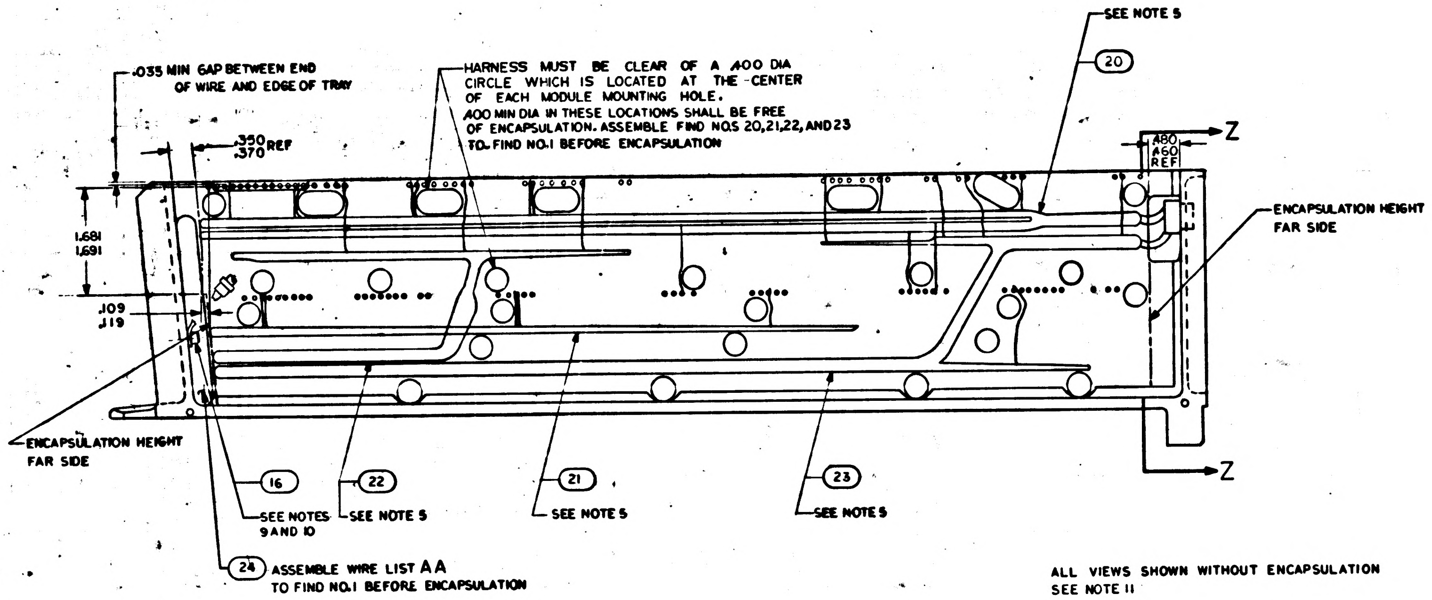
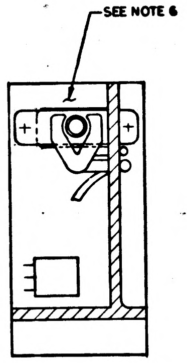
G	REVISED PER TDRR 06473	3/11/64	


SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.350
.370 HEIGHT OF ENCAPSULATION
.320
MAX HARNESS HEIGHT
.360
MAX HARNESS HEIGHT
SEE NOTE 6


.480
.460 HEIGHT OF ENCAPSULATION
.440
MAX HARNESS HEIGHT

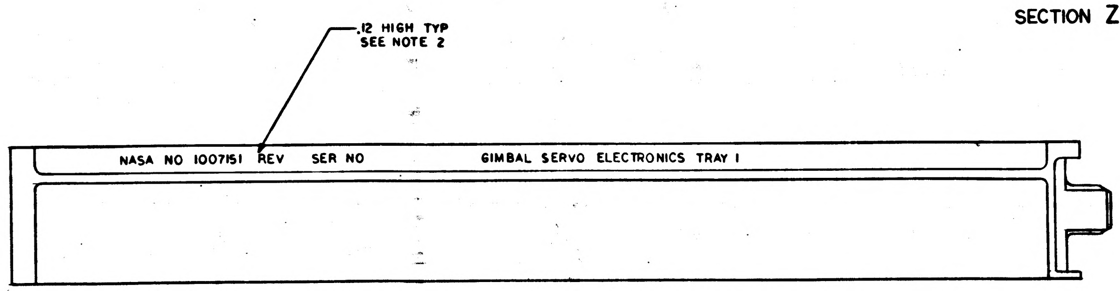

.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE.
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20,21,22, AND 23 TO FIND NO.1 BEFORE ENCAPSULATION
SEE NOTE 5
20
.350
.370 REF
.480
.460
REF
Z
Z
1.681
1.691
.109
.119
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
16
SEE NOTES 9 AND 10
22
SEE NOTE 5
21
SEE NOTE 5
23
SEE NOTE 5
24
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z

REV F THIS SHEET ADDED


.12 HIGH TYP
SEE NOTE 2
NASA NO 1007151 REV SER NO GIMBAL SERVO ELECTRONICS TRAY 1

MARKING VIEW AFTER ENCAPSULATION

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007151	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO.
CONTRACT NAS 9-497
DRAWN A. Dougaki DATE 11-7-63
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL 11/20/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 1

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007141
SCALE 1/1
WT
SHEET 2 OF 2

1007141 G

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

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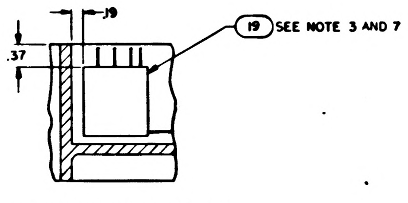
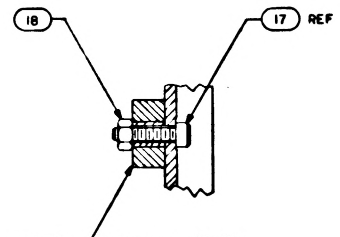
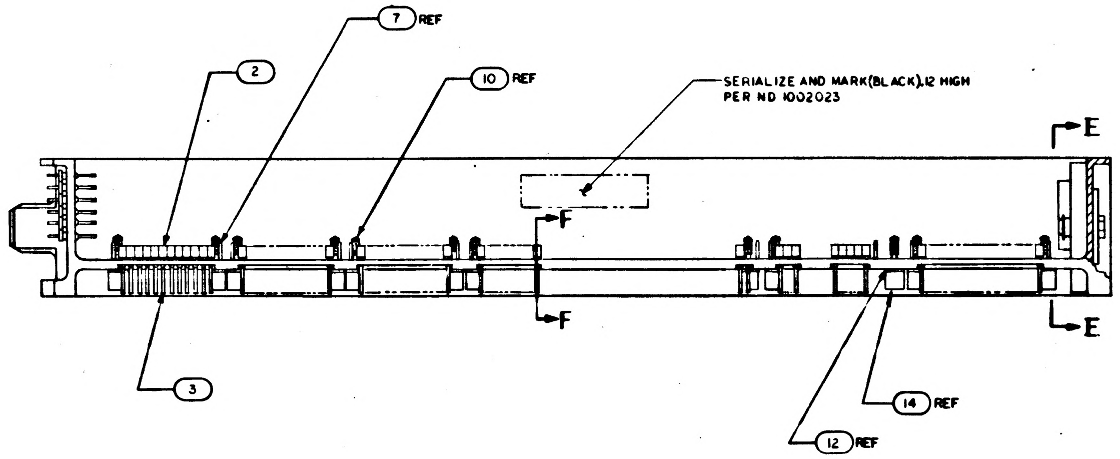
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR [illegible]	[illegible]	[illegible]
F	REVISED PER TDRR 04784	11 20 63	[illegible]
G	REVISED PER TDRR [illegible]	[illegible]	[illegible]
H	REVISED PER TDRR 07138	6 APR 64	RHT

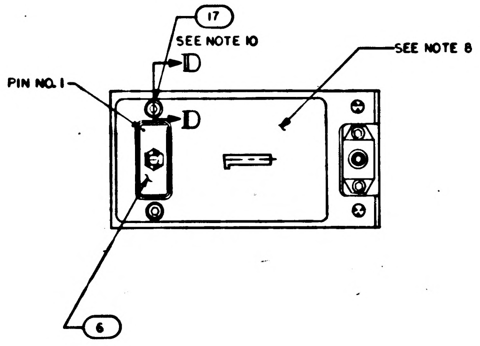


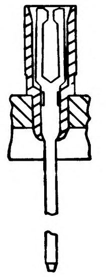
PARTIAL SECTION E-E



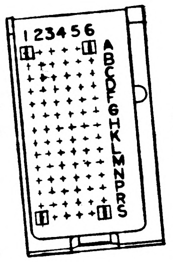
SECTION D-D
SCALE 2/1

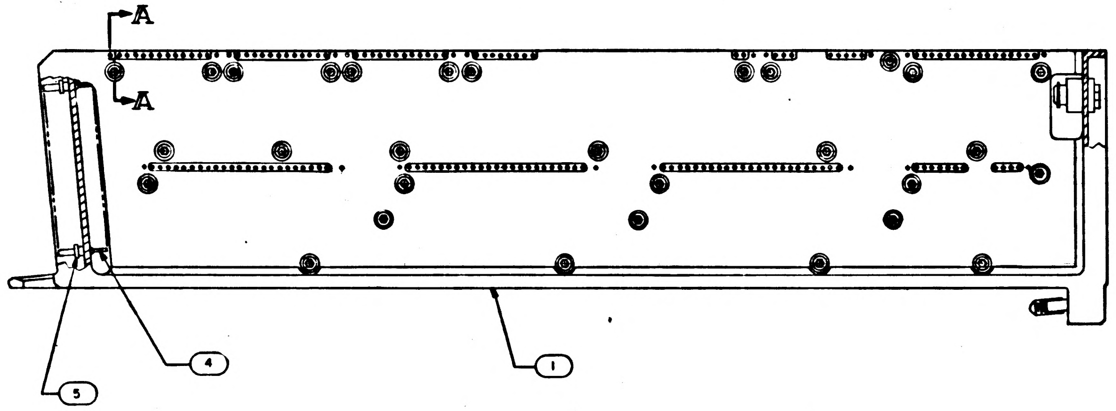


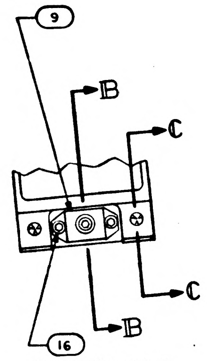




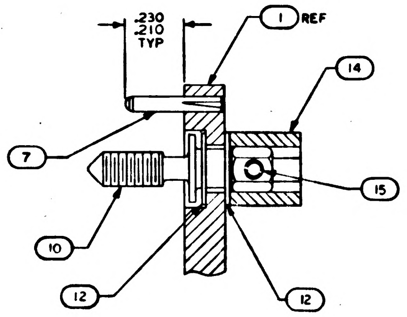
PARTIAL SECTION F-F
149 PLACES



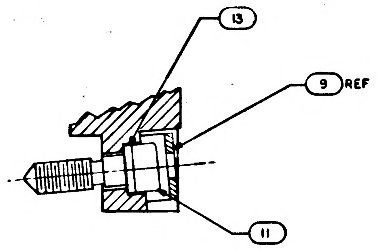




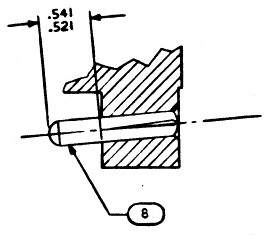
SEE NOTES 9 AND 10



SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK PER ND1002019 WHITE.
3. BOND FIND NO 19 TO FIND NO.1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136
5. BOND FIND NO'S 20,21,22,23 AND 24 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002(BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO.19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NO.S 16 AND 17 TO FIND NO 1 TO BE 5.0/5.5 IN.LB
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005 ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60 ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

TERMINATION CHART	
FROM	TO
45A1E7	45A1J1- 12
E8	- 3
E9	- 33
E10	- 17
45A1E11	45A1J1- 18

REV E REPLACES REV D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010091	WIRING DIAGRAM	REF
1	1015741	WIRE LIST A A	24
1	1015740	WIRING HARNESS D	23
1	1015739	WIRING HARNESS C	22
1	1015738	WIRING HARNESS B	21
1	1015737	WIRING HARNESS A	20
1	1007088	BUFFER RESISTOR ASSY	19
2	MA21045 C 04	NUT SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET, HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET, HEAD	16
30	MS171433	PIN, SPRING	15
30	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
60	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
30	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
20	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT BLADE EDGE CONNECTOR	4
149	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
149	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008101	FRAME	1

LIST OF MATERIALS

H	G
SHEET 1	SHEET 2

REVISION STATUS OF SHEETS

NEXT ASSY	USED ON
1007151	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS9-497
DRAWN W. Horgan DATE 8-19-63
CHECKED [illegible] 4 Oct 63
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible] 10-9-63
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

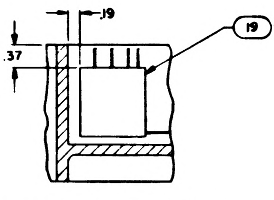
FRAME ASSEMBLY
TRAY 1

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007141
SCALE 1/1
WT
SHEET 1 OF 2

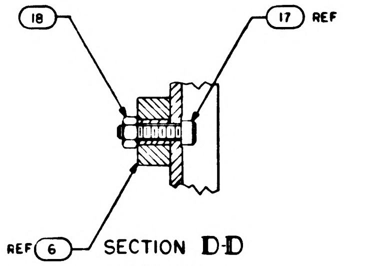
MASTER

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

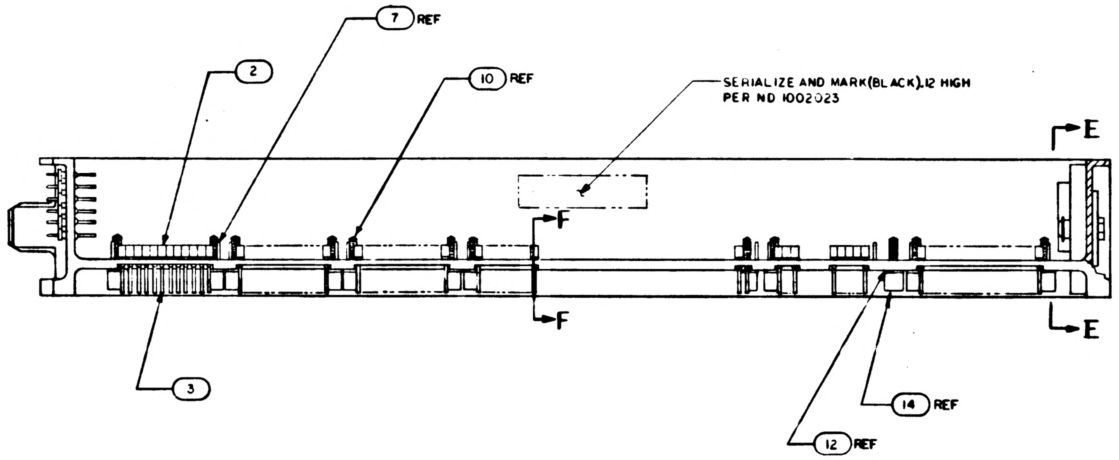
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR [illegible]	[illegible]	[illegible]
F	REVISED PER TDRR 04784	11-20-63	[illegible]
G	REVISED PER TDRR [illegible]	[illegible]	[illegible]
H	REVISED PER TDRR 07138	6 APR 64	RFT
J	REVISED PER TDRR 08145	13 MAY 64	J

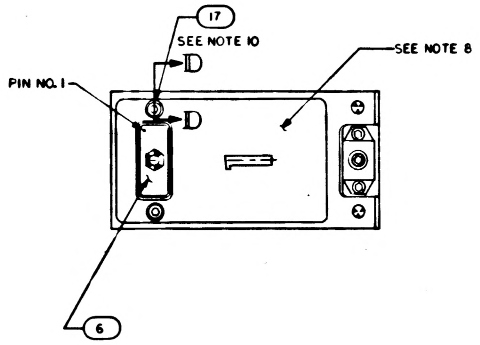


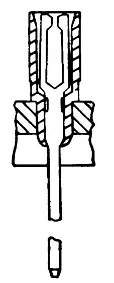
PARTIAL SECTION E-E



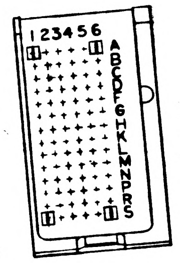
SECTION D-D
SCALE 2/1

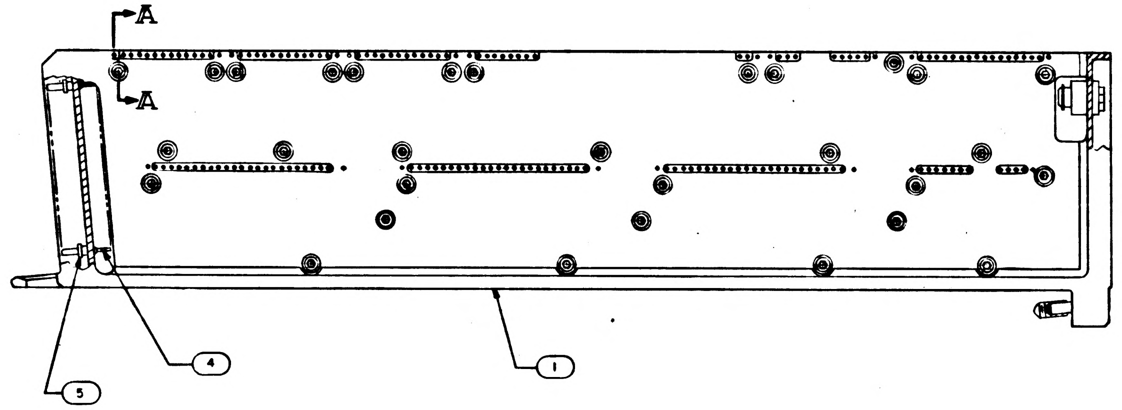


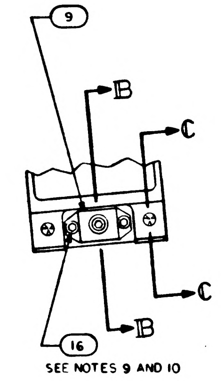




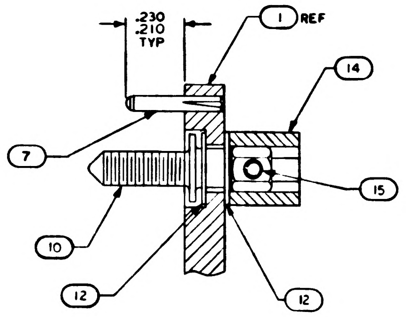
PARTIAL SECTION F-F
149 PLACES



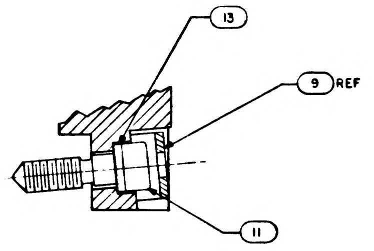




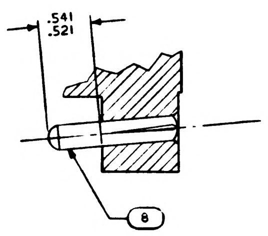
SEE NOTES 9 AND 10



SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A1E7	45A1J1- 12
E8	- 3
E9	- 33
E10	- 17
45A1E11	45A1J1- 18

REV E REPLACES REV D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010091	WIRING DIAGRAM	REF
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1	1015740	WIRING HARNESS D	23
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1	1007088	BUFFER RESISTOR ASSY	19
2	MA21045 C 04	NUT SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET, HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET, HEAD	16
30	MS171433	PIN, SPRING	15
30	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
60	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
30	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
20	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT BLADE EDGE CONNECTOR	4
149	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
149	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008101	FRAME	1

LIST OF MATERIALS

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK PER ND1002019 WHITE.
3. BOND FIND NO 19 TO FIND NO.1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136
5. BOND FIND NO'S 20,21,22,23 AND 24 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NO.S 16 AND 17 TO FIND NO 1 TO BE 5.0/5.5 IN.LB
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005 ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60 ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007141.

1007151	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT NAS 9-4??
DRAWN W. Horgan DATE 8-1963
CHECKED [illegible] Aug 4 00 63
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible] 10-9-63
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

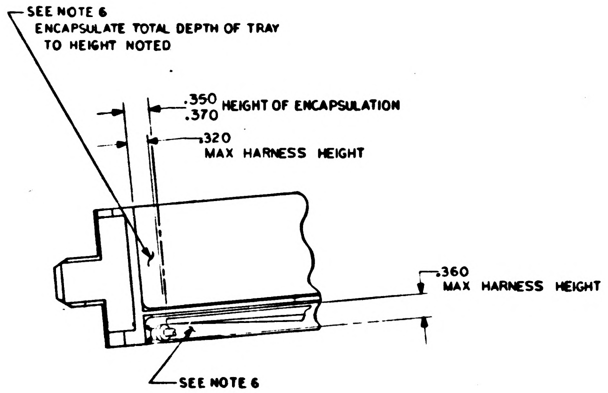
FRAME ASSEMBLY
TRAY 1

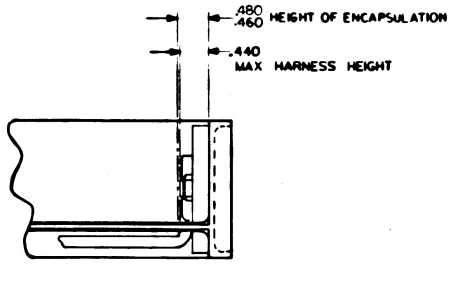
CODE IDENT NO
SIZE E
NASA DRAWING NO 1007141
SCALE 1/1
WT
SHEET 1 OF 2

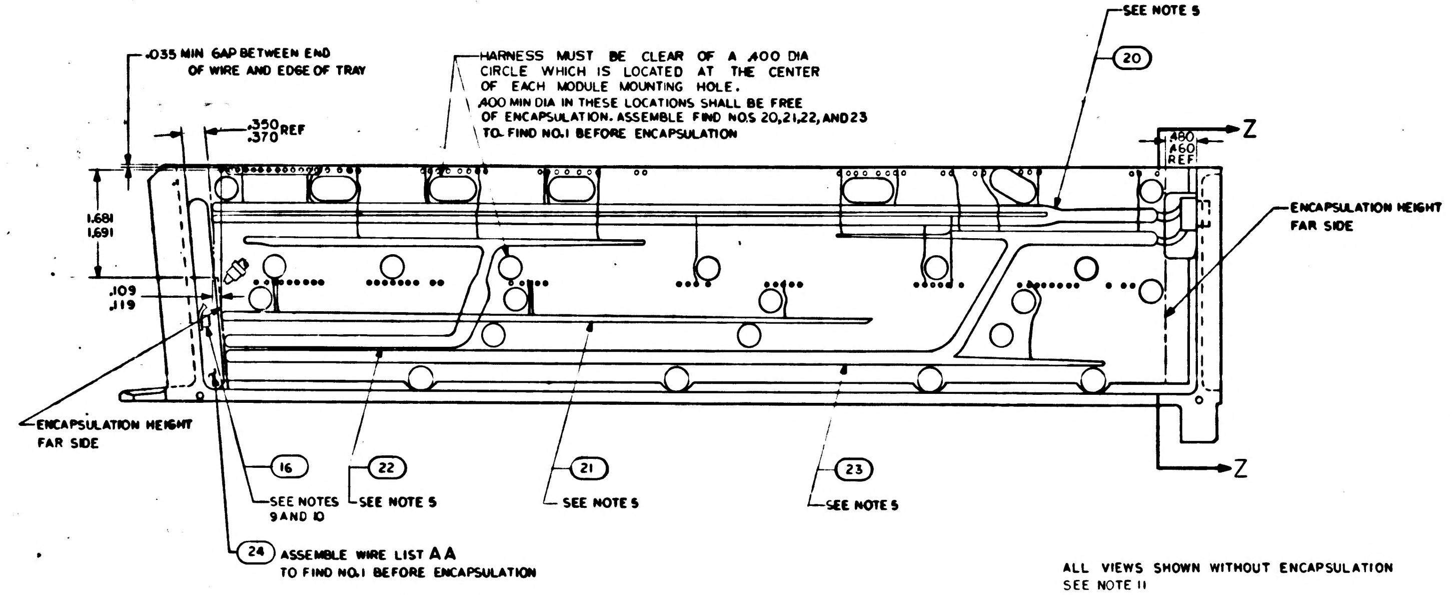
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

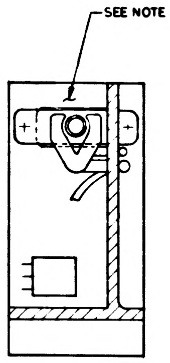
	SYM	DESCRIPTION	DATE	APPROVAL
M	F	THIS SHEET ADDED PER TDRR 04784	11 20 63	
N	G	REVISED PER TDRR 06473	2/14	
	J	REVISED PER TDRR 08145	15 MAY 64	


SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.350 .370 HEIGHT OF ENCAPSULATION
.320 MAX HARNESS HEIGHT
.360 MAX HARNESS HEIGHT
SEE NOTE 6


.480 .460 HEIGHT OF ENCAPSULATION
.440 MAX HARNESS HEIGHT

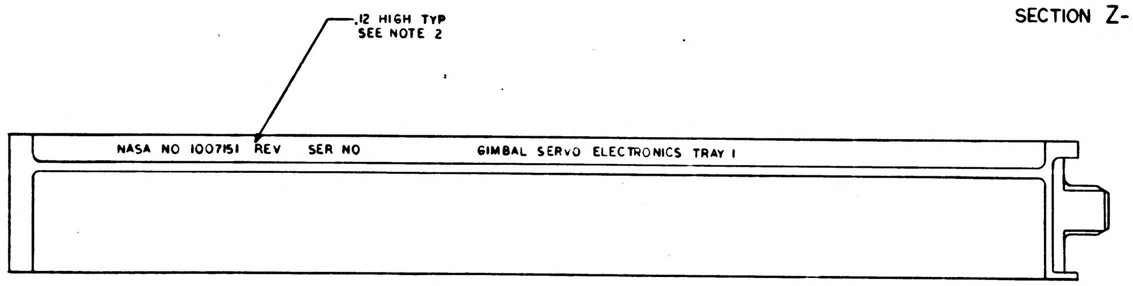

.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE.
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO.S 20,21,22, AND 23 TO FIND NO.1 BEFORE ENCAPSULATION
SEE NOTE 5
20
.350 .370 REF
.480 .460 REF
Z
Z
1.681 1.691
.109 .119
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
16
SEE NOTES 9 AND 10
22
SEE NOTE 5
21
SEE NOTE 5
23
SEE NOTE 5
24
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z

REV F THIS SHEET ADDED


.12 HIGH TYP
SEE NOTE 2
NASA NO 1007151 REV SER NO
GIMBAL SERVO ELECTRONICS TRAY 1

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007151	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

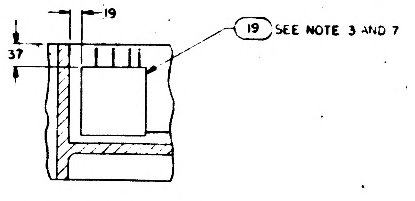
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT NAS 9-497
DRAWN DATE 11-7-63
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL 11/20/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

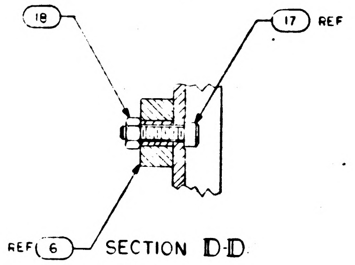
FRAME ASSEMBLY
TRAY 1

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007141
SCALE 1/1
WT
SHEET 2 OF 2

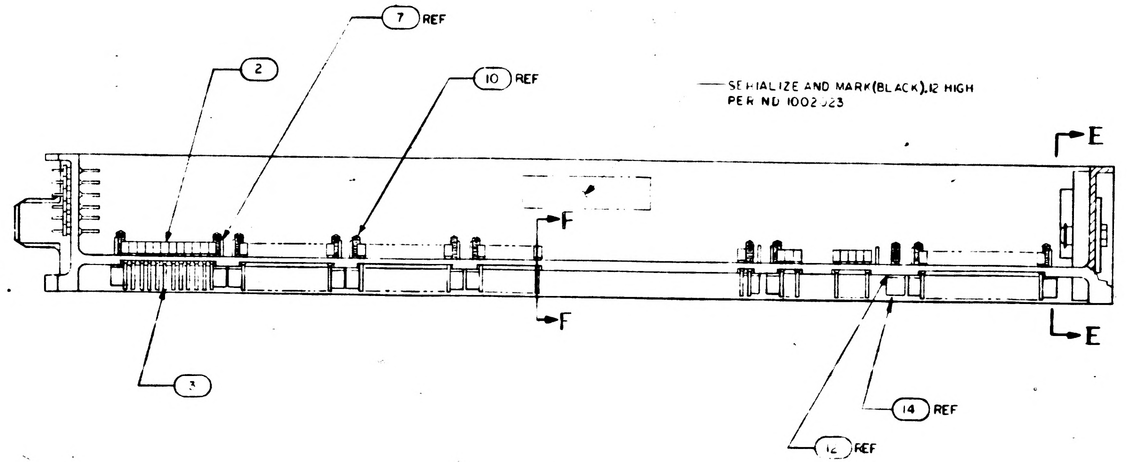
[illegible]

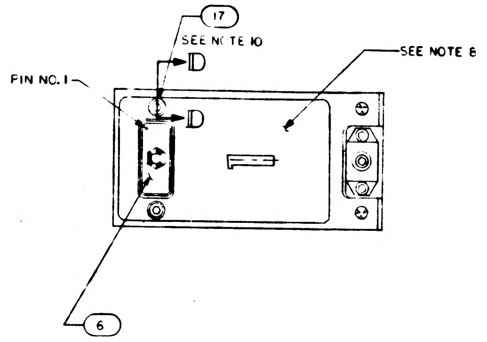


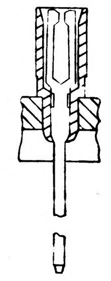
PARTIAL SECTION E-E



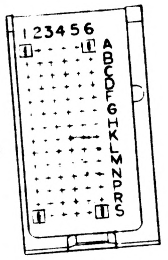
SECTION D-D
SCALE 2/1

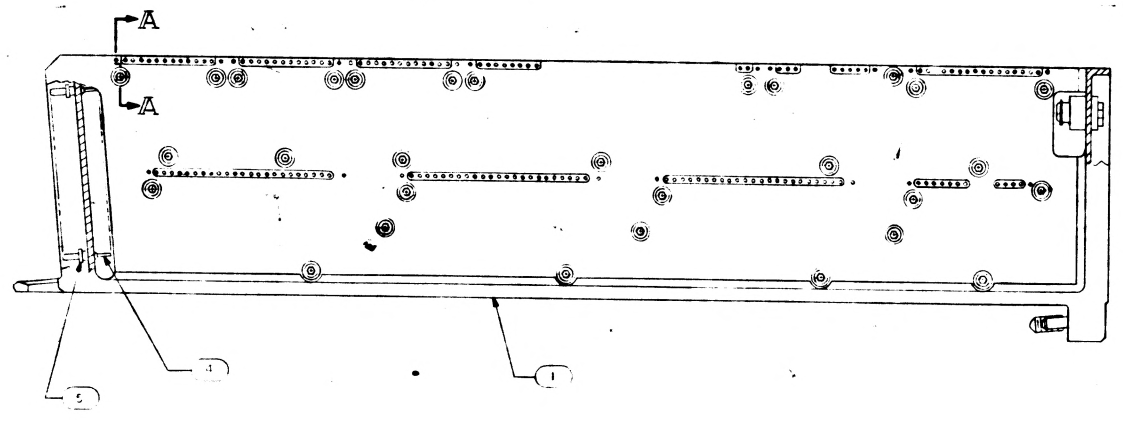


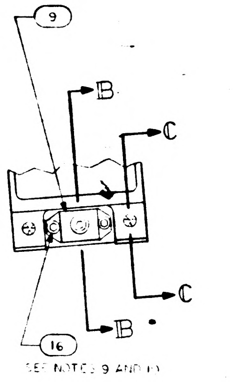


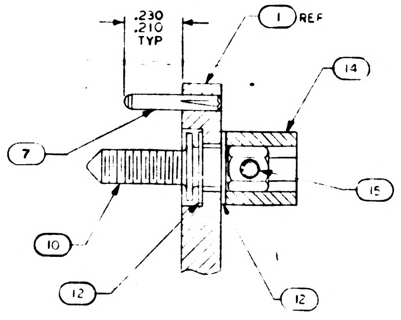


PARTIAL SECTION F-F
149 PLACES









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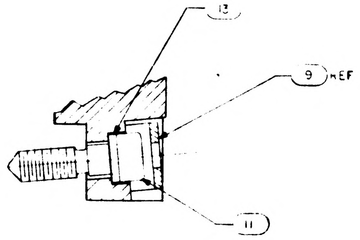
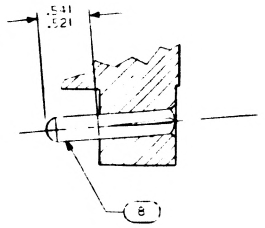
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK PER ND 1002019 WHITE.
3. BOND FIND NO 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND 1002136
5. BOND FIND NO.S 20, 21, 22, 23 AND 24 TO FIND NO. 1 PER ND [illegible] AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO 16 DURING ASSEMBLY TO FIND NO 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NOS 16 AND 17 TO FIND NO 1 TO BE 5.0/5.5 IN LB
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002015 ALL TINNED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN63. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS
12. PROCURE PER PS 1007141.

TERMINATION CHART	
FROM	TO
[illegible] 7	4[illegible] 12
[illegible]	- 3
E 9	- 33
E 10	- 17
[illegible] 11	4[illegible] 18

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR [illegible]		
F	REVISED PER TDRR [illegible]		
G	REVISED PER TDRR [illegible]		
H	REVISED PER TDRR 07138	6 APR 64	
J	REVISED PER TDRR 08145	13 MAY 64	
K	REVISED PER TDRR 14323	23-NOV-64	

REV E REPLACES REV D

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1	1015738	WIRING HARNESS B	21
1	1015737	WIRING HARNESS A	20
1	1007086	BUFFER RESISTOR ASSY	19
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2	MS16995-11	SCREW, CAP, SOCKET, HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET, HEAD	16
30	MS171433	PIN, SPRING	15
30	1004207	DRIVE CYLINDER	14
1	1006049-2	WASHER	13
60	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
30	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
20	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT BLADE EDGE CONNECTOR	4
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149	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008101	FRAME	1

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FRACTIONS DECIMAL ANGLES
XX ±.02 ±1°
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MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT NAS9-497
DRAWN W. Horgan DATE 8-19-63
CHECKED [illegible] 4 Oct 63
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

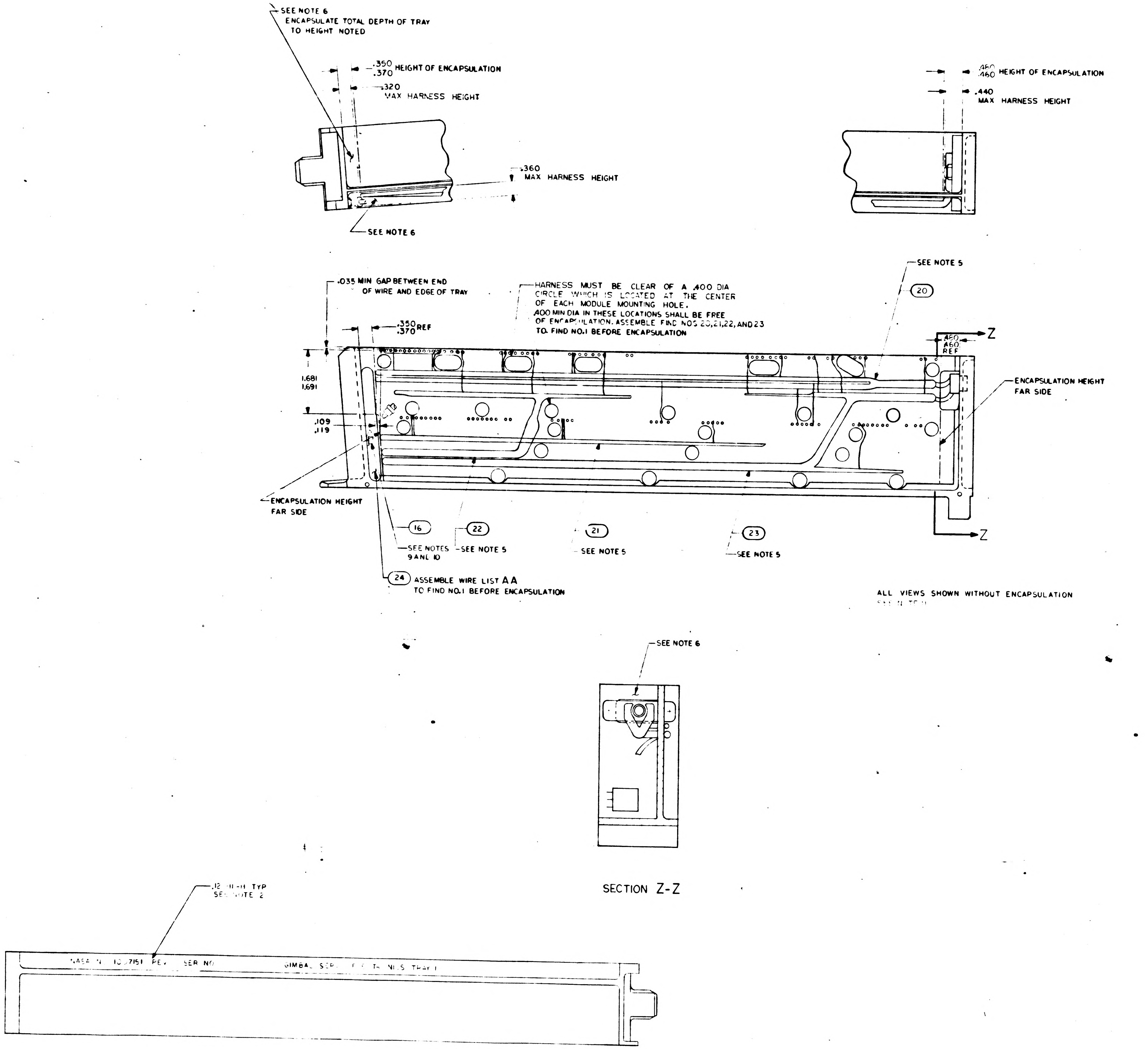
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 1

CODE IDENT NO
SIZE E
NASA DRAWING NO. 1007141
SCALE 1/1
WT
SHEET 1 OF 2

1007141 K

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
F	THIS SHEET ADDED PER TDRR 04784	11 20 63	
G	REVISED PER TDRR 06073		
J	REVISED PER TDRR 08145	15 MAY 64	
K	REVISED PER TDRR 14323	23-NOV -64	



SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.350 .370 HEIGHT OF ENCAPSULATION
.320 MAX HARNESS HEIGHT
.360 MAX HARNESS HEIGHT
SEE NOTE 6
.480 .460 HEIGHT OF ENCAPSULATION
.440 MAX HARNESS HEIGHT
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE.
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20,21,22, AND 23 TO FIND NO.1 BEFORE ENCAPSULATION
.350 .370 REF
SEE NOTE 5
20
.480 .460 REF
Z
1.681 1.691
.109 .119
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
Z
16
SEE NOTES 9 AND 10
22
SEE NOTE 5
21
SEE NOTE 5
23
SEE NOTE 5
24
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
SEE NOTE 6
.12 HIGH TYP SEE NOTE 2
NASA NO 1007151 REV SER NO
GIMBAL SERVO ELECTRONICS TRAY I

ALL VIEWS SHOWN WITHOUT ENCAPSULATION

SECTION Z-Z

MARKING VIEW AFTER ENCAPSULATION

REV F THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007151	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS 9-497
DRAWN J. Dwyerko DATE 11-7-63
CHECKED
APPROVAL C. H. Test 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

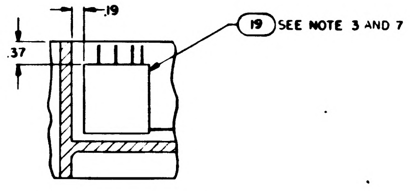
FRAME ASSEMBLY-
TRAY I

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007141
SCALE 1/1
WT
SHEET 2 OF 2

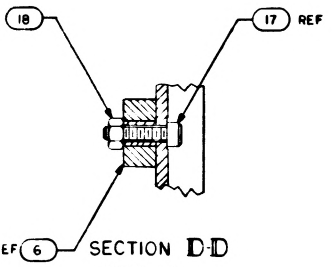
1007141 K

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

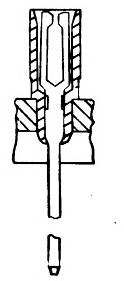
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR		
F	REVISED PER TDRR 04784	11-20-63	
G	REVISED PER TDRR		
H	REVISED PER TDRR 07138	6 APR 64	RWT
J	REVISED PER TDRR 08145	13 MAY 64	
K	REVISED PER TDRR 14323	23-NOV-64	
L	REVISED PER TDRR 14324	24 Nov 64	RJ



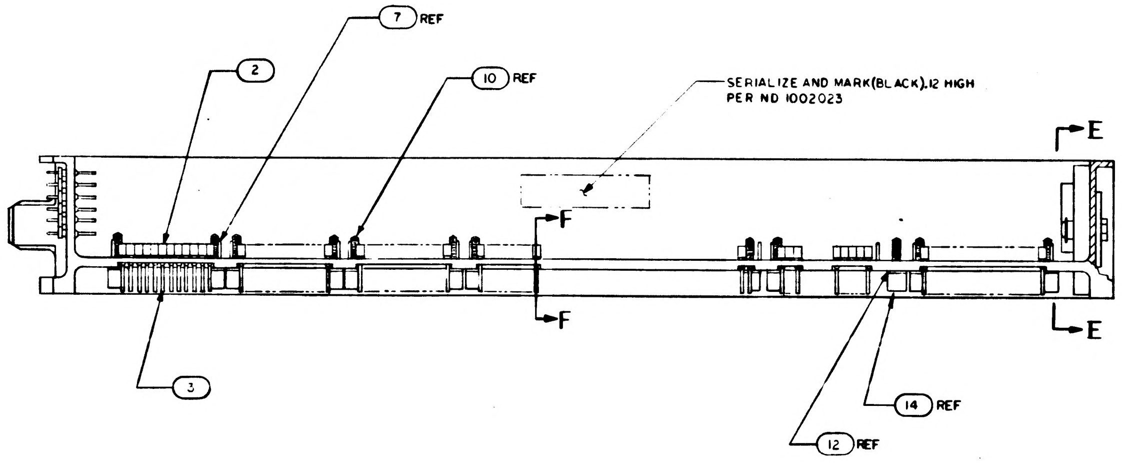
PARTIAL SECTION E-E

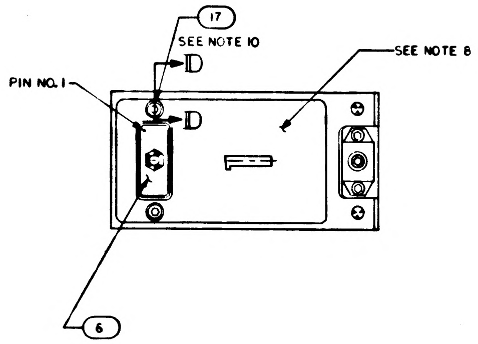


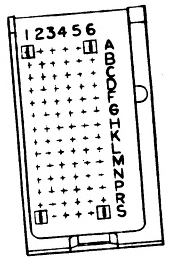
SECTION D-D
SCALE 2/1

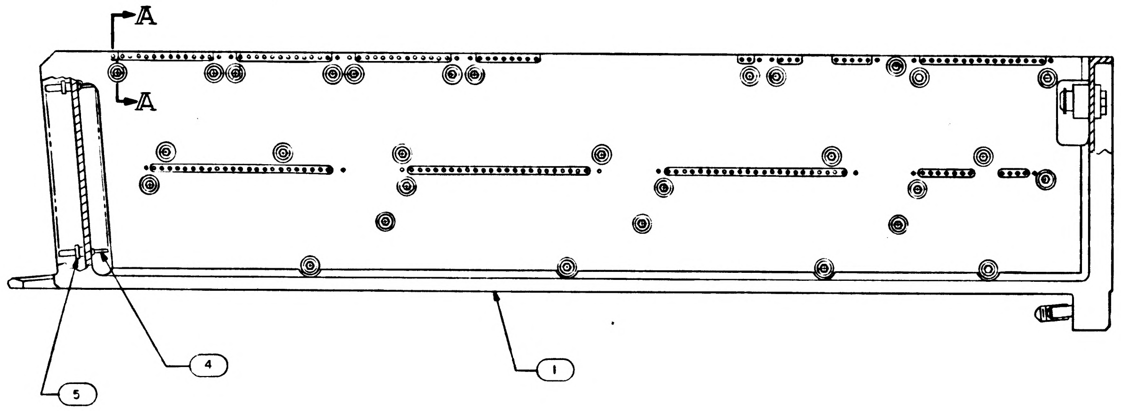


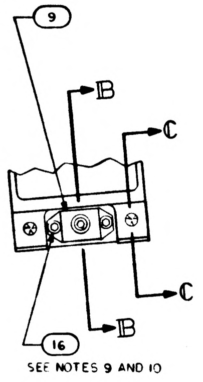
PARTIAL SECTION F-F
149 PLACES

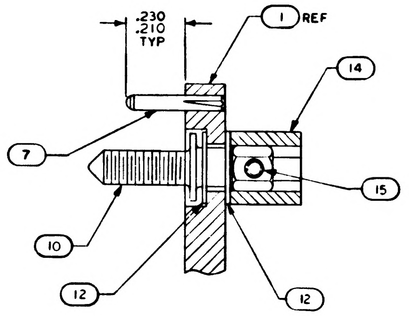




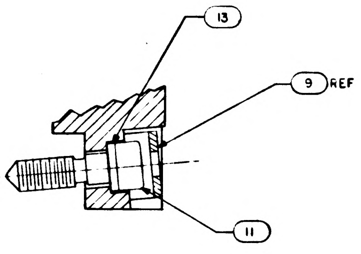




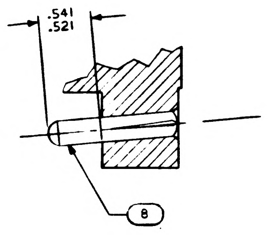




SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK PER ND1002019 WHITE.
3. BOND FIND NO 19 TO FIND NO.1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136
5. BOND FIND NO'S 20,21,22,23 AND 24 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002(BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO.19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NO.S 16 AND 17 TO FIND NO.1 TO BE 5.0/5.5 IN.LB
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005 ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007141.

TERMINATION CHART	
FROM	TO
45A1E7	45A1J1- 12
E8	- 3
E9	- 33
E10	- 17
45A1E11	45A1J1- 18

REV E REPLACES REV D

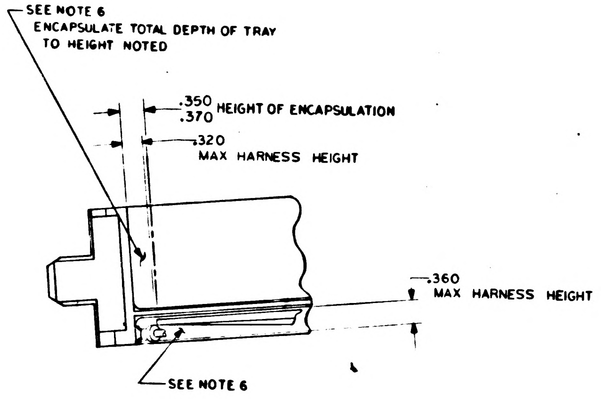
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
	1008450	WIRING DIAGRAM	REF
1	1015741	WIRE LIST AA	24
1	1015740	WIRING HARNESS D	23
1	1015739	WIRING HARNESS C	22
1	1015738	WIRING HARNESS B	21
1	1015737	WIRING HARNESS A	20
1	1007088	BUFFER RESISTOR ASSY	19
2	MA21045 C 04	NUT SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET, HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET, HEAD	16
30	MS171433	PIN, SPRING	15
30	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
60	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
30	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
20	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT BLADE EDGE CONNECTOR	4
149	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
149	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008101	FRAME	1

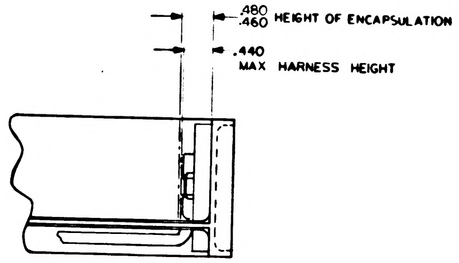
LIST OF MATERIALS

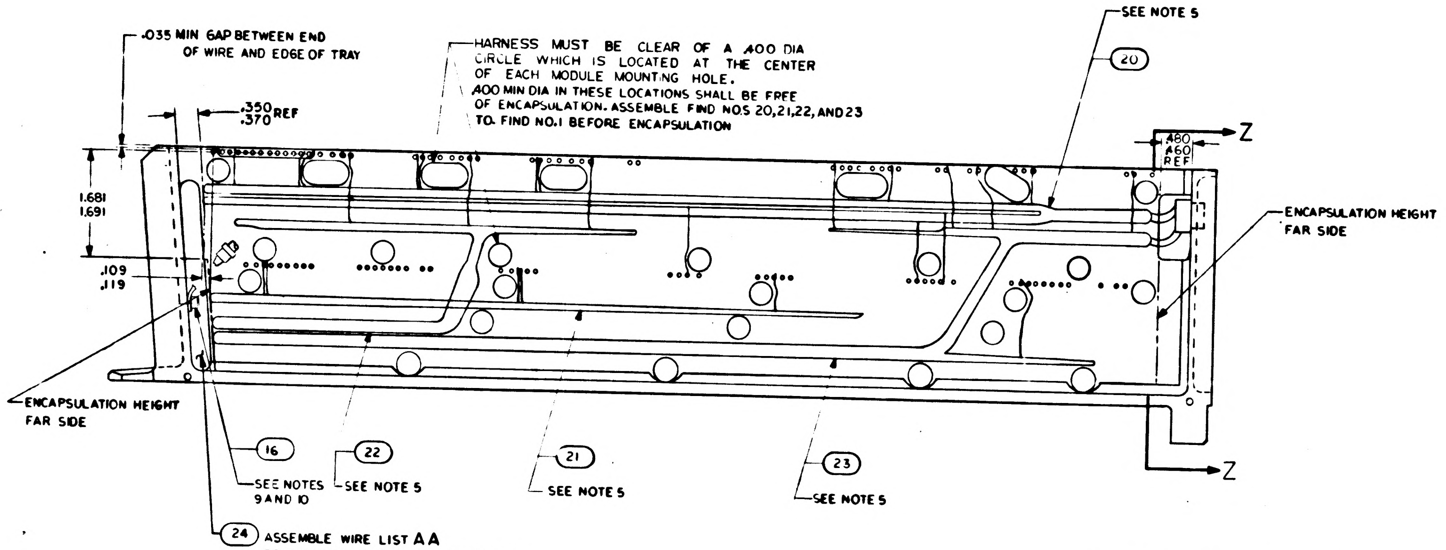
1007151		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS XX ±.02 ANGLES ±1° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS CONTRACT NAS9-4??	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN W. Horgan DATE 8-19-63 CHECKED 4 Oct 63 APPROVAL 10-8-63 APPROVAL	FRAME ASSEMBLY TRAY 1
APPLICATION		HEAT TREATMENT	NASA APPROVAL	CODE IDENT NO / SIZE E / NASA DRAWING NO 1007141
		FINAL FINISH	MIT APPROVAL	SCALE 1/1 / WT / SHEET 1 OF 2

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

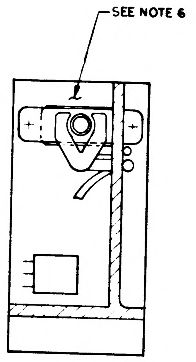
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
Ⓜ F	THIS SHEET ADDED PER TDRR 04144	11 20 63	[illegible]
G	REVISED PER TDRR 06073	[illegible]	[illegible]
Ⓜ J	REVISED PER TDRR 08145	15 MAY 64	[illegible]
K	REVISED PER TDRR 14323	23 NOV 64	[illegible]
L	REVISED PER TDRR 14324	26 NOV 64	RJJ


SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.350
.370 HEIGHT OF ENCAPSULATION
.320
MAX HARNESS HEIGHT
.360
MAX HARNESS HEIGHT
SEE NOTE 6


.480
.460 HEIGHT OF ENCAPSULATION
.440
MAX HARNESS HEIGHT

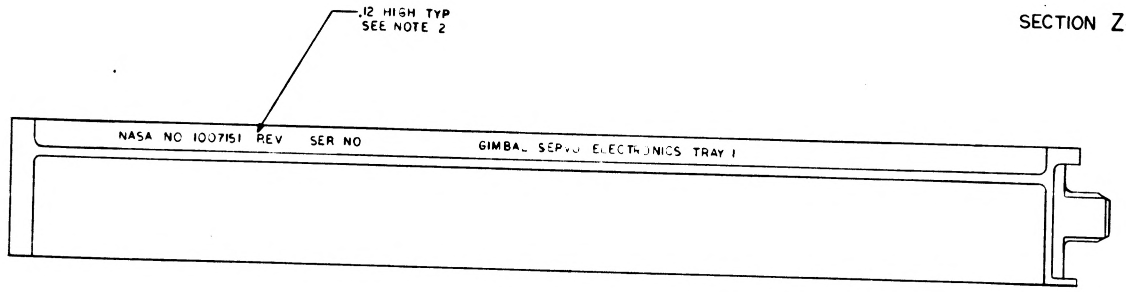

.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE.
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20,21,22, AND 23 TO FIND NO.1 BEFORE ENCAPSULATION
SEE NOTE 5
20
.350
.370 REF
.480
.460
REF
Z
Z
1.681
1.691
.109
.119
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
16
SEE NOTES 9 AND 10
22
SEE NOTE 5
21
SEE NOTE 5
23
SEE NOTE 5
24
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z

REV F THIS SHEET ADDED


.12 HIGH TYP
SEE NOTE 2
NASA NO 1007151 REV SER NO
GIMBAL SERVO ELECTRONICS TRAY 1

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007151	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS 9-497
DRAWN J. Dugaskis DATE 11-7-63
CHECKED [illegible] 11-20-63
APPROVAL [illegible] 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL [illegible] 11/20/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

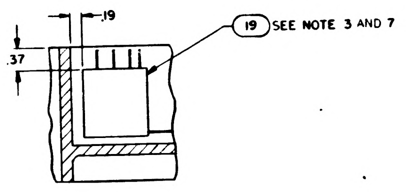
FRAME ASSEMBLY
TRAY 1

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007141
SCALE 1/1
WT
SHEET 2 OF 2

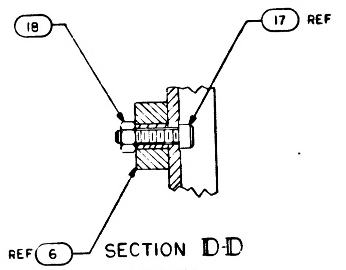
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

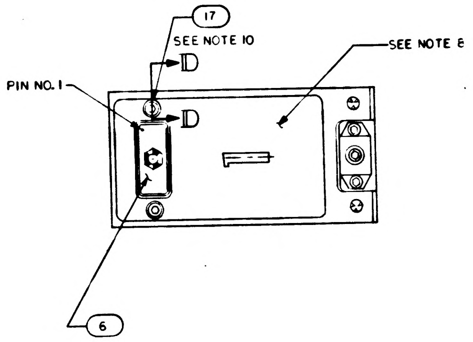
SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR [illegible]		[illegible]
F	REVISED PER TDRR 04784	[illegible]	[illegible]
G	REVISED PER TDRR [illegible]	[illegible]	[illegible]
H	REVISED PER TDRR 07138	[illegible] APR 64	[illegible]
J	REVISED PER TDRR 08145	13 MAY 64	[illegible]
K	REVISED PER TDRR 14323	[illegible] 64	[illegible]
L	REVISED PER TDRR 14324	24 NOV	[illegible]
M	REVISED PER TDRR 14582	DEC 64	[illegible]

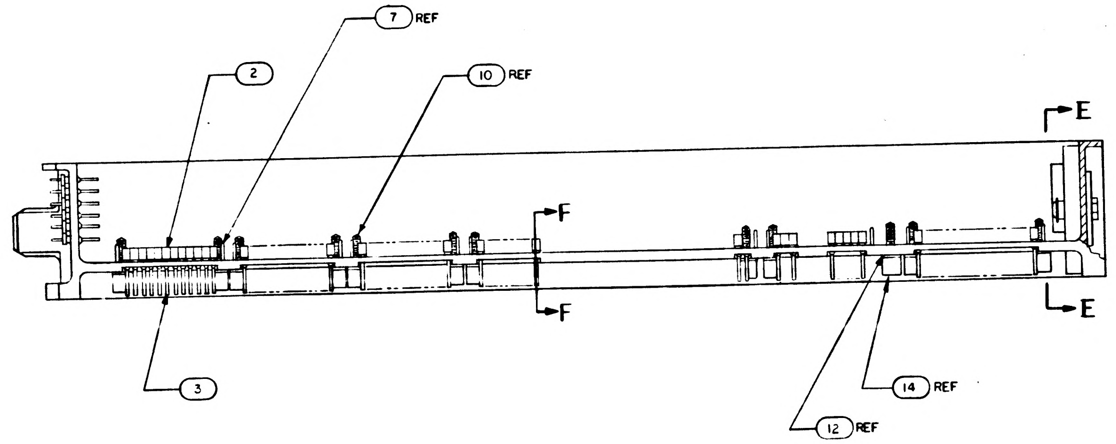


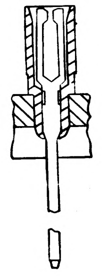
PARTIAL SECTION E-E



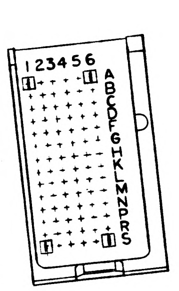
SECTION D-D
SCALE 2/1

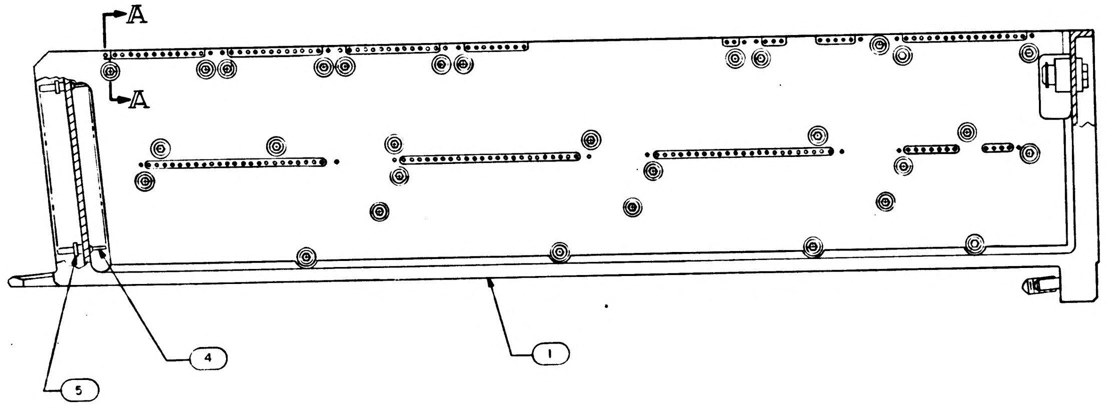


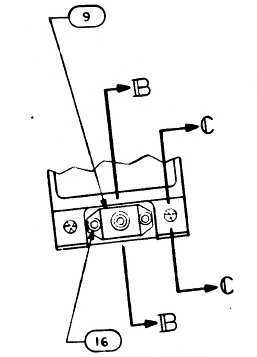




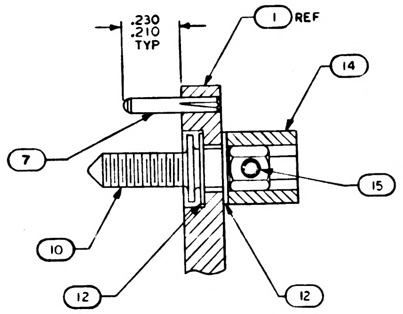
PARTIAL SECTION F-F
149 PLACES



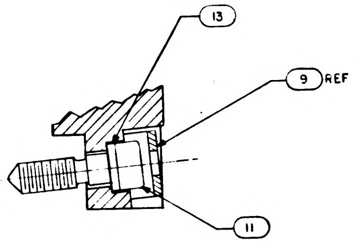




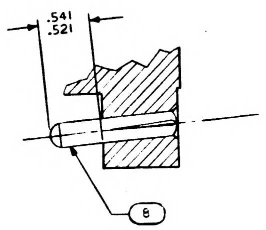
SEE NOTES 9 AND 10



SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK .140/.100 HIGH BLACK CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
3. BOND FIND NO 19 TO FIND NO.1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136
5. BOND FIND NO'S 20,21,22,23 AND 24 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002(BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO.19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NO.S 16 AND 17 TO FIND NO 1 TO BE 5.0/5.5 IN.LB
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005 ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60 ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007141.

TERMINATION CHART

FROM	TO
45A1E7	45A1J1- 12
E8	- 3
E9	- 33
E10	- 17
45A1E11	45A1J1- 18

REV E REPLACES REV D

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
	1008450	WIRING DIAGRAM	REF
1	1015741	WIRE LIST AA	24
1	1015740	WIRING HARNESS D	23
1	1015739	WIRING HARNESS C	22
1	1015738	WIRING HARNESS B	21
1	1015737	WIRING HARNESS A	20
1	1007088	BUFFER RESISTOR ASSY	19
2	MA21045 C 04	NUT SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET, HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET, HEAD	16
30	MS171433	PIN, SPRING	15
30	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
60	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
30	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
20	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT BLADE EDGE CONNECTOR	4
149	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
149	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008101	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007151	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS9-497
DRAWN W. Horgan DATE 8-19-63
CHECKED [illegible] 4 63
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

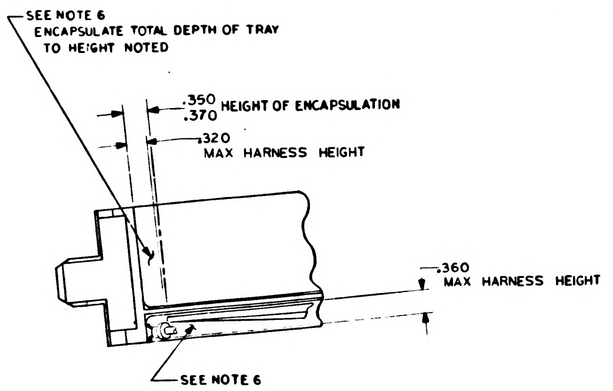
FRAME ASSEMBLY
TRAY 1

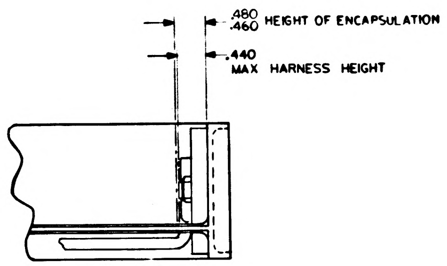
CODE IDENT NO
SIZE E
NASA DRAWING NO 1007141
SCALE 1/1
WT
SHEET 1 OF 2

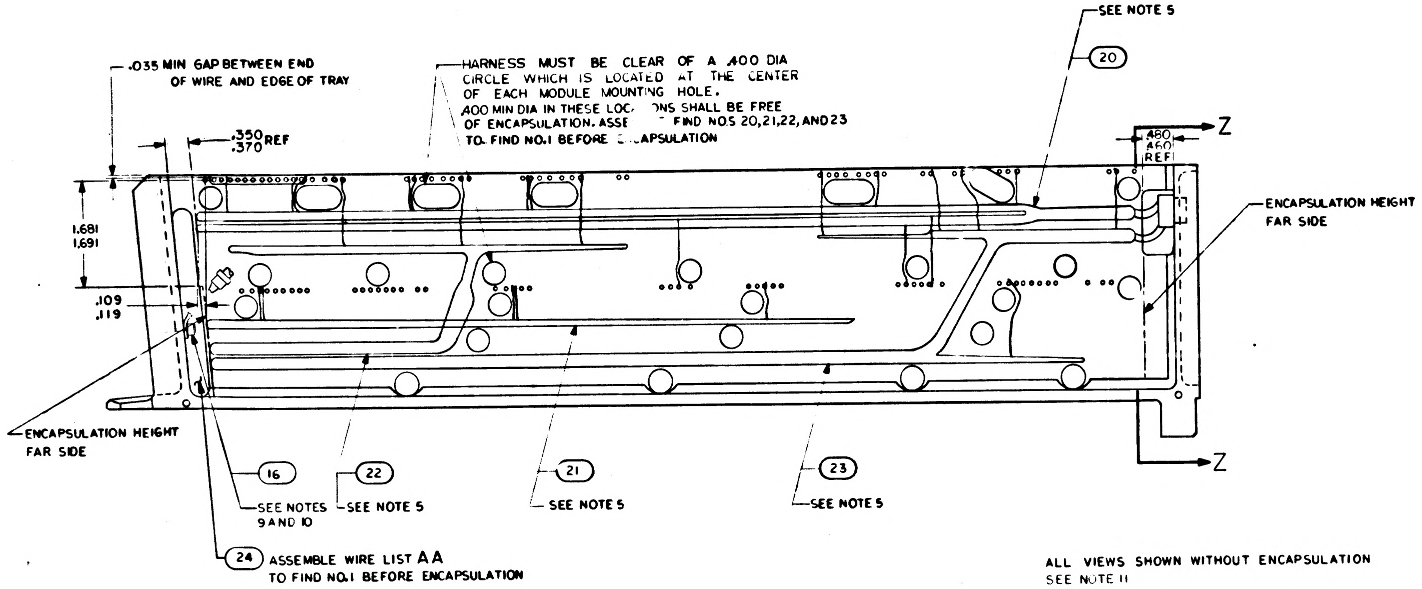
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

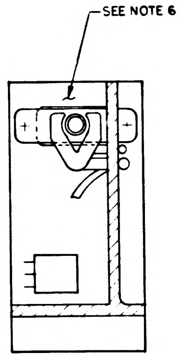
SYM	DESCRIPTION	DATE	APPROVAL
(M) F	THIS SHEET ADDED PER TDRR 04744	11-20-63	
(M) G	REVISED PER TDRR 06473	3/10	
(M) J	REVISED PER TDRR 08145	15 MAY 64	
K	REVISED PER TDRR 14323	23-Nov-64	
(M) L	REVISED PER TDRR 14324	24 Nov 64	RJJ
M	REVISED PER TDRR 14582	8 DEC 64	J J


SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.350 .370 HEIGHT OF ENCAPSULATION
.320 MAX HARNESS HEIGHT
.360 MAX HARNESS HEIGHT
SEE NOTE 6


.480 .460 HEIGHT OF ENCAPSULATION
.440 MAX HARNESS HEIGHT

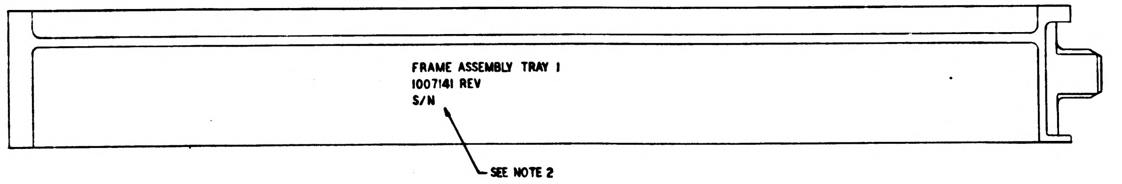

SEE NOTE 5
20
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE.
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20,21,22, AND 23 TO FIND NO.1 BEFORE ENCAPSULATION
.350 .370 REF
.480 .460 REF
Z
1.681 1.691
.109 .119
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
Z
16
22
21
23
SEE NOTES 9 AND 10
SEE NOTE 5
SEE NOTE 5
SEE NOTE 5
24 ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z

REV F THIS SHEET ADDED


FRAME ASSEMBLY TRAY I
1007141 REV
S/N
SEE NOTE 2

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007151	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS 9-497
DRAWN J. Dupekis DATE 11-7-63
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

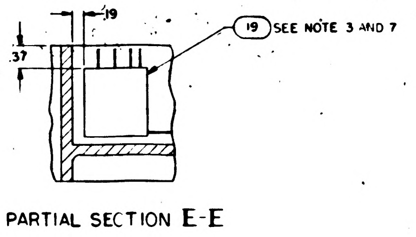
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY I

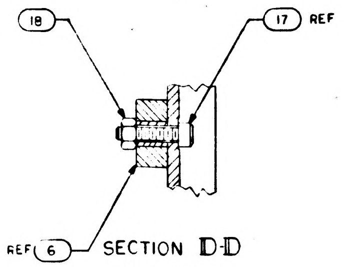
CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007141
SCALE 1/1
WT
SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR		
F	REVISED PER TDRR 06784		
G	REVISED PER TDRR 173		
H	REVISED PER TDRR 07138	6 APR 64	
J	REVISED PER TDRR 08145	13 MAY 64	
K	REVISED PER TDRR 14323	23-NOV-64	
L	REVISED PER TDRR 14324	24 Nov 64	RJJ
M	REVISED PER TDRR 14582	8 DEC 64	J J J
N	REVISED PER TDRR 20118	21-JUN-65	

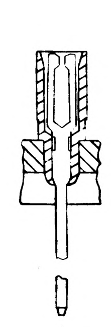


PARTIAL SECTION E-E

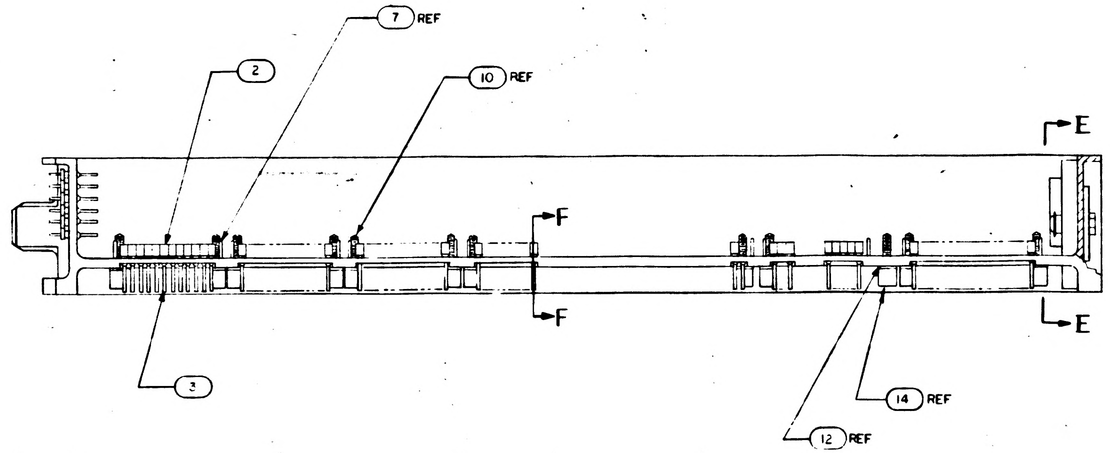


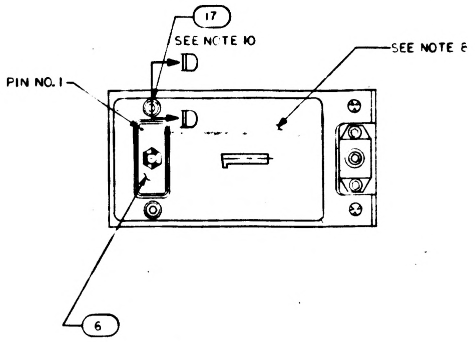
SECTION D-D

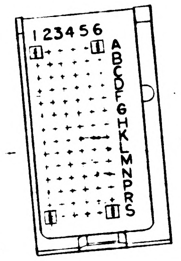
SCALE 2/1

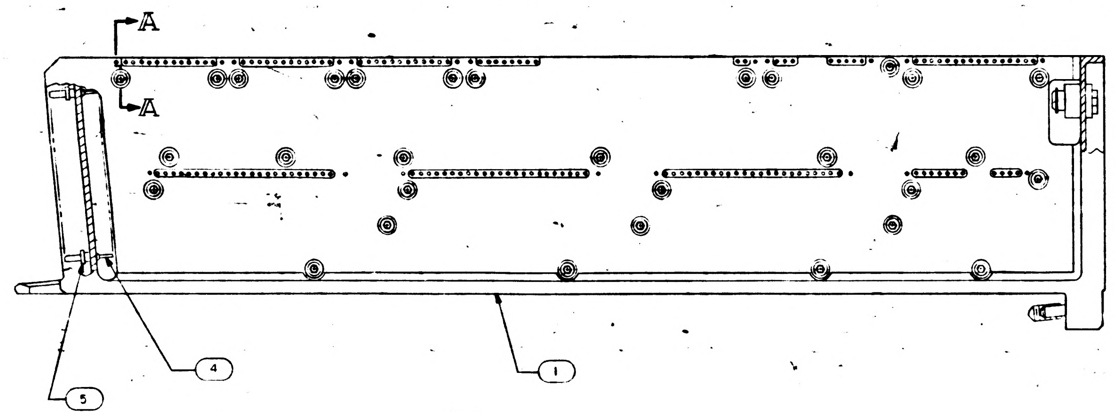


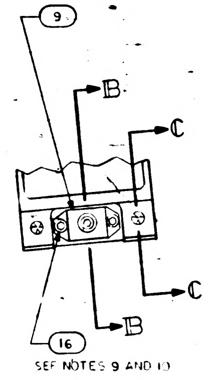
PARTIAL SECTION F-F
149 PLACES

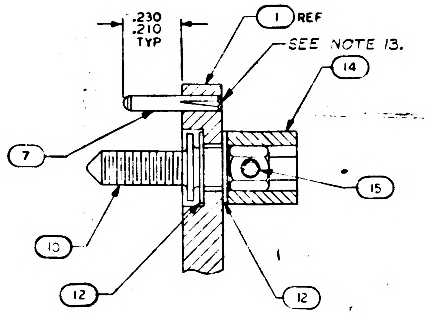






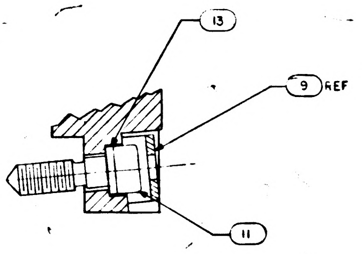






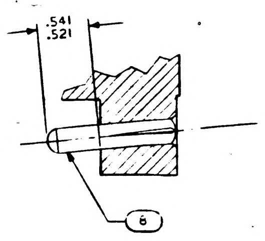
SECTION A-A

SCALE 4/1



SECTION B-B

SCALE 2/1



SECTION C-C

SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK .140/.100 HIGH BLACK CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023.
3. BOND FIND NO.19 TO FIND NO.1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010687 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002156.
5. BOND FIND NO.S 20,21,22,23 AND 24 TO FIND NO. 1 PER ND 1002004 AS NECESSARY.
6. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO.19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NOS 16 AND 17 TO FIND NO 1 TO BE 5.0/5.5 IN.LB
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005 ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007141.
13. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER, GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
14. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004 TYPE I.

TERMINATION CHART	
FROM	TO
45A1E7	45A1J1-12
E8	-3
E9	-33
E10	-17
45A1E11	45A1J1-18

REV E REPLACES REV D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
	1008450	WIRING DIAGRAM	REF
1	1015741	WIRE LIST A	24
1	1015740	WIRING HARNESS D	23
1	1015739	WIRING HARNESS C	22
1	1015738	WIRING HARNESS B	21
1	1015737	WIRING HARNESS A	20
1	1007088	BUFFER RESISTOR ASSY	19
2	MA21045 C 04	NUT SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET, HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET, HEAD	16
30	MS171433	PIN, SPRING	15
30	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
60	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
30	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
20	MS16556-604	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT BLADE EDGE CONNECTOR	4
149	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
149	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008101	FRAME	1

LIST OF MATERIALS

1007151	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT NAS9-4??
DRAWN W. Hazan DATE 8-1963
CHECKED 4 OCT 63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY, TRAY 1

CODE IDENT NO
SIZE E
NASA DRAWING NO. 1007141
SCALE 1/1
WT
SHEET 1

1007141 N

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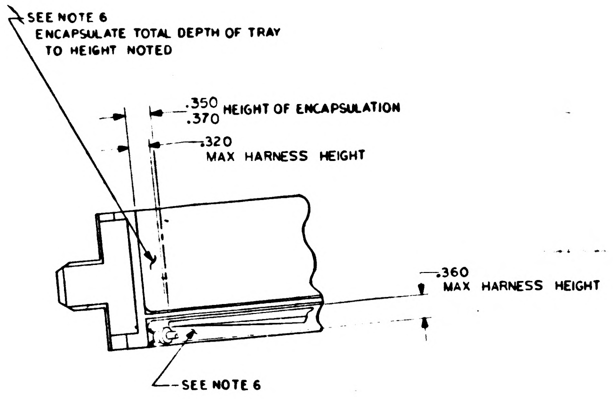
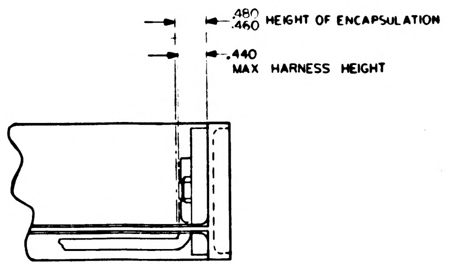
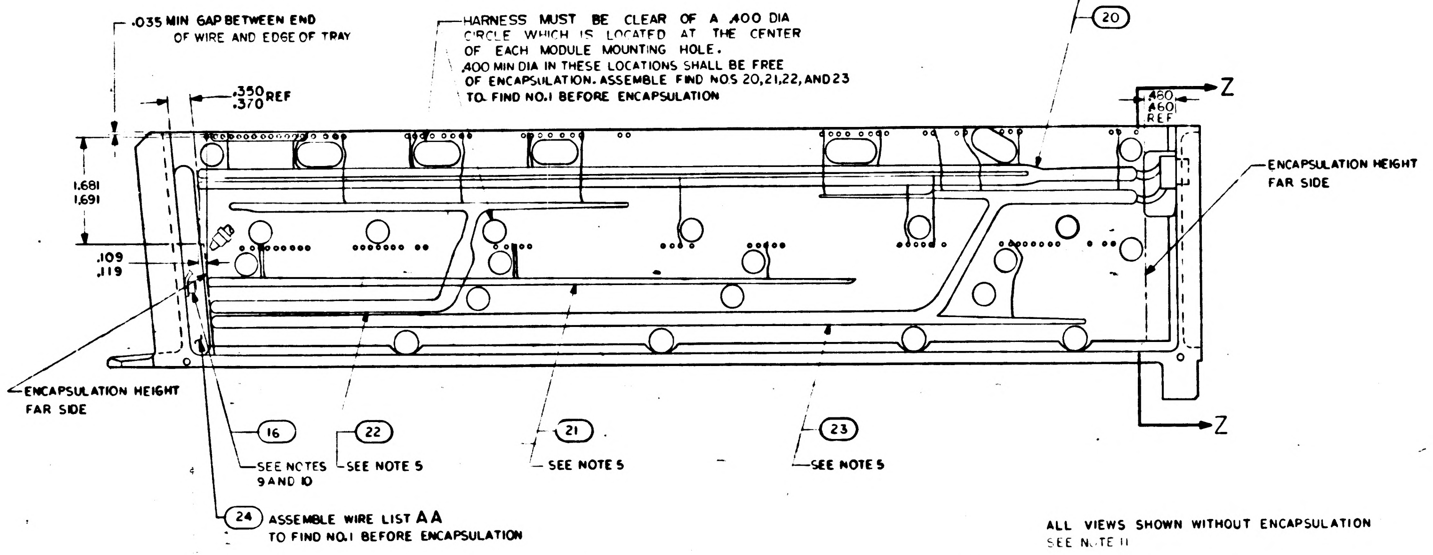
REVISIONS

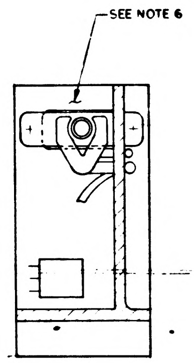
	SYM	DESCRIPTION	DATE	APPROVAL
Ⓜ	F	THIS SHEET ADDED PER TDRR 04184	20 63	
Ⓜ	G	REVISED PER TDRR 06473	3/4	
Ⓜ	J	REVISED PER TDRR 08146	15 MAY 64	JB
	K	REVISED PER TDRR 14323	23-NOV-64	
Ⓜ	L	REVISED PER TDRR 14324	24 Nov 64	RJJ
Ⓜ	M	REVISED PER TDRR 14582	8 DEC 64	J J
	N	REVISION STATUS CHANGED	21-JUN-65	


SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.350
.370 HEIGHT OF ENCAPSULATION
.320 MAX HARNESS HEIGHT
.360 MAX HARNESS HEIGHT
SEE NOTE 6


.480
.460 HEIGHT OF ENCAPSULATION
.440 MAX HARNESS HEIGHT


.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE.
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20,21,22, AND 23 TO FIND NO.1 BEFORE ENCAPSULATION
SEE NOTE 5
20
Z
.480
.460
REF
ENCAPSULATION HEIGHT FAR SIDE
1.681
1.691
.109
.119
ENCAPSULATION HEIGHT FAR SIDE
16
SEE NOTES 9 AND 10
22
SEE NOTE 5
21
SEE NOTE 5
23
SEE NOTE 5
Z
24
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z

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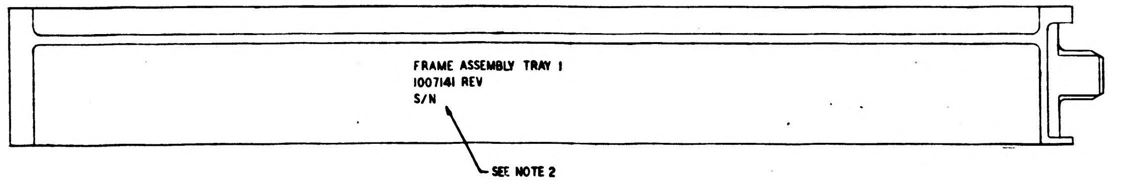

FRAME ASSEMBLY TRAY 1
1007141 REV
S/N
SEE NOTE 2

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007151	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES

DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

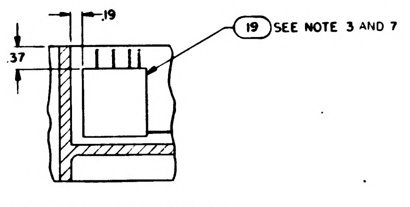
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS 9-497
DRAWN DATE 11-7-63
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL 11/20/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

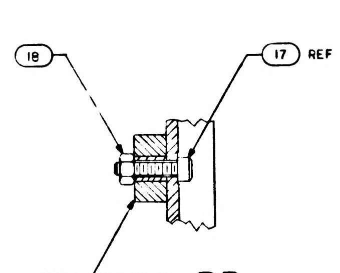
FRAME ASSEMBLY
TRAY 1

CODE IDENT NO. —
SIZE E
NASA DRAWING NO. 1007141
SCALE 1/1
WT
SHEET 2 OF 2

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO



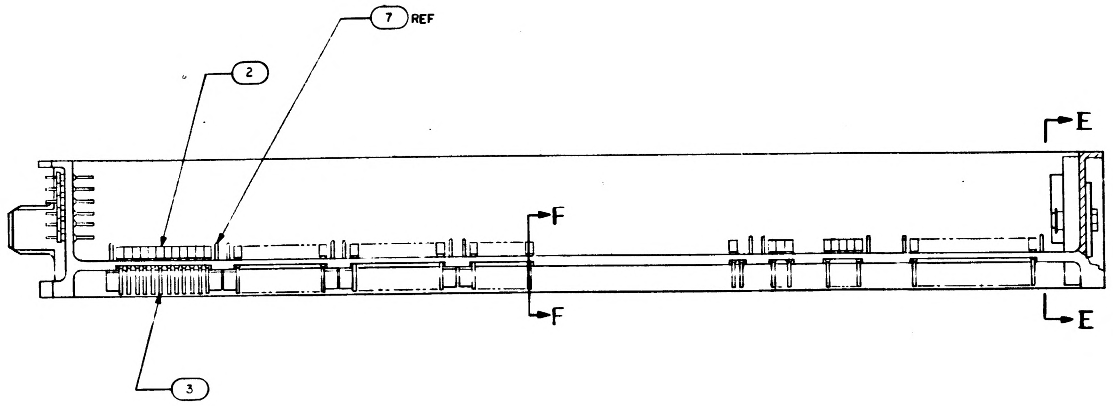
PARTIAL SECTION E-E

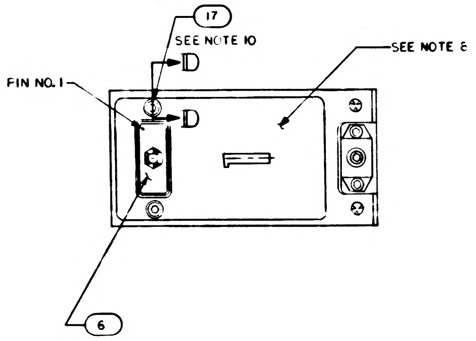


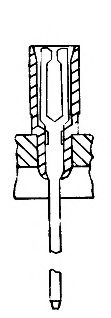
SECTION D-D

SCALE 2/1

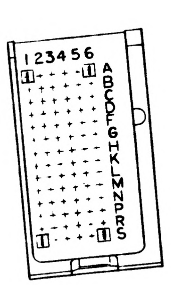
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR [illegible]		[illegible]
F	REVISED PER TDRR [illegible]	[illegible]	[illegible]
G	REVISED PER TDRR [illegible]		[illegible]
H	REVISED PER TDRR 07138	[illegible]	RWT
J	REVISED PER TDRR 08145	13 MAY 64	JB
K	REVISED PER TDRR 14323	[illegible]	[illegible]
L	REVISED PER TDRR 14324	24 Nov 64	RJJ
M	REVISED PER TDRR 14582	DEC 64	JJJ
N	REVISED PER TDRR 20118	[illegible]	[illegible]
P	REVISED PER TDRR 20119	[illegible] 65	[illegible]

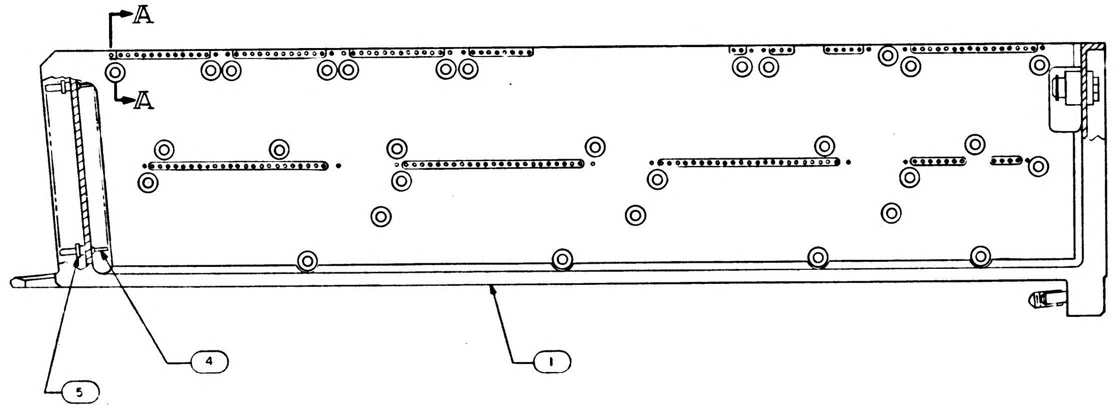


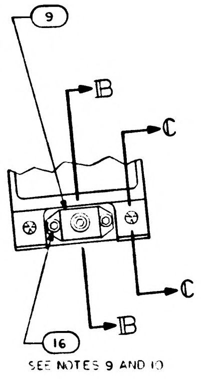




PARTIAL SECTION F-F
149 PLACES







REV E REPLACES REV D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
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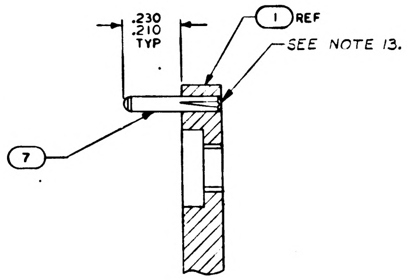
1	1015740	WIRING HARNESS D	23
1	1015739	WIRING HARNESS C	22
1	1015738	WIRING HARNESS B	21
1	1015737	WIRING HARNESS A	20
1	1007088	BUFFER RESISTOR ASSY	19
2	MA21045 C 04	NUT SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET, HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET, HEAD	16
~~30~~	~~MS171433~~	~~PIN, SPRING~~	15
~~30~~	~~1004207~~	~~DRIVE CYLINDER~~	14
1	1008099-2	WASHER	13
~~60~~	~~1004206~~	~~WASHER, THRUST~~	12
1	1008098	SCREW, SOCKET HEAD	11
~~30~~	~~1008172~~	~~SCREW, JACK~~	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
20	MS16556-604	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT BLADE EDGE CONNECTOR	4
149	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
149	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008101	FRAME	1

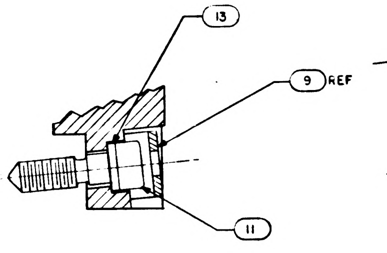
LIST OF MATERIALS

TERMINATION CHART	
FROM	TO
45A1E7	45A1J1-12
E8	-3
E9	-33
E10	-17
45A1E11	45A1J1-18



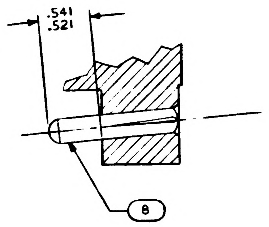
SECTION A-A

SCALE 4/1



SECTION B-B

SCALE 2/1



SECTION C-C

SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK .140/.100 HIGH BLACK CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023.
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136.
5. BOND FIND NO.S 20,21,22,23 AND 24 TO FIND NO. 1 PER ND 1002004 AS NECESSARY.
6. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NO.S 16 AND 17 TO FIND NO 1 TO BE 5.0/5.5 IN. LB
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005 ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60 ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007141.
13. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER, GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
14. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004 TYPE I.

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FRACTIONS ± DECIMALS XX ±.02 ANGLES ±1°
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MATERIAL
HEAT TREATMENT
FINAL FINISH

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INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT NAS9-497
DRAWN W. Horzan DATE 8-1963
CHECKED [illegible] 4 Oct 63
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

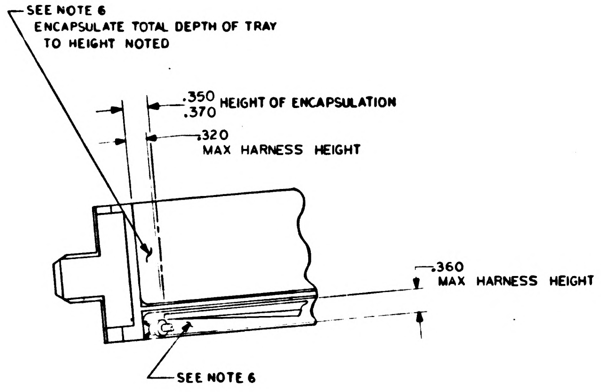
FRAME ASSEMBLY
TRAY 1

CODE IDENT NO | SIZE E | NASA DRAWING NO. 1007141
SCALE 1/1 | WT | SHEET 1 OF 2

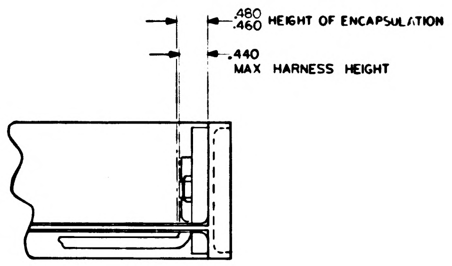
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

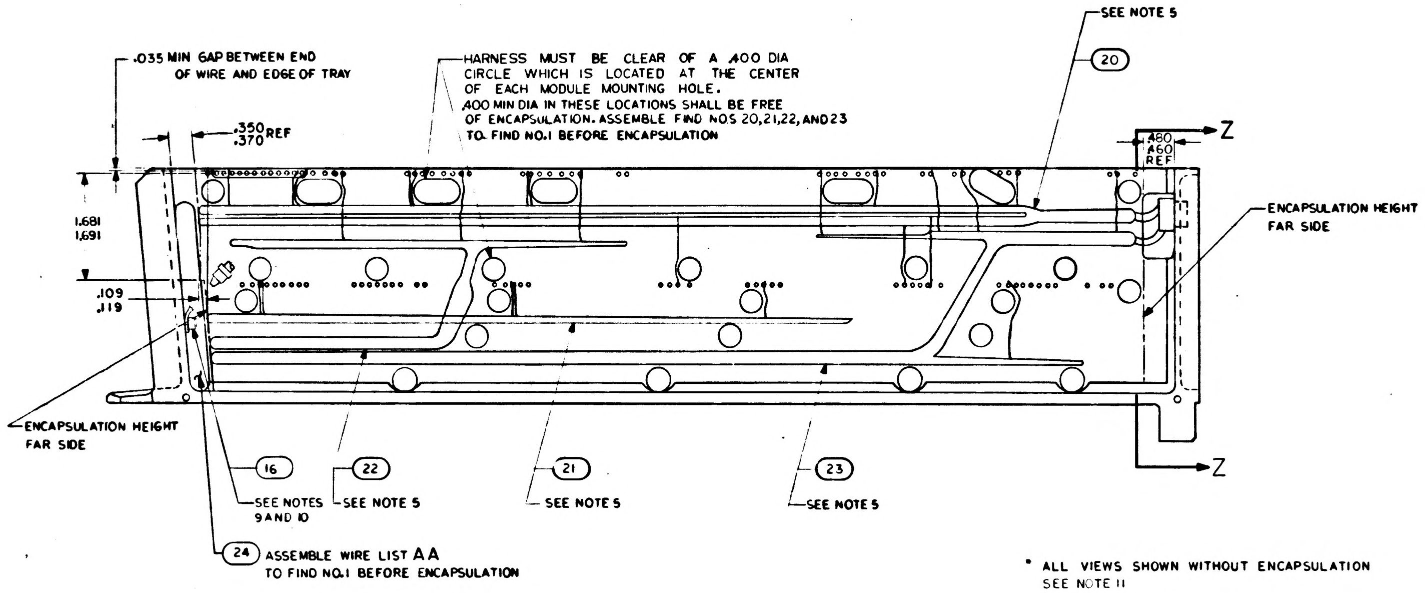
	SYM	DESCRIPTION	DATE	APPROVAL
Ⓜ	F	THIS SHEET ADDED PER TDRR 04744	11 20 63	
Ⓜ	G	REVISED PER TDRR 06473	3/4/	
Ⓜ	J	REVISED PER TDRR 08145	15 MAY 64	JB
	K	REVISED PER TDRR 14323	23-NOV-64	
Ⓜ	L	REVISED PER TDRR 14324	24 Nov 64	RJJ
Ⓜ	M	REVISED PER TDRR 14582	8 DEC 64	JJJ
	N	REVISION STATUS CHANGED	2-JUN-65	
	P	REVISION STATUS CHANGED	23 JUN 65	JWP



SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.350
.370 HEIGHT OF ENCAPSULATION
.320
MAX HARNESS HEIGHT
.360
MAX HARNESS HEIGHT
SEE NOTE 6

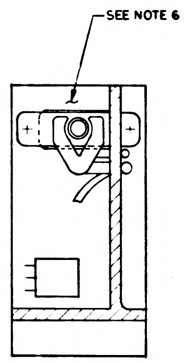


.480
.460 HEIGHT OF ENCAPSULATION
.440
MAX HARNESS HEIGHT



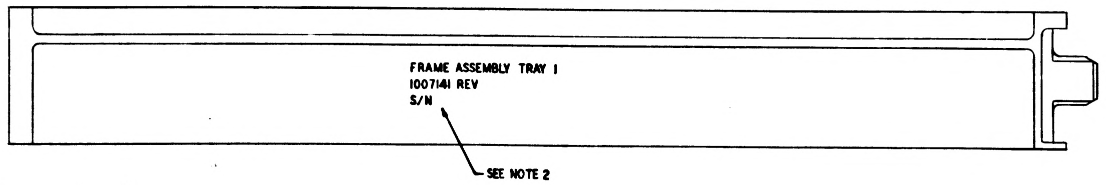
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE.
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20,21,22, AND 23 TO FIND NO.1 BEFORE ENCAPSULATION
.350
.370 REF
SEE NOTE 5
20
.480
.460
REF
Z
Z
ENCAPSULATION HEIGHT FAR SIDE
1.681
1.691
.109
.119
ENCAPSULATION HEIGHT FAR SIDE
16
SEE NOTES 9 AND 10
22
SEE NOTE 5
21
SEE NOTE 5
23
SEE NOTE 5
24
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION

* ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z

REV F THIS SHEET ADDED



FRAME ASSEMBLY TRAY 1
1007141 REV
S/N
SEE NOTE 2

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007151	
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CONTRACT NAS 9-497
DRAWN A. Dzyakis DATE 11-7-63
CHECKED 19 Nov 63
APPROVAL D. H. Test 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL 11/20

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 1

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007141
SCALE 1/1
WT
SHEET 2 OF 2

1007141

REVISIONS TDRR 01580

ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
1008101	Frame, Tray 1	1
1006774	Insulator, Wrapost, Female Miniature	240
1006781-2	Contact, Wrapost, Female Miniature	240
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED ,YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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NAS 9-153

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DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL | DATE

FRAME ASSEMBLY,
TRAY 1

SCALE	UNIT WT.	CODE IDENT.

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NASA DRAWING NO.
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SHEET 1 OF 1

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APOLLO G&N Specification
PS-1007141
29 April 1964
Class A Release
TDRR 08051

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 1

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page i to iii and 1 to 3 inclusive.

APOLLO G&N Specification
PS-1007141
29 April 1964

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 1

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 1 for use in APOLLO Guidance and Navigation equipment.

W Kupfer 29 April 64
MIT/IL DATE

4/29/64
NASA/MSC DATE

APOLLO G&N Specification
PS-1007141
29 April 1964

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 1

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 1, Drawing 1007141, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. - The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007141	Final Test Method for Frame Assembly Tray 1

DRAWINGS

APOLLO G&N

1007141	Frame Assembly Tray 1
1015737	Wiring Harness A Tray 1 (For Reference Only)
1015738	Wiring Harness B
1015739	Wiring Harness C
1015740	Wiring Harness D
1015741	Wire List A-A

1007142

REVISIONS TDRR 015[illegible]

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	AT, WK

PART NO.	DESCRIPTION	REQD.
1008102	Frame, Tray 2	1
1006774	Insulator, Wrapost, Female Miniature	101
1006781-2	Contact, Wrapost, Female Miniature	101
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1
1010620-1	Pin, Guide	16
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	26
1008098	Screw, Socket Head, Externally Relieved Body	1
1008099-1	Washer (Special)	26
1008099-2	Washer (Special)	1
1008092	Washer (Special)	26
MS 16624-15	Ring, Retaining	26
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

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LIST OF PARTS AND MATERIALS

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Jack Barnard

MIT/IL APPROVAL	DATE
	14 Jun 63

FRAME ASSEMBLY,
TRAY 2

SCALE	UNIT WT.	CODE IDENT.

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APOLLO G&N Specification
PS-1007142 A
29 April 1964
Class A Release
TDRR 0805[illegible]

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 2

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
8-18-64	A	11697	1,2		

This specification consists of page i to iii and 1 to 3 inclusive.

APOLLO G&N Specification
PS-1007142 A
29 April 1964

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 2

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 2 for use in APOLLO Guidance and Navigation equipment.

29 April 64
MIT/IL DATE

4/29/64
NASA/MSC APPROVAL DATE

APOLLO G&N Specification
PS1007142 A

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 2

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 2, Drawing 1007142, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. - The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM1007142	Final Test Method for Frame Assembly Tray 2

DRAWINGS

APOLLO G&N

1007142	Frame Assembly Tray 2

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APOLLO G&N Specification
PS-1007142 A
29 April 1964
Class A Release
TDRR 08051

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 2

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
(M) [illegible]	A	[illegible]	1,2	WK	

This specification consists of page i
to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 2

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 2, Drawing 1007142, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. - The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM1007142	Final Test Method for Frame Assembly Tray 2

DRAWINGS

APOLLO G&N

1007142	Frame Assembly Tray 2

3. REQUIREMENTS

3.1 GENERAL SPECIFICATION. Unless otherwise specified, all of the requirements of Specification ND-1002210 shall apply as requirements of this specification.

3.2 DESCRIPTION. The tray is to be used in the Power and Servo Assembly as a mounting frame and as an interconnection for the modules used in the Power Supply Electronics Assembly.

3.3 FUNCTIONAL REQUIREMENTS

3.3.1 Insulation Resistance. The insulation resistance test shall be conducted from each individual connector pin, with the exception of K3 of connector 45A2-P1, to the assembly frame. The resistance from each connector pin to the frame assembly shall be equal to or greater than 100 megohms.

3.3.2 Continuity and DC Resistance and Shorting. The continuity and dc resistance and short test shall be as specified in JDC09765 of FTM1007142.

3.4 PERFORMANCE AND PRODUCT CHARACTERISTICS

3.4.1 Service Life

3.4.1.1 Operating Life. The assembly shall meet performance specifications for at least 2000 hours of operation, excluding the supplier's test time of the completed unit.

3.4.1.2 Shelf Life. The assembly shall be packaged as specified in MIL-P-116, Method 2, and shall have a shelf life of at least 5 years, without operation, at ambient room temperature after final acceptance at the supplier's facility.

3.4.2 Reliability. Design objectives require maximum reliability of the assembly during its period of useful life. Every effort shall be made to design and produce units capable of meeting a maximum failure rate of 0.2 failures per million hours.

1007142

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	WT. WK
	B	REVISED PER TDRR 02866	8-28-63	[illegible]

REVISIONS TDRR 015Fd

PART NO.	DESCRIPTION	REQD.
1008102	Frame, Tray 2	1
1006774	Insulator, Wrapost, Female Miniature	101
1006781-2	Contact, Wrapost, Female Miniature	101
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	16
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	26
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	52
1008099-2	Washer (Special)	1
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1008145	Pin, Spring	
1004207	Drive Cylinder.	

NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
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Jack Barnard

MIT/IL APPROVAL	DATE
	June 63

FRAME ASSEMBLY,
TRAY 2

SCALE	UNIT WT.	CODE IDENT.

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APOLLO G&N Specification
PS1007142 B
28 April 1964
Class A Release
TDRR 08051

PROCUREMENT SPECIFICATION
FOR
FRAME ASSEMBLY TRAY 2

Record of Revisions

Ⓜ

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
[illegible]	A	[illegible]	1, 2	WK	[illegible]
2/9/65	B	16230	1 [illegible]	WK	WJR

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 2

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 2, hereafter called the assembly.

1.2 CLASSIFICATION. The requirements for the equipment covered by this specification shall be classified as follows. Unless identified by the respective types, all requirements of this specification are applicable for all types.

a. Type I: The requirements for Part Numbers 1007142 and 1021212-011 shall be designated as Type I.

b. Type II: The requirements for Part Number 1007532-021 shall be designated as Type II.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM1007142	Final Test Method for Frame Assembly Tray 2

DRAWINGS

APOLLO G&N

1007142	Frame Assembly Tray 2
1007532	Frame Assembly Tray 2
1021212	Frame Assembly Tray 2

1007142

REVISIONS TDRR 015 FD				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	MT, WK
	B	REVISED PER TDRR 02866	8-26-63	J.J.M.
	C	REVISED PER TDRR 03000	9-12-63	WK

PART NO.	DESCRIPTION	REQD.
1008102	Frame, Tray 2	1
1006774	Insulator, Wrapost, Female Miniature	101
1006781-2	Contact, Wrapost, Female Miniature	101
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	16
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	26
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206-	Washer, Thrust	52
1008099-2	Washer (Special)	1
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1008145	Pin, Spring	
1004207	Drive Cylinder NO. NOT ASSIGNED, YET.	
1007091	Assembly, Buffer Resistor Module	1

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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MIT/IL APPROVAL	DATE
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FRAME ASSEMBLY,
TRAY 2

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ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	AT. WK
	B	REVISED PER TDRR 02866	8-28-63	
	C	REVISED PER TDRR 03000	9-12-63	WK
	D	REVISED PER TDRR 03317	9/26/63	

PART NO.	DESCRIPTION	REQD.
1008102	Frame, Tray 2	1
1006774	Insulator, Wrapost, Female Miniature	101
1006781-2	Contact, Wrapost, Female Miniature	101
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	16
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	26
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206-	Washer, Thrust	52
1008039-2	Washer (Special)	1
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1008145	Pin, Spring	26
1004207	Drive Cylinder. [illegible] NO. NOT ASSIGNED, YET.	26
1007091	Assembly, Buffer Resistor Module	1

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
1007152	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES

DO NOT SCALE THIS DRAWING

MATERIAL:

MIT INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED		6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC Jack Barnard

MIT/IL APPROVAL	DATE
	14 June 63

FRAME ASSEMBLY,
TRAY 2

SCALE	UNIT WT.	CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.

DWG. NO.

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

NASA DRAWING NO.
1007142

SHEET 1 OF 1

INCHES
0 2
PHOTOGRAPHIC SCALE ONLY

1007142

REVISIONS TDRR 015F0				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	WK
	B	REVISED PER TDRR 02866	8-28-63	
	C	REVISED PER TDRR 03000	9-12-63	WK
	D	REVISED PER TDRR 03317	9/26/63	
	E	SUPERSEDED PER TDRR 03773		RPK WK

PART NO.	DESCRIPTION	REQD.
1008102	Frame, Tray 2	1
1006774	Insulator, Wrapost, Female Miniature	101
1006781-2	Contact, Wrapost, Female Miniature	101
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	16
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	26
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206-	Washer, Thrust	52
1008099-2	Washer (Special)	1
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1008145	Pin, Spring	26
1004207	Drive Cylinder [illegible] NO. NOT ASSIGNED, YET.	26
1007091	Assembly, Buffer Resistor Module	1

REV E REPLACED BY REV F.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

1007152			
NEXT ASSY	USED ON		
APPLICATION			

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES

DO NOT SCALE THIS DRAWING

MATERIAL:

MIT
INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED	D. G. Hoag	6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC Jack Barnard

MIT/IL APPROVAL	DATE

FRAME ASSEMBLY,
TRAY 2

SCALE	UNIT WT.	CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.

DWG. NO.

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

NASA DRAWING NO.
1007142

SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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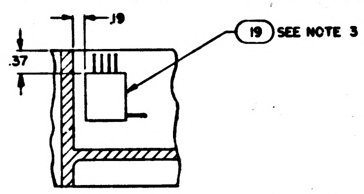
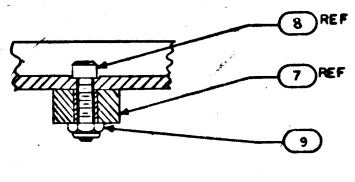
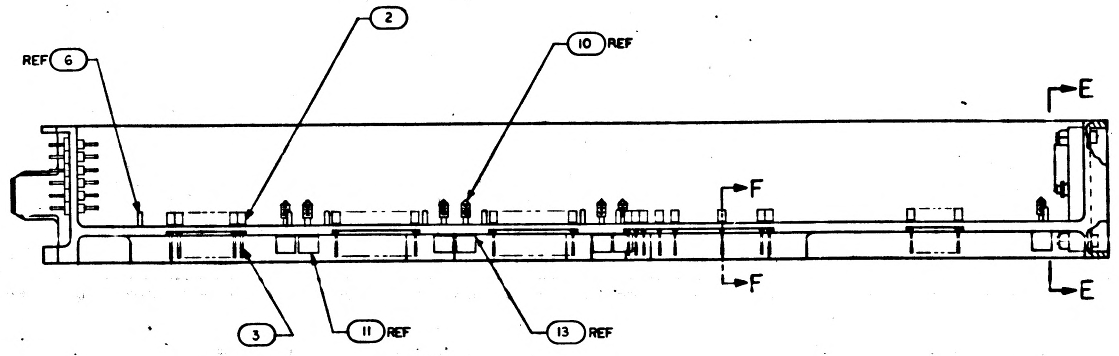
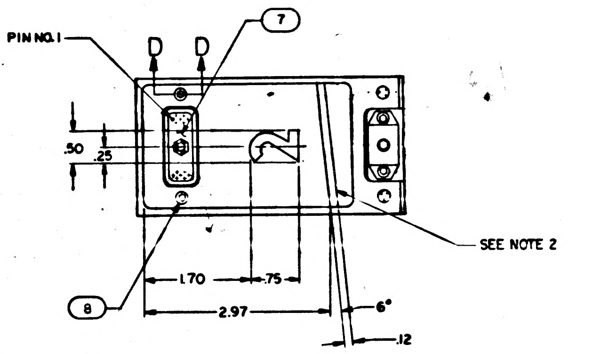


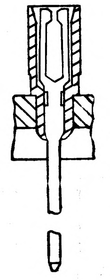
PARTIAL SECTION E-E



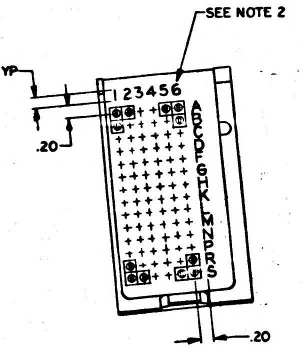
PARTIAL SECTION D-D
SCALE 2/1

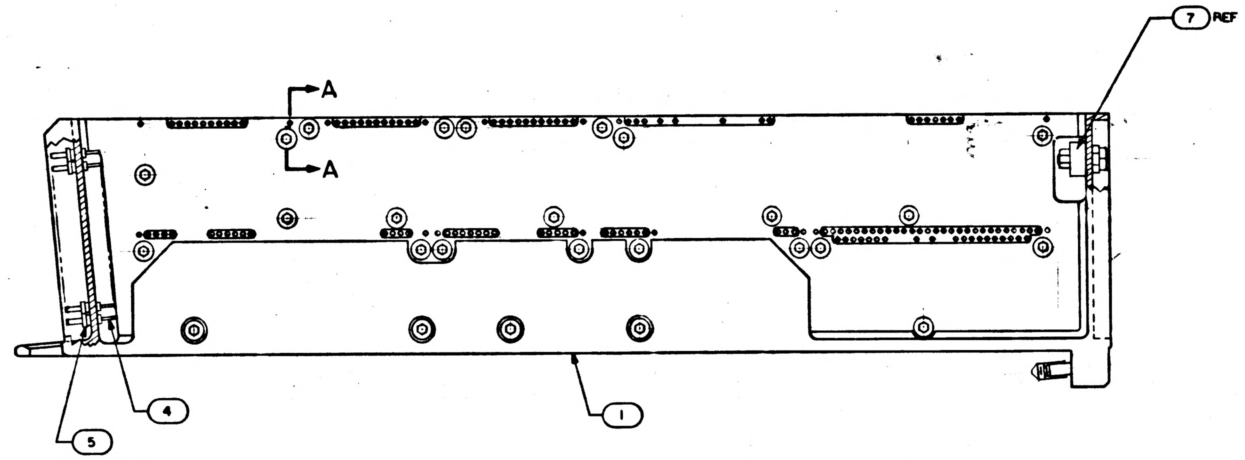


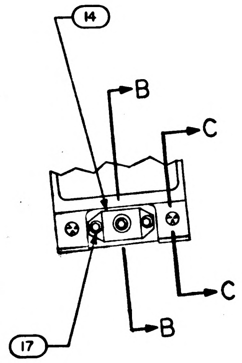




PARTIAL SECTION F-F
129 PLACES







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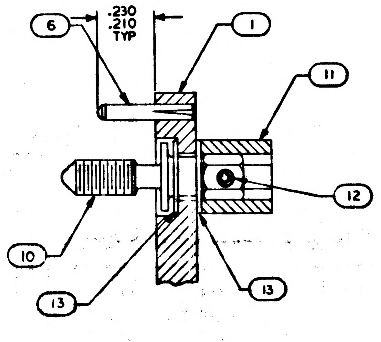
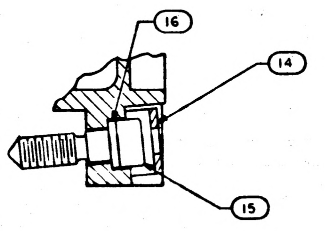
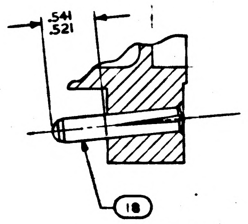


SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE.
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010092	WIRING DIAGRAM	REF
1	1007091	BUFFER RESISTOR ASSY	19
2	1010620-2	PIN GUIDE	18
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	17
1	1008099-2	WASHER	16
1	1008098	SCREW, SOCKET HEAD	15
1	1001317	RETAINER, JACK SCREW	14
52	1004206	WASHER, THRUST	13
26	1008145	PIN, SPRING	12
26	1004207	DRIVE CYLINDER	11
26	1008095	SCREW, JACK	10
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	9
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	8
1	1010622-1	CONNECTOR, RECEPTACLE,	7
16	1010620-1	PIN, GUIDE	6
84	1010383	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
129	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
129	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008102	FRAME,	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007152	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN DATE 14 Aug 63
CHECKED 7Oct63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL W. J. Rhine 10-1-63
MIT APPROVAL 8 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 2

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007142
SCALE 1/1 WT SHEET 1 OF 1

1007142 E

MASTER

INCHES
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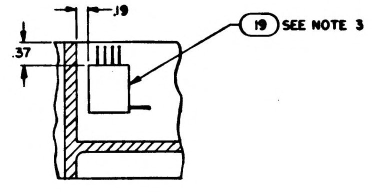
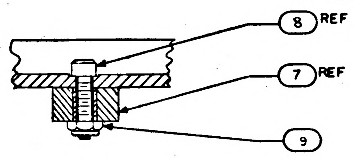
REVISIONS

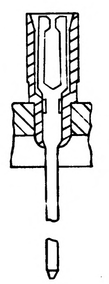
SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDRR 03773	10-4-63	
G	REVISED PER TDRR 04765	11-20-63	



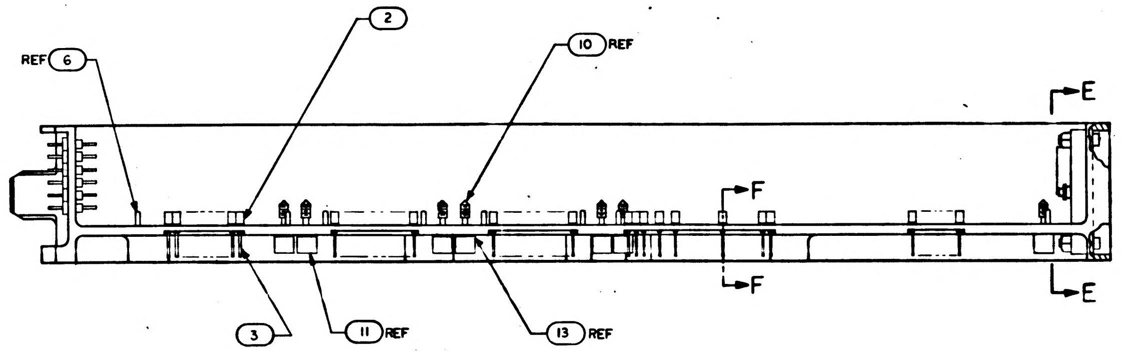
PARTIAL SECTION E-E

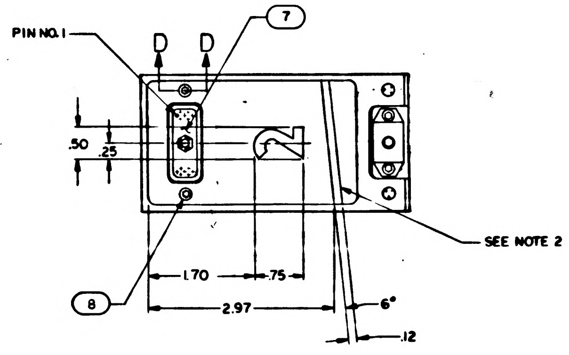


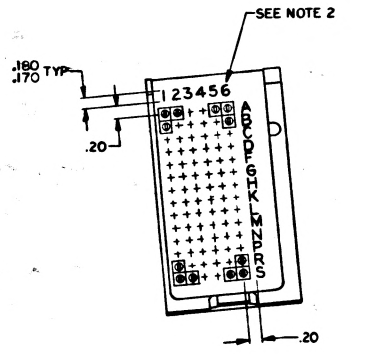
PARTIAL SECTION D-D
SCALE 2/1

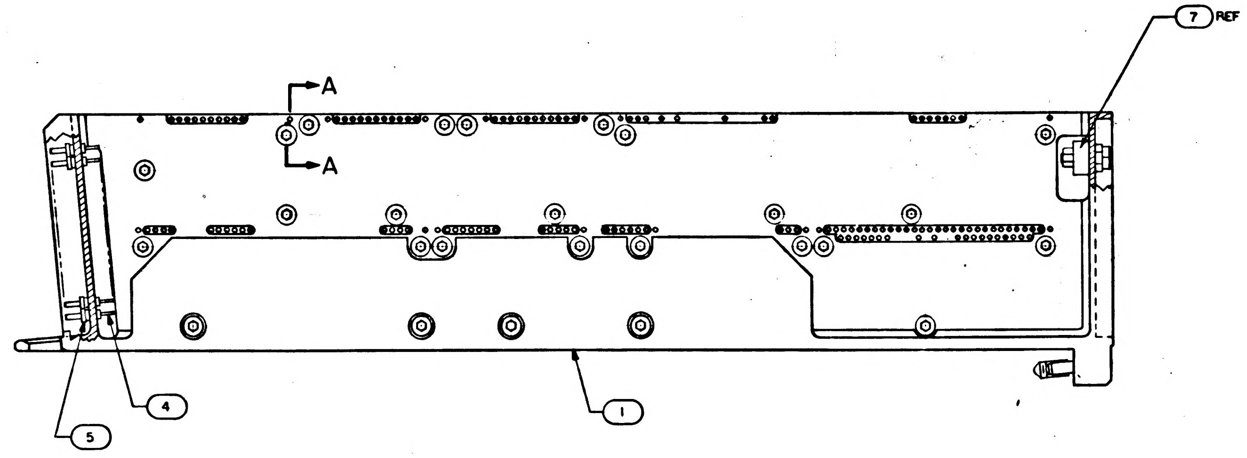


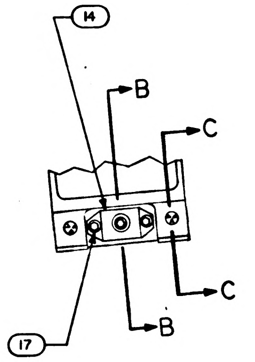
PARTIAL SECTION F-F
129 PLACES











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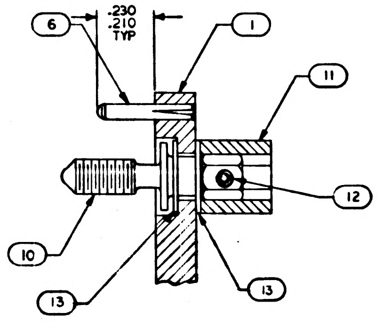
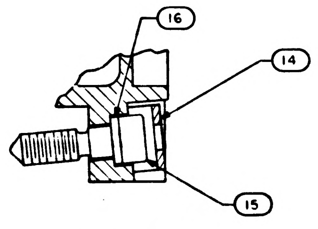
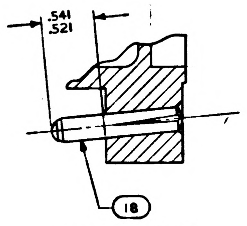


SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE.
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND 1002136
5. BOND FIND NO. 20 AND 21 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010092	WIRING DIAGRAM	REF
1	1015773	WIRE LIST A A	21
1	1015772	WIRING HARNESS A	20
1	1007091	BUFFER RESISTOR ASSY	19
2	1010620-2	PIN GUIDE	18
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	17
1	1008099-2	WASHER	16
1	1008098	SCREW, SOCKET HEAD	15
1	1001317	RETAINER, JACK SCREW	14
52	1004206	WASHER, THRUST	13
26	1008145	PIN, SPRING	12
26	1004207	DRIVE CYLINDER	11
26	1008095	SCREW, JACK	10
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	9
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	8
1	1010622-1	CONNECTOR, RECEPTACLE,	7
16	1010620-1	PIN, GUIDE	6
84	1010383	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
129	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
129	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008102	FRAME,	1

LIST OF MATERIALS

1007152	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
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FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN DATE 14 Aug 63
CHECKED 7 Oct 63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL W. J. Rhine 10-8-63
MIT APPROVAL 9 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 2

CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007142
SCALE 1/1
WT
SHEET 1 OF 2

MASTER

INCHES
0 1 2
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REVISIONS

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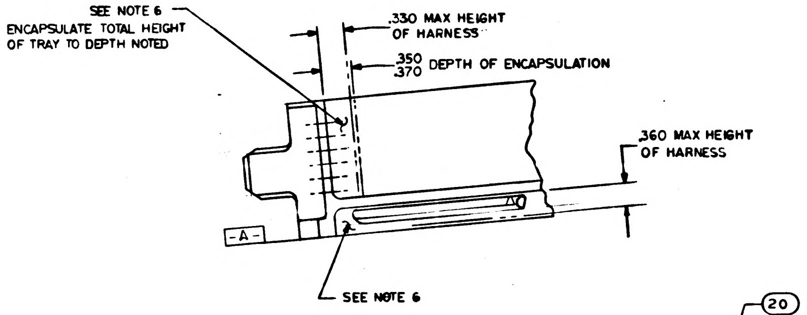
SEE NOTE 6
ENCAPSULATE TOTAL HEIGHT
OF TRAY TO DEPTH NOTED
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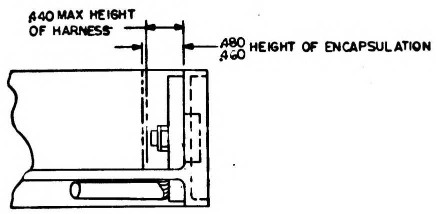
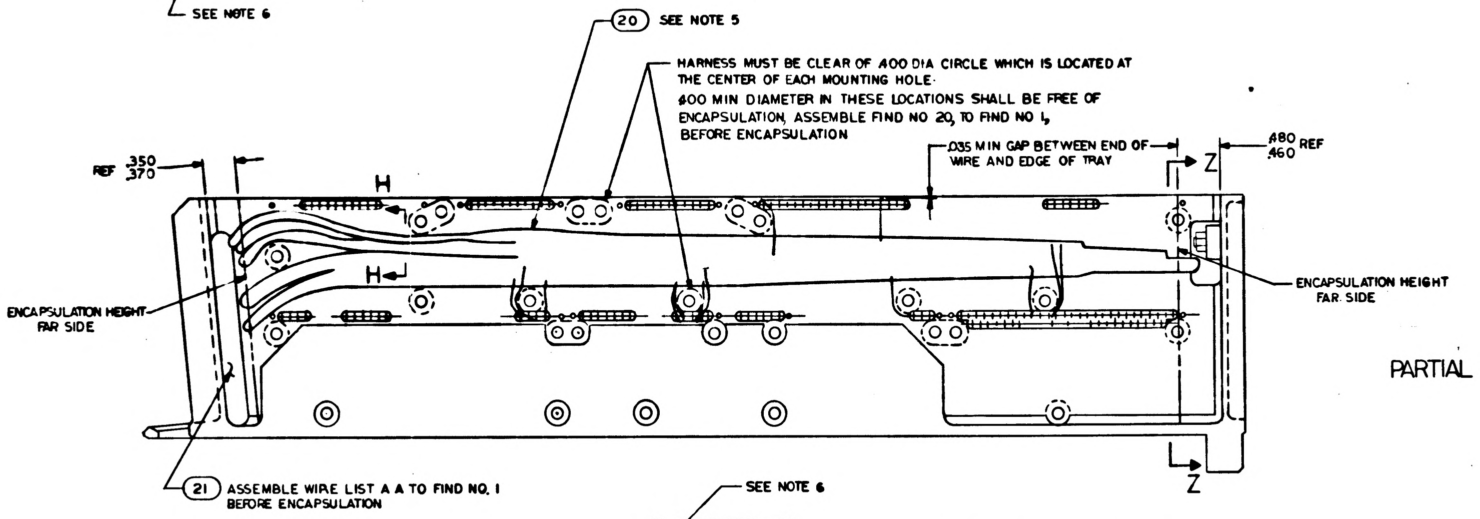
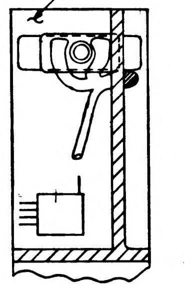
OF HARNESS
.350
.370 DEPTH OF ENCAPSULATION
.360 MAX HEIGHT
OF HARNESS
-A-
SEE NOTE 6


.440 MAX HEIGHT
OF HARNESS
.480
.460 HEIGHT OF ENCAPSULATION


20 SEE NOTE 5
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT
THE CENTER OF EACH MOUNTING HOLE.
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF
ENCAPSULATION. ASSEMBLE FIND NO 20, TO FIND NO 1,
BEFORE ENCAPSULATION
REF .350
.370
.035 MIN GAP BETWEEN END OF
WIRE AND EDGE OF TRAY
.480
.460 REF
Z
H
H
ENCAPSULATION HEIGHT
FAR SIDE
ENCAPSULATION HEIGHT
FAR SIDE
Z
21 ASSEMBLE WIRE LIST A A TO FIND NO. 1
BEFORE ENCAPSULATION

PARTIAL SECTION H-H

ALL VIEWS SHOWN WITHOUT ENCAPSULATION



PARTIAL SECTION Z-Z

REV G THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007152		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ± DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS DWG. NO. CONTRACT NAS 9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN J Cooley DATE 11-12-63 CHECKED P.P. Basso 15 Nov 63 APPROVAL 11-20-63 APPROVAL	FRAME ASSEMBLY TRAY 2
APPLICATION		HEAT TREATMENT FINAL FINISH	NASA APPROVAL MIT APPROVAL 11/20/63	CODE IDENT NO. SIZE E NASA DRAWING NO. 1007142 SCALE FULL WT SHEET 2 OF 2

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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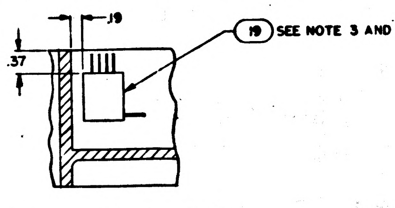
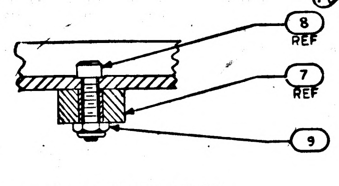
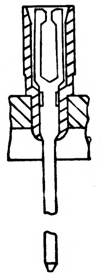
G	REVISED PER TDRR 04785	11-5-64	
H	REVISED PER TDRR 06493		



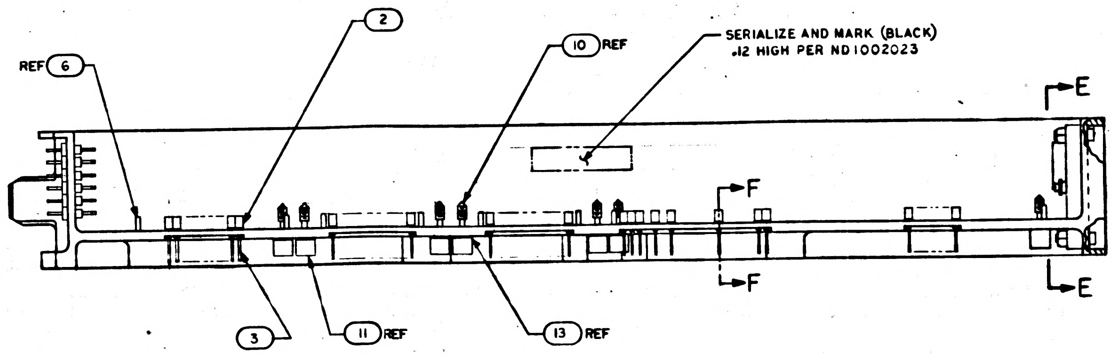
PARTIAL SECTION E-E

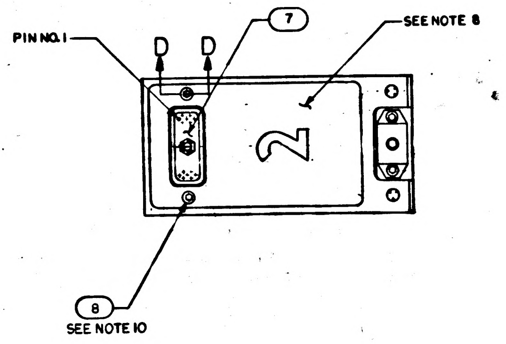


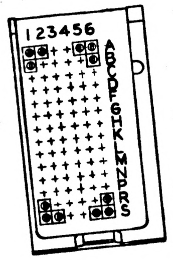
PARTIAL SECTION D-D
SCALE 2/1

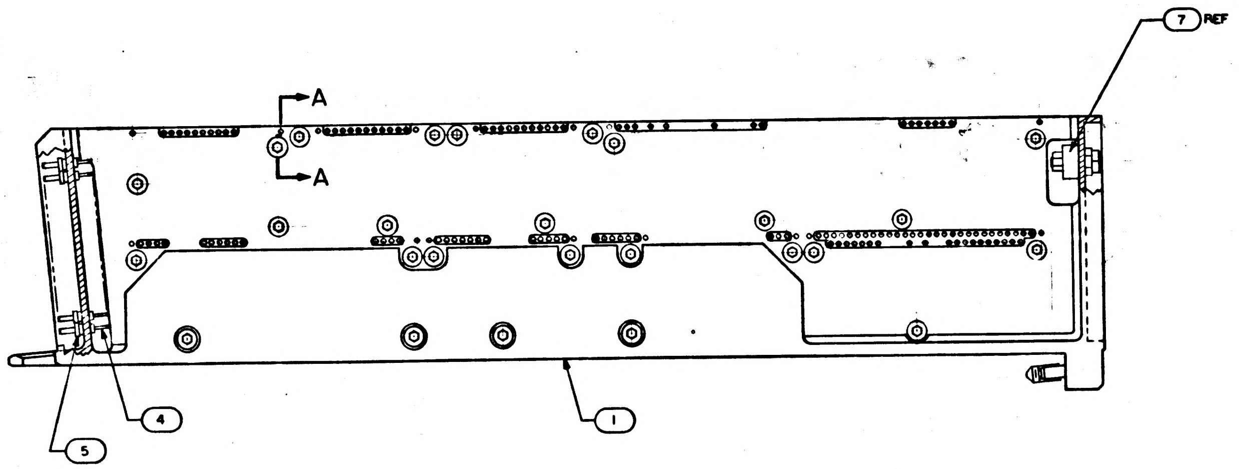


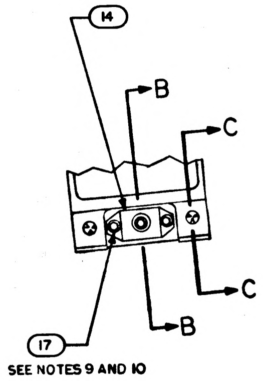
PARTIAL SECTION F-F
129 PLACES



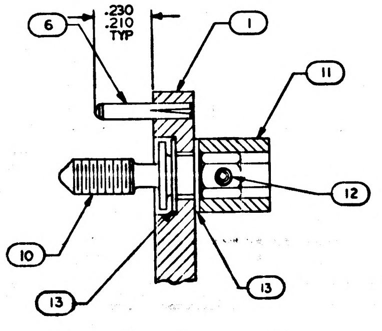




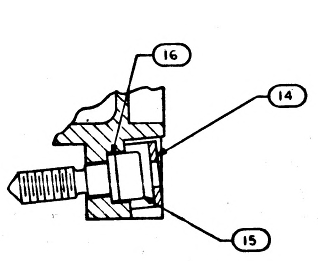




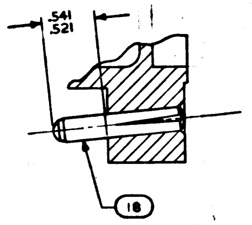
REV F REPLACES REV E



SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A2E9	45A2J1-20
45A2E10	45A2J1-13
45A2E11	45A2J1-12
45A2E12	45A2J1-3
45A2E13	45A2J1-18
45A2E14	45A2J1-2
45A2E15	45A2J1-11

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136
5. BOND FIND NO. 20 AND 21 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19.
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO. 17 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 8 AND 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010092	WIRING DIAGRAM	REF
1	1015773	WIRE LIST A A	21
1	1015772	WIRING HARNESS A	20
1	1007091	BUFFER RESISTOR ASSY	19
2	1010620-2	PIN GUIDE	18
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	17
1	1008099-2	WASHER	16
1	1008098	SCREW, SOCKET HEAD	15
1	1001317	RETAINER, JACK SCREW	14
52	1004206	WASHER, THRUST	13
26	1008145	PIN, SPRING	12
26	1004207	DRIVE CYLINDER	11
26	1008095	SCREW, JACK	10
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	9
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	8
1	1010622-1	CONNECTOR, RECEPTACLE,	7
16	1010620-1	PIN, GUIDE	6
84	1010383-1	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
129	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
129	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008102	FRAME,	1

LIST OF MATERIALS

1007152	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN DATE 14 Aug 63
CHECKED 7 Oct 63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL 8 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY TRAY 2

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007142
SCALE 1/1
WT
SHEET 1 OF 2

1007142 H

INCHES
PHOTOGRAPHIC SCALE ONLY

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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H	REVISED PER TDRR 06993	9/16/64	

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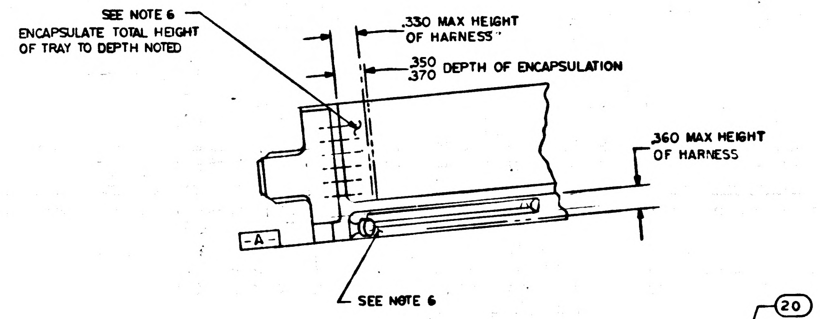
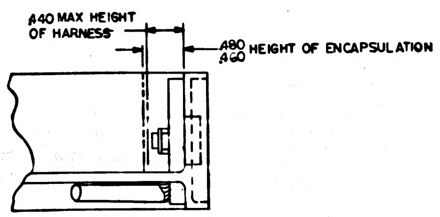
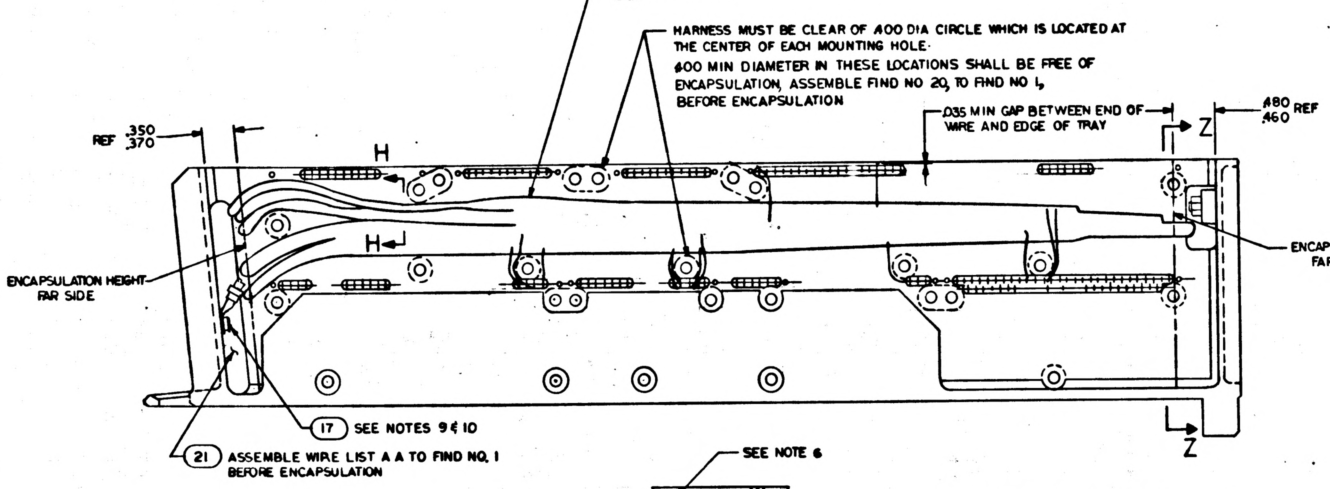
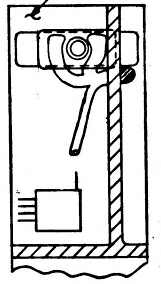

SEE NOTE 6
ENCAPSULATE TOTAL HEIGHT OF TRAY TO DEPTH NOTED
.330 MAX HEIGHT OF HARNESS
.350
.370 DEPTH OF ENCAPSULATION
.360 MAX HEIGHT OF HARNESS
A
SEE NOTE 6


.440 MAX HEIGHT OF HARNESS
.480
.460 HEIGHT OF ENCAPSULATION

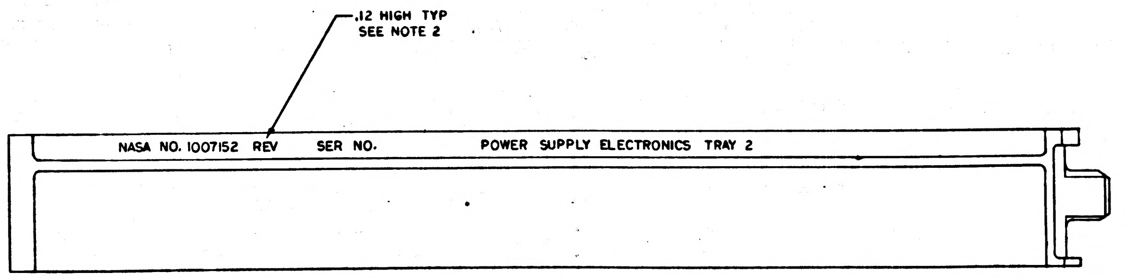

20 SEE NOTE 5
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MOUNTING HOLE.
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION, ASSEMBLE FIND NO 20, TO FIND NO 1, BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.480
.460 REF
REF .350
.370
H
H
Z
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
17 SEE NOTES 9 & 10
21 ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION

PARTIAL SECTION H-H



PARTIAL SECTION Z-Z

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11


.12 HIGH TYP
SEE NOTE 2
NASA NO. 1007152 REV SER NO. POWER SUPPLY ELECTRONICS TRAY 2

MARKING VIEW AFTER ENCAPSULATION

REV G THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007152		
NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
CONTRACT NAS 9-497
DRAWN J. Crosley DATE 11-5-63
CHECKED R.P. [illegible]
APPROVAL [illegible] 11-30-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

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HOUSTON, TEXAS

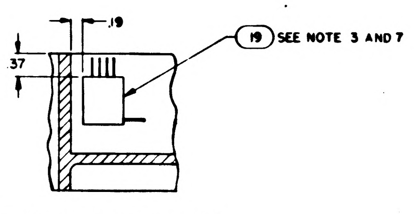
FRAME ASSEMBLY
TRAY 2

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007142
SCALE FULL
WT
SHEET 2 OF 2

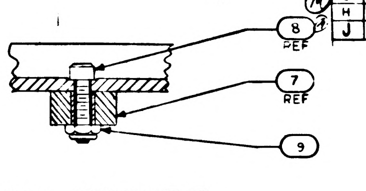
1007142 H

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

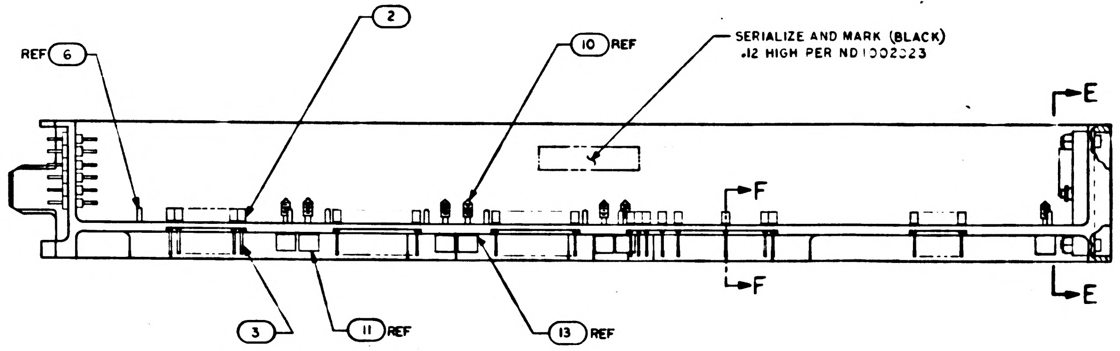
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDRR 03773	10-8-63	
G	REVISED PER TDRR 04765	[illegible]	
H	REVISED PER TDRR 06492	[illegible]	WR
J	REVISED PER TDRR 07138	6 APR 64	

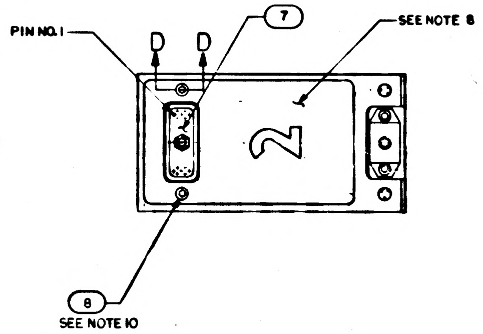


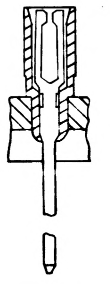
PARTIAL SECTION E-E



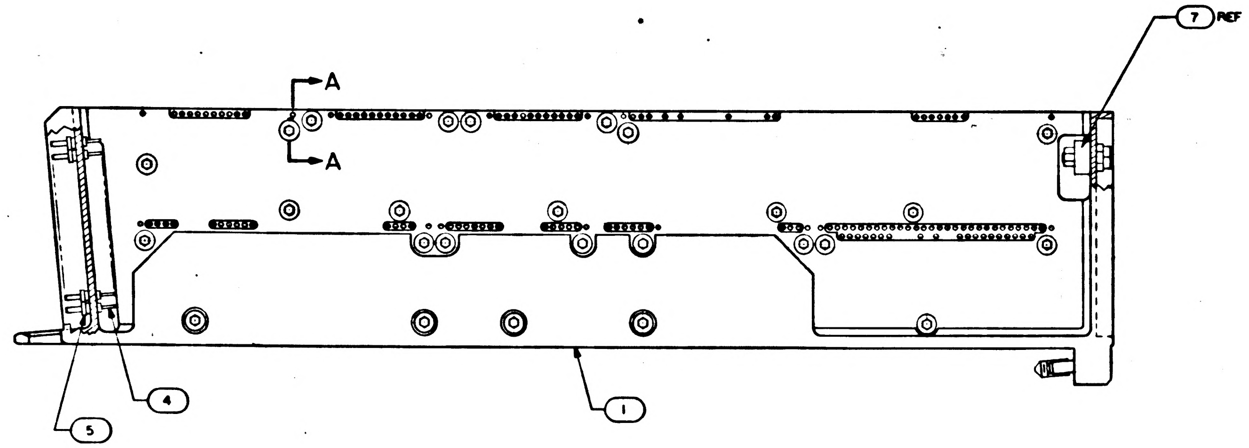
PARTIAL SECTION D-D
SCALE 2/1

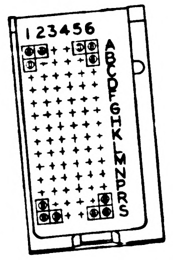


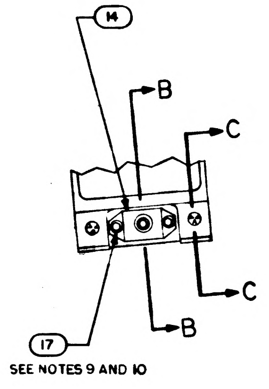




PARTIAL SECTION F-F
129 PLACES







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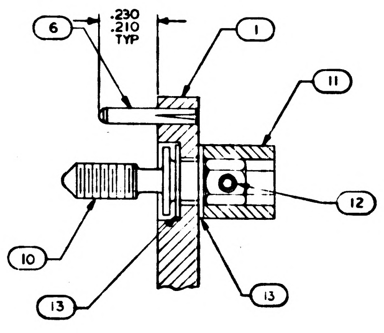
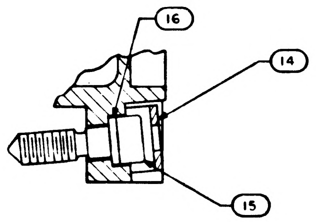
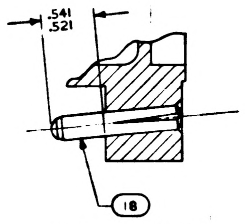


SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A2E9	45A2J1-20
45A2E10	45A2J1-13
45A2E11	45A2J1-12
45A2E12	45A2J1-3
45A2E13	45A2J1-18
45A2E14	45A2J1-2
45A2E15	45A2J1-11

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
⨯	1010092	WIRING DIAGRAM	REF
1	1015773	WIRE LIST A A	21
1	1015772	WIRING HARNESS A	20
1	1007091	BUFFER RESISTOR ASSY	19
2	1010620-2	PIN GUIDE	18
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	17
1	1008099-2	WASHER	16
1	1008098	SCREW, SOCKET HEAD	15
1	1001317	RETAINER, JACK SCREW	14
52	1004206	WASHER, THRUST	3
26	MS 171433	PIN, SPRING	12
26	1004207	DRIVE CYLINDER	11
26	1008095	SCREW, JACK	10
2	MS 21045 C 04	NUT SELF-LOCKING HEX	9
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	8
1	1010622-1	CONNECTOR, RECEPTACLE,	7
16	1010620-1	PIN, GUIDE	6
84	1010383-1	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
129	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
129	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008102	FRAME,	1

LIST OF MATERIALS

J	H
SHEET 1	SHEET 2

REVISION STATUS OF SHEETS

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136
5. BOND FIND NO. 20 AND 21 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19.
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO. 17 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 8 AND 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005.
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60.
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

1007152	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT NAS9-497
DRAWN DATE 4 Aug 63
CHECKED 7 Oct 63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL 8 Oct 63

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FRAME ASSEMBLY
TRAY 2

CODE IDENT NO. | SIZE E | NASA DRAWING NO. 1007142
SCALE 1/1 | WT | SHEET 1 OF 2

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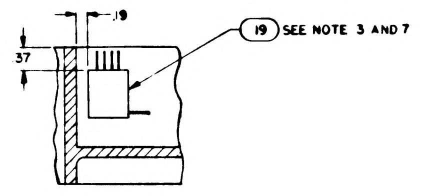
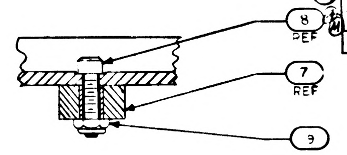
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDRR 03773	10-7-63	
G	REVISED PER TDRR 04745		
H	REVISED PER TDRR [illegible]		WK
J	REVISED PER TDRR 07138	6 APR 64	RWT
K	REVISED PER TDRR 08145	13 MAY 64	



PARTIAL SECTION E-E



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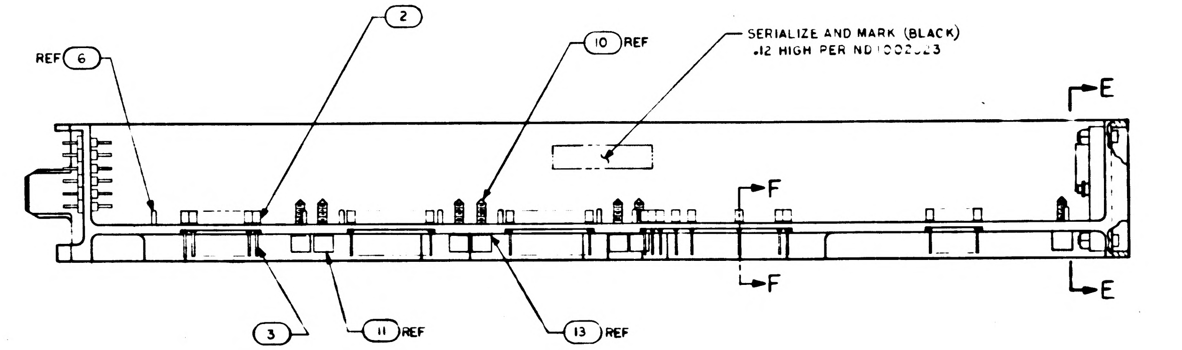
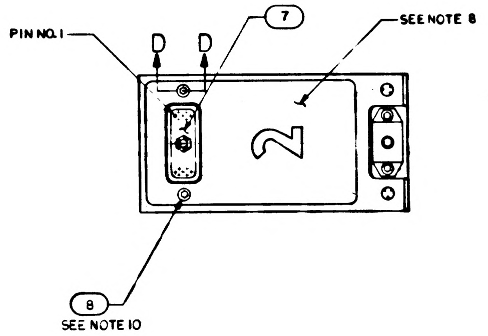
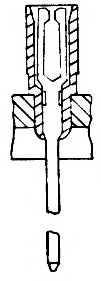
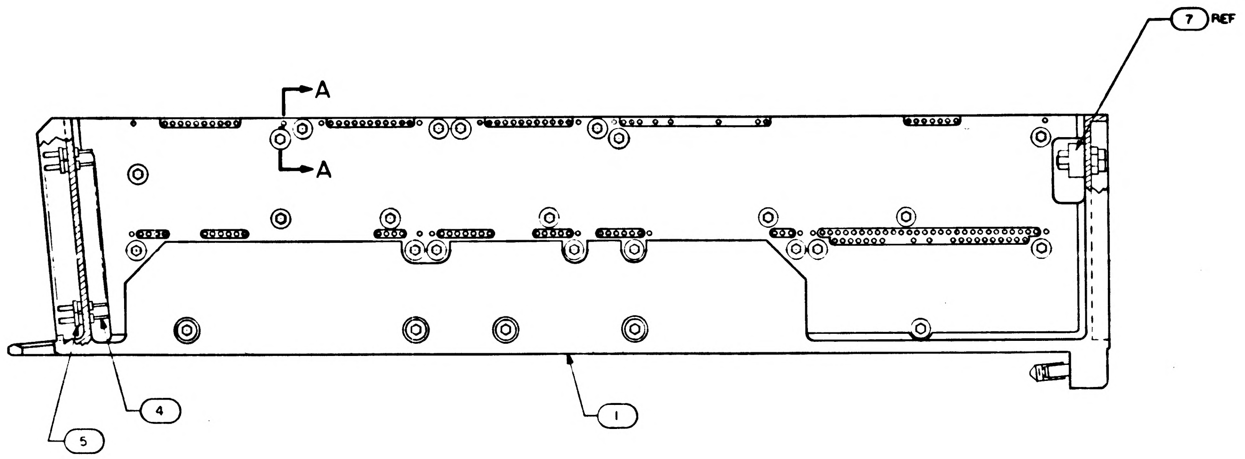
SCALE 2/1

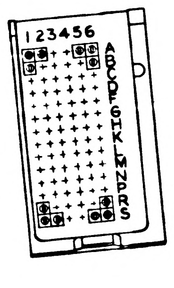


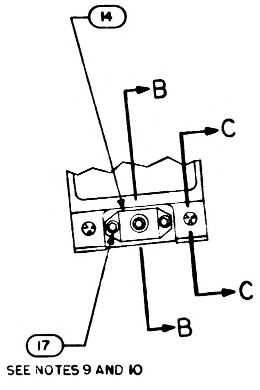




PARTIAL SECTION F-F
129 PLACES







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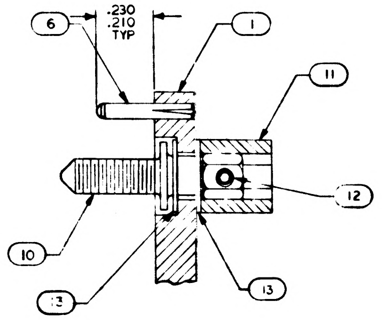
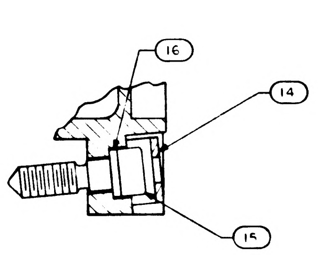
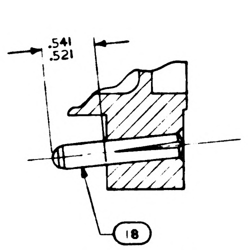


SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A2E9	45A2J1-20
45A2E10	45A2J1-13
45A2E11	45A2J1-12
45A2E12	45A2J1-3
45A2E13	45A2J1-18
45A2E14	45A2J1-2
45A2E15	45A2J1-11

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010092	WIRING DIAGRAM	REF
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1	1015772	WIRING HARNESS A	20
1	1007091	BUFFER RESISTOR ASSY	19
2	1010620-5	PIN GUIDE	18
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	17
1	1008099-2	WASHER	16
1	1008098	SCREW, SOCKET HEAD	15
1	1001317	RETAINER, JACK SCREW	14
52	1004206	WASHER, THRUST	13
26	MS 171433	PIN, SPRING	12
26	1004207	DRIVE CYLINDER	11
26	1008172	SCREW, JACK	10
2	MS 21045 C 04	NUT SELF-LOCKING HEX	9
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	8
1	1010622-1	CONNECTOR, RECEPTACLE,	7
16	1010620-4	PIN, GUIDE	6
84	1010383-1	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
129	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
129	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008102	FRAME,	1

LIST OF MATERIALS

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND 1002136
5. BOND FIND NO. 20 AND 21 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19.
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO. 17 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 8 AND 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005.
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60.
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007142.

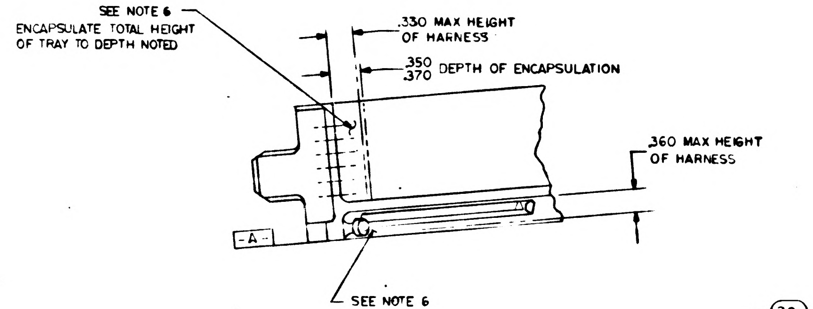
1007152		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.02 ANGLES ±1° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS CONTRACT NAS9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN DATE 4 Aug 63	FRAME ASSEMBLY TRAY 2
APPLICATION		HEAT TREATMENT	CHECKED	CODE IDENT NO.
		FINAL FINISH	APPROVAL 10-2-63	SIZE E
			APPROVAL	NASA DRAWING NO 1007142
			NASA APPROVAL 10-1-63	SCALE 1/1
			MIT APPROVAL 8 Oct 63	WT
				SHEET 1 OF 2

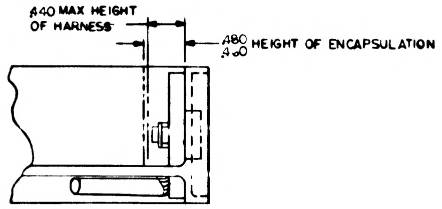
1007142 K

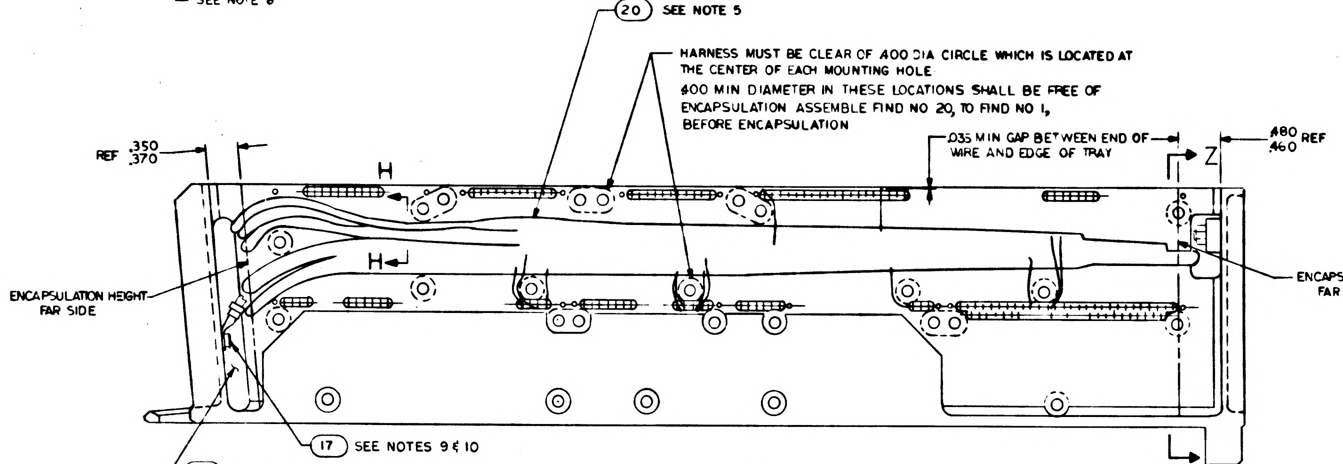
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
G	THIS SHEET ADDED PER TDRR 04285	11-20-63	RK
H	REVISED PER TDRR 06493		
K	REVISED PER TDRR 08145	15 MAY 64	JB

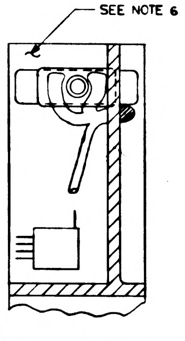

SEE NOTE 6
ENCAPSULATE TOTAL HEIGHT
OF TRAY TO DEPTH NOTED
.330 MAX HEIGHT
OF HARNESS
.350
.370 DEPTH OF ENCAPSULATION
.360 MAX HEIGHT
OF HARNESS
-A-
SEE NOTE 6


.440 MAX HEIGHT
OF HARNESS
.480
.460 HEIGHT OF ENCAPSULATION


20 SEE NOTE 5
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT
THE CENTER OF EACH MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF
ENCAPSULATION. ASSEMBLE FIND NO 20, TO FIND NO 1,
BEFORE ENCAPSULATION
REF .350
.370
.035 MIN GAP BETWEEN END OF
WIRE AND EDGE OF TRAY
.480
.460 REF
H
H
Z
Z
ENCAPSULATION HEIGHT
FAR SIDE
ENCAPSULATION HEIGHT
FAR SIDE
17 SEE NOTES 9 & 10

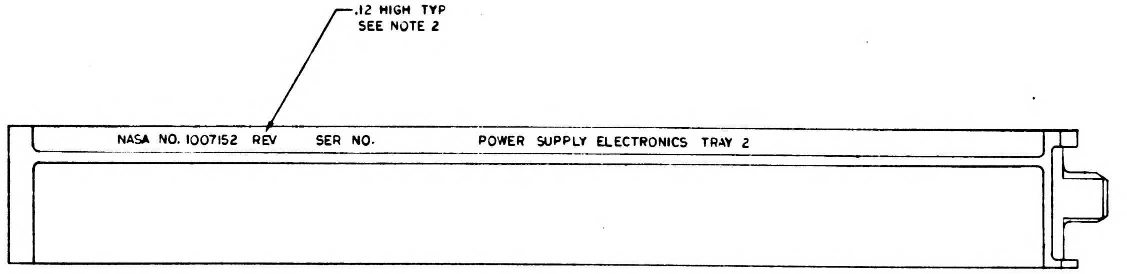
21 ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION

PARTIAL SECTION H-H



PARTIAL SECTION Z-Z

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11


.12 HIGH TYP
SEE NOTE 2
NASA NO. 1007152 REV SER NO. POWER SUPPLY ELECTRONICS TRAY 2

MARKING VIEW AFTER ENCAPSULATION

REV G THIS SHEET ADDED

1007142 K

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007152	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

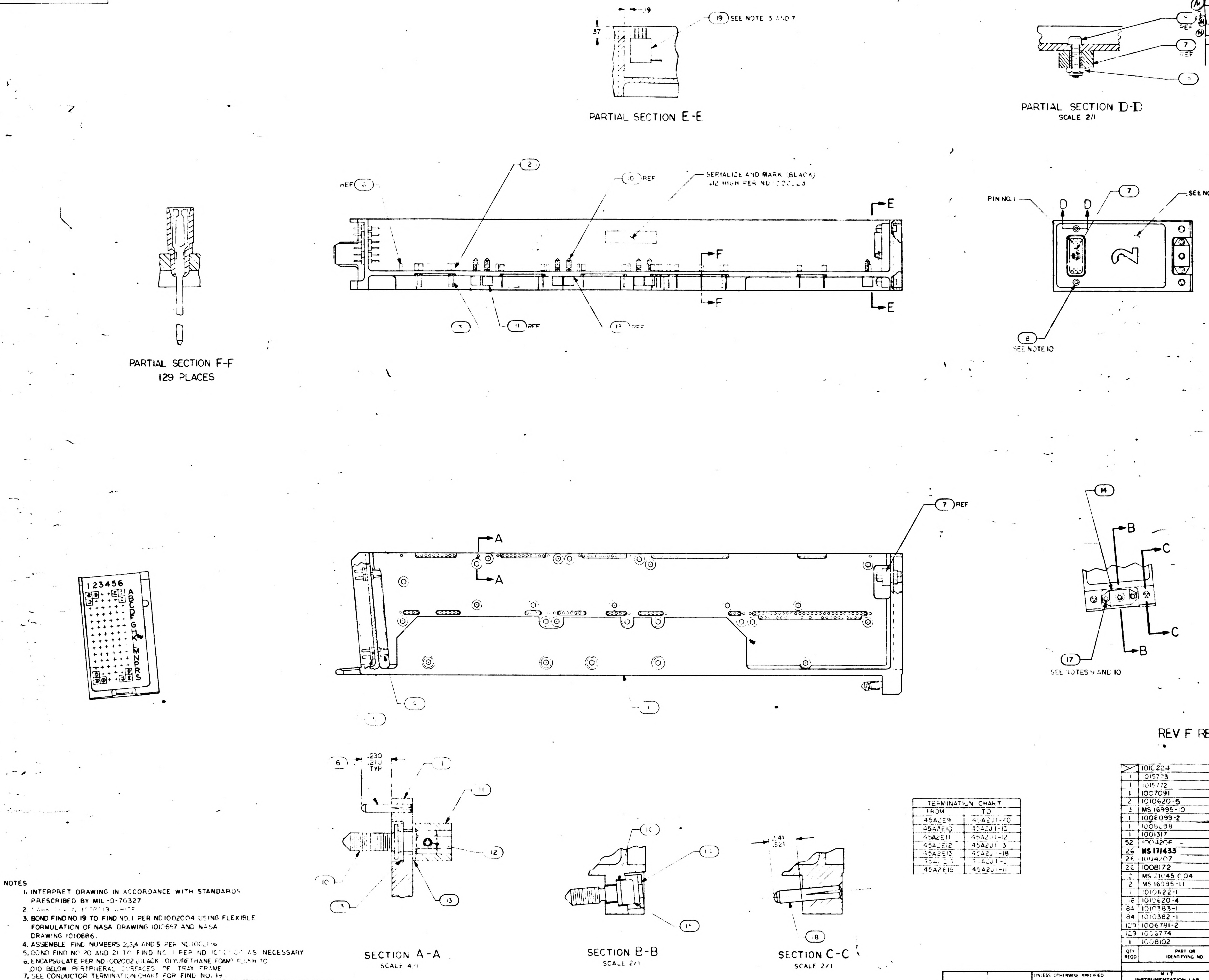
M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN G. Conley DATE 11-12-63
CHECKED R.P. 15 Nov 63
APPROVAL A. Patent 11-20-63
APPROVAL
NASA APPROVAL J. Broussard
MIT APPROVAL Hall 11/20/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 2

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007142
SCALE FULL
WT
SHEET 2 OF 2

SYM	DESCRIPTION	DATE	APPROVAL
REVISIONS			
F	REVISED PER TDRR 03775	[illegible]	[illegible]
G	REVISED PER TDRR 04745	[illegible]	[illegible]
H	REVISED PER TDRR [illegible]	[illegible]	WR
J	REVISED PER TDRR 07138	6 APR 64	RWT
K	REVISED PER TDRR 08145	13 MAY 64	J
L	REVISED PER TDRR 14323	23 NOV -64	J.K.



.19
.37
19 SEE NOTE 3 AND 7
PARTIAL SECTION E-E
REF
7 REF
9
PARTIAL SECTION D-D
SCALE 2/1
REF 6
2
6 REF
SERIALIZE AND MARK (BLACK) .12 HIGH PER ND1002023
E
F
F
E
3
11 REF
13 REF
PIN NO.1
D D
7
SEE NOTE 8
2
8
SEE NOTE 10
PARTIAL SECTION F-F
129 PLACES
7 REF
A
A
14
B
C
C
B
17
SEE NOTES 9 AND 10
123456
ABCDEFGHJKLMNPRS
4
1
6
.230
.210
TYP
1
11
12
10
13
13
SECTION A-A
SCALE 4/1
16
15
SECTION B-B
SCALE 2/1
.41
.21
8
SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A2E9	45A2J1-20
45A2E10	45A2J1-13
45A2E11	45A2J1-12
45A2E12	45A2J1-3
45A2E13	45A2J1-18
45A2E14	45A2J1-2
45A2E15	45A2J1-11

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND 1002019 WHITE
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND 1002136
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6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
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ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007142.

REV F REPLACES REV E

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
	1010224	WIRING DIAGRAM	REF
1	1015773	WIRE LIST A A	21
1	1015772	WIRING HARNESS A	20
1	1007091	BUFFER RESISTOR ASSY	19
2	1010620-5	PIN GUIDE	18
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	17
1	1008099-2	WASHER	16
1	1008098	SCREW, SOCKET HEAD	15
1	1001317	RETAINER, JACK SCREW	14
52	1004206	WASHER, THRUST	13
26	MS 171433	PIN, SPRING	12
26	1004207	DRIVE CYLINDER	11
26	1008172	SCREW, JACK	10
2	MS 21045 C 04	NUT, SELF-LOCKING, HEX	9
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	8
1	1010622-1	CONNECTOR, RECEPTACLE,	7
16	1010620-4	PIN, GUIDE	6
84	1010383-1	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
129	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
129	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008102	FRAME	1

LIST OF MATERIALS

1007152		HEAT TREATMENT	
NEXT ASSY	USED ON	FINAL FINISH	
APPLICATION			

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
.02 ±1°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
Cambridge Mass
DWG NO CONTRACT NAS9-497

DRAWN Z. Iyono DATE 4 Aug 63
CHECKED
APPROVAL 11-8-63
APPROVAL
NASA APPROVAL
MIT APPROVAL W Kupfer 8 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY TRAY 2

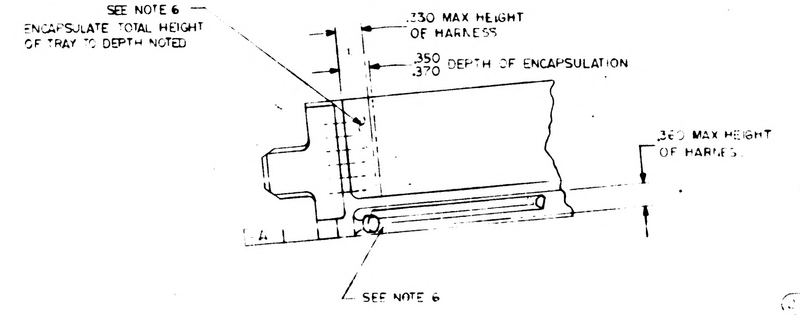
CODE IDENT NO
SIZE E
NASA DRAWING NO. 1007142
SCALE 1/1 WT SHEET 1 OF 2

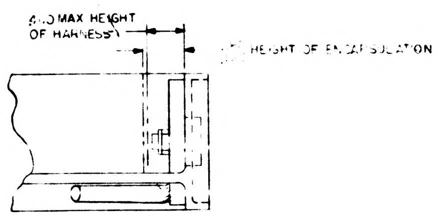
1007142 L

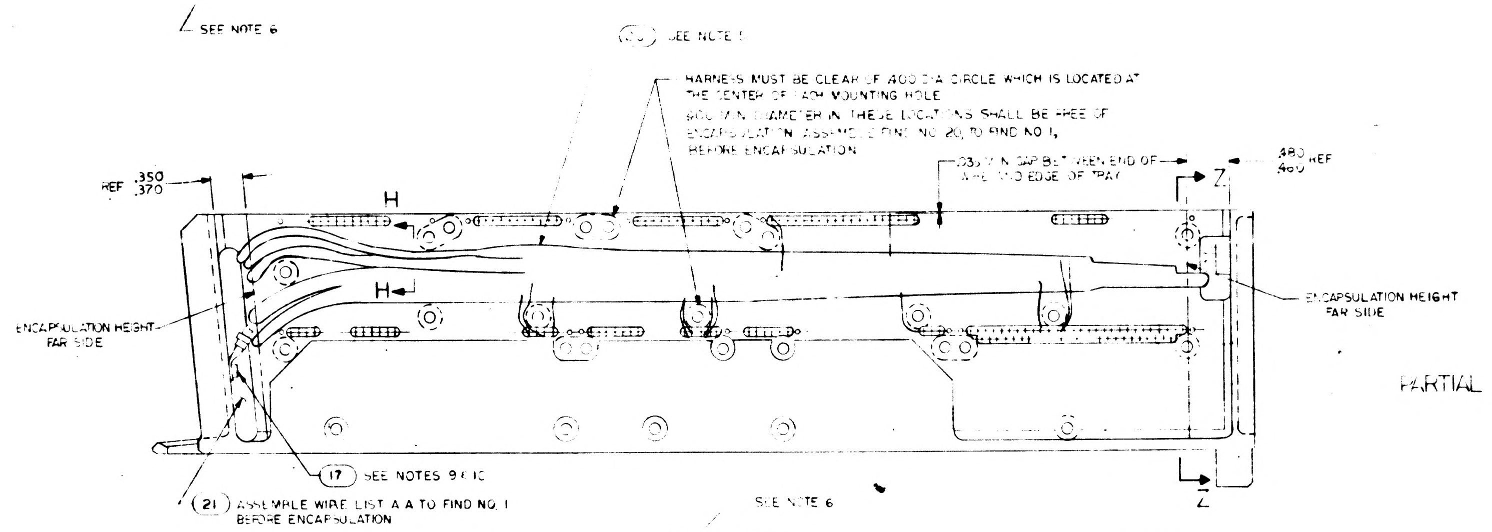
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

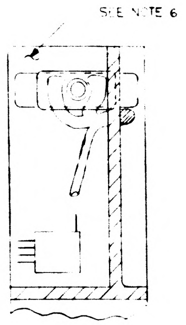
SYM	DESCRIPTION	DATE	APPROVAL
G	THIS SHEET ADDED PER TDRR [illegible]	11-20-	
H	REVISED PER TDRR [illegible]	[illegible]	
K	REVISED PER TDRR 08145	15 MAY 64	
L	REVISED PER TDRR 14323	23-NOV-64	


SEE NOTE 6
ENCAPSULATE TOTAL HEIGHT OF TRAY TO DEPTH NOTED
.330 MAX HEIGHT OF HARNESS
.350 .370 DEPTH OF ENCAPSULATION
.360 MAX HEIGHT OF HARNESS
A
SEE NOTE 6


.400 MAX HEIGHT OF HARNESS
HEIGHT OF ENCAPSULATION

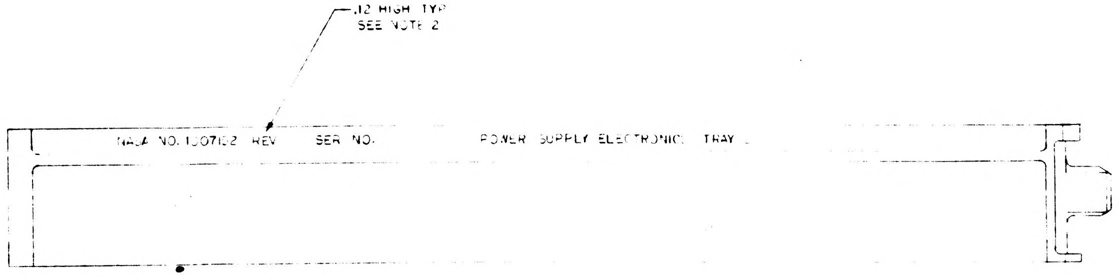

(20) SEE NOTE 5
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 20, TO FIND NO 1, BEFORE ENCAPSULATION
REF .350 .370
H
H
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.480 .460 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
Z
(17) SEE NOTES 9 & 10
(21) ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION

PARTIAL SECTION H-H



PARTIAL SECTION Z-Z

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11


.12 HIGH TYP
SEE NOTE 2
NASA NO. 1007142 REV SER NO. POWER SUPPLY ELECTRONIC TRAY

MARKING VIEW AFTER ENCAPSULATION

REV G THIS SHEET ADDED

1007142 L

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007152 NEXT ASSY
USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN DATE
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRAME ASSEMBLY
TRAY 2

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007142
SCALE FULL
WT
SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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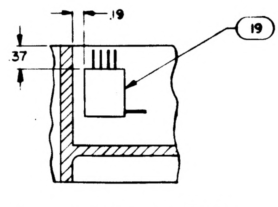
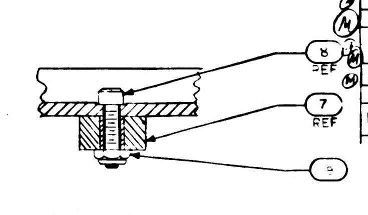
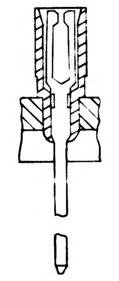
G	REVISED PER TDRR 04745	11 ' 63	
H	REVISED PER TDRR [illegible]		WK
J	REVISED PER TDRR 07138	6 APR 64	
K	REVISED PER TDRR 08145	13 MAY 64	
L	REVISED PER TDRR 14323	23 NOV -64	
M	REVISED PER TDRR 14324	24 NOV 64	



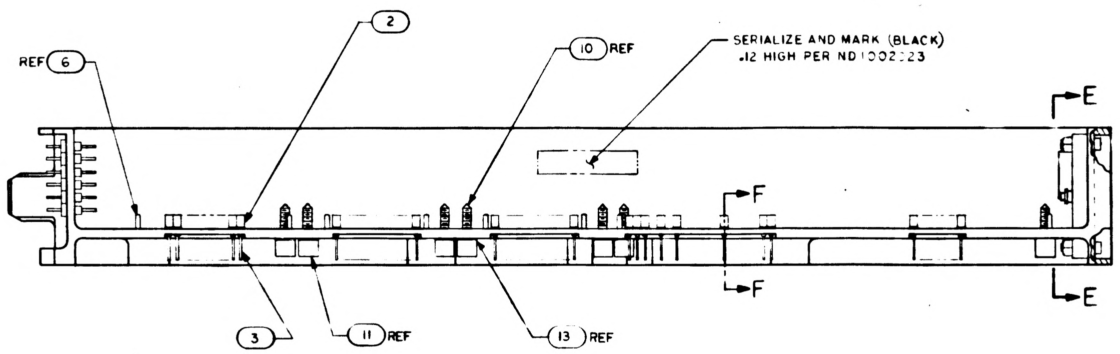
PARTIAL SECTION E-E

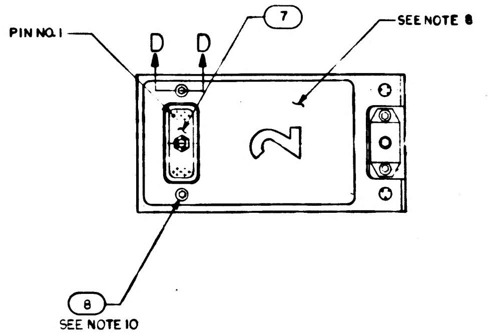


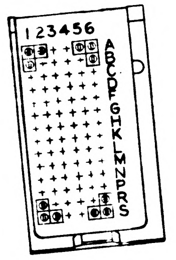
PARTIAL SECTION D-D
SCALE 2/1

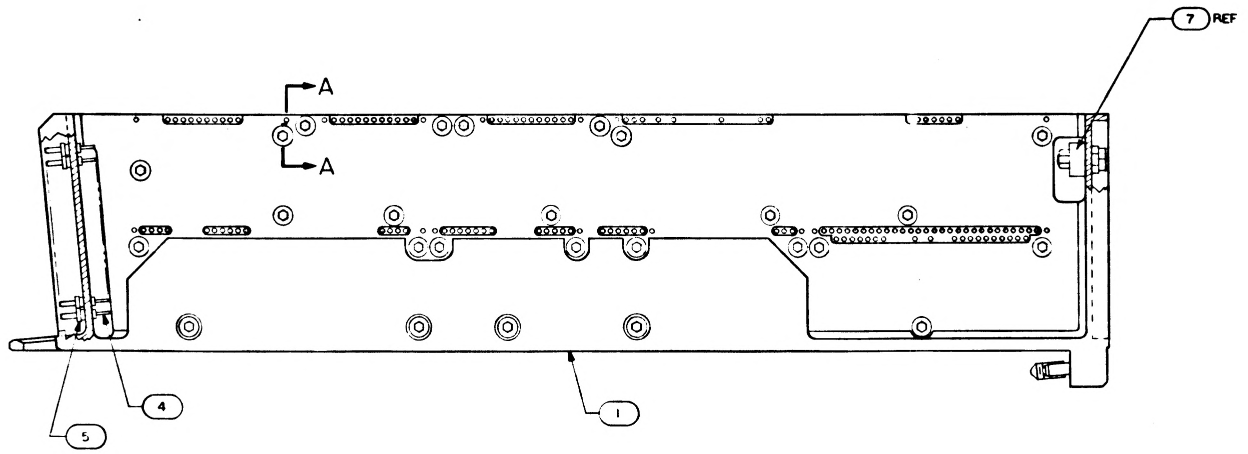


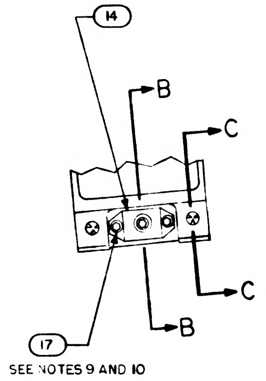
PARTIAL SECTION F-F
129 PLACES



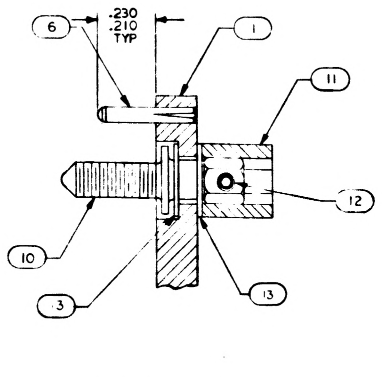




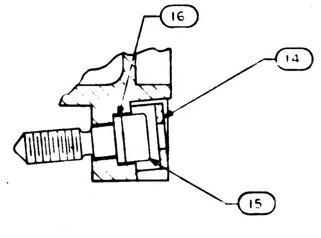




REV F REPLACES REV E



SECTION A-A
SCALE 4/1



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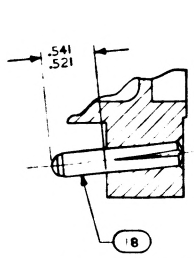
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A2E9	45A2J1-20
45A2E10	45A2J1-13
45A2E11	45A2J1-12
45A2E12	45A2J1-3
45A2E13	45A2J1-18
45A2E14	45A2J1-2
45A2E15	45A2J1-11

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. [illegible] PER ND1002019 WHITE
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136
5. BOND FIND NO 20 AND 21 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
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10. MOUNTING TORQUE FOR FIND NUMBERS 8 AND 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005.
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ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS1007142.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
	1008451	WIRING DIAGRAM	REF
1	1015773	WIRE LIST A A	21
1	1015772	WIRING HARNESS A	20
1	1007091	BUFFER RESISTOR ASSY	19
2	1010620-5	PIN GUIDE	18
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	17
1	1008099-2	WASHER	16
1	1008098	SCREW, SOCKET HEAD	15
1	1001317	RETAINER, JACK SCREW	14
52	1004206	WASHER, THRUST	13
26	MS 171433	PIN, SPRING	12
26	1004207	DRIVE CYLINDER	11
26	1008172	SCREW, JACK	10
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	9
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	8
1	1010622-1	CONNECTOR, RECEPTACLE,	7
16	1010620-4	PIN, GUIDE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
129	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
129	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008102	FRAME,	1

LIST OF MATERIALS

1007152	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS9-497

DRAWN E. F. Ingino DATE 4 Aug 63
CHECKED [illegible] 10-22-63
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible] 10-1-63
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 2

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007142
SCALE 1/1
WT
SHEET 1 OF 2

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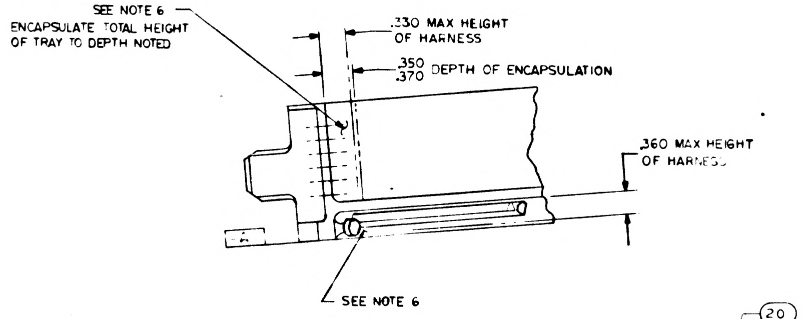
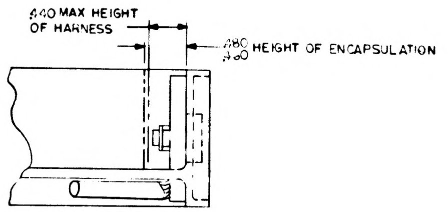
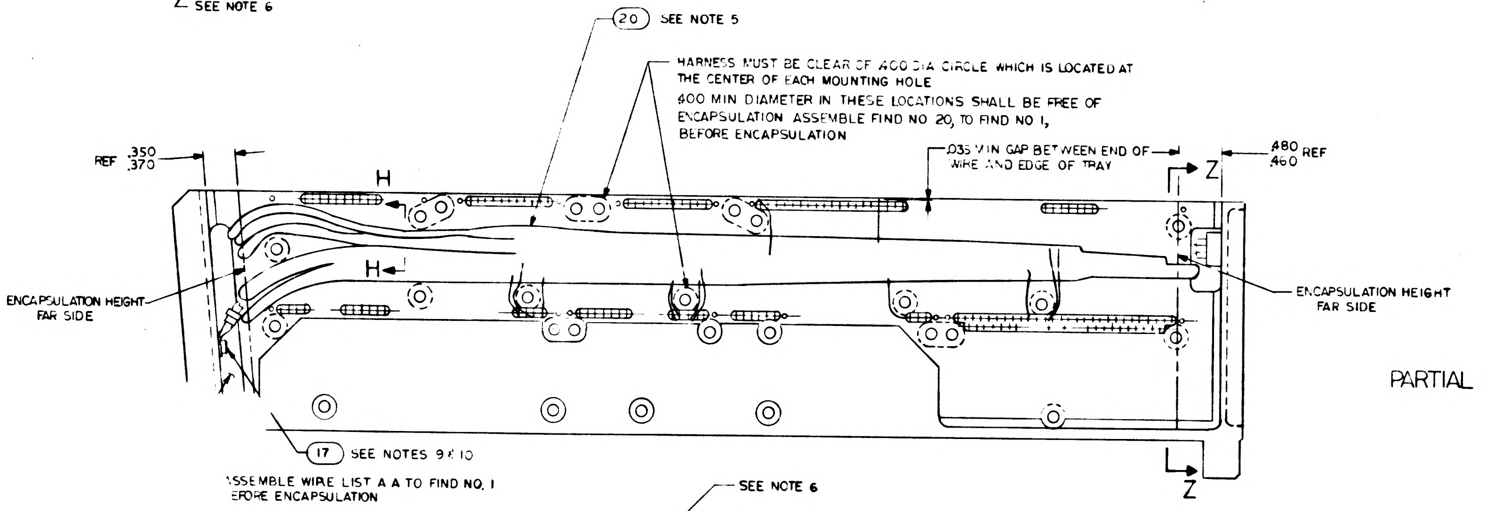
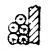
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
G	THIS SHEET ADDED PER TDRR -4785	11 20	
H	REVISED PER TDRR		
K	REVISED PER TDRR 08145	15 MAY 64	
L	REVISED PER TDRR 14323		
M	REVISED PER TDRR 14324	24	RJJ

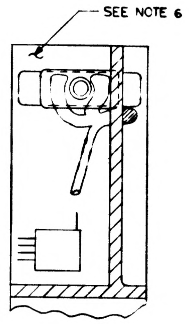

SEE NOTE 6
ENCAPSULATE TOTAL HEIGHT OF TRAY TO DEPTH NOTED
.330 MAX HEIGHT OF HARNESS
.350 .370 DEPTH OF ENCAPSULATION
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6


.440 MAX HEIGHT OF HARNESS
.480 .460 HEIGHT OF ENCAPSULATION


20 SEE NOTE 5
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION ASSEMBLE FIND NO 20, TO FIND NO 1, BEFORE ENCAPSULATION
REF .350 .370
H
H
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.480 .460 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
Z
17 SEE NOTES 9 & 10
ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION

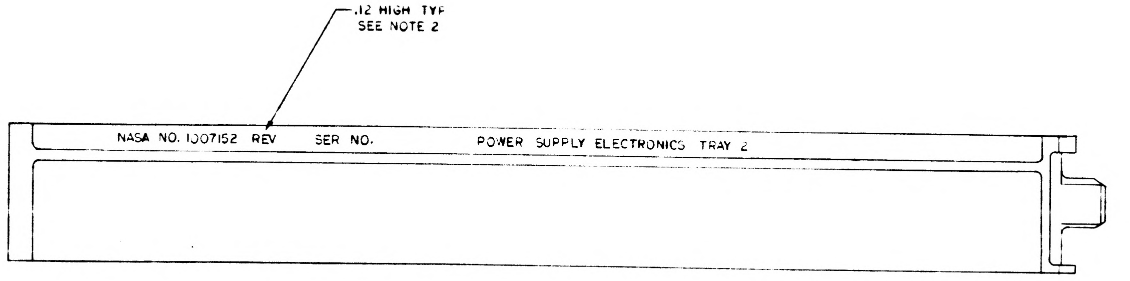


PARTIAL SECTION H-H



ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11

PARTIAL SECTION Z-Z


.12 HIGH TYP
SEE NOTE 2
NASA NO. 1007152 REV SER NO. POWER SUPPLY ELECTRONICS TRAY 2

MARKING VIEW AFTER ENCAPSULATION

REV G THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007152	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTR
DRAWN DATE 11-12-63
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 2

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007142
SCALE FULL
WT
SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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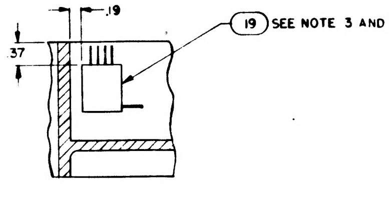
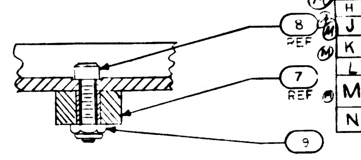
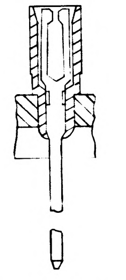
G	REVISED PER TDRR 04745	11 [illegible] 63	[illegible]
H	REVISED PER TDRR [illegible]	[illegible]	[illegible]
J	REVISED PER TDRR 07138	6 APR 64	[illegible]
K	REVISED PER TDRR 08145	13 MAY 64	[illegible]
L	REVISED PER TDRR 14323	23 NOV 64	[illegible]
M	REVISED PER TDRR 14324	24 NOV 64	[illegible]
N	REVISED PER TDRR 14581	7 DEC 64	[illegible]



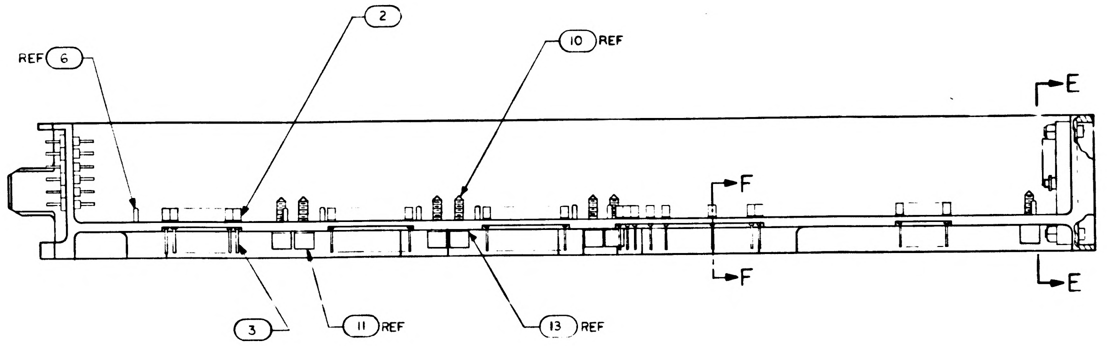
PARTIAL SECTION E-E

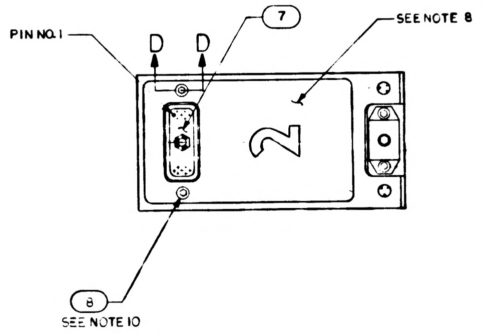


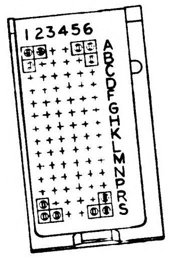
PARTIAL SECTION D-D
SCALE 2/1

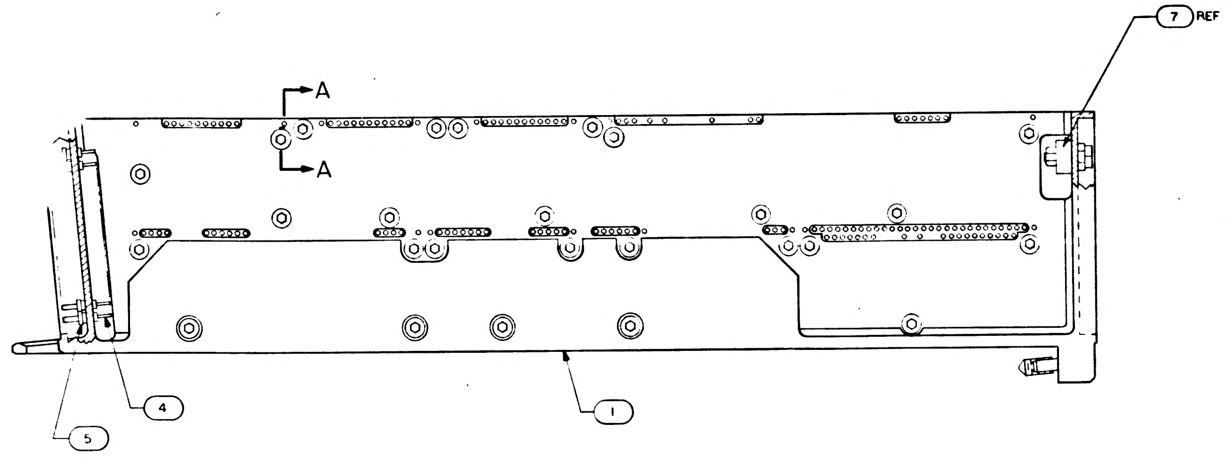


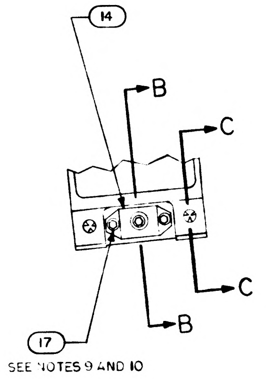
PARTIAL SECTION F-F
129 PLACES











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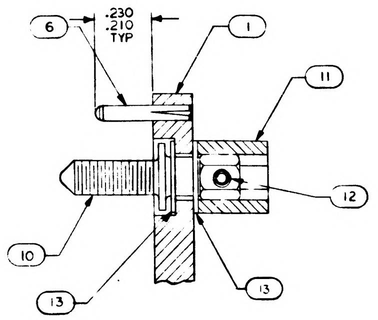
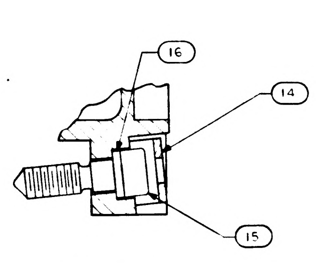
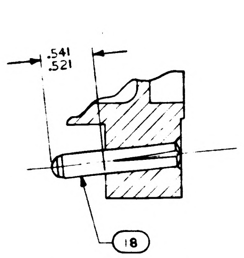


SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK .140/.100 HIGH BLACK CHARACTERS PER ND 1002019 & SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND 1002136
5. BOND FIND NO 20 AND 21 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19.
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO. 17 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 8 AND 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007142.

TERMINATION CHART	
FROM	TO
45A2E9	45A2J1-20
45A2E10	45A2J1-13
45A2E11	45A2J1-12
45A2E12	45A2J1-3
45A2E13	45A2J1-18
45A2E14	45A2J1-2
45A2E15	45A2J1-11

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1008451	WIRING DIAGRAM	REF
1	1015773	WIRE LIST A A	21
1	1015772	WIRING HARNESS A	20
1	1007091	BUFFER RESISTOR ASSY	9
2	1010620-5	PIN GUIDE	8
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	7
1	1008099-2	WASHER	6
1	1008098	SCREW, SOCKET HEAD	5
1	1001317	RETAINER, JACK SCREW	14
52	1004206	WASHER, THRUST	[illegible]
26	MS 171433	PIN, SPRING	12
26	1004207	DRIVE CYLINDER	[illegible]
26	1008172	SCREW JACK	[illegible]
2	MS 21045 C 04	NUT SELF-LOCKING HEX	
2	MS 16995-11	SCREW CAP, SOCKET HEAD	[illegible]
1	1010622-1	CONNECTOR, RECEPTACLE,	[illegible]
16	1010620-4	PIN, GUIDE	[illegible]
84	1010383-1	INSULATOR WRAPOST MALE	
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	
129	1006781-2	CONTACT, WRAPOST, FEMALE MIN	
129	1006774	INSULATOR, WRAPOST FEMALE MIN	
1	1008102	FRAME,	

LIST OF MATERIALS

1007152		
NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS · DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
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INSTRUMENTATION LAB
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DWG NO
CONTRACT NAS9-497
DRAWN [illegible] DATE 4-4-63
CHECKED
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 2

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007142
SCALE 1/1
WT
SHEET 1 OF 2

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REVISIONS

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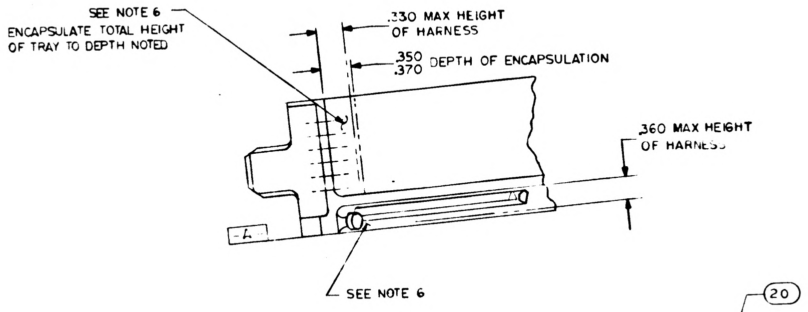
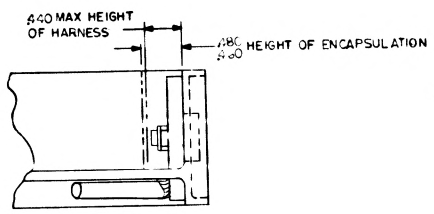
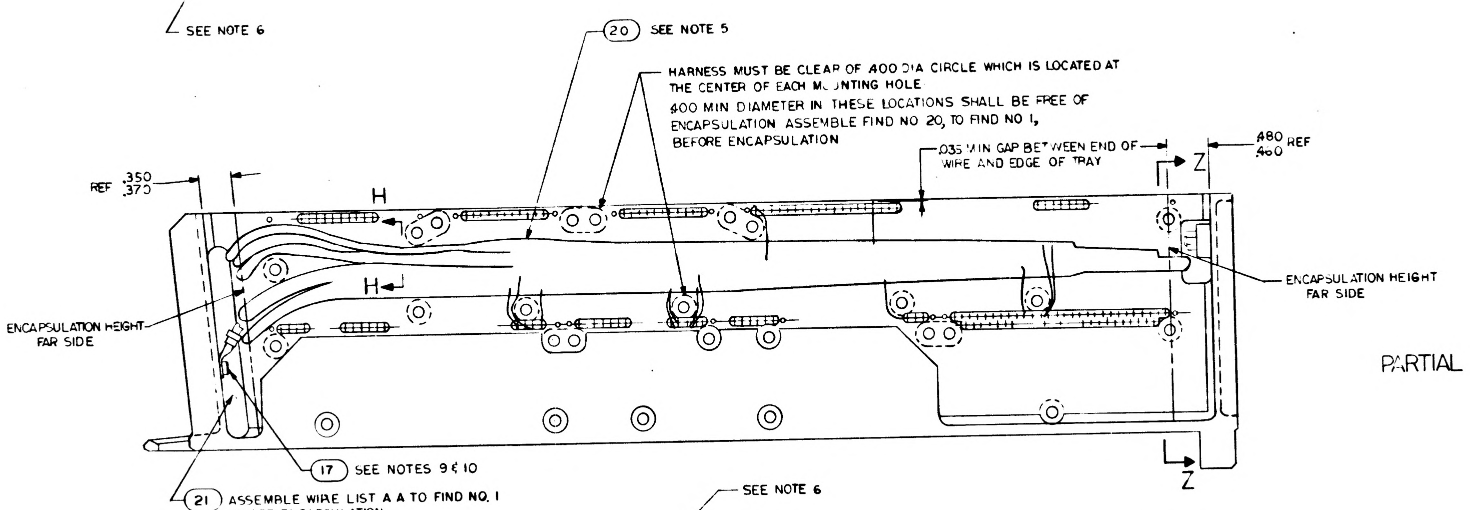
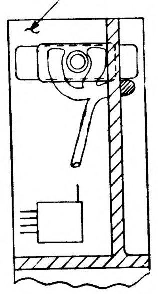
	H	REVISED PER TDRR 06993		WL
(M)	K	REVISED PER TDRR 08145	15 MAY 64	JB
	L	REVISED PER TDRR 14323	23-NOV-64	WT
(M)	M	REVISED PER TDRR 14324	24 Nov 64	RJJ
	N	REVISED PER TDRR 14581	7 DEC 64	JJ CB


SEE NOTE 6
ENCAPSULATE TOTAL HEIGHT OF TRAY TO DEPTH NOTED
.330 MAX HEIGHT OF HARNESS
.350 .370 DEPTH OF ENCAPSULATION
.360 MAX HEIGHT OF HARNESS
-A-
SEE NOTE 6


.440 MAX HEIGHT OF HARNESS
.480 .460 HEIGHT OF ENCAPSULATION


20 SEE NOTE 5
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION ASSEMBLE FIND NO 20, TO FIND NO 1, BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.480 .460 REF
REF .350 .370
H
H
Z
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
17 SEE NOTES 9 & 10
21 ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION

PARTIAL SECTION H-H



PARTIAL SECTION Z-Z

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11

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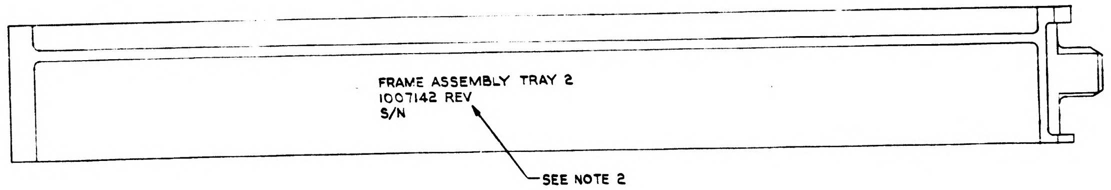
FRAME ASSEMBLY TRAY 2
1007142 REV
S/N
SEE NOTE 2

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007152
NEXT ASSY USED ON
APPLICATION

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DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTR
DRAWN DATE
CHECKED
APPROVAL A. Pitest 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 2

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007142
SCALE FULL WT SHEET 2 OF 2

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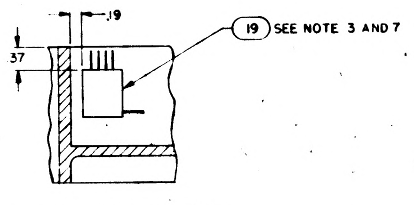
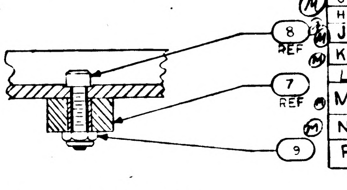


PARTIAL SECTION E-E



PARTIAL SECTION D-D
SCALE 2/1

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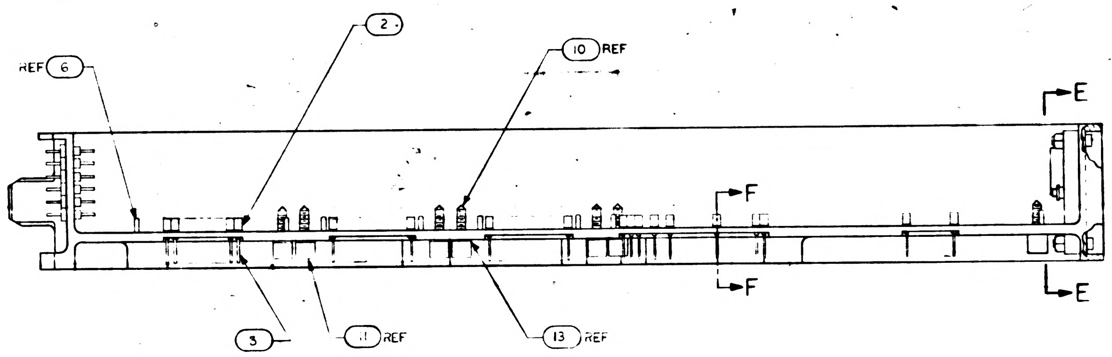
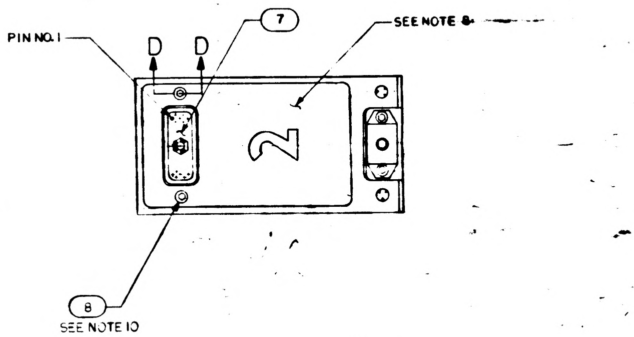
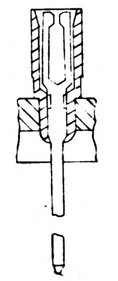
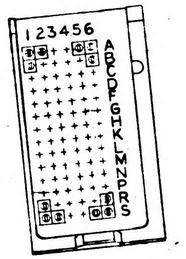
G	REVISED PER TDRR 04745		
H	REVISED PER TDRR 06693		
J	REVISED PER TDRR 07138	6 APR 64	RJJT
K	REVISED PER TDRR 08145	13 MAY 64	
L	REVISED PER TDRR 14323	23 NOV -64	
M	REVISED PER TDRR 14324	24 NOV 64	RJJ
N	REVISED PER TDRR 14581	7 DEC 64	JJJ CHP
P	REVISED PER TDRR 20118	21 JUN 65	JES MCM

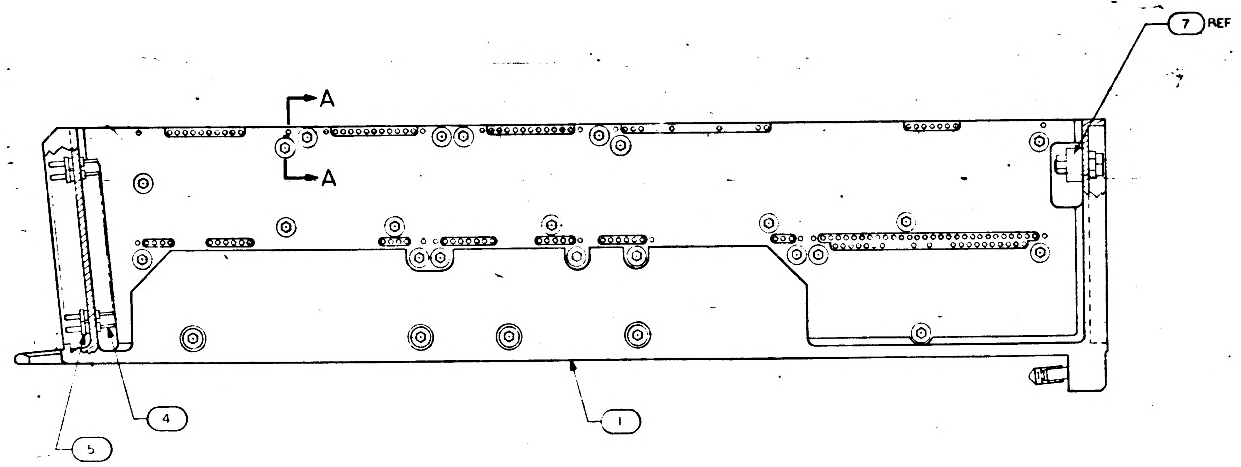


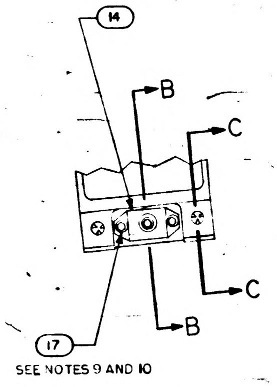




PARTIAL SECTION F-F
129 PLACES







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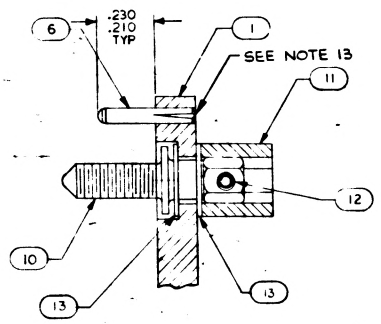
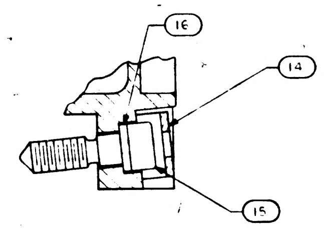
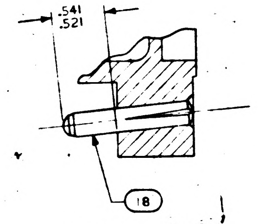
1	1015772	WIRING HARNESS A	20
1	1007091	BUFFER RESISTOR ASSY	19
2	1010620-5	PIN GUIDE	18
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	17
1	1008099-2	WASHER	16
1	1008098	SCREW SOCKET HEAD	15
1	1001317	RETAINER, JACK SCREW	14
52	1004206	WASHER, THRUST	13
26	MS 171433	PIN, SPRING	12
26	1004207	DRIVE CYLINDER	11
26	1008172	SCREW, JACK	10
2	MS 21045 C 04	NUT, SELF-LOCKING, HEX	9
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	8
1	1010622-1	CONNECTOR, RECEPTACLE,	7
16	MS 16556-604	PIN, GUIDE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
129	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
129	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008102	FRAME,	1

LIST OF MATERIALS







TERMINATION CHART	
FROM	TO
45A2E9	45A2J1-20
45A2E10	45A2J1-13
45A2E11	45A2J1-12
45A2E12	45A2J1-3
45A2E13	45A2J1-18
45A2E14	45A2J1-2
45A2E15	45A2J1-11

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK .140/.100 HIGH BLACK CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NOS. 2,3,4 AND 5 PER ND 1002136.
5. BOND FIND NO. 20 AND 21 TO FIND NO. 1 PER ND 1002004 AS NECESSARY.
6. ENCAPSULATE PER ND 1002236, SECTION 3.6, CURE CYCLE A, USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19.
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO. 17 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585/ (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 8 AND 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007142.
13. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.
14. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND 1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND 1002004 TYPE I.

SECTION A-A
SCALE 4/1

SECTION B-B
SCALE 2/1

SECTION C-C
SCALE 2/1

NEXT ASSY	USED ON
1007152	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

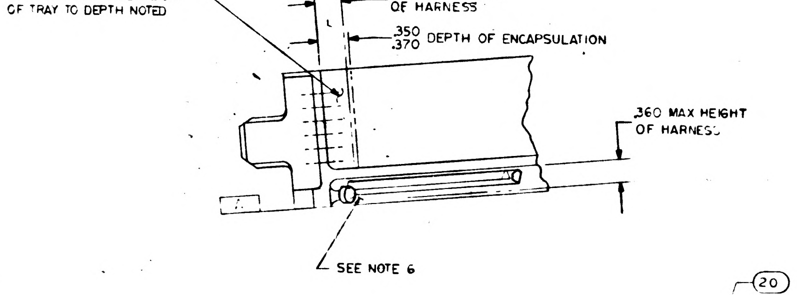
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT NAS9-497
DRAWN DATE 4 APR 63
CHECKED 20-63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL 8 Oct 63

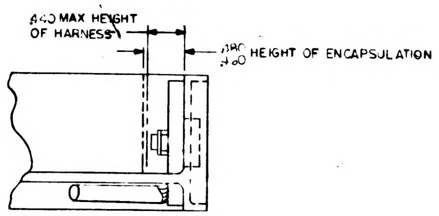
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

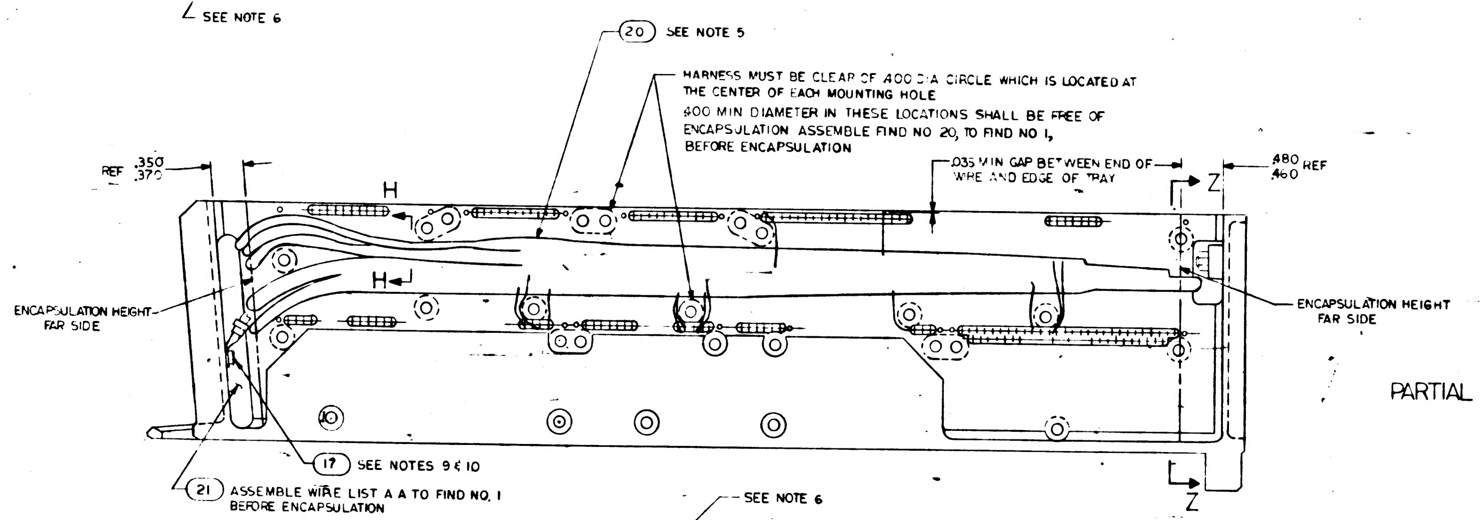
FRAME ASSEMBLY
TRAY 2

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007142
SCALE 1/1
WT
SHEET 1 OF 2

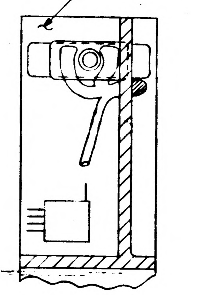
SYM	DESCRIPTION	DATE	APPROVAL
G	THIS SHEET ADDED PER TDRR 04285	11-20	
H	REVISED PER TDRR 06473		
K	REVISED PER TDRR 08145	15 MAY 64	
L	REVISED PER TDRR 14323	23-Nov-64	
M	REVISED PER TDRR 14324	24 Nov 64	RJJ
N	REVISED PER TDRR 14581	7 DEC 64	JJ
P	REVISED PER TDRR 20118	21 JUN 65	


SEE NOTE 6
ENCAPSULATE TOTAL HEIGHT OF TRAY TO DEPTH NOTED
.330 MAX HEIGHT OF HARNESS
.350 .370 DEPTH OF ENCAPSULATION
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6


.440 MAX HEIGHT OF HARNESS
.380 .400 HEIGHT OF ENCAPSULATION


(20) SEE NOTE 5
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION ASSEMBLE FIND NO 20, TO FIND NO 1, BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.480 .460 REF
Z
REF .350 .370
H
H
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
(17) SEE NOTES 9 & 10
(21) ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION
Z

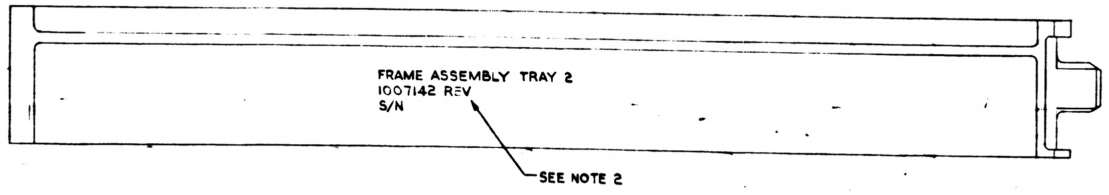
PARTIAL SECTION H-H



PARTIAL SECTION Z-Z

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11

REV G THIS SHEET ADDED


FRAME ASSEMBLY TRAY 2
1007142 REV
S/N
SEE NOTE 2

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

1007152	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT NAS 9-497
DRAWN DATE 11-12-63
CHECKED
APPROVAL 11-30-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

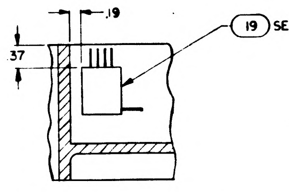
FRAME ASSEMBLY
TRAY 2

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO. 1007142
SCALE FULL
WT
SHEET 2 OF 2

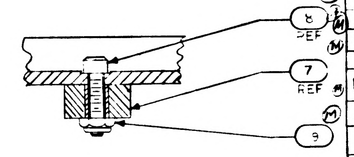
1007142 P

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

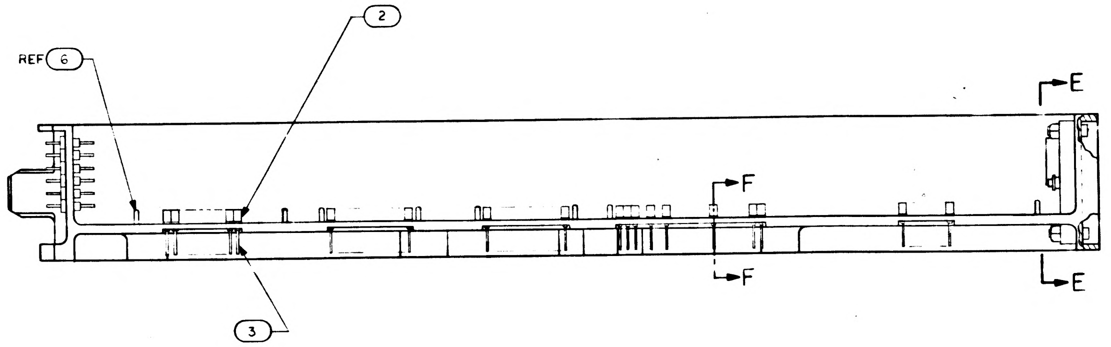
SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDRR 03773	[illegible]	[illegible]
G	REVISED PER TDRR 04745	[illegible]	[illegible]
H	REVISED PER TDRR [illegible]	[illegible]	[illegible]
J	REVISED PER TDRR 07138	6 APR 64	[illegible]
K	REVISED PER TDRR 08145	13 MAY 64	[illegible]
L	REVISED PER TDRR 14323	23 NOV 64	[illegible]
M	REVISED PER TDRR 14324	24 NOV 64	[illegible]
N	REVISED PER TDRR 14581	7 DEC 64	[illegible]
P	REVISED PER TDRR 20118	21 JUN 65	[illegible]
R	REVISED PER TDRR 20119	23 JUN 65	[illegible]

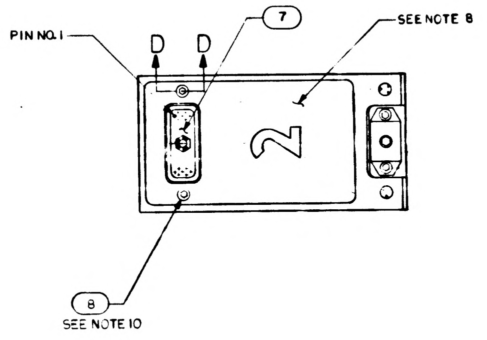


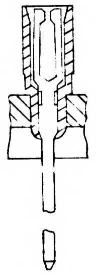
PARTIAL SECTION E-E



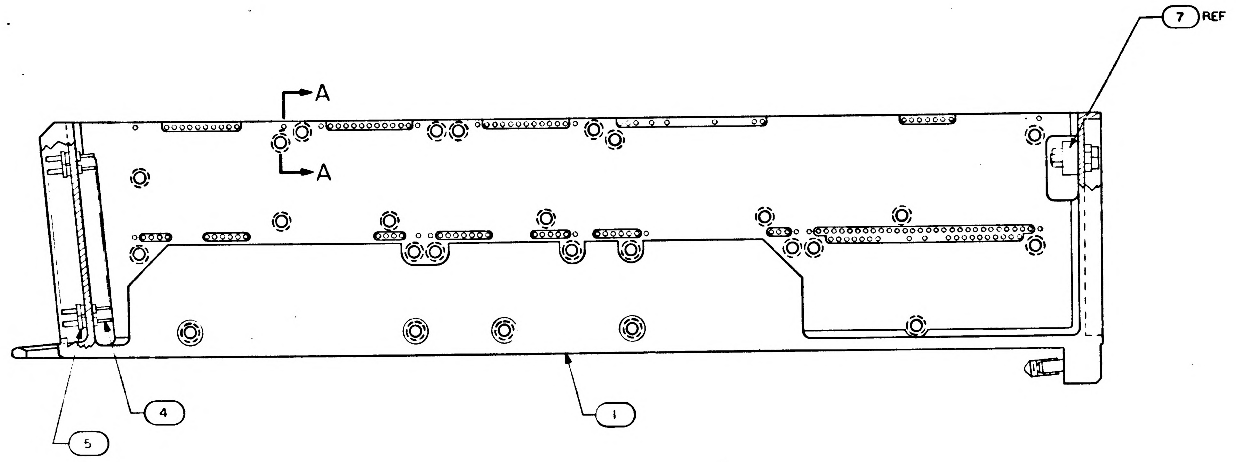
PARTIAL SECTION D-D
SCALE 2/1

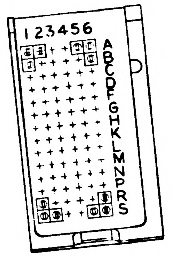


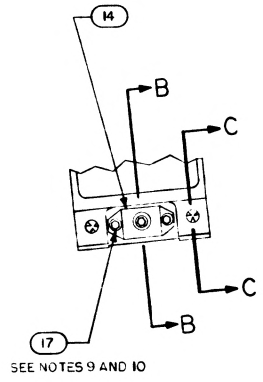




PARTIAL SECTION F-F
129 PLACES







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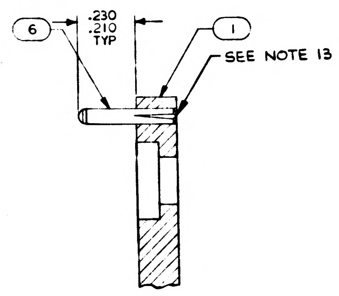

TERMINATION CHART	
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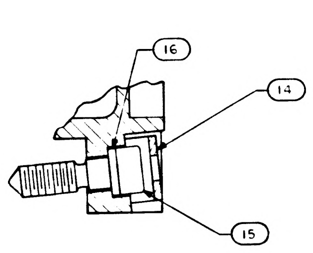
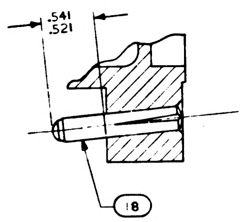
45A2E10	45A2J1-13
45A2E11	45A2J1-12
45A2E12	45A2J1-3
45A2E13	45A2J1-18
45A2E14	45A2J1-2
45A2E15	45A2J1-11





SECTION A-A
SCALE 4/1

SECTION B-B
SCALE 2/1

SECTION C-C
SCALE 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK .140/.100 HIGH BLACK CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
4. ASSEMBLE FIND NOS. 2,3,4 AND 5 PER ND1002136.
5. BOND FIND NO. 20 AND 21 TO FIND NO. 1 PER ND1002004 AS NECESSARY.
6. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A, USING .012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO. 17 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 8 AND 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS1007142.
13. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
14. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004 TYPE I.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1008451	WIRING DIAGRAM	REF
1	1015773	WIRE LIST A A	21
1	1015772	WIRING HARNESS A	20
1	1007091	BUFFER RESISTOR ASSY	19
2	1010620-5	PIN GUIDE	18
3	MS16995-10	SCREW, CAP, SOCKET HEAD	17
1	1008099-2	WASHER	16
1	1008098	SCREW, SOCKET HEAD	15
1	1001317	RETAINER, JACK SCREW	14
~~52~~	~~1004206~~	~~WASHER, THRUST~~	13
~~26~~	~~MS171433~~	~~PIN, SPRING~~	12
~~26~~	~~1004207~~	~~DRIVE CYLINDER~~	11
~~26~~	~~1008172~~	~~SCREW, JACK~~	10
2	MS21045C04	NUT, SELF-LOCKING HEX	9
2	MS16995-11	SCREW, CAP, SOCKET HEAD	8
1	1010622-1	CONNECTOR, RECEPTACLE,	7
16	MS16556-604	PIN, GUIDE	6
84	1010383-1	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
129	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
129	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008102	FRAME.	1

LIST OF MATERIALS

1007152	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT NAS9-497
DRAWN [illegible] DATE 4-4-63
CHECKED [illegible]
APPROVAL [illegible] 11-8-63
APPROVAL
NASA APPROVAL [illegible] 10-1-63
MIT APPROVAL [illegible] 8 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 2

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO. 1007142
SCALE 1/1
WT
SHEET 1 OF 2

1007142 R

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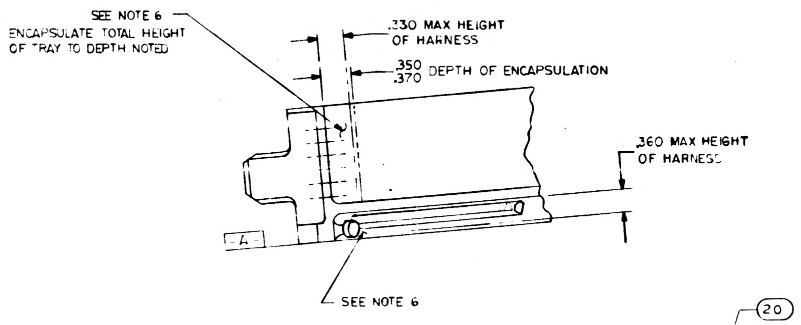
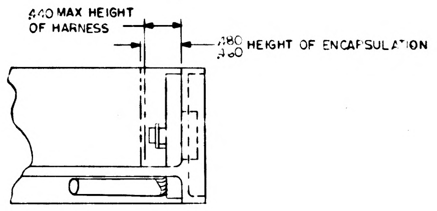
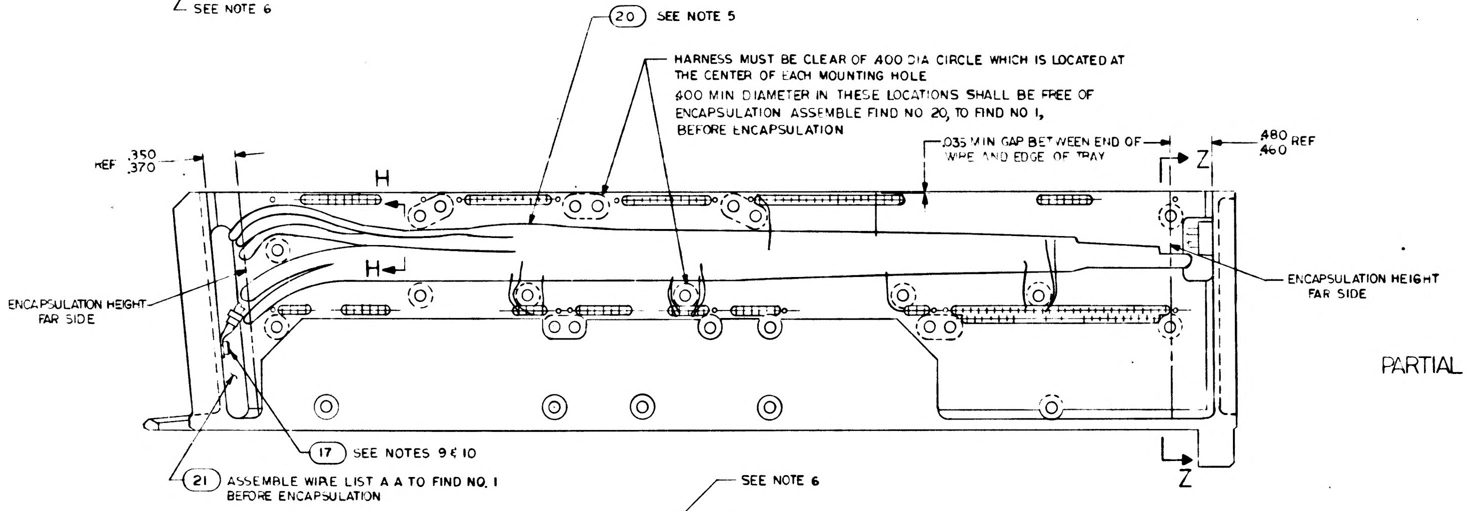
REVISIONS

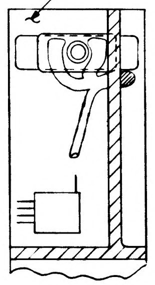
	SYM	DESCRIPTION	DATE	APPROVAL
(M)	G	THIS SHEET ADDED PER TDRR 04145	11 20	RPC
	H	REVISED PER TDRR		
(M)	K	REVISED PER TDRR 08145	15 MAY 64	JB
	L	REVISED PER TDRR 14323	23-NOV-64	
	M	REVISED PER TDRR 14324	24 Nov 64	RJJ
(M)	N	REVISED PER TDRR 14581	7 DEC 64	JJJ
	P	REVISED PER TDRR 20118	JUN 65	JRS
	R	REVISION STATUS CHANGED	23-JUN-65	


SEE NOTE 6
ENCAPSULATE TOTAL HEIGHT OF TRAY TO DEPTH NOTED
.330 MAX HEIGHT OF HARNESS
.350 .370 DEPTH OF ENCAPSULATION
.360 MAX HEIGHT OF HARNESS
-A-
SEE NOTE 6


.440 MAX HEIGHT OF HARNESS
.480 .460 HEIGHT OF ENCAPSULATION


20 SEE NOTE 5
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION ASSEMBLE FIND NO 20, TO FIND NO 1, BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.480 .460 REF
Z
.350 .370 REF
H
H
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
17 SEE NOTES 9 & 10
21 ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION
Z

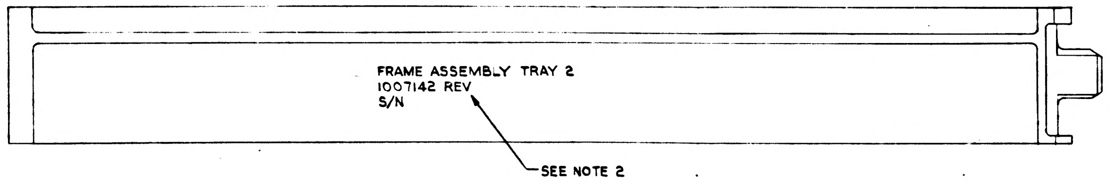
PARTIAL SECTION H-H



PARTIAL SECTION Z-Z

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11

REV G THIS SHEET ADDED


FRAME ASSEMBLY TRAY 2
1007142 REV
S/N
SEE NOTE 2

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007152	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTR
DRAWN Cooley DATE 11-12-63
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 2

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 1007142
SCALE F.
WT
SHEET 2 OF 2

1007142

REVISIONS TDRR 015A				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
1008102	Frame, Tray 2	1
1006774	Insulator, Wrapost, Female Miniature	240
1006781-2	Contact, Wrapost, Female Miniature	240
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

1007152	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL:

MIT
INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED		6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC Jack Barnard

MIT/IL APPROVAL	DATE
	14 Jun 63

FRAME ASSEMBLY,
TRAY 2

SCALE	UNIT WT.	CODE IDENT.

MIT
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DWG. NO.
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HOUSTON TEXAS
NASA DRAWING NO.
1007142
SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

APOLLO G&N Specification
PS-1007142
29 April 1964
Class A Release
TDRR 08051

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 2

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 2

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 2 for use in APOLLO Guidance and Navigation equipment.

WKupfer 29 April 64
MIT/IL DATE

4/29/64
NASA/MSC APPROVAL DATE

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 2

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 2, Drawing 1007142, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. - The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007142	Final Test Method for Frame Assembly Tray 2

DRAWINGS

APOLLO G&N

1007142	Frame Assembly Tray 2
1015772	Wiring Harness A Tray 2 (For Reference Only)
1015773	Wire List A-A

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007143

REVISIONS TDRR 01580				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	WK

PART NO.	DESCRIPTION	REQD.
1008103	Frame, Tray 3	1
1006774	Insulator, Wrapost, Female Miniature	182
1006781-2	Contact, Wrapost, Female Miniature	182
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1
1010620-1	Pin, Guide	24
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	36
1008098	Screw, Socket Head, Externally Relieved Body	1
1008099-1	Washer (Special)	36
1008099-2	Washer (Special)	1
1008092	Washer (Special)	36
MS 16624-15	Ring, Retaining	36
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

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		DATE
APPROVED	A. H. Hatt	6-11-63
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DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
L. E. Larson Jr.	14 June 63

FRAME ASSEMBLY,
TRAY 3

SCALE	UNIT WT.	CODE IDENT.

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PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY NO. 3

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals MIT	Approvals NASA
8-18-64	A	11696	1,2	WK	

This specification consists of page i to iii and 1 to [illegible] inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY NO. 3

This document describes the requirements and procedures for the procurement of the Frame Assembly Tray No. 3 to be used in the APOLLO Guidance and Navigation Equipment.

W Kupfer 30 Apr 64
MIT/IL DATE

NASA/MSC DATE

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 3

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 3, Drawing 1007143, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007143	Final Test Method for Frame Assembly Tray 3

DRAWINGS

APOLLO G&N

1007143	Frame Assembly Tray 3

APOLLO G&N Specification
PS-1007143
30 April 1964
Class A Release.
TDRR 08054

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY NO. 3

Record of Revisions

Ⓜ

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
[illegible]	[illegible]	[illegible]	1, [illegible]	WR	

This specification consists of page i
to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION
FOR
FRAME ASSEMBLY TRAY 3

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 3, Drawing 1007143, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS	
MILITARY	
MIL-P-116	Preservation, Methods of
APOLLO G&N	
ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007143	Final Test Method for Frame Assembly Tray 3
DRAWINGS	
APOLLO G&N	
1007143	Frame Assembly Tray 3

3. REQUIREMENTS

3.1 GENERAL SPECIFICATION. Unless otherwise specified, all of the requirements of Specification ND-1002210 shall apply as requirements of this specification.

3.2 DESCRIPTION. The tray is to be used in the Power and Servo Assembly as a mounting frame and as an interconnection for the modules used in the Gyro-Accelerometer Electronics Assembly.

3.3 FUNCTIONAL REQUIREMENTS

3.3.1 Insulation Resistance. The insulation resistance test shall be conducted between each individual connector pin, with the exception of C6 of connector 45A3-P1, and the assembly frame. The resistance from each connector pin to the assembly frame shall be equal to or greater than 100 megohms.

3.3.2 Continuity and Shorting. The continuity and shorting test of the assembly shall be as specified in JDC09769 of FTM1007143.

3.4 PERFORMANCE AND PRODUCT CHARACTERISTICS

3.4.1 Service Life

3.4.1.1 Operating Life. The assembly shall meet performance specifications for at least 2000 hours of operation, excluding the supplier's test time of the completed unit.

3.4.1.2 Shelf Life. The assembly shall be packaged as specified in MIL-P-116, Method 2, and shall have a life of at least 5 years, without operation, at ambient room temperature after final acceptance at the supplier's facility.

3.4.2 Reliability. Design objectives require maximum reliability of the assembly during its period of useful life. Every effort shall be made to design and produce units capable of meeting a maximum failure rate of 0.2 failures per million hours.

1007143

REVISIONS TDRR 01580

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	
	B	REVISED PER TDRR 02867	8 21 63	

PART NO.	DESCRIPTION	REQD.
1008103	Frame, Tray 3	1
1006774	Insulator, Wrapost, Female Miniature	182
1006781-2	Contact, Wrapost, Female Miniature	182
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	24
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	36
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer Thrust	72
1008099-2	Washer (Special)	1
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1008145	Pin, [illegible]	36
1004207	Drive Cylinder	36

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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MIT/IL APPROVAL — DATE 14 June 63

FRAME ASSEMBLY,
TRAY 3

SCALE
UNIT WT.
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APOLLO G&N Specification
PS-1007143 B
30 April 1964
Class A Release,
TDRR 38054

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY NO. 3

Record of Revisions

Ⓜ

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
[illegible]	[illegible]	[illegible]	1,	WK	
2/9/65	B	16233	1	W. K.	W. J. R.

This specification consists of page i to iii and 1 to 9 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 3

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 3, hereafter called the assembly.

1.2 CLASSIFICATION. The requirements for the equipment covered by this specification shall be classified as follows. Unless identified by the respective types, all requirements of this specification are applicable for all types.

a. Type I: The requirements for Part Numbers 1007143 and 1021213-011 shall be designated as Type I.

b. Type II: The requirements for Part Number 1007533-021 shall be designated as Type II.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007143	Final Test Method for Frame Assembly Tray 3

DRAWINGS

APOLLO G&N

1007143	Frame Assembly Tray 3
1007533	Frame Assembly Tray 3
1021213	Frame Assembly Tray 3

1007143

REVISIONS TDRR 01580

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	W
	B	REVISED PER TDRR 02867	8-26-63	
	C	SUPERSEDED PER TDRR 03773		RPK

PART NO.	DESCRIPTION	REQD.
1008103	Frame, Tray 3	1
1006774	Insulator, Wrapost, Female Miniature	182
1006781-2	Contact, Wrapost, Female Miniature	182
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	24
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	36
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer Thrust	72
1008099-2	Washer (Special)	1
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1008145	Pin, Spring	36
1004207	Drive Cylinder	36

REV C REPLACED BY REV D

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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APPROVED FOR MSC

MIT/IL APPROVAL	DATE
	17 June 63

FRAME ASSEMBLY,
TRAY 3

SCALE	UNIT WT.	CODE IDENT.

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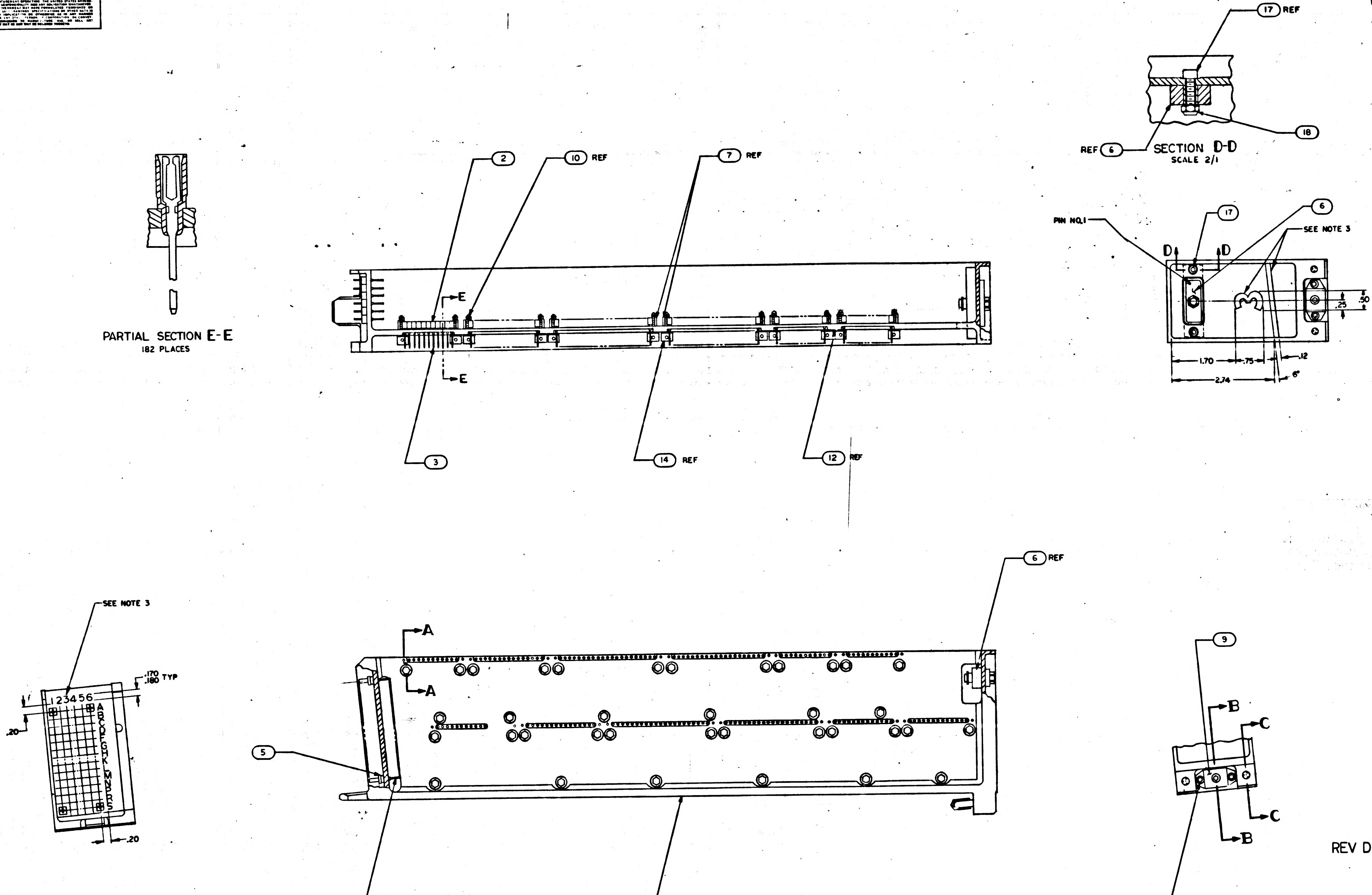
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 3773	10-4-63	WJ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PARTIAL SECTION E-E
182 PLACES
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10 REF
7 REF
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14 REF
12 REF
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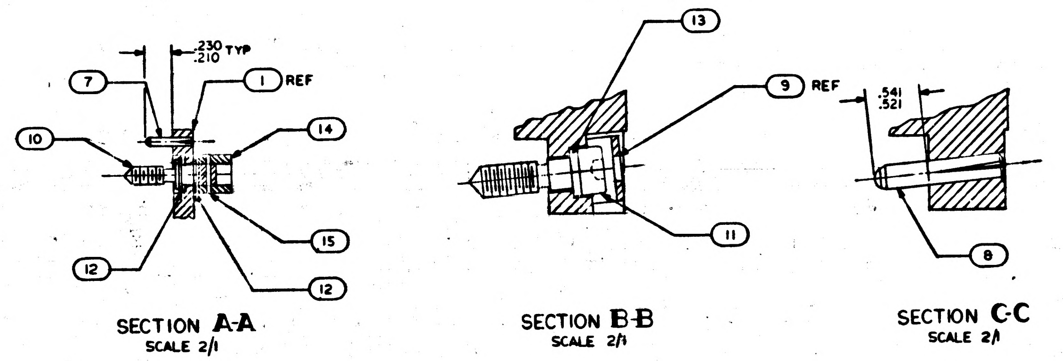
REV D REPLACES REV C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SECTION A-A
SCALE 2/1

SECTION B-B
SCALE 2/1

SECTION C-C
SCALE 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136
3. MARK PER ND1002019 WHITE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010093	WIRING DIAGRAM	REF
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS 16995-11	SCREW CAP SOCKET HEAD	17
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	16
36	1008145	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
24	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
182	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
182	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008103	FRAME	1

LIST OF MATERIALS

1007143 D

NEXT ASSY	USED ON
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CHECKED 7-10-63
APPROVAL 10-4-63
APPROVAL
NASA APPROVAL W. J. King 10-8-63
MIT APPROVAL 10-8-63

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FRAME ASSEMBLY
TRAY 3

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007143
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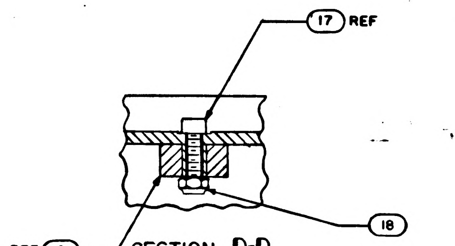
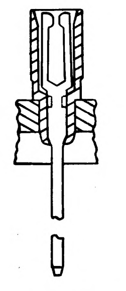
REVISIONS

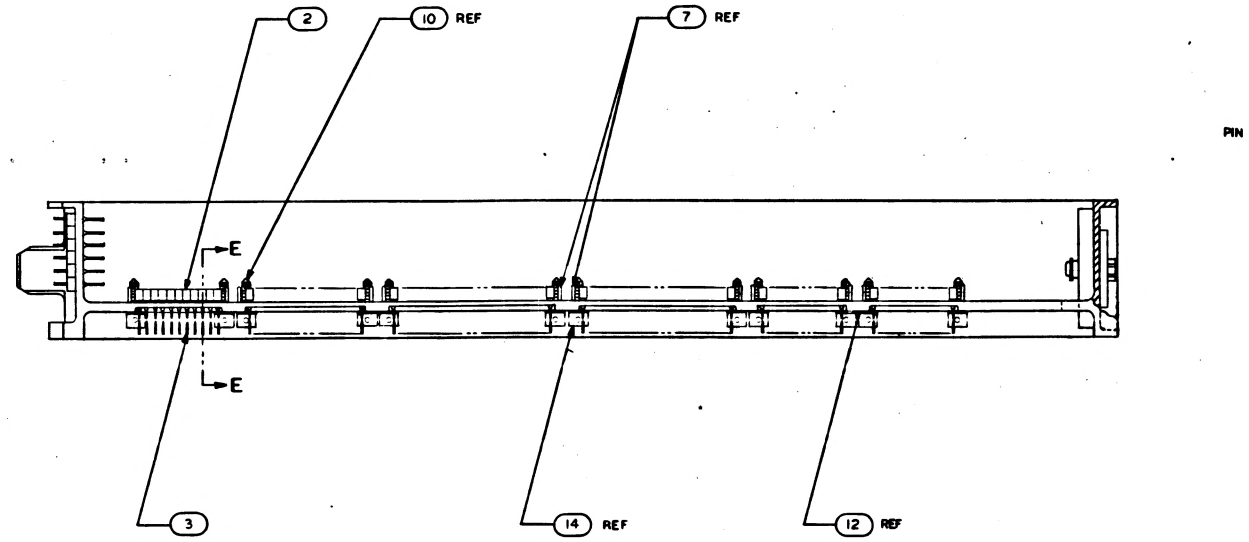
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03773	10-7-63	BPL
E	REVISED PER TDRR 04786	11-20-63	BPL

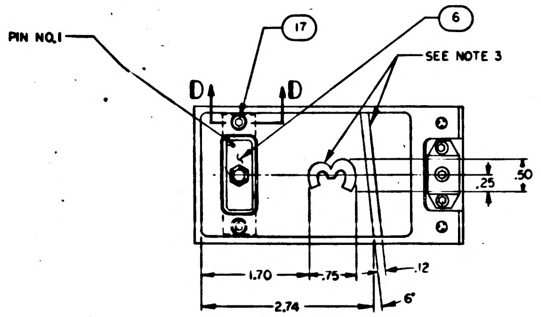


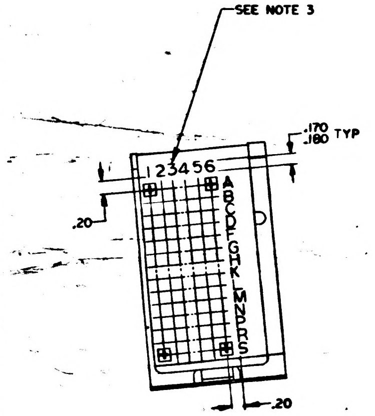
SECTION D-D
SCALE 2/1

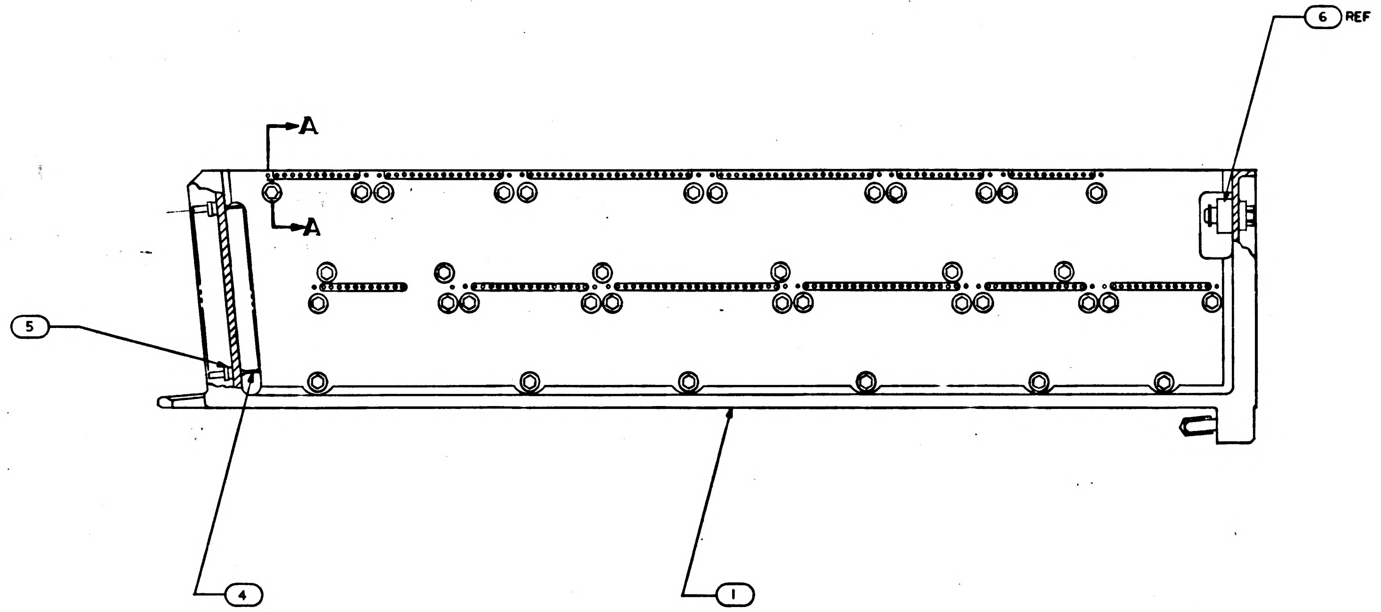


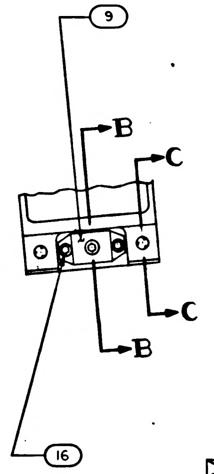
PARTIAL SECTION E-E
182 PLACES





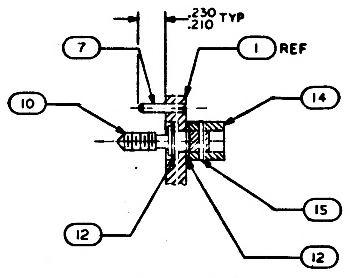




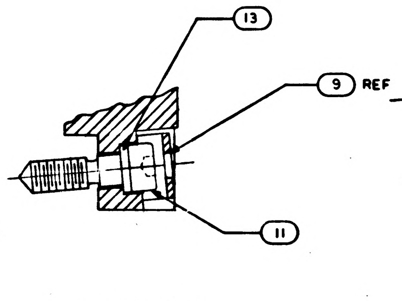


REV D REPLACES REV C

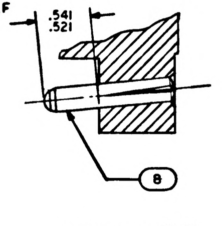
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136
3. MARK PER ND1002019 WHITE
4. BOND FIND NO.19 TO FIND NO.1 PER ND1002004 AS NECESSARY.
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010093	WIRING DIAGRAM	REF
1	1015735	WIRING HARNESS A	19
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS 16995-11	SCREW CAP SOCKET HEAD	17
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	16
36	1008145	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
24	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
182	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
182	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008103	FRAME	1

LIST OF MATERIALS

1007153	
NEXT ASSY	USED ON
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DIMENSIONS ARE IN INCHES
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DWG NO CONTRACT
DRAWN S Baranowski DATE 8-12-63
CHECKED 7 Oct 63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL 8 Oct 63

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HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 3

CODE IDENT NO. | SIZE E | NASA DRAWING NO. 1007143
SCALE 1/1 | WT | SHEET 1 OF 2

1007143 E

MASTER

INCHES
0 1
PHOTOGRAPHIC SCALE ONLY

NOTICE – WHEN GOVERNMENT DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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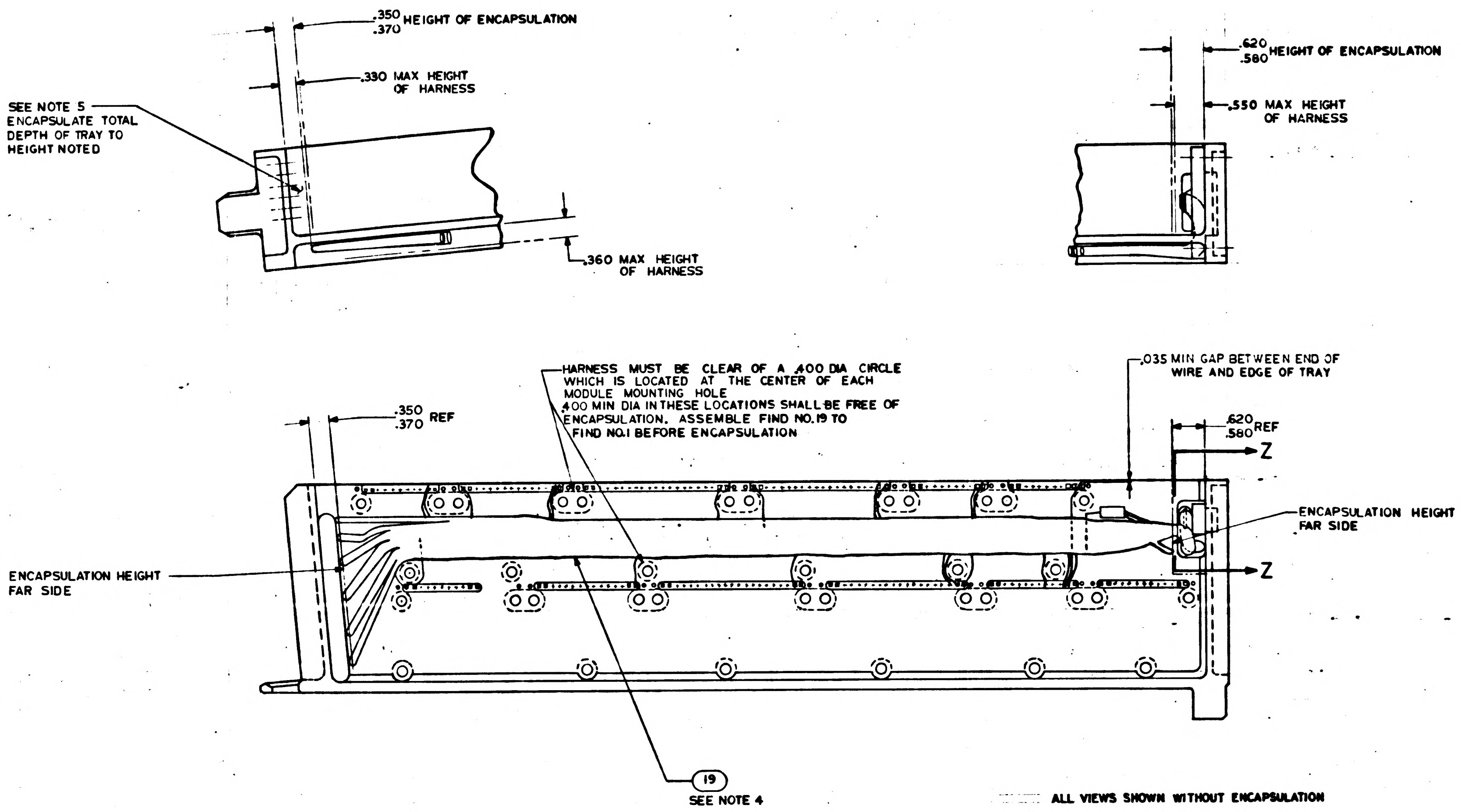
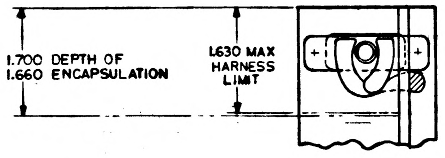

.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 5 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HEIGHT OF HARNESS
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO. 19 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
.620
.580 REF
Z
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
19
SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION


1.700 DEPTH OF
1.660 ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z

REV E THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

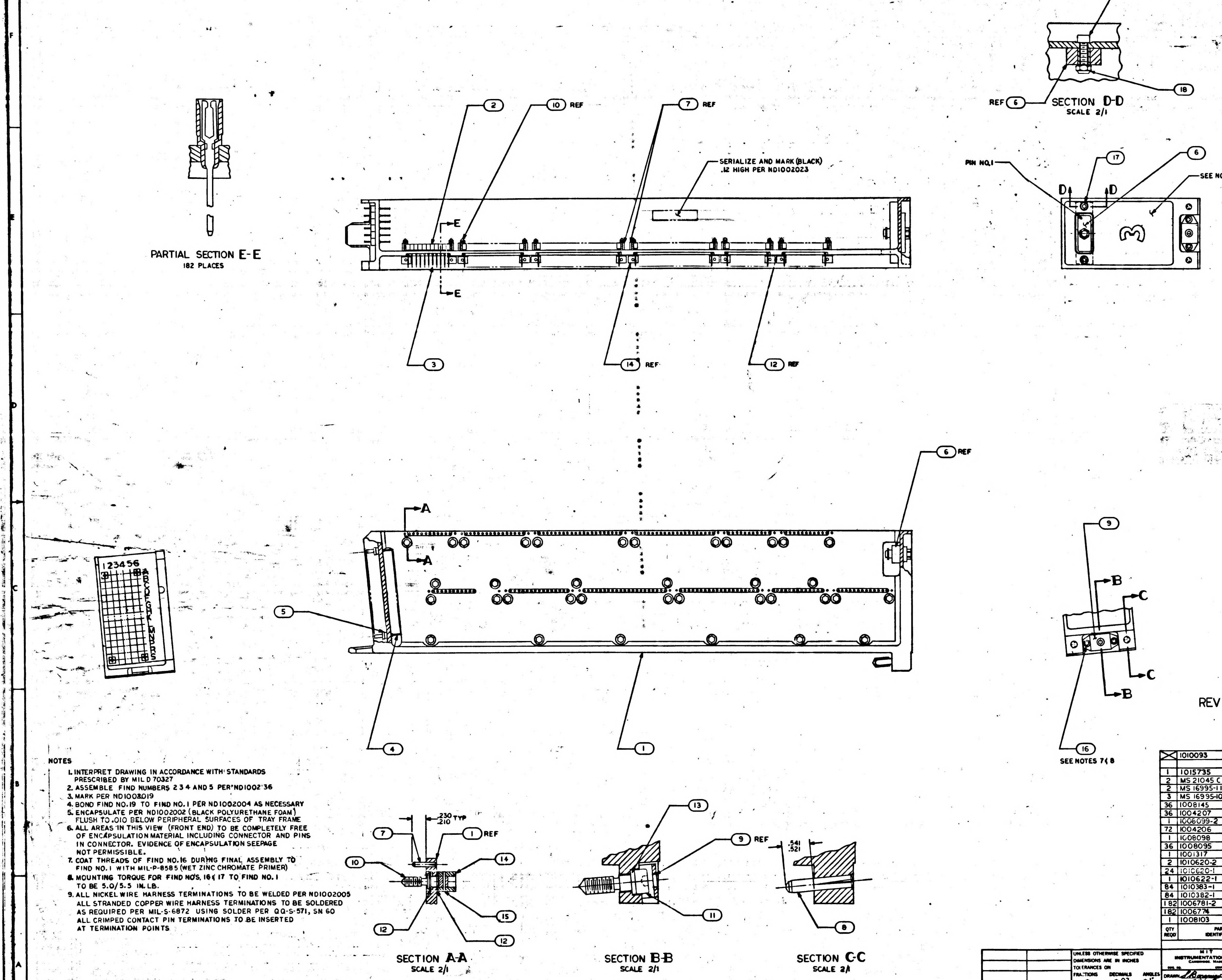
1007153		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ANGLES ± DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS DWG. NO. CONTRACT NAS 9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
NEXT ASSY	USED ON	MATERIAL	DRAWN DATE 11/15/63 CHECKED 19 Nov 63 APPROVAL 11-20-63 APPROVAL	FRAME ASSEMBLY TRAY 3		
APPLICATION		HEAT TREATMENT	NASA APPROVAL	CODE IDENT NO.	SIZE E	NASA DRAWING NO. 1007143
		FINAL FINISH	MIT APPROVAL	SCALE 1/1	WT	SHEET 2 OF 2

1007143 E

PHOTOGRAPHIC SCALE ONLY
INCHES

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03773	10-7-63	
E	REVISED PER TDRR 04746	1-20-63	
F	REVISED PER TDRR 06481		WR



REV D REPLACES REV C

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL D 70327
2. ASSEMBLE FIND NUMBERS 2 3 4 AND 5 PER ND1002'36
3. MARK PER ND1002019
4. BOND FIND NO.19 TO FIND NO. I PER ND1002004 AS NECESSARY
5. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO.16 DURING FINAL ASSEMBLY TO FIND NO. I WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO'S. 16 & 17 TO FIND NO. I TO BE 5.0/5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005 ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60 ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010093	WIRING DIAGRAM	REF
1	1015735	WIRING HARNESS A	19
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS 16995-11	SCREW CAP SOCKET HEAD	17
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	16
36	1008145	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1006099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
24	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
182	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
182	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008103	FRAME	1

LIST OF MATERIALS

1007153	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN S. Baranaga DATE 8-12-63
CHECKED 7 Oct 63
APPROVAL 10-7-63
APPROVAL
NASA APPROVAL W. J. Rhine 10-8-63
MIT APPROVAL 8 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 3

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007143
SCALE 1/1
WT
SHEET 1 OF 2

1007143 F

MASTER

INCHES
PHOTOGRAPHIC SCALE ONLY

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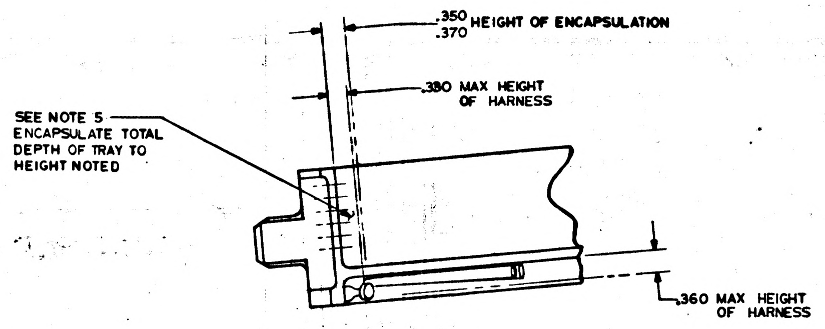
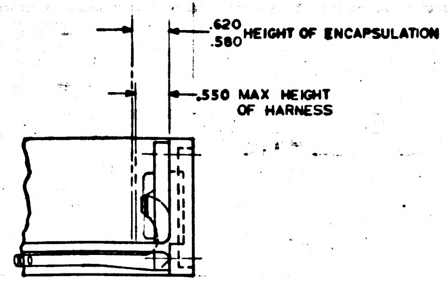
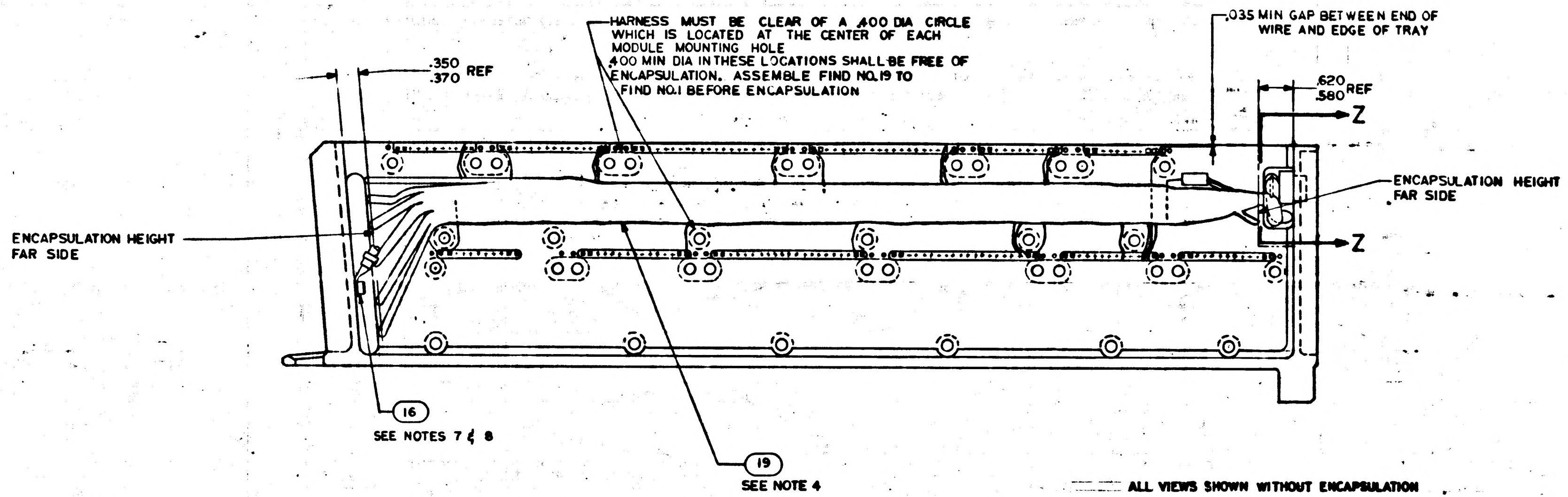
REVISIONS

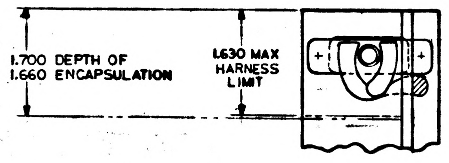
SYM	DESCRIPTION	DATE	APPROVAL
Ⓜ E	THIS SHEET ADDED PER TDRR 04986	-20-63	
F	REVISED PER TDRR 06481	4/14/64	


.350
.370 HEIGHT OF ENCAPSULATION
.380 MAX HEIGHT OF HARNESS
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS

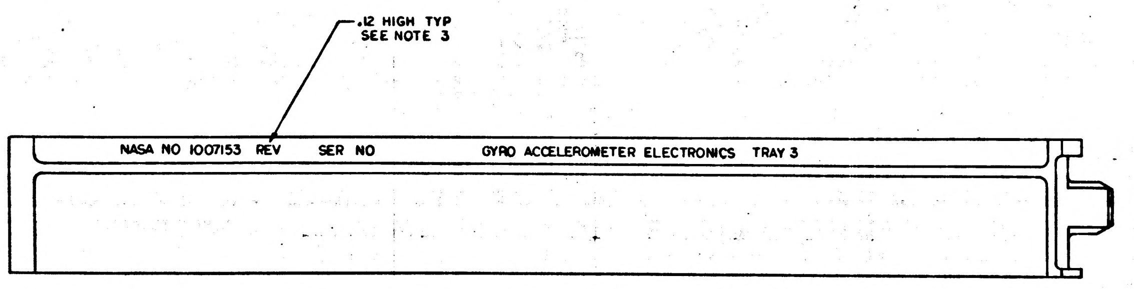

.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HEIGHT OF HARNESS


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO.19 TO FIND NO.1 BEFORE ENCAPSULATION
.350
.370 REF
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.620
.580 REF
Z
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
16
SEE NOTES 7 & 8
19
SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


1.700 DEPTH OF
1.660 ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO 1007153 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY 3

MARKING VIEW AFTER ENCAPSULATION

MASTER

REV E THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007153	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
CONTRACT NAS 9-4065
DRAWN A. Lucarelli DATE 11/5/63
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

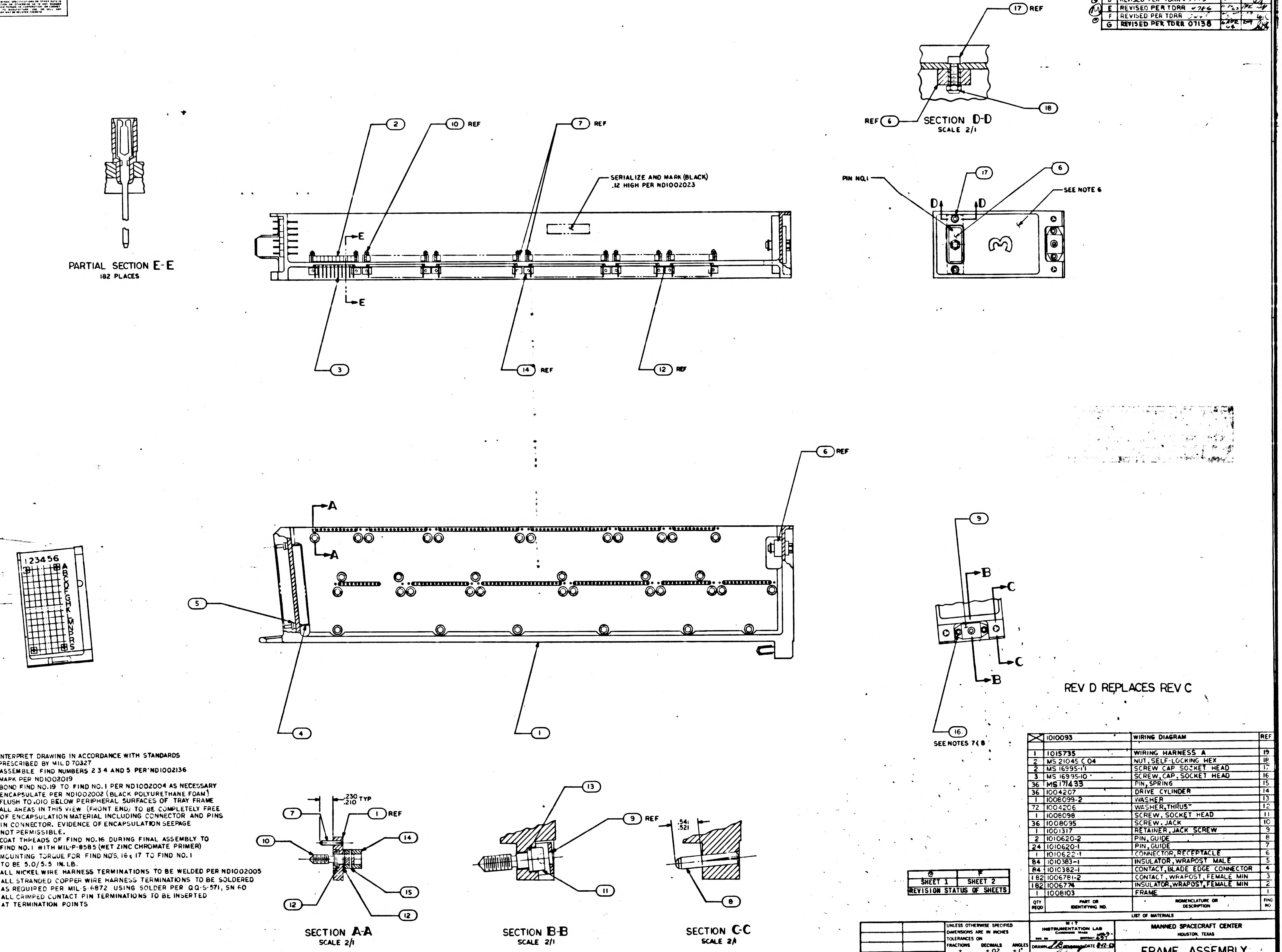
FRAME ASSEMBLY
TRAY 3

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007143
SCALE 1/1
WT
SHEET 2 OF 2

1007143 F

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03773		
E	REVISED PER TDRR 4786	11-20-63	
F	REVISED PER TDRR		
G	REVISED PER TDRR 07138	6 APR 64	



6
5
4
3
2
1
17 REF
18
REF 6
SECTION D-D
SCALE 2/1
PIN NO.1
17
6
SEE NOTE 6
D
D
3
2
10 REF
7 REF
SERIALIZE AND MARK (BLACK) .12 HIGH PER ND1002023
E
E
3
14 REF
12 REF
PARTIAL SECTION E-E
182 PLACES
6 REF
A
A
123456
ABCDEFGHKLMNPRS
5
4
1
9
B
C
C
B
16
SEE NOTES 7 & 8
.230
.210 TYP
7
1 REF
10
14
15
12
12
SECTION A-A
SCALE 2/1
13
9 REF
11
SECTION B-B
SCALE 2/1
.541
.521
8
SECTION C-C
SCALE 2/1

REV D REPLACES REV C

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL D 70327
2. ASSEMBLE FIND NUMBERS 2 3 4 AND 5 PER ND1002136
3. MARK PER ND1002019
4. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 AS NECESSARY
5. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 16 DURING FINAL ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO'S. 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005 ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60 ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS

G	F
SHEET 1	SHEET 2

REVISION STATUS OF SHEETS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010093	WIRING DIAGRAM	REF
1	1015735	WIRING HARNESS A	19
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS 16995-11	SCREW CAP SOCKET HEAD	17
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	16
36	MS171433	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
24	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
182	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
182	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008103	FRAME	1

LIST OF MATERIALS

1007153	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT NAS9-497
DRAWN DATE 8-12-63
CHECKED 7 OCT 63
APPROVAL 10-4-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL 10-8-63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 3

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007143
SCALE 1/1
WT
SHEET 1 OF 2

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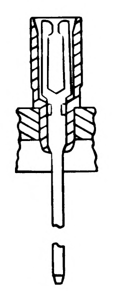
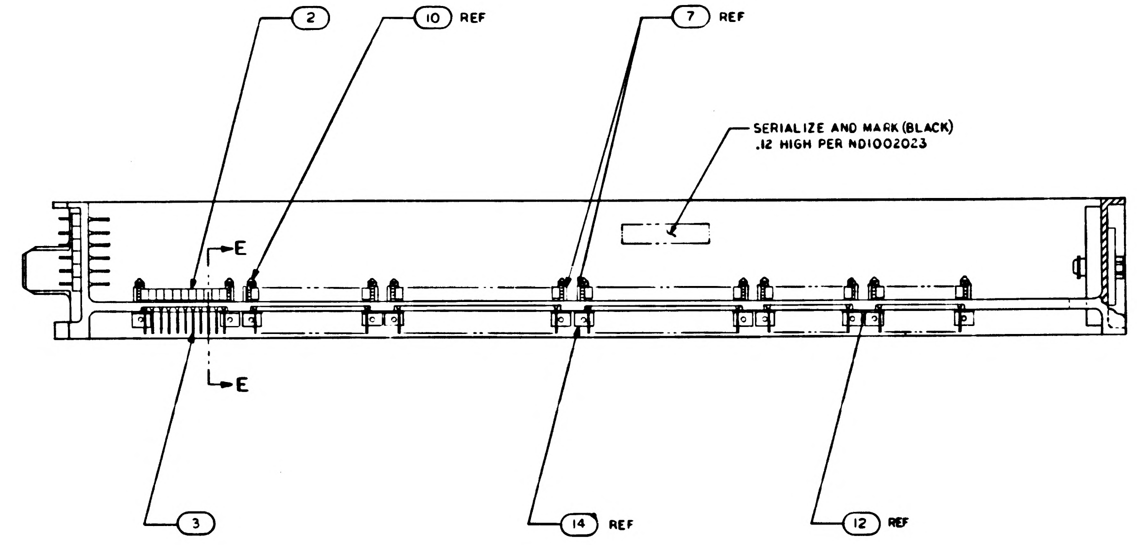
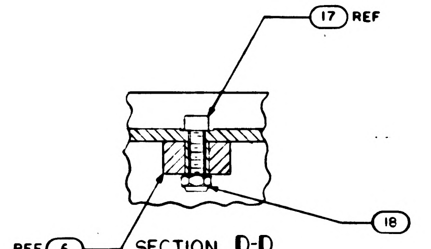
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR [illegible]		
E	REVISED PER TDRR 04 7[illegible]6	11 20 63	
F	REVISED PER TDRR [illegible]		W/C
G	REVISED PER TDRR 07138	6 APR 64	
H	REVISED PER TDRR 08145	13 MAY 64	

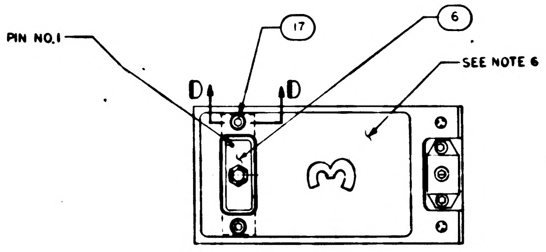


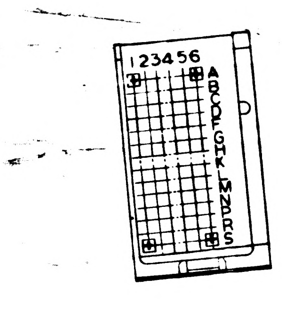
PARTIAL SECTION E-E
182 PLACES

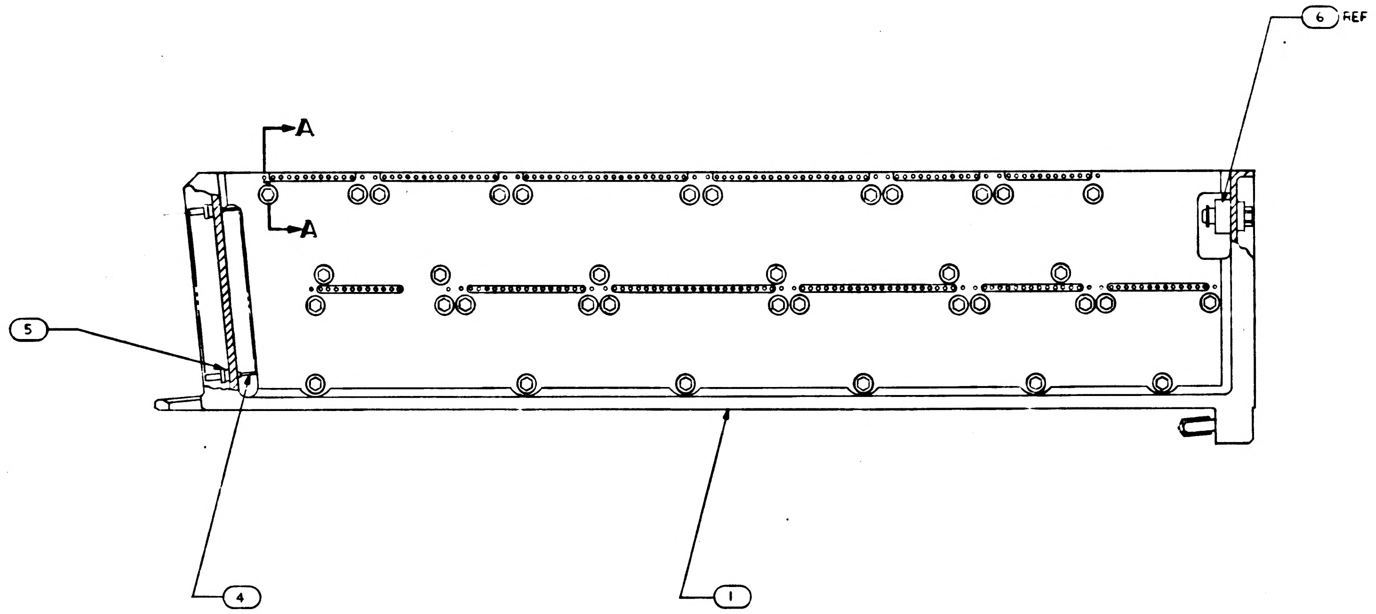


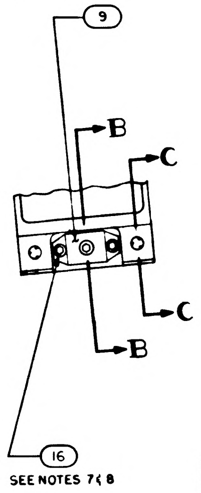


SECTION D-D
SCALE 2/1









REV D REPLACES REV C

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL D 70327
2. ASSEMBLE FIND NUMBERS 2 3 4 AND 5 PER ND1002136
3. MARK PER ND1002019
4. BOND FIND NO.19 TO FIND NO.1 PER ND1002004 AS NECESSARY
5. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO.16 DURING FINAL ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
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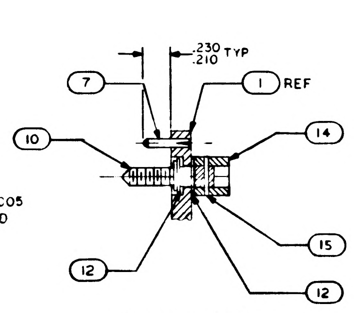
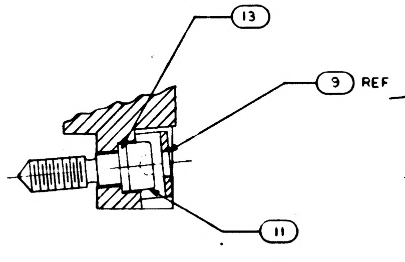
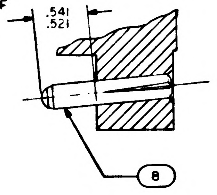
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS
10. PROCURE PER PS 1007143



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010093	WIRING DIAGRAM	REF
1	1015735	WIRING HARNESS A	19
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2	MS 16995-11	SCREW CAP SOCKET HEAD	17
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36	1004207	DRIVE CYLINDER	14
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72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
24	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
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182	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008103	FRAME	1

LIST OF MATERIALS

1	
1007153	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — DECIMALS ±.02 — ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS9-497
DRAWN S Bon[illegible] DATE 8-12-63
CHECKED [illegible] 7-[illegible]-63
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible] 10-8-63
MIT APPROVAL [illegible] 10-8-63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 3

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007143
SCALE 1/1
WT
SHEET 1 OF 2

H
1007143

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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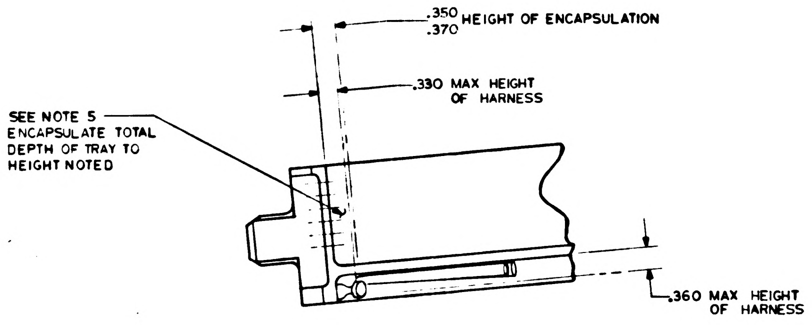
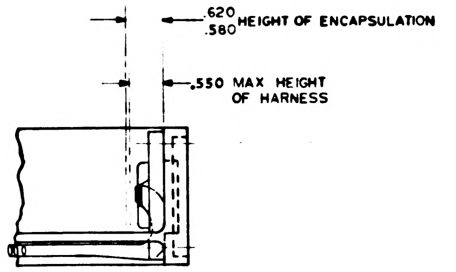
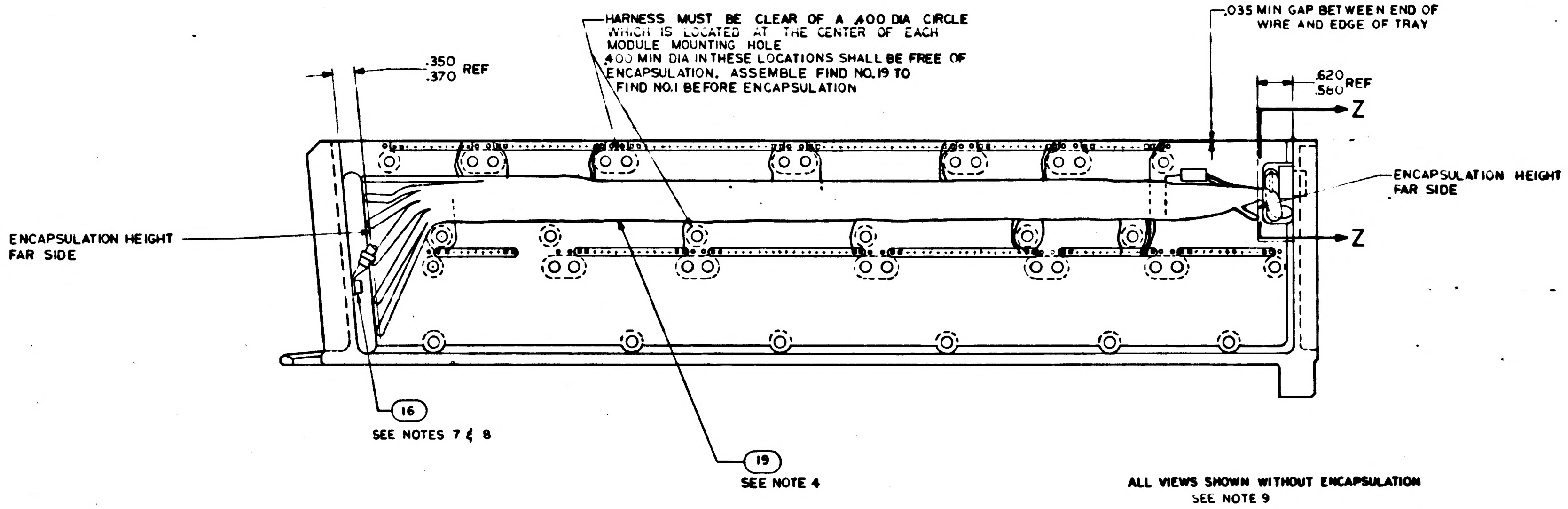
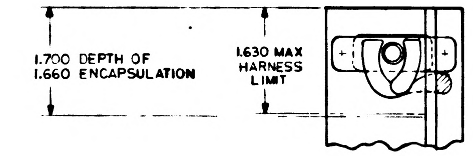
F	REVISED PER TDRR 6481		
H	REVISED PER TDRR 08145	15 MAY 64	


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 5 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS

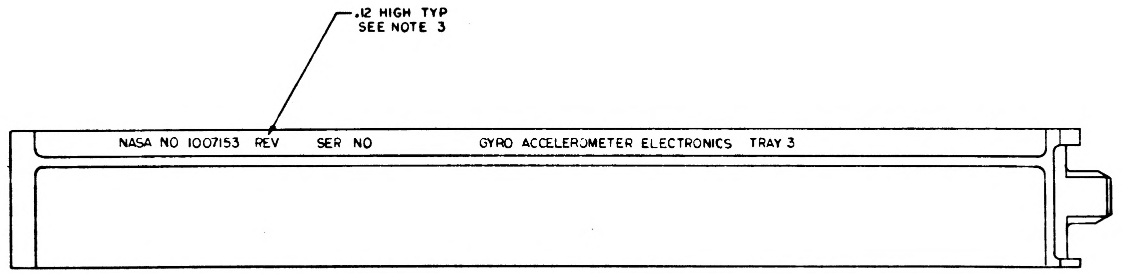

.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HEIGHT OF HARNESS


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO.19 TO FIND NO.1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
.620
.580 REF
Z
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
16
SEE NOTES 7 & 8
19
SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


1.700 DEPTH OF
1.660 ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO 1007153 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY 3

MARKING VIEW AFTER ENCAPSULATION

REV E THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007153	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT NAS 9-
DRAWN DATE 11/5/63
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

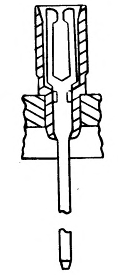
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 3

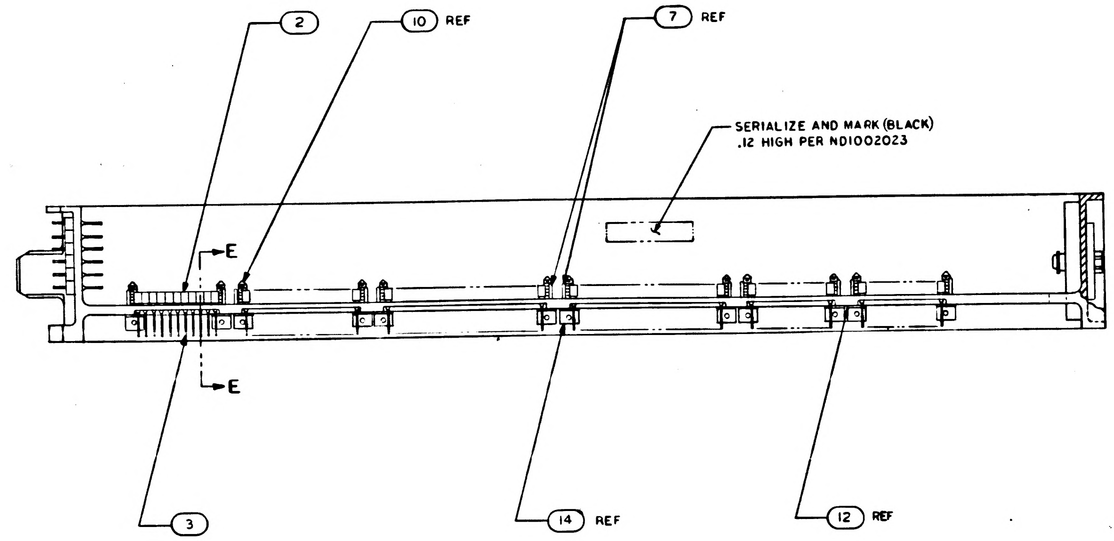
CODE IDENT NO
SIZE E
NASA DRAWING NO 1007143
SCALE 1/1
WT
SHEET 2 OF 2

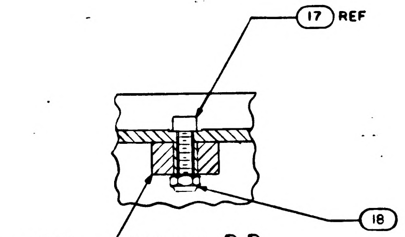
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03773	[illegible]	[illegible]
E	REVISED PER TDRR 04786	11-20-63	[illegible]
F	REVISED PER TDRR 064	[illegible]	[illegible]
G	REVISED PER TDRR 07138	6 APR 64	[illegible]
H	REVISED PER TDRR 08145	13 MAY 64	[illegible]
J	REVISED PER TDRR 2623	28 6	[illegible]

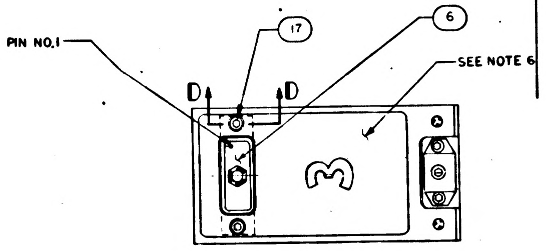


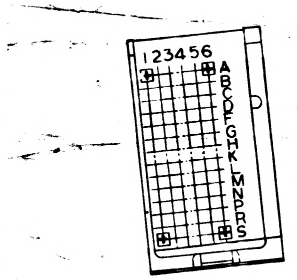
PARTIAL SECTION E-E
174 PLACES

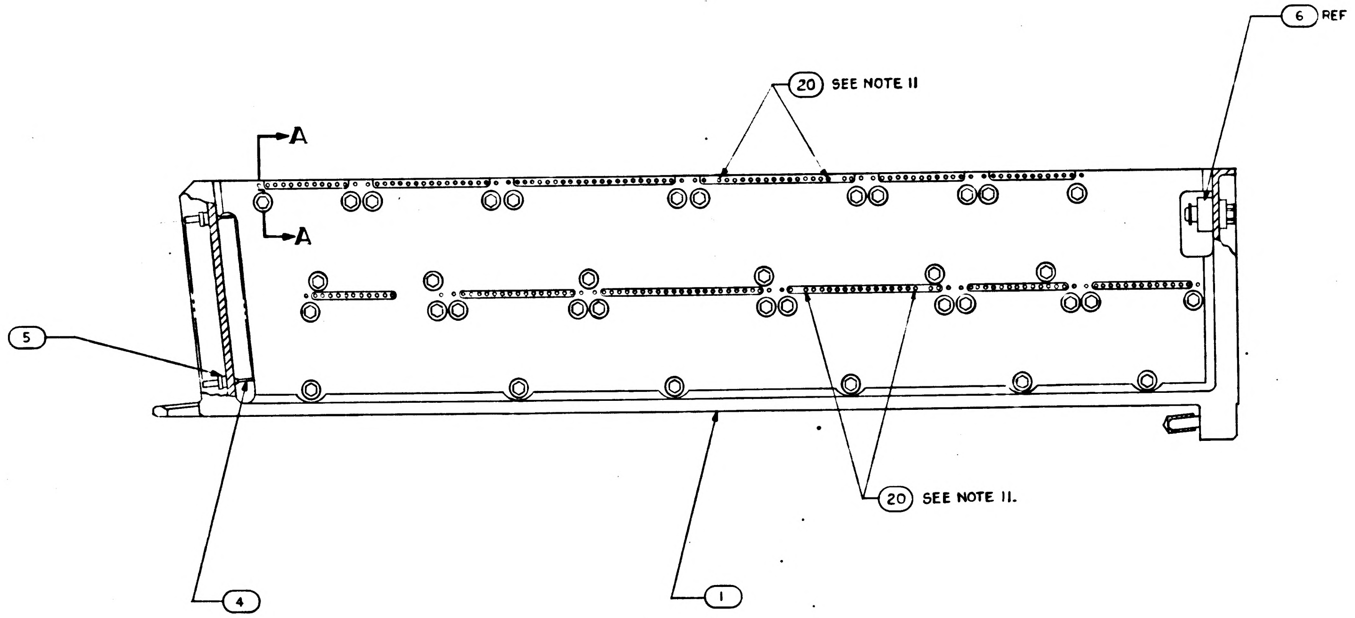


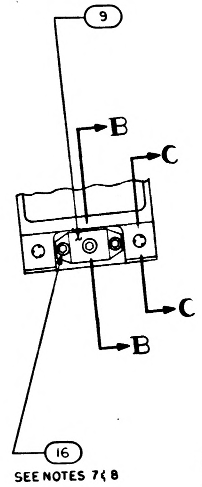


SECTION D-D
SCALE 2/1





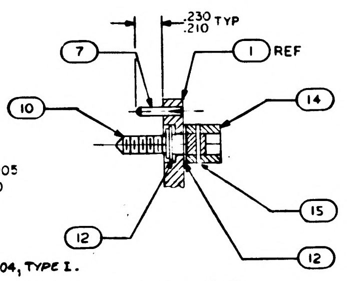




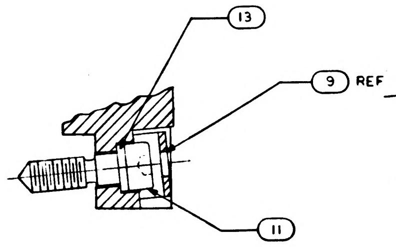
REV D REPLACES REV C

NOTES

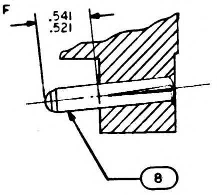
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL D 70327
2. ASSEMBLE FIND NUMBERS 2 3 4 AND 5 PER ND1002136
3. MARK PER ND1002019
4. BOND FIND NO.19 TO FIND NO.1 PER ND1002004 AS NECESSARY
5. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO.16 DURING FINAL ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO'S. 16 & 17 TO FIND NO.1 TO BE 5.0/5.5 IN.LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005 ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60 ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS
10. PROCURE PER PS 1007143
11. BOND ITEM 20 IN HOLES, 45A3J4-3 Ø-17 AND 45A3J10-3 Ø-17 PER ND 1002004, TYPE I.



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010093	WIRING DIAGRAM	REF
4	1008256	PIN, POLARIZING	20
1	1015735	WIRING HARNESS A	19
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS 16995-11	SCREW CAP SOCKET HEAD	17
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	16
36	MS 171433	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
24	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
174	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
174	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008103	FRAME	1

LIST OF MATERIALS

1007153		
NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS - DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT NAS9-497
DRAWN S Bonanno DATE 8-12-63
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APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible] 10-2-63
MIT APPROVAL [illegible] 10-1-63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 3

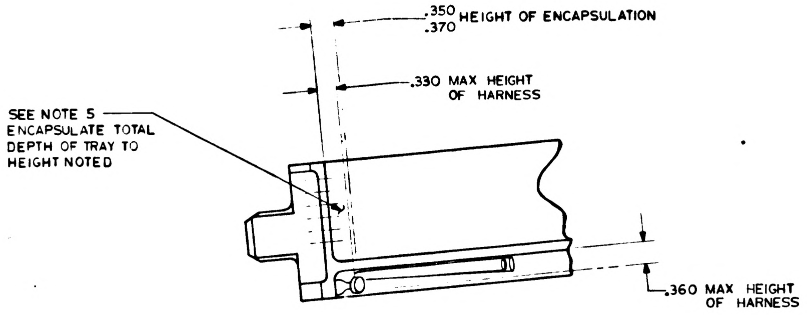
CODE IDENT NO
SIZE E
NASA DRAWING NO 1007143
SCALE 1/1
WT
SHEET 1 OF 2

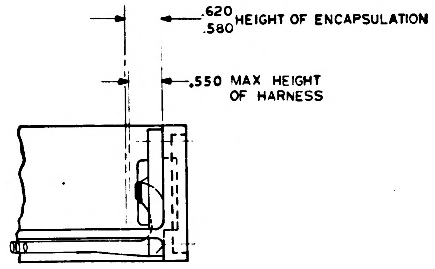
1007143

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
E	THIS SHEET ADDED PER TDRR 04786	11-20 63	
F	REVISED PER TDRR 26481		
H	REVISED PER TDRR 08145	15 MAY 64	
J	REVISED PER TDRR 12623	28 SEP 65	CP


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS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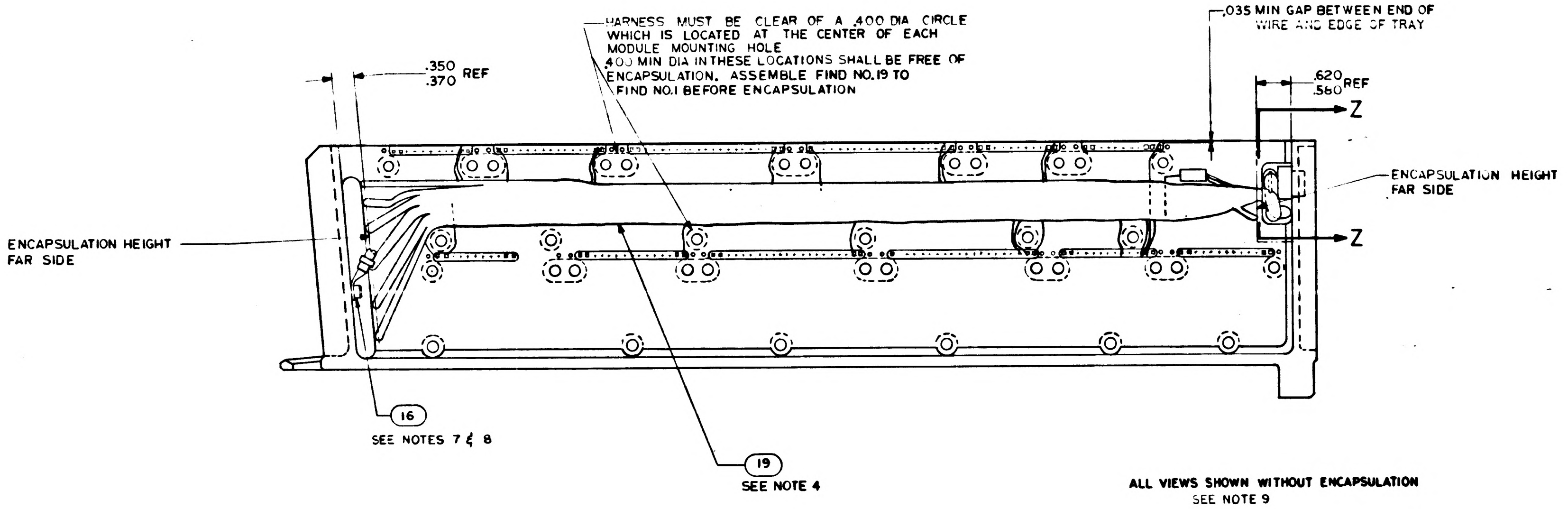
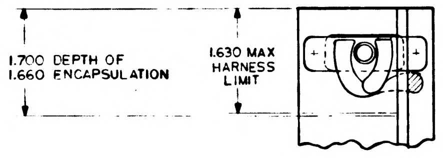
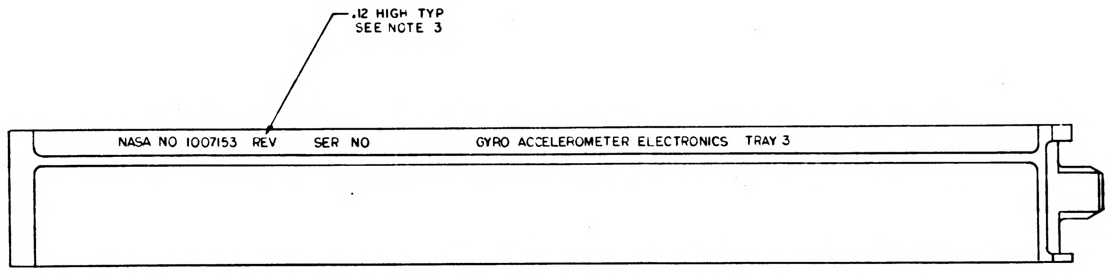
.580 HEIGHT OF ENCAPSULATION
.550 MAX HEIGHT OF HARNESS


.350
.370 REF
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO.19 TO FIND NO.1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.620
.580 REF
Z
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
16
SEE NOTES 7 & 8
19
SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


1.700 DEPTH OF
1.660 ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO 1007153 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY 3

MARKING VIEW AFTER ENCAPSULATION

REV E THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS DWG NO CONTRACT NAS 9-97	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
		MATERIAL	DRAWN DATE 11/5/63 CHECKED 2 Nov 63 APPROVAL 11-20-63 APPROVAL	FRAME ASSEMBLY TRAY 3
1007153		HEAT TREATMENT	NASA APPROVAL	CODE IDENT NO. SIZE E NASA DRAWING NO 1007143
NEXT ASSY	USED ON	FINAL FINISH	MIT APPROVAL	SCALE 1/1 WT SHEET 2 OF 2
APPLICATION				

SYM	DESCRIPTION	DATE	APPROVAL
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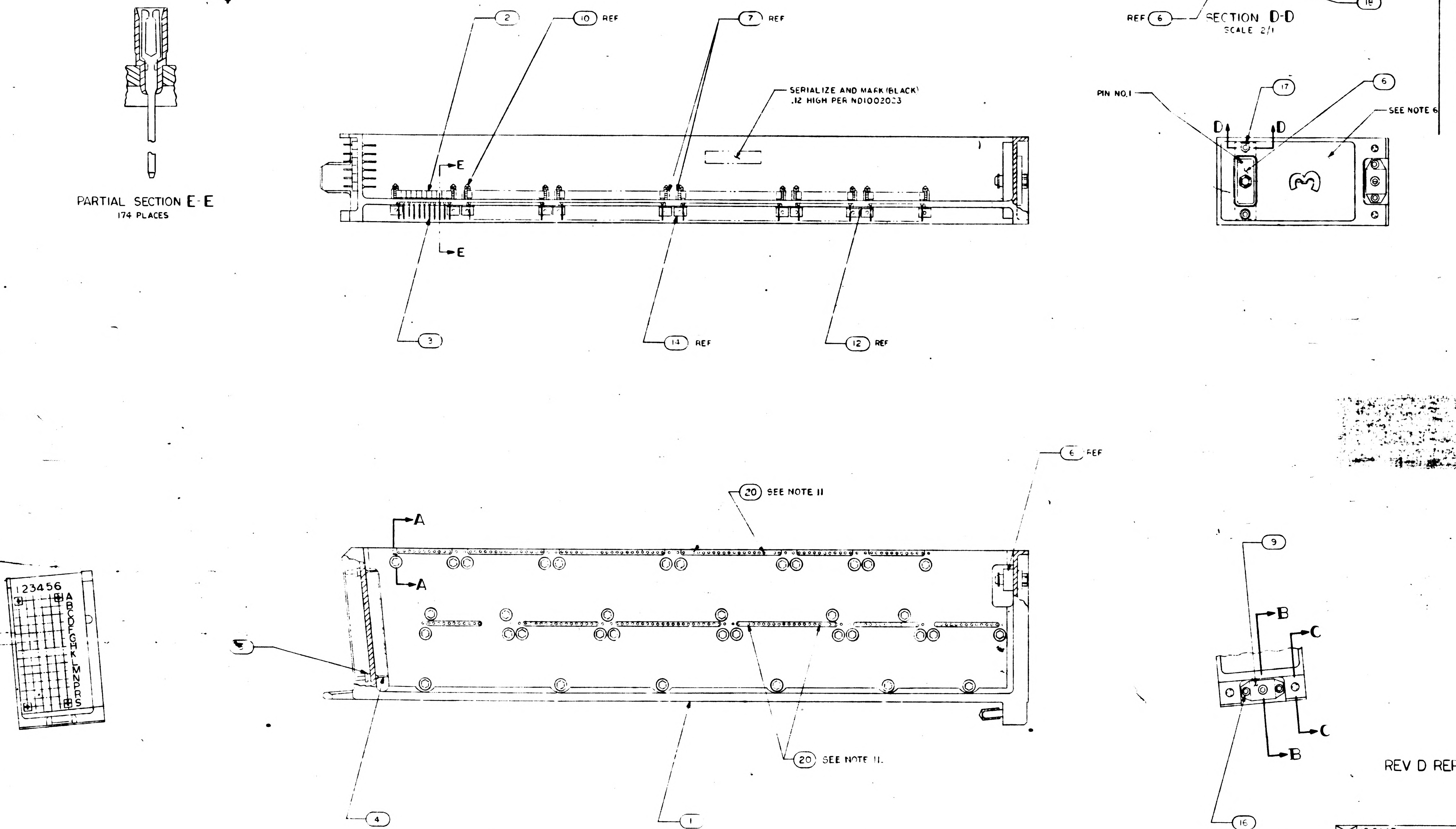
E	REVISED PER TDRR [illegible]	[illegible]	[illegible]
F	REVISED PER TDRR [illegible]	[illegible]	WK
G	REVISED PER TDRR 07138	6 APR 64	[illegible]
H	REVISED PER TDRR 08145	13 MAY 64	[illegible]
J	REVISED PER TDRR 12623	28 SEP 64	[illegible]
K	REVISED PER TDRR 14323	23-NOV-64	[illegible]



2
10 REF
7 REF
SERIALIZE AND MARK (BLACK) .12 HIGH PER ND1002023
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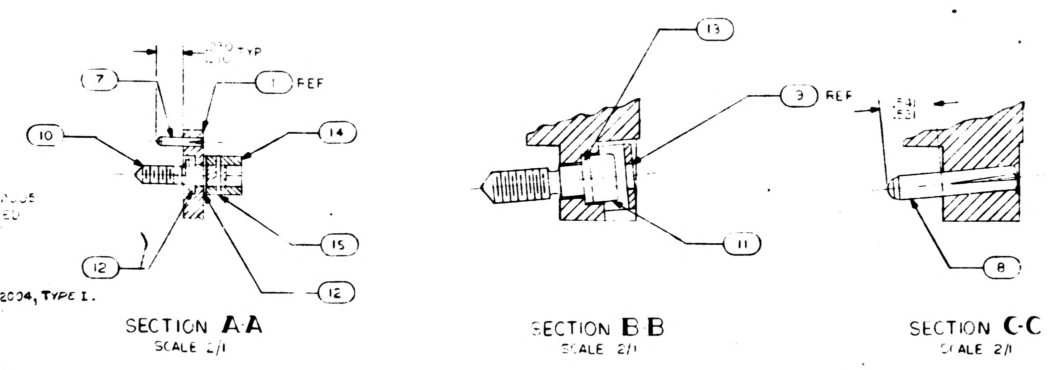
E
3
14 REF
12 REF
PARTIAL SECTION E-E
174 PLACES
17 REF
18
REF 6
SECTION D-D
SCALE 2/1
PIN NO. 1
17
6
SEE NOTE 6
D
D
3
6 REF
20 SEE NOTE 11
A
A
123456
ABCDEFGHKLMNPRS
5
4
1
20 SEE NOTE 11.
9
B
B
C
C
16
SEE NOTES 7 & 8

REV D REPLACES REV C

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND100213[illegible]
3. MARK PER ND1002019
4. BOND FIND NO.19 TO FIND NO.1 PER ND1002004 AS NECESSARY
5. ENCAPSULATE PER ND100[illegible]2 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO.16 DURING FINAL ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS 16 & 17 TO FIND NO.1 TO BE 5.0 TO 5.5 IN LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005 ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 [illegible] ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSULATED AT TERMINATION POINT
10. PROCURE PER PS1007143
11. BOND ITEM 20 IN HOLES, 45A3J4-3 &-7 AND 45A3J10-3 &-17 PER ND1002004, TYPE I.



7
1 REF
10
14
15
12
12
13
9 REF
11
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.521
8

SECTION A-A
SCALE 2/1

SECTION B-B
SCALE 2/1

SECTION C-C
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010[illegible]35	WIRING DIAGRAM	REF
4	1008256	PIN, POLARIZING	20
1	1015735	WIRING HARNESS A	19
2	MS21045C04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW CAP SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
36	MS171433	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
24	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
174	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
174	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1006103	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007153	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT NAS9-4[illegible]
DRAWN S Bonanno DATE 8-12-63
CHECKED [illegible]
APPROVAL [illegible] 10-5-63
APPROVAL
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

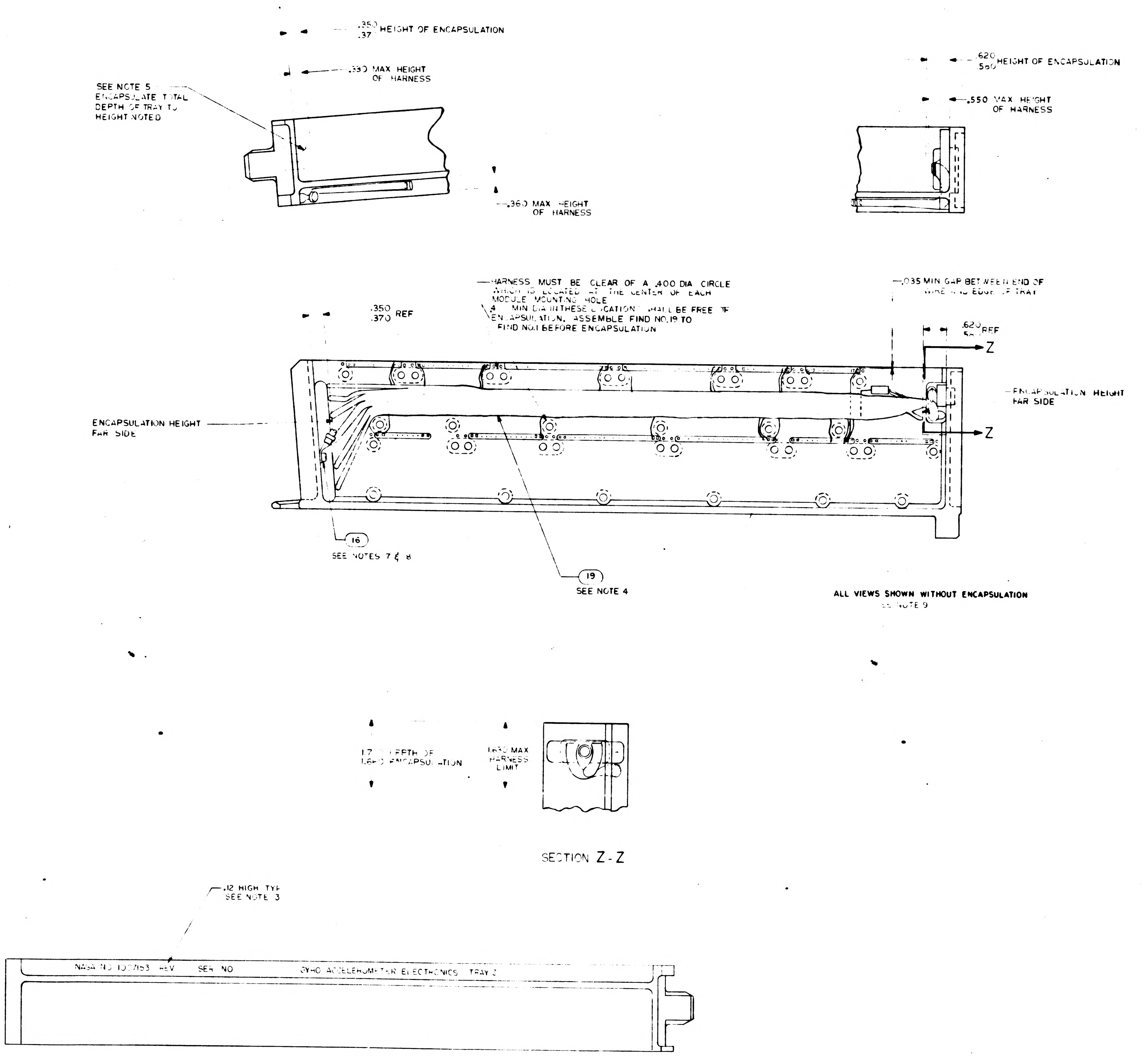
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRAME ASSEMBLY
TRAY 3

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007143
SCALE 1/1 WT SHEET 1 OF 2

1007143 K

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	THIS SHEET ADDED PER TDRR 04286	53	
F	REVISED PER TDRR		
H	REVISED PER TDRR 08145	15 MAY 64	
J	REVISED PER TDRR 12623	28 SEP 64	CP
K	REVISED PER TDRR 14323	23 64	


.350
.37
HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
.620
.560
HEIGHT OF ENCAPSULATION
.550 MAX HEIGHT OF HARNESS
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.4 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO.19 TO FIND NO.1 BEFORE ENCAPSULATION
.350
.370
REF
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.620
.560
REF
Z
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
16
SEE NOTES 7 & 8
19
SEE NOTE 4
1.7
1.680
DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT
SECTION Z-Z
.12 HIGH TYP
SEE NOTE 3
NASA NO 1007153 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY 3

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9

MARKING VIEW AFTER ENCAPSULATION

REV E THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007153	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
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TOLERANCES ON
FRACTIONS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M.I.T.
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN J. Dingalis DATE 11/5/63
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRAME ASSEMBLY
TRAY 3

CODE IDENT NO	SIZE	NASA DRAWING NO
	E	1007143
SCALE 1/1	WT	SHEET 2 OF 2

1007143 K

1007143

REVISIONS TDRR 01580				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
1008103	Frame, Tray 3	1
1006774	Insulator, Wrapost, Female Miniature	240
1006781-2	Contact, Wrapost, Female Miniature	240
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

NEXT ASSY	USED ON
1007153	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL:

MIT
INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED		6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC

MIT/IL APPROVAL	DATE
	14 June 63

FRAME ASSEMBLY,
TRAY 3

SCALE	UNIT WT.	CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.
DWG. NO.
MANNED
SPACECRAFT CENTER
HOUSTON TEXAS
NASA DRAWING NO.
1007143
SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

APOLLO G&N Specification
PS-1007143
30 April 1964
Class A Release
TDRR 08054

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY NO. 3

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page i to iii and 1 to 5 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY NO. 3

This document describes the requirements and procedures for the procurement of the Frame Assembly Tray No. 3 to be used in the APOLLO Guidance and Navigation Equipment.

30 Apr 64
MIT/IL DATE

4/30/64
NASA/MSC DATE

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 3

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 3, Drawing 1007143, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. - The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007143	Final Test Method for Frame Assembly Tray 3

DRAWINGS

APOLLO G&N

1007143	Frame Assembly Tray 3
1015735	Wiring Harness Array 3 (For Reference Only)

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007144

REVISIONS TDRR 01580				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	WK

PART NO.	DESCRIPTION	REQD.
1008104	Frame, Tray 4	1
1006774	Insulator, Wrapost, Female Miniature	184
1006781-2	Contact, Wrapost, Female Miniature	184
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1
1010620-1	Pin, Guide	24
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	36
1008098	Screw, Socket Head, Externally Relieved Body	1
1008099-1	Washer (Special)	36
1008099-2	Washer (Special)	1
1008092	Washer (Special)	36
MS 16624-15	Ring, Retaining	36
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MA 21045 C 04	Nut, Self-Locking Hex	2

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

1007154	
NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
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CONTRACT
NAS 9-153

		DATE
APPROVED		6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
	14 June 63

FRAME ASSEMBLY,
TRAY 4

SCALE	UNIT WT.	CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.
DWG. NO.
MANNED
SPACECRAFT CENTER
HOUSTON TEXAS
NASA DRAWING NO.
1007144
SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

APOLLO G&N Specification
PS-1007144 A
30 April 1964
Class A Release
TDRR 08054

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 4

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
8-18-64	A	11695	1,2	WK.	

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 4

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 4 for use in APOLLO Guidance and Navigation Equipment.

WKupfer 30 Apr 64
MIT/IL DATE

4/30/64
NASA/MSC APPROVAL DATE

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 4

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 4, Drawing 1007144, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM1007144	Final Test Method for Frame Assembly Tray 4

DRAWINGS

APOLLO G&N

1007144	Frame Assembly Tray 4

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

APOLLO G&N Specification
PS-1007144
30 April 1964
Class A Release
TDRR [illegible]

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 4

Record of Revisions

Ⓜ

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
[illegible]	A	[illegible]	1, [illegible]	WR.	

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 4

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 4, Drawing 1007144, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM1007144	Final Test Method for Frame Assembly Tray 4

DRAWINGS

APOLLO G&N

1007144	Frame Assembly Tray 4

3. REQUIREMENTS

3.1 GENERAL SPECIFICATION. Unless otherwise specified, all of the requirements of Specification ND-1002210 shall apply as requirements of this specification.

3.2 DESCRIPTION. The tray is to be used in the Power and Servo Assembly as a mounting frame and as an interconnection for the modules used in the Gyro-Accelerometer Electronics Assembly.

3.3 FUNCTIONAL REQUIREMENTS

3.3.1 Insulation Resistance. The insulation resistance test shall be conducted from each individual connector pin, with the exception of H5 of connector 45A4-P1, and the assembly frame. The resistance from each connector pin to the frame assembly shall be equal to or greater than 100 megohms.

3.3.2 Continuity and DC Resistance and Shorting. The continuity and dc resistance and short test shall be as specified in JDC09773 of FTM1007144.

3.4 PERFORMANCE AND PRODUCT CHARACTERISTICS

3.4.1 Service Life

3.4.1.1 Operating Life. The assembly shall meet performance specifications for at least 2000 hours of operation, excluding the supplier's test time of the completed unit.

3.4.1.2 Shelf Life. The assembly shall be packaged as specified in MIL-P-116, Method 2, shall have a life of at least 5 years, without operation, at ambient room temperature after final acceptance at the supplier's facility.

3.4.2 Reliability. Design objectives require maximum reliability of the assembly during its period of useful life. Every effort shall be made to design and produce units capable of meeting a maximum failure rate of 0.2 failures per million hours.

1007144

REVISIONS TDRR 01580				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	W.K
	B	REVISED PER TDRR 02868	8 28 63	S.J.M.

PART NO.	DESCRIPTION	REQD.
1008104	Frame, Tray 4	1
1006774	Insulator, Wrapost, Female Miniature	184
1006781-2	Contact, Wrapost, Female Miniature	184
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	24
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	36
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206-	Washer, Thrust	72
1008099-2	Washer (Special)	1
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MA 21045 C 04	Nut, Self-Locking Hex	2
1008145	Pin, Spring	36
1004207	Drive Cylinder	36

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

1007154	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES

DO NOT SCALE THIS DRAWING

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INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED		6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
	14 June 63

FRAME ASSEMBLY,
TRAY 4

SCALE	UNIT WT.	CODE IDENT.

MIT
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LABORATORY
CAMBRIDGE, MASS.

DWG. NO.

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SPACECRAFT CENTER
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NASA DRAWING NO.
1007144

SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

APOLLO G&N Specification
PS1007144 B
30 April 1964
Class A Release
TDRR 03054

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 4

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
(M) [illegible]	A	[illegible]	[illegible]	WK	
2/9/65	B	16236	1	WK	WJR

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 4

1. SCOPE

1.1 PURPOSE. This specification establishes the ents for the procurement of the Frame Assembly Tray 4, hereafter called

1.2 CLASSIFICATION. The requirements for the e covered by this specification shall be classified as follows. Unless identified by respective types, all requirements of this specification are applicable for all types.

a. Type I: The requirements for Part Numbers 1007144 and 1021214-011 shall be designated as Type I.

b. Type II: The requirements for Part Number 1007534-021 shall be designated as Type II.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUE. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM1007144	Final Test Method for Frame Assembly Tray 4

DRAWINGS

APOLLO G&N

1007144	Frame Assembly Tray 4
1007534	Frame Assembly Tray 4
1021214	Frame Assembly Tray 4

1007144

REVISIONS TDRR 01580				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	WK
	B	REVISED PER TDRR 02868	8-28-63	S.J.M.
	C	SUPERSEDED PER TDRR 0 3773		BPK WK

PART NO.	DESCRIPTION	REQD.
1008104	Frame, Tray 4	1
1006774	Insulator, Wrapost, Female Miniature	184
1006781-2	Contact, Wrapost, Female Miniature	184
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	24
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	36
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206-	Washer, Thrust	72
1008099-2	Washer (Special)	1
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MA 21045 C 04	Nut, Self-Locking Hex	2
1008145	Pin, Spring	36
1004207	Drive Cylinder	36

REV C REPLACED BY REV D

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

1007154	
NEXT ASSY	USED ON
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APPROVED 6-14-63
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DRAWN
APPROVED FOR MSC Jack Barnard
MIT/IL APPROVAL DATE 14 June 63

FRAME ASSEMBLY,
TRAY 4

SCALE
UNIT WT.
CODE IDENT.

MIT
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CAMBRIDGE, MASS.
DWG. NO.
MANNED
SPACECRAFT CENTER
HOUSTON TEXAS
NASA DRAWING NO.
1007144
SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

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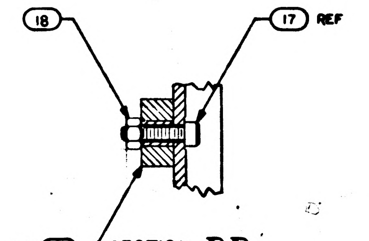
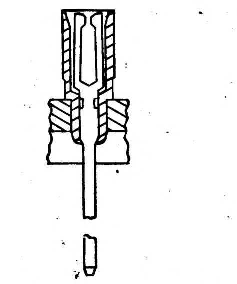
REVISIONS

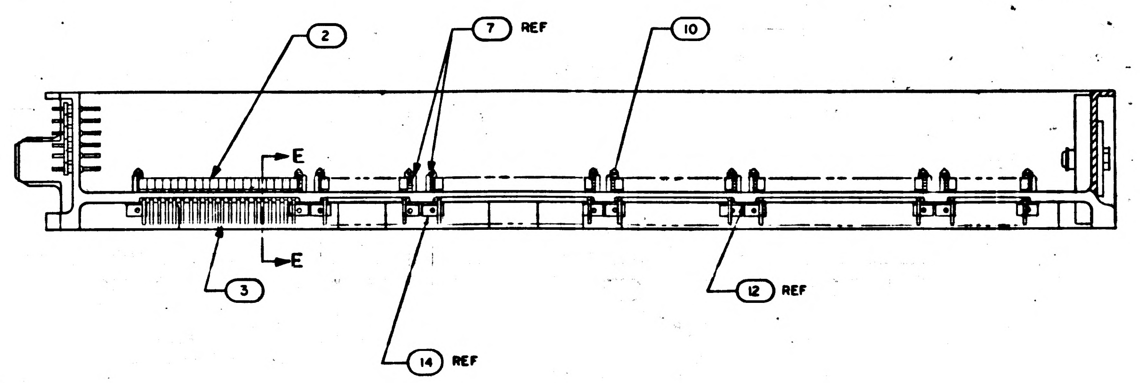
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 3773	10-8-63	

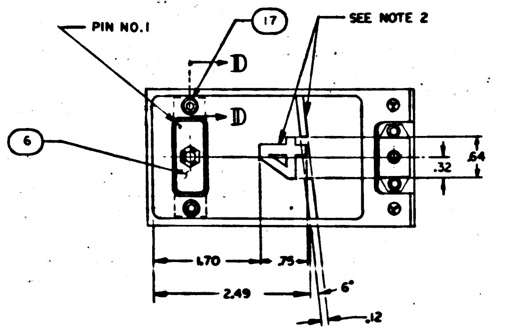


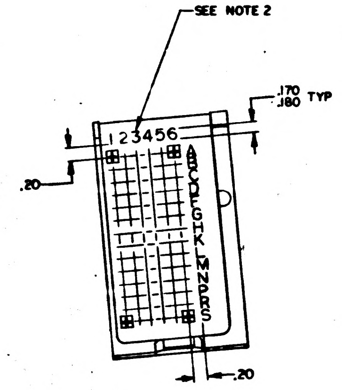
SECTION D-D
SCALE 2/1

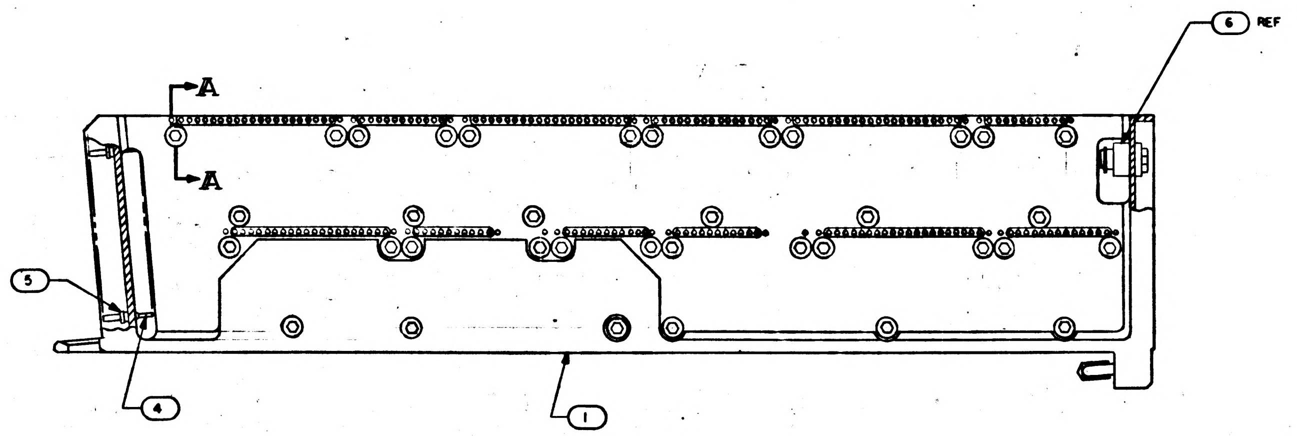


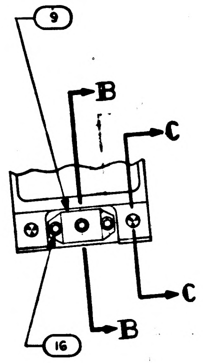
PARTIAL SECTION E-E
184 PLACES











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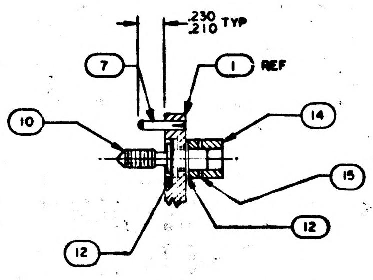
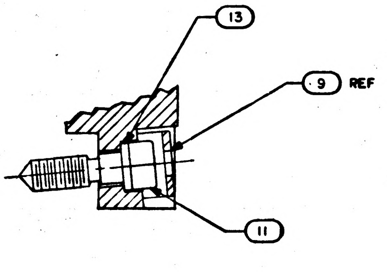


SECTION A-A
SCALE 2/1



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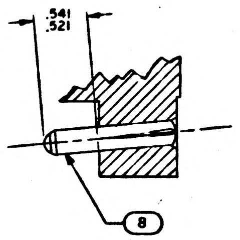
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE
3. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND 1002136

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	10100094	WIRING DIAGRAM	REF
2	MA21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-10	SCREW, CAP, SOCKET HEAD	16
36	1008145	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
24	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
184	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
184	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008104	FRAME	1

LIST OF MATERIALS

1007154	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN DATE 19 Aug 63
CHECKED 7 Oct 63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL W. J. Kline 10-8-63
MIT APPROVAL 10/8/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 4

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007144
SCALE 1/1
WT
SHEET 1 OF 1

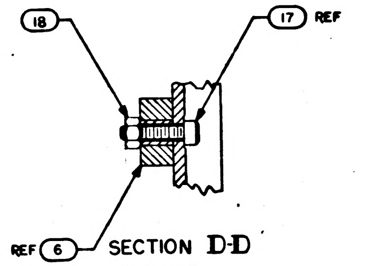
1007144 D

MASTER

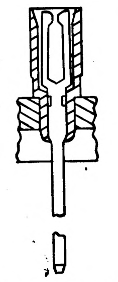
INCHES
0 1
PHOTOGRAPHIC SCALE ONLY

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

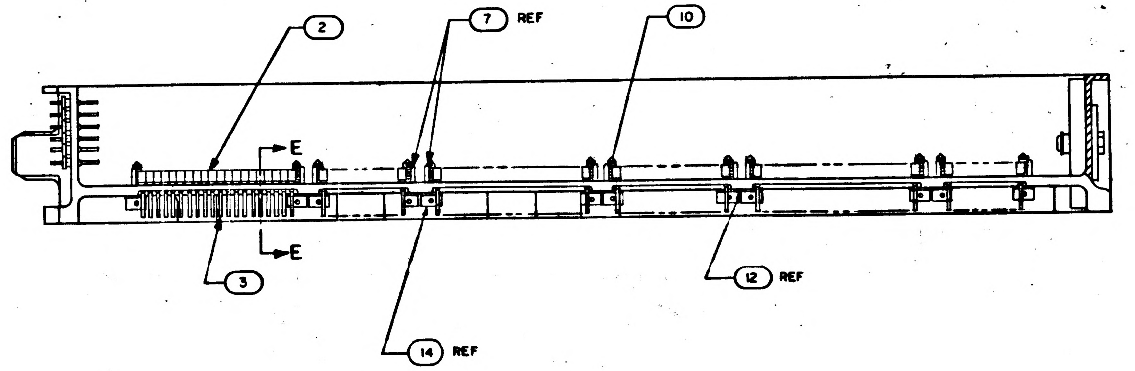
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03773	10-8-63	
E	REVISED PER TDRR 04787	11-20-63	

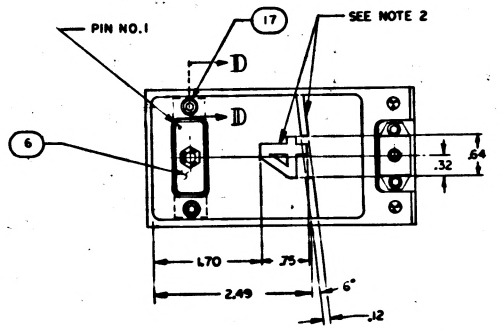


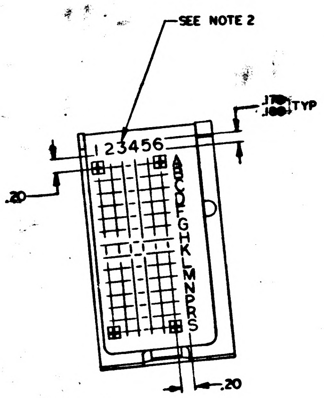
SECTION D-D
SCALE 2/1

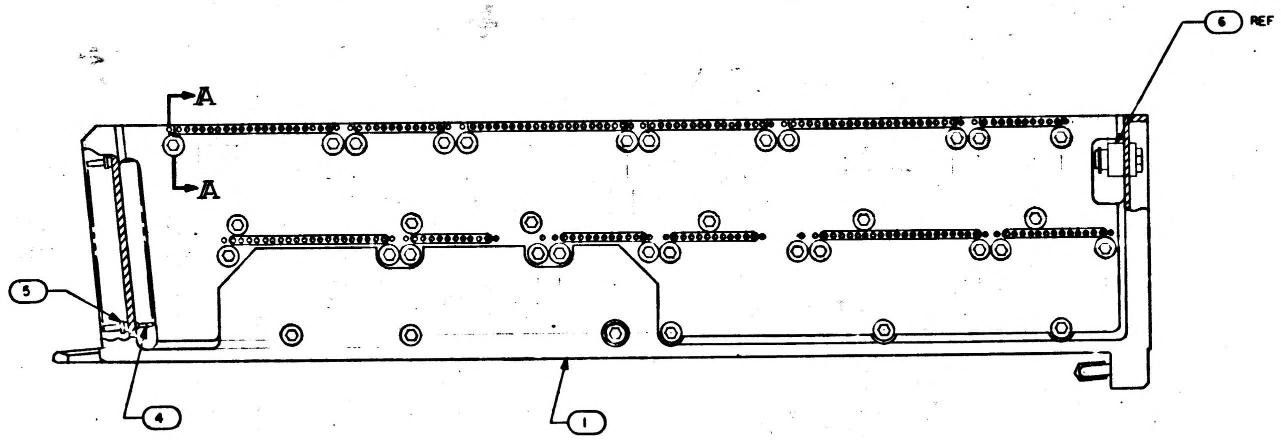


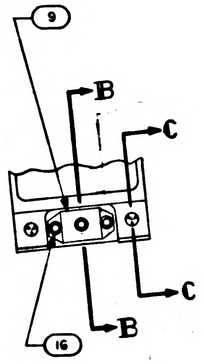
PARTIAL SECTION E-E
184 PLACES









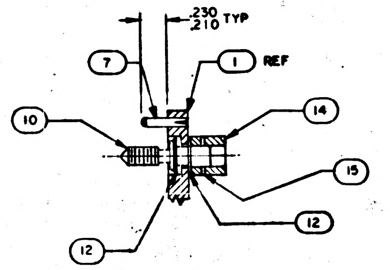


REV D REPLACES REV C

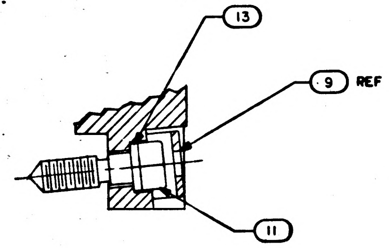
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	10100094	WIRING DIAGRAM	REF
1	1015742	WIRE LIST AA	20
1	1015736	WIRING HARNESS A	19
2	MA21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-10	SCREW, CAP, SOCKET HEAD	16
36	1008145	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
24	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
184	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
184	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008104	FRAME	1

LIST OF MATERIALS

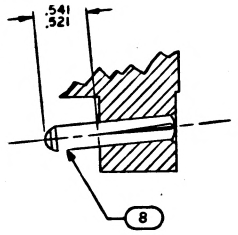
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE
3. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PEP ND 1002136
4. BOND FIND NO.19 AND 20 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

MASTER

1007154	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT
DRAWN DATE
CHECKED 7 Oct 63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL W J Rhine 10-8-63
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 4

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007144
SCALE 1/1
WT
SHEET 1 OF 2

INCHES
PHOTOGRAPHIC SCALE ONLY

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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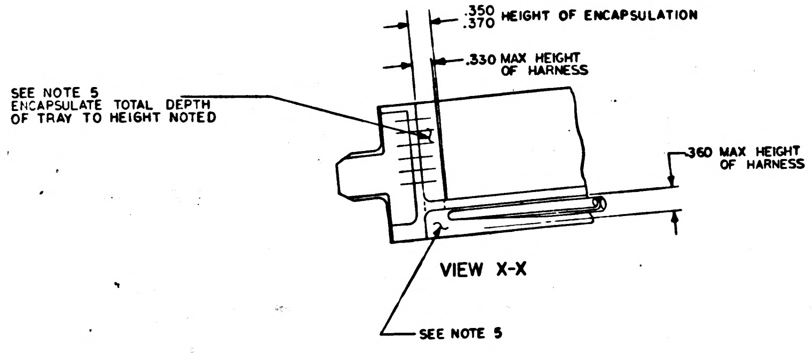
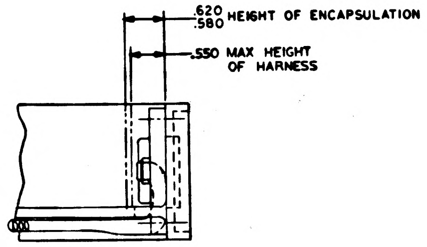
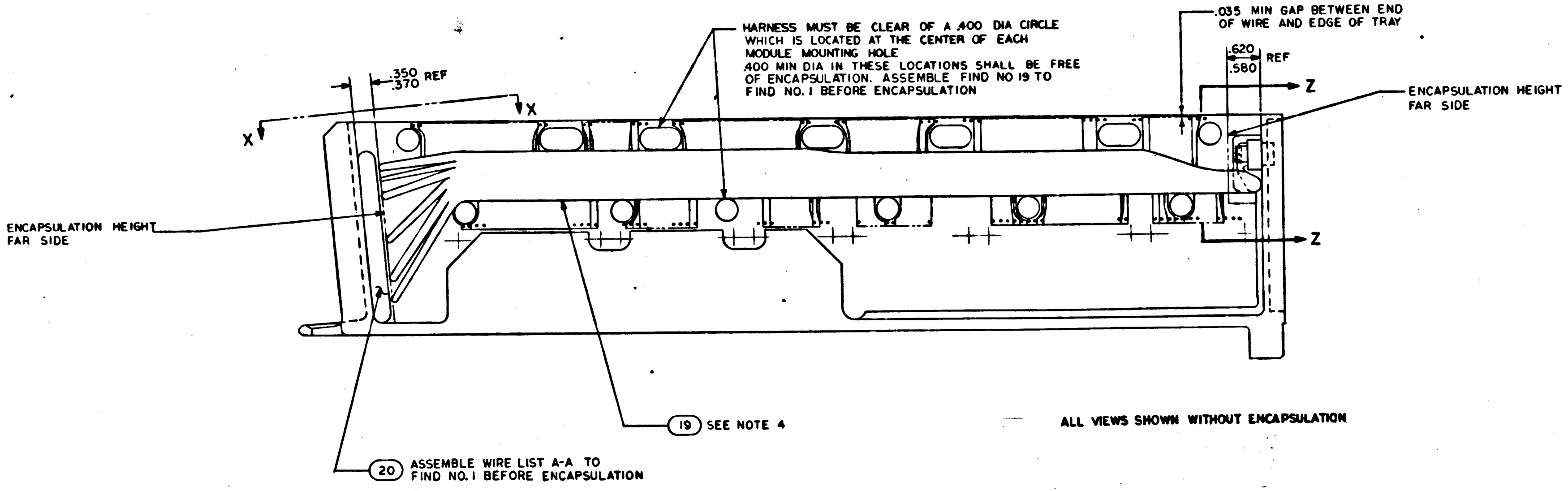
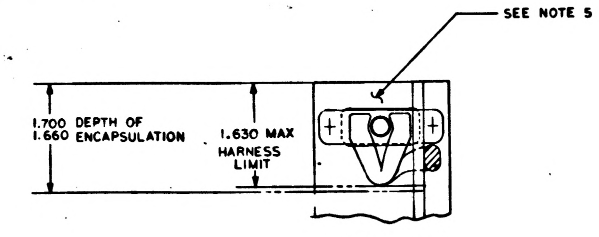

.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 5

VIEW X-X


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HEIGHT OF HARNESS


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 19 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.620
.580 REF
Z
ENCAPSULATION HEIGHT FAR SIDE
.350
.370 REF
X
X
ENCAPSULATION HEIGHT FAR SIDE
Z
19 SEE NOTE 4
20 ASSEMBLE WIRE LIST A-A TO FIND NO. 1 BEFORE ENCAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION


SEE NOTE 5
1.700
1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z

REV E THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

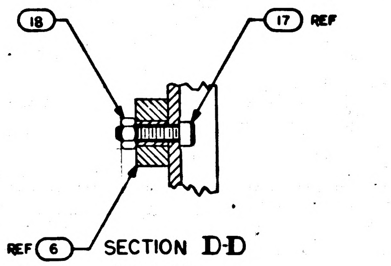
1007154		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ANGLES ± DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS DWG NO CONTRACT	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN J.F. Walsh DATE 11/6/63 CHECKED R.P. Kingsbury 19 Nov 63 APPROVAL D.B. Hoag 11-20-63 APPROVAL	FRAME ASSEMBLY TRAY 4
APPLICATION		HEAT TREATMENT	NASA APPROVAL	CODE IDENT NO. SIZE E NASA DRAWING NO. 1007144
		FINAL FINISH	MIT APPROVAL D Hoag 11/20/63	SCALE 1/1 WT SHEET 2 OF 2

1007144 E

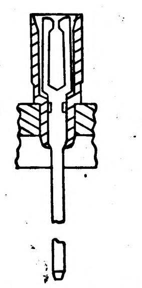
INCHES
PHOTOGRAPHIC SCALE ONLY

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

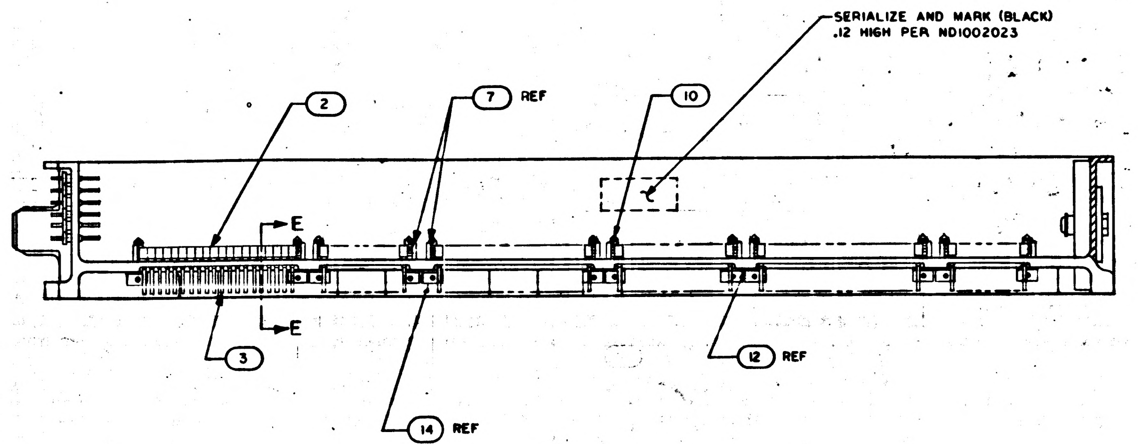
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03113	1-8-63	
E	REVISED PER TDRR 04787	11-20-63	
F	REVISED PER TDRR 06494	4/16/64	

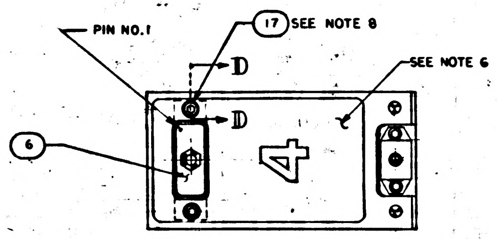


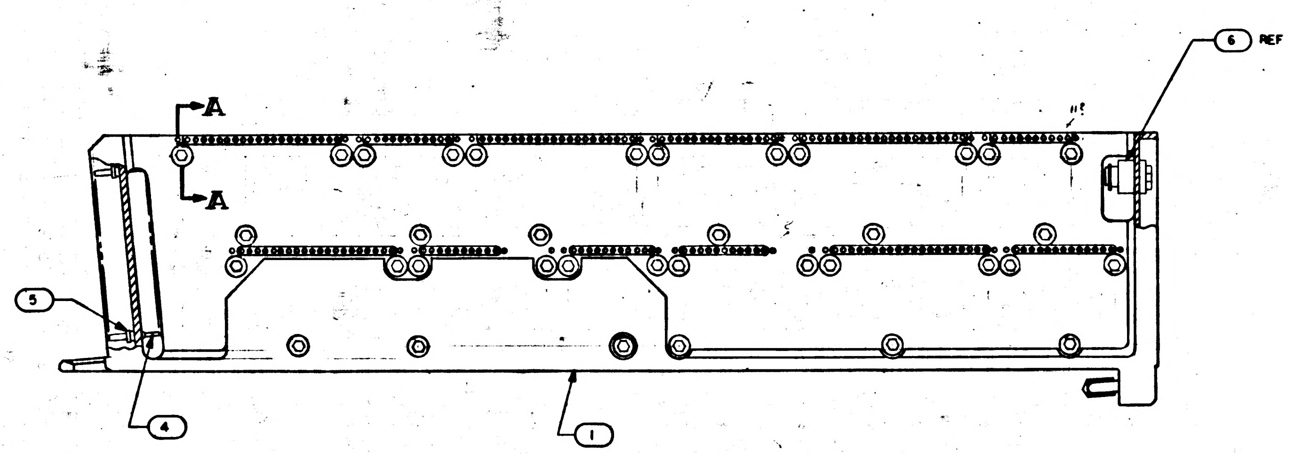
SECTION D-D
SCALE 2/1

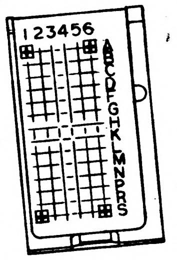


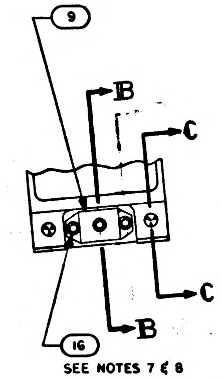
PARTIAL SECTION E-E
184 PLACES







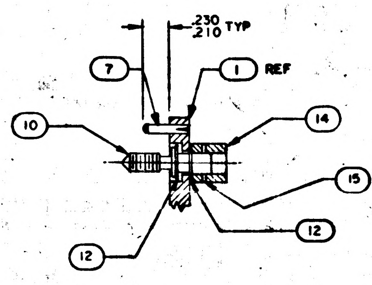




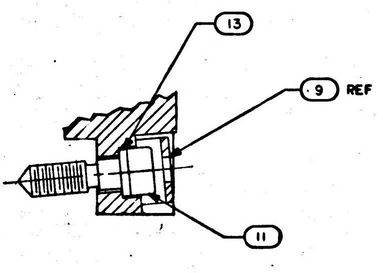
REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	10100094	WIRING DIAGRAM	REF
1	1015742	WIRE LIST AA	20
1	1015736	WIRING HARNESS A	19
2	MA21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
36	1008145	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
24	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
184	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
184	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008104	FRAME	1

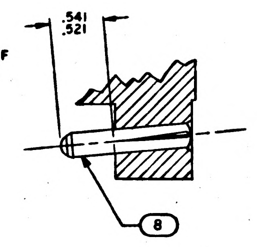
LIST OF MATERIALS



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE
3. ASSEMBLE FIND NUMBERS 2,3,4, AND 5 PER ND 1002136
4. BOND FIND NO.19 AND 20 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS

MASTER

1007154		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.02 ANGLES ±1° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB Cambridge, Mass. DRAWN DATE CHECKED 7 Oct 63 APPROVAL 10-8-63 APPROVAL	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
NEXT ASSY	USED ON	MATERIAL		FRAME ASSEMBLY TRAY 4	
APPLICATION		HEAT TREATMENT	NASA APPROVAL 10-8-63	CODE IDENT NO.	SIZE E
		FINAL FINISH	MIT APPROVAL	NASA DRAWING NO. 1007144	
				SCALE 1/1 WT	SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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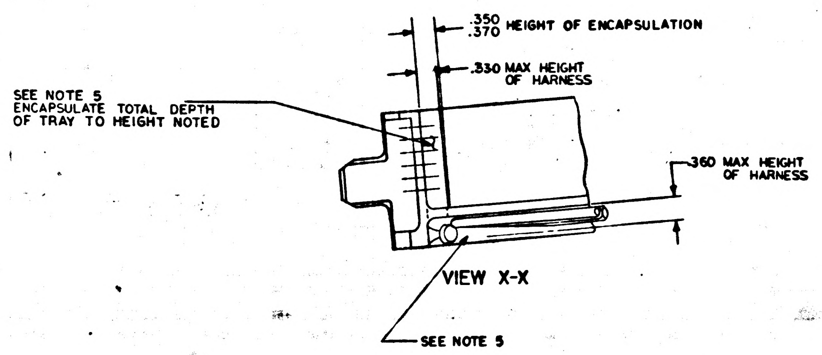
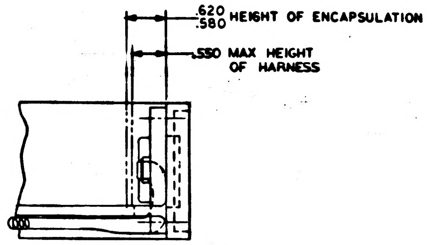
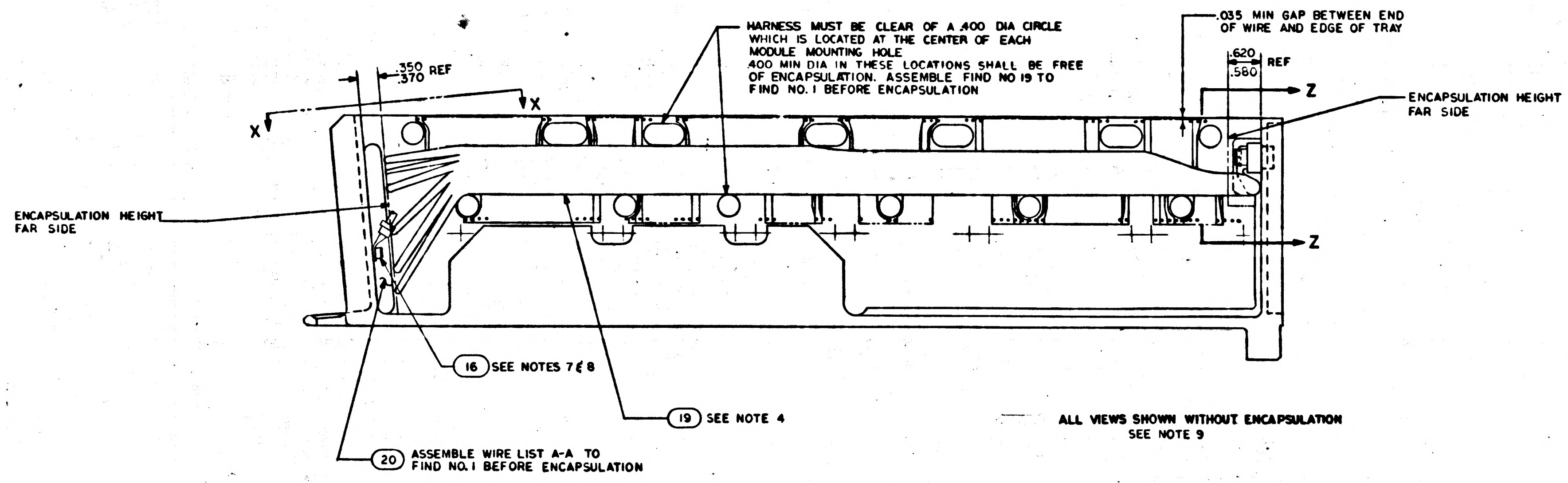
F	REVISED PER TDRR 06490	2/18/64	WK

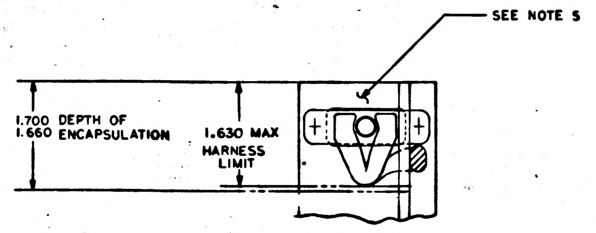

.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 5

VIEW X-X

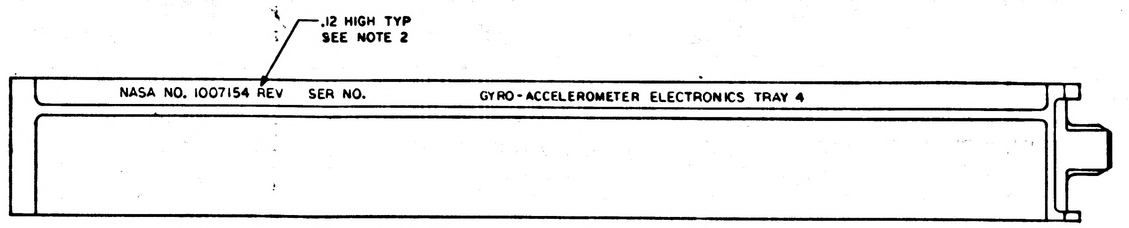

.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HEIGHT OF HARNESS


.350
.370 REF
X
X
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 19 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.620
.580 REF
Z
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
16 SEE NOTES 7 & 8
19 SEE NOTE 4
20 ASSEMBLE WIRE LIST A-A TO FIND NO. 1 BEFORE ENCAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.700
1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z


.12 HIGH TYP
SEE NOTE 2
NASA NO. 1007154 REV SER NO.
GYRO-ACCELEROMETER ELECTRONICS TRAY 4

MARKING VIEW AFTER ENCAPSULATION

MASTER

REV E THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007154	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN J.F. Walsh DATE 11/6/63
CHECKED R.P. [illegible]
APPROVAL [illegible] 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 4

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007144
SCALE 1/1 WT SHEET 2 OF 2

1007144 F

INCHES
0 1
PHOTOGRAPHIC SCALE ONLY

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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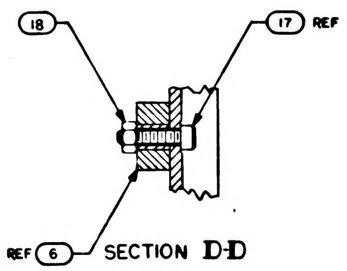
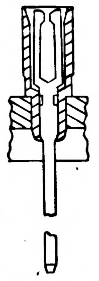
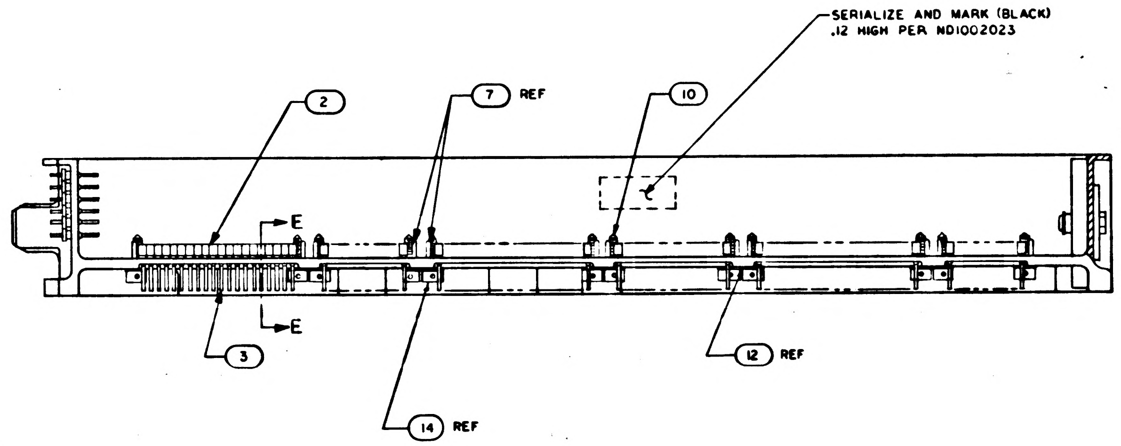
E	REVISED PER TDRR 04787	[illegible] 63	[illegible]
F	REVISED PER TDRR 06/99	[illegible]	[illegible]
G	REVISED PER TDRR 07138	1 APR 64	RWT

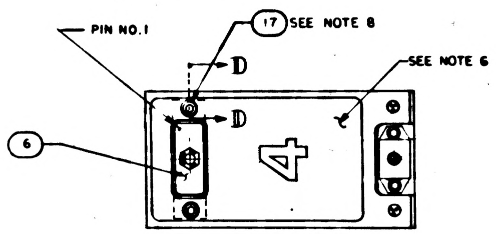


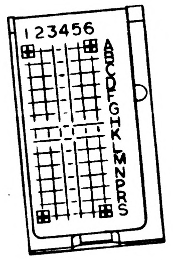
SECTION D-D
SCALE 2/1

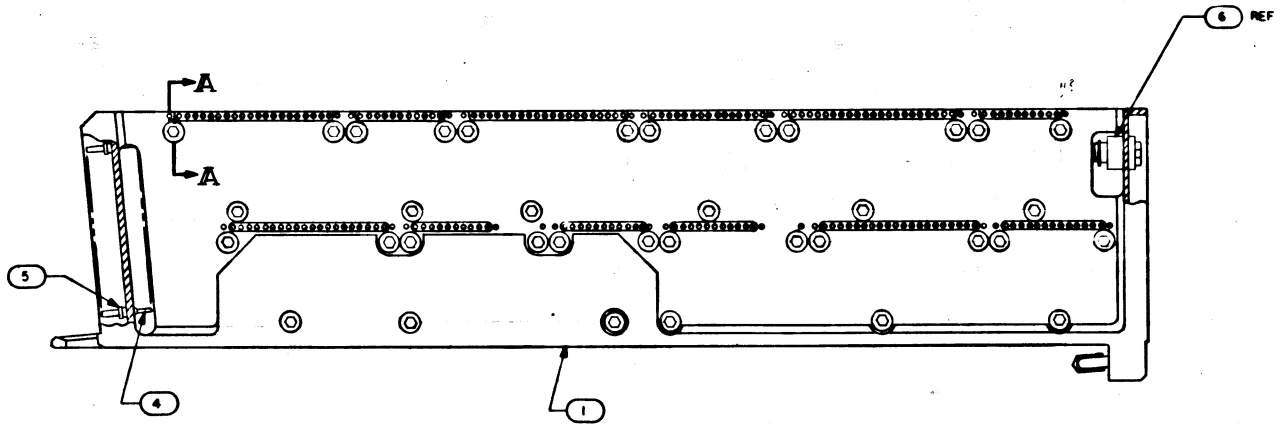


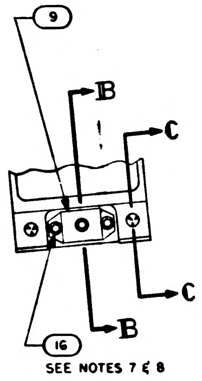
PARTIAL SECTION E-E
184 PLACES











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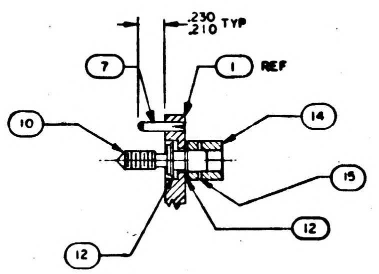
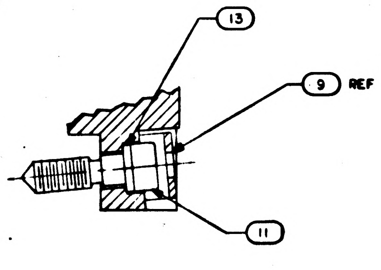
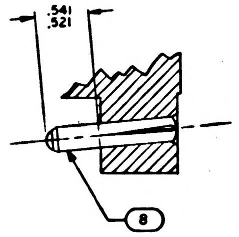


SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE
3. ASSEMBLE FIND NUMBERS 2,3,4, AND 5 PEP ND 1002136
4. BOND FIND NO.19 AND 20 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	10100094	WIRING DIAGRAM	REF
1	1015742	WIRE LIST AA	20
1	1015736	WIRING HARNESS A	19
2	MA21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
36	MS171433	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
24	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
184	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
184	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008104	FRAME	1

LIST OF MATERIALS

G	F
SHEET 1	SHEET 2

REVISION STATUS OF SHEETS

NEXT ASSY	USED ON
1007154	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS9-497

DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 7 Oct 63
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible] 10-8-63
MIT APPROVAL [illegible]

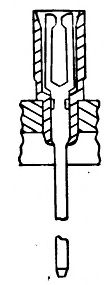
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 4

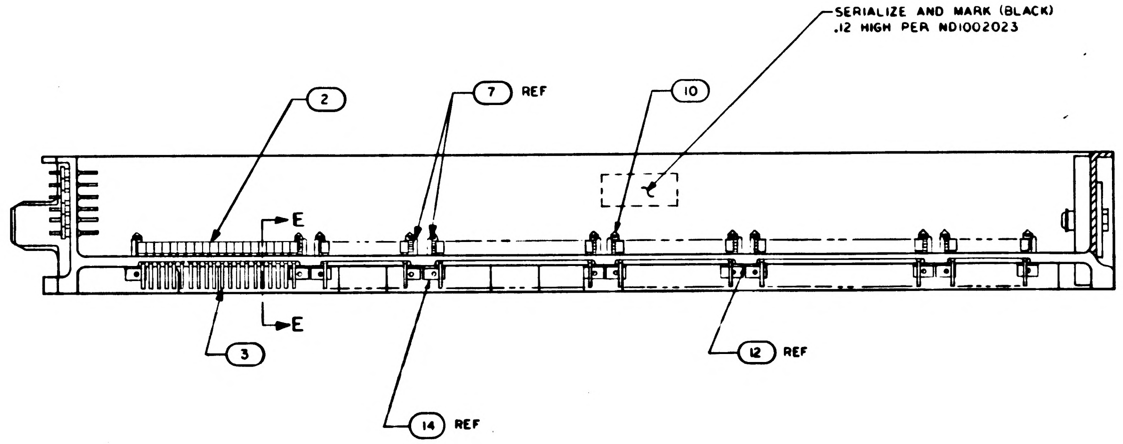
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007144
SCALE 1/1
WT
SHEET 1 OF 2

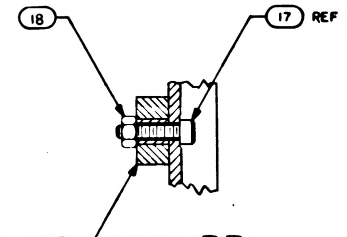
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03773	[illegible]	[illegible]
E	REVISED PER TDRR 04787	[illegible] 63	[illegible]
F	REVISED PER TDRR 06194	[illegible]	[illegible]
G	REVISED PER TDRR 07138	1 APR 64	CHT
H	REVISED PER TDRR 08145	13 MAY 64	[illegible]

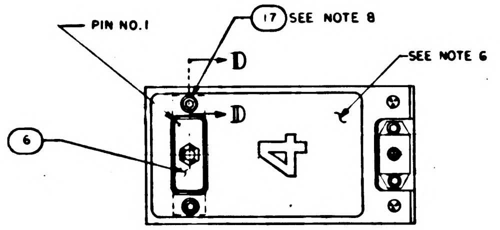


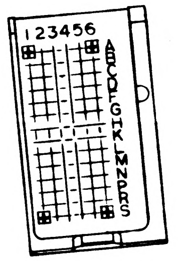
PARTIAL SECTION E-E
184 PLACES

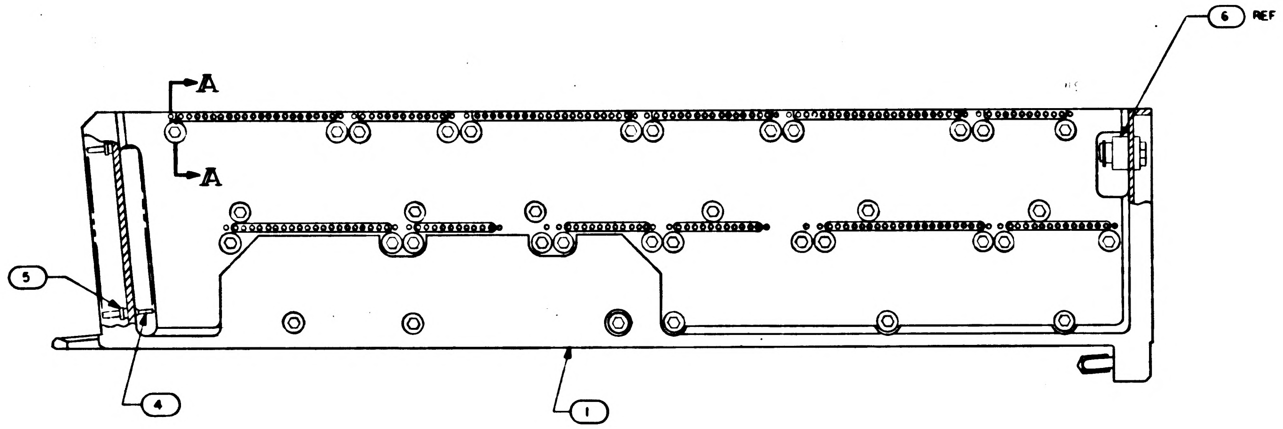


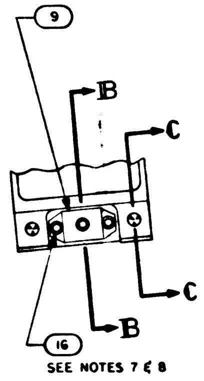


SECTION D-D
SCALE 2/1







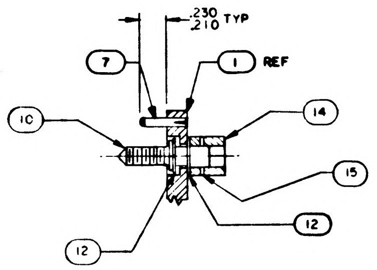


REV D REPLACES REV C

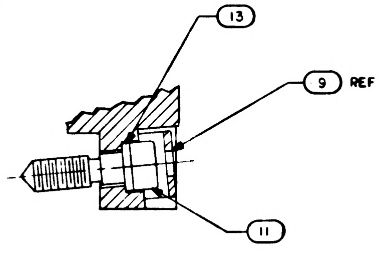
☒	10100094	WIRING DIAGRAM	REF
1	1015742	WIRE LIST AA	20
1	1015736	WIRING HARNESS A	19
2	MA21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
36	MS171433	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
24	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
184	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
184	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008104	FRAME	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

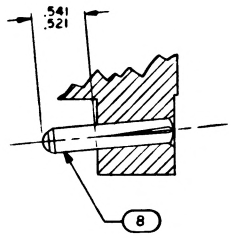
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE
3. ASSEMBLE FIND NUMBERS 2,3,4, AND 5 PEP ND 1002136
4. BOND FIND NO.19 AND 20 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS
10. PROCURE PER PS1007144



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



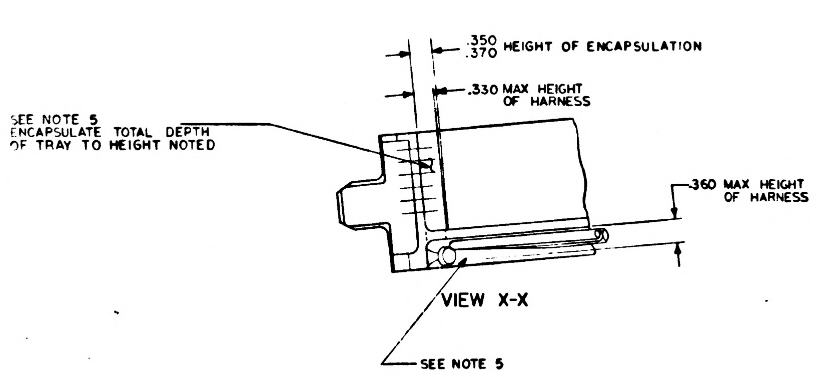
SECTION C-C
SCALE 2/1

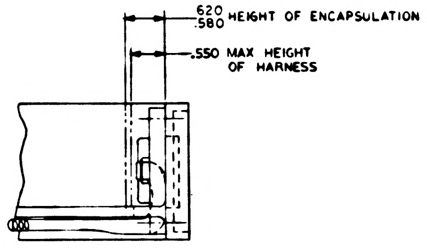
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS — DECIMALS ±.02 ANGLES ±1° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS DWG NO CONTRACT NAS9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
		MATERIAL	DRAWN [illegible] DATE [illegible] 63 CHECKED [illegible] 7 Oct 63 APPROVAL [illegible] 10-8-63 APPROVAL	FRAME ASSEMBLY TRAY 4
1007154		HEAT TREATMENT	NASA APPROVAL [illegible] 10-1-63	CODE IDENT NO. — SIZE E — NASA DRAWING NO. 1007144
NEXT ASSY	USED ON	FINAL FINISH	MIT APPROVAL [illegible]	SCALE 1/1 — WT — SHEET 1 OF 2
APPLICATION				

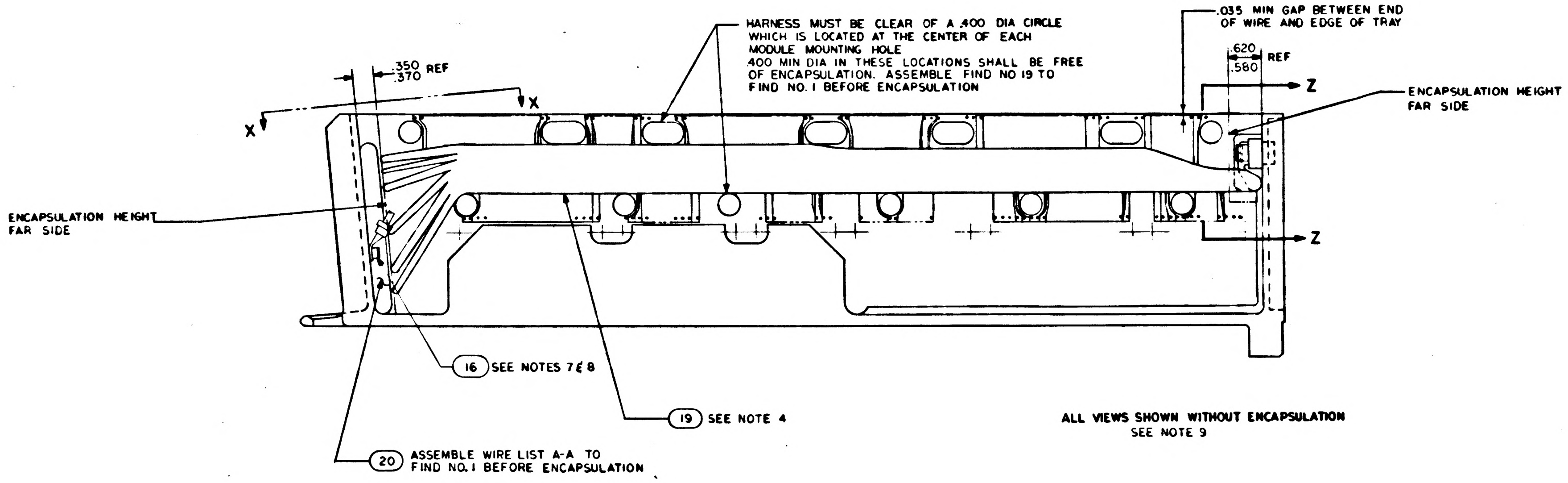
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

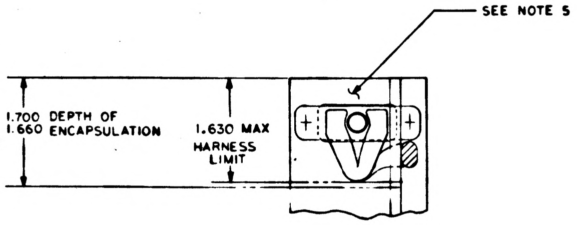
SYM	DESCRIPTION	DATE	APPROVAL
E	THIS SHEET ADDED PER TDRR 04247	11-20 63	PPL
F	REVISED PER TDRR 06440	[illegible]	WR
H	REVISED PER TDRR 08145	15 MAY 64	JB


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
VIEW X-X
SEE NOTE 5

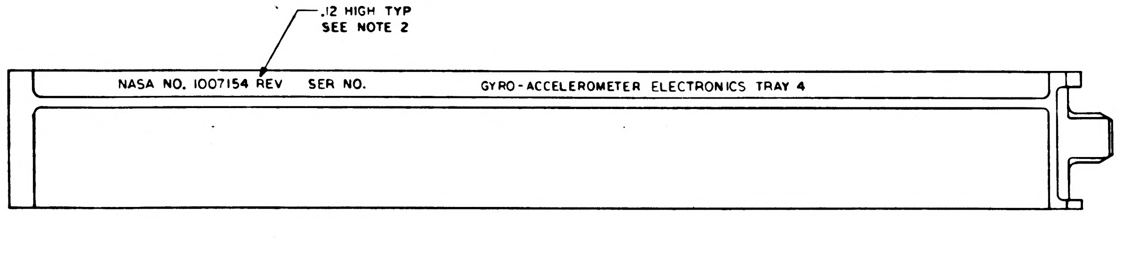

.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HEIGHT OF HARNESS


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 19 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.620
.580 REF
.350
.370 REF
X
X
Z
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
16 SEE NOTES 7 & 8
19 SEE NOTE 4
20 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ENCAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.700
1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z


.12 HIGH TYP
SEE NOTE 2
NASA NO. 1007154 REV SER NO.
GYRO-ACCELEROMETER ELECTRONICS TRAY 4

MARKING VIEW AFTER ENCAPSULATION

REV E THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007154	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT NAS 9-497
DRAWN J.F. Welch DATE 11/6/63
CHECKED R.P. [illegible]
APPROVAL A. B. [illegible] 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

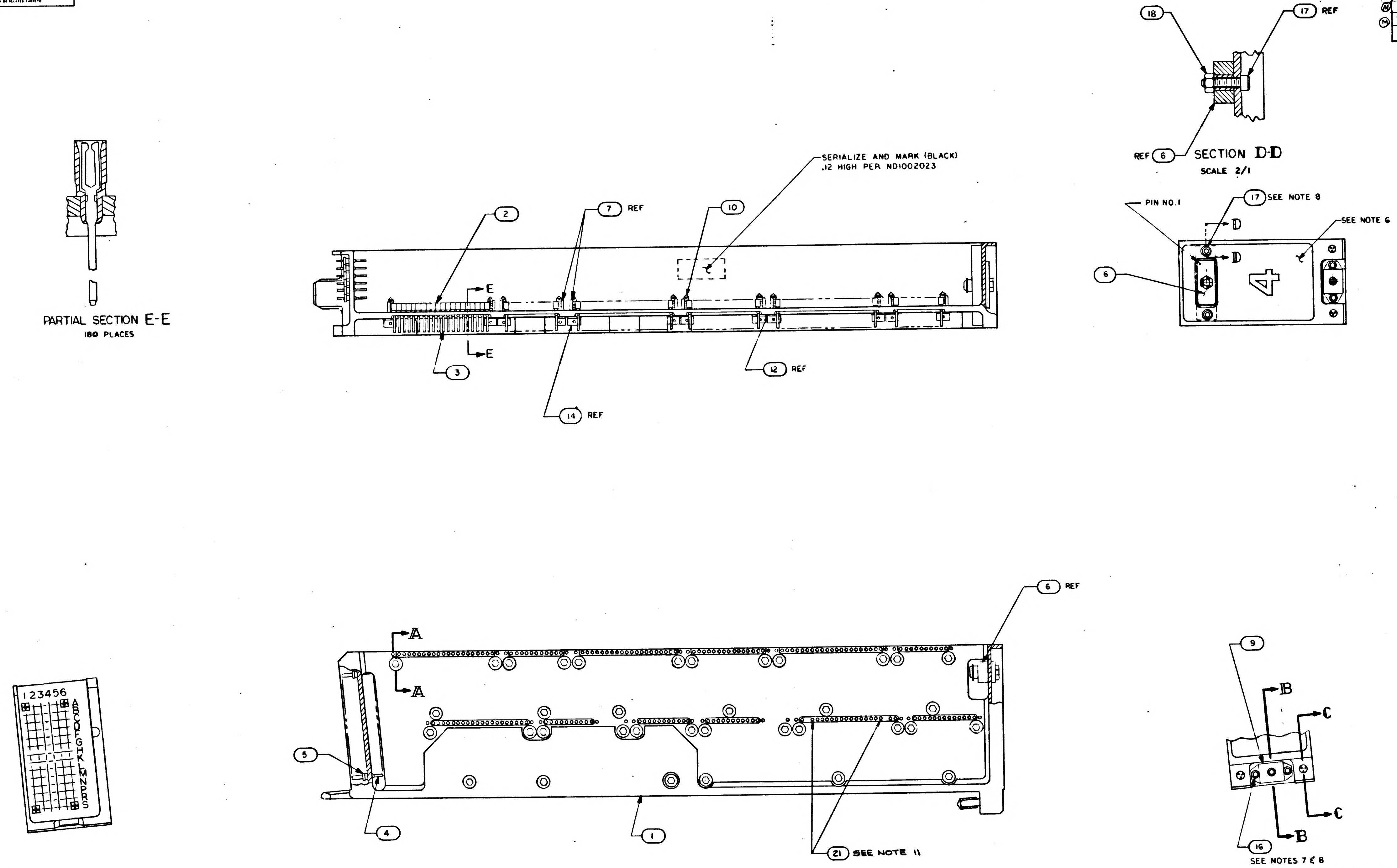
FRAME ASSEMBLY
TRAY 4

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007144
SCALE 1/1
WT
SHEET 2 OF 2

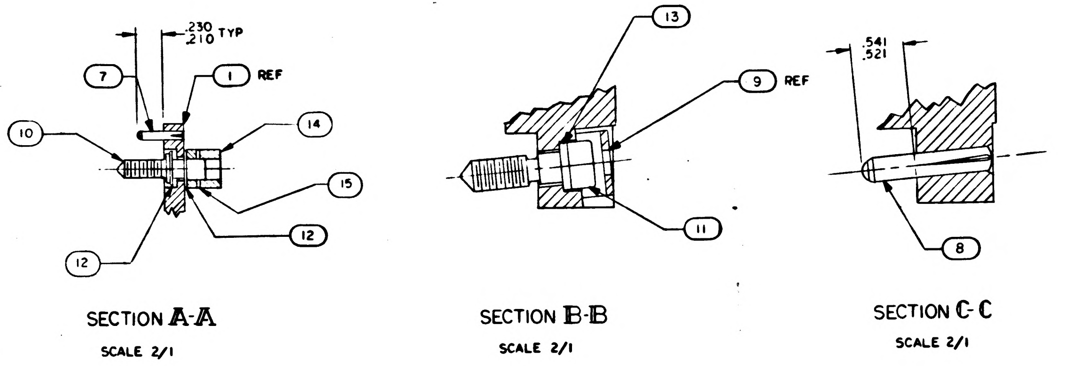
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03773	10-8-63	PK
E	REVISED PER TDRR 04787	11-20-63	PK
F	REVISED PER TDRR 06494	2-6-64	
G	REVISED PER TDRR 07138	1 APR 64	RW
H	REVISED PER TDRR 08145	13 MAY 64	JB
J	REVISED PER TDRR 12623	26 SEP 64	LG



REV D REPLACES REV C



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE
3. ASSEMBLE FIND NUMBERS 2,3,4, AND 5 PEP ND 1002136
4. BOND FIND NO.19 AND 20 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005
   ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60
   ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS
10. PROCURE PER PS1007144.
11. BOND ITEM 21 IN HOLES 45A4J9-3 AND-17 PER ND1002004, TYPE I

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
2	1008256	PIN, POLARIZING	21
╳	10100094	WIRING DIAGRAM	REF
1	1015742	WIRE LIST AA	20
1	1015736	WIRING HARNESS A	19
2	MA21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
36	MS171433	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
24	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
180	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
180	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008104	FRAME	1

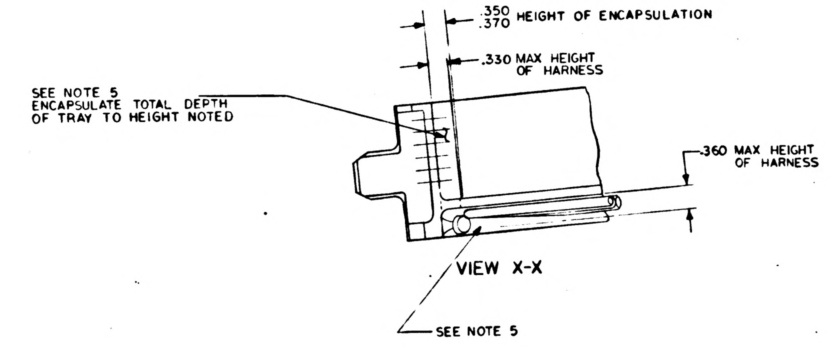
LIST OF MATERIALS

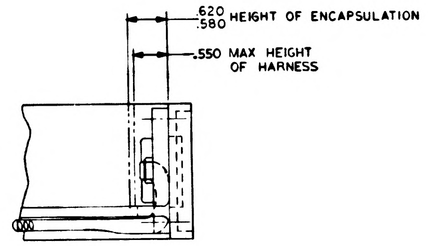
1007154		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS — DECIMALS ±.02 ANGLES ±1° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS DWG NO CONTRACT NAS9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN DATE 19 Aug 63 CHECKED 7 Oct 63 APPROVAL 10-8-63 APPROVAL	FRAME ASSEMBLY TRAY 4
APPLICATION		HEAT TREATMENT	NASA APPROVAL 10-1-63	CODE IDENT NO. · SIZE E · NASA DRAWING NO 1007144
		FINAL FINISH	MIT APPROVAL	SCALE 1/1 · WT · SHEET 1 OF 2

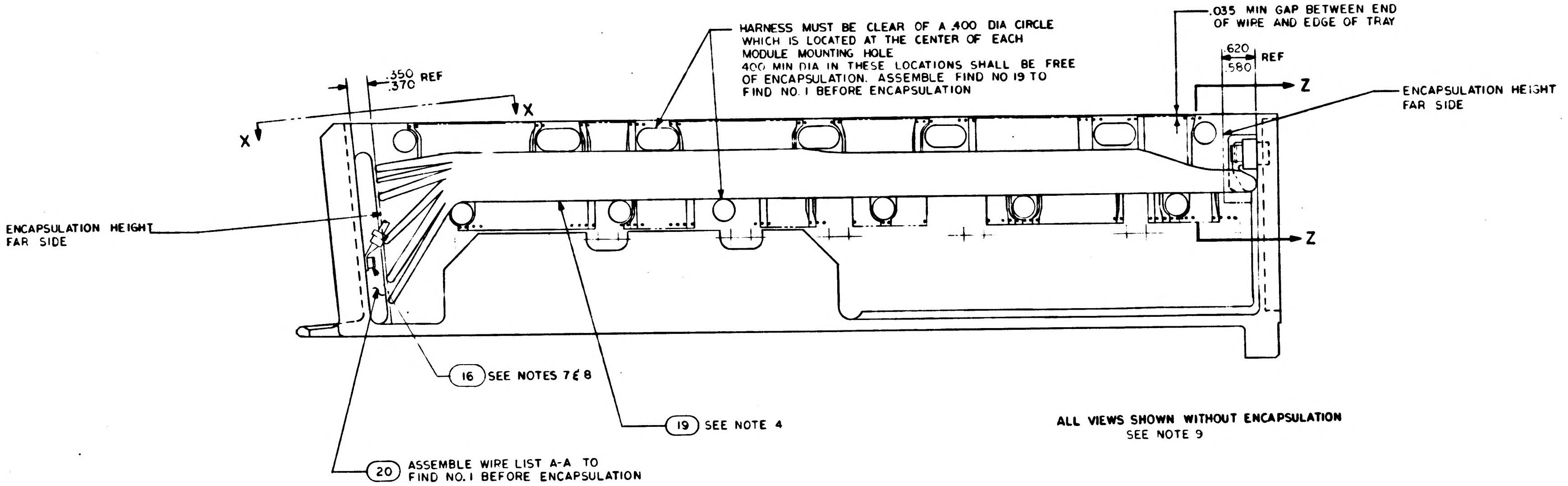
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

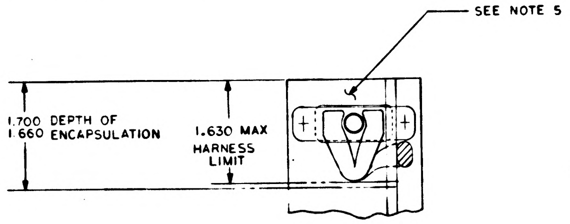
	SYM	DESCRIPTION	DATE	APPROVAL
Ⓜ	E	THIS SHEET ADDED PER TDRR 04287	11-20 63	PPL
Ⓜ	F	REVISED PER TDRR 06	2/1/64	
Ⓜ	H	REVISED PER TDRR 08145	15 MAY 64	JB
	J	REVISED PER TDRR 12623	26 SEP 64	LGC / CF


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
VIEW X-X
SEE NOTE 5

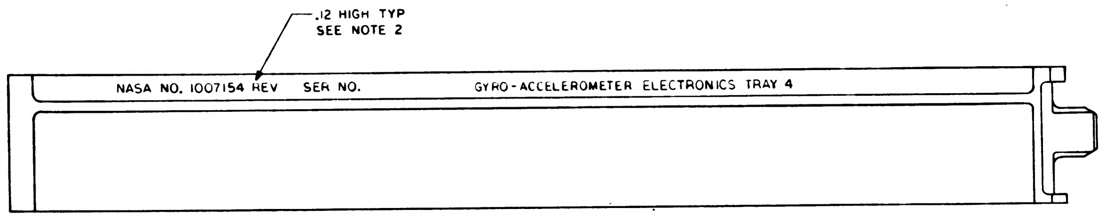

.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HEIGHT OF HARNESS


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 19 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIPE AND EDGE OF TRAY
.620
.580 REF
.350
.370 REF
X
X
Z
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
16 SEE NOTES 7 & 8
19 SEE NOTE 4
20 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ENCAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.700 DEPTH OF
1.660 ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z


.12 HIGH TYP
SEE NOTE 2
NASA NO. 1007154 REV SER NO. GYRO-ACCELEROMETER ELECTRONICS TRAY 4

MARKING VIEW AFTER ENCAPSULATION

REV E THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007154	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT NAS9-497
DRAWN G.F. Walsh DATE 11/6/63
CHECKED R.P.
APPROVAL A.B. 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

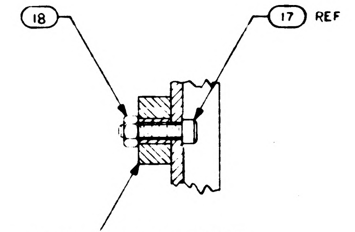
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 4

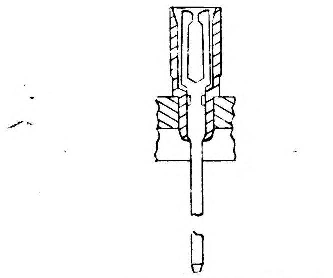
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007144
SCALE 1/1
WT
SHEET 2 OF 2

1007144

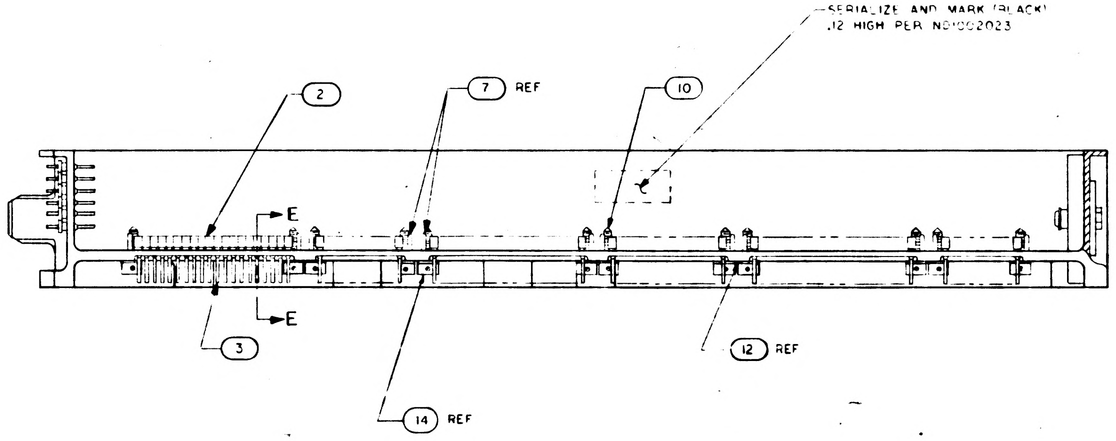
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR		
E	REVISED PER TDRR 04787		
F	REVISED PER TDRR		
G	REVISED PER TDRR 07138	1 APR 64	RW
H	REVISED PER TDRR 08145	13 MAY 64	JB
J	REVISED PER TDRR 12623	26 SEP 64	LG
K	REVISED PER TDRR 14323	23 Nov 64	

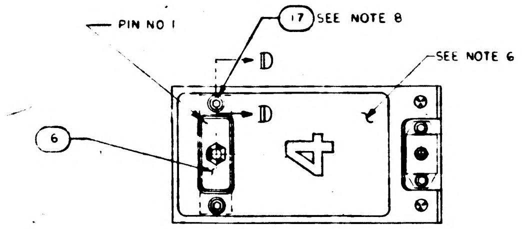


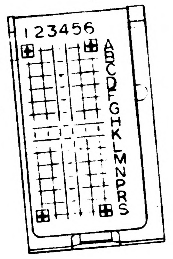
SECTION D-D
SCALE 2/1

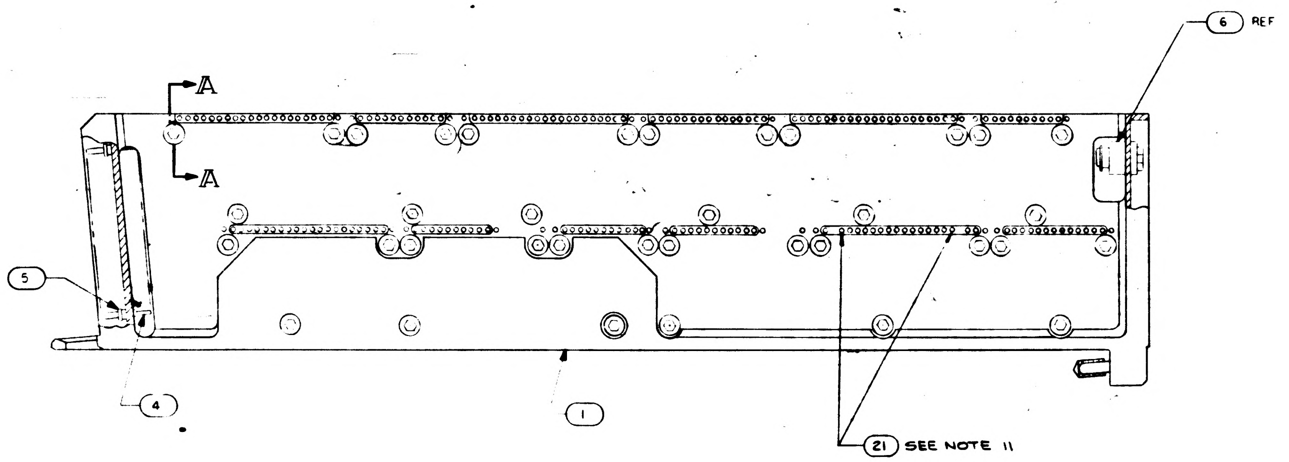


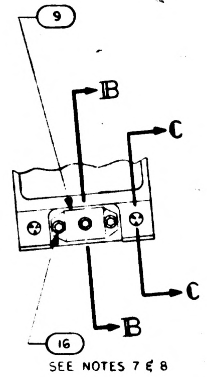
PARTIAL SECTION E-E
180 PLACES







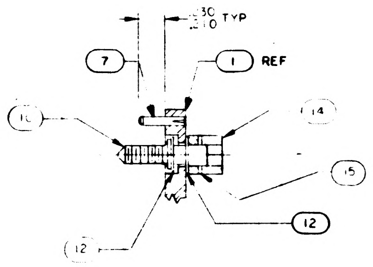




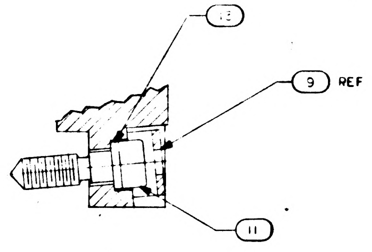
REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
2	1008256	PIN, POLARIZING	21
✕	1010026	WIRING DIAGRAM	REF
1	1015742	WIRE LIST AA	20
1	1015736	WIRING HARNESS A	19
2	MA21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
36	MS171433	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
24	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
180	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
180	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008104	FRAME	1

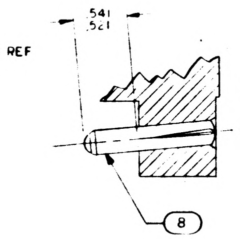
LIST OF MATERIALS



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE
3. ASSEMBLE FIND NUMBERS 2 3 4 AND 5 PER ND 1002136
4. BOND FIND NO.19 AND 20 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005 ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60 ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS
10. PROCURE PER PS1007144.
11. BOND ITEM 21 IN HOLES 45A4J9-3 AND-17 PER ND1002004, TYPE I

1007154	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS9-497
DRAWN R. Laney DATE 9 Aug 63
CHECKED 7 Aug 63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRAME ASSEMBLY
TRAY 4

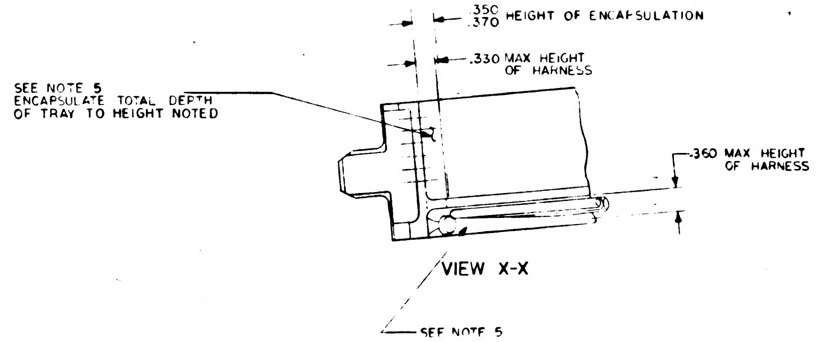
CODE IDENT NO
SIZE E
NASA DRAWING NO 1007144
SCALE 1/1
WT
SHEET 1 OF 2

1007144 K

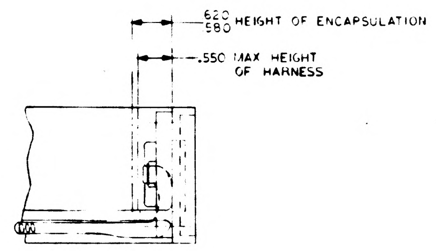
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

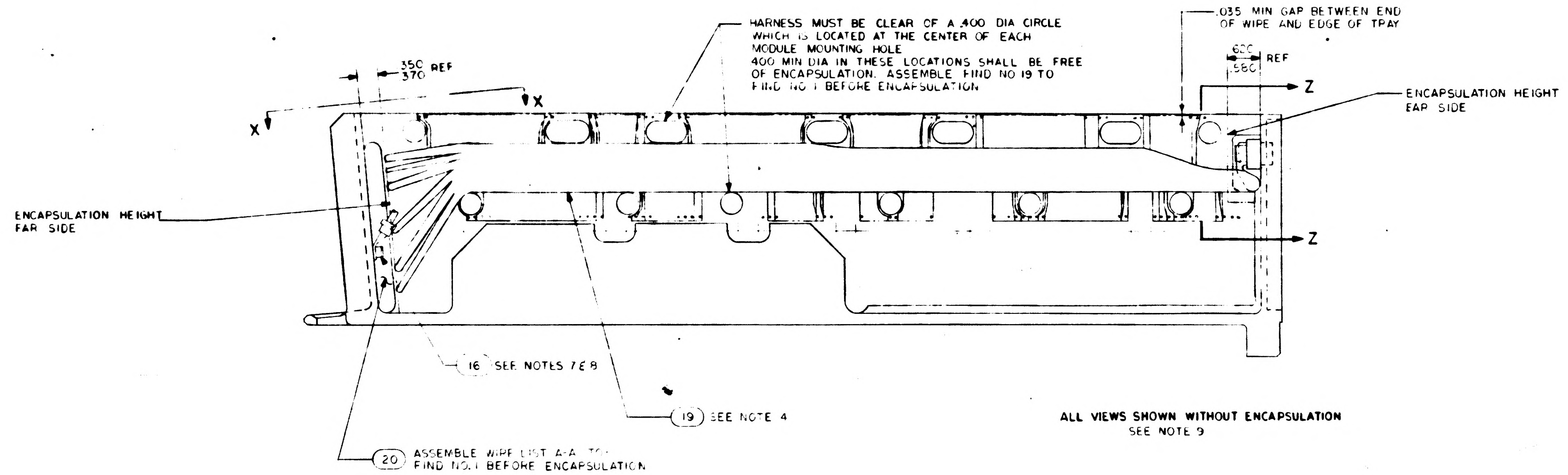
REVISIONS

	SYM	DESCRIPTION	DATE	APPROVAL
Ⓝ	E	THIS SHEET ADDED PER TDRR	11-20 63	PPE
N	F	REVISED PER TDRR		WR
Ⓜ	H	REVISED PER TDRR 08145	15 MAY 64	JB
Ⓜ	J	REVISED PER TDRR 12623	26 SEP 64	LGC / CP
	K	REVISED PER TDRR 14323	23-NOV -64	J.S.

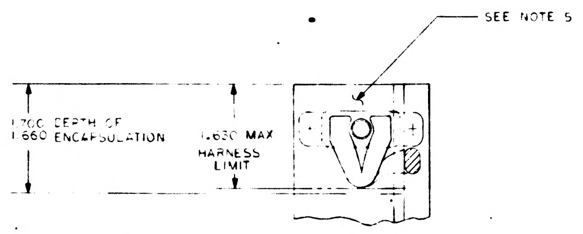

.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 5 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 5

VIEW X-X

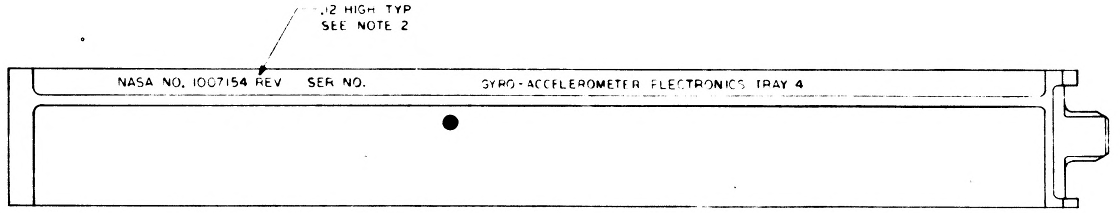

.620 .580 HEIGHT OF ENCAPSULATION
.550 MAX HEIGHT OF HARNESS


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 19 TO FIND NO 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIPE AND EDGE OF TRAY
.350 .370 REF
.620 .580 REF
X
X
Z
Z
ENCAPSULATION HEIGHT EAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
16 SEE NOTES 7 & 8
19 SEE NOTE 4
20 ASSEMBLE WIRE LIST A-A TO FIND NO. 1 BEFORE ENCAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.700 DEPTH OF 1.660 ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z


.12 HIGH TYP SEE NOTE 2
NASA NO. 1007154 REV SER NO.
GYRO-ACCELEROMETER ELECTRONICS TRAY 4

MARKING VIEW AFTER ENCAPSULATION

REV E THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007154		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES DO NOT SCALE THIS DRAWING	M I T INSTRUMENTATION LAB CAMBRIDGE MASS DWG NO CONTRACT NAS 9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN J.F. Welsh DATE 11/6/63 CHECKED 11/18/63 APPROVAL 11-20-63 APPROVAL	FRAME ASSEMBLY TRAY 4
APPLICATION		HEAT TREATMENT	NASA APPROVAL	CODE IDENT NO / SIZE E / NASA DRAWING NO. 1007144
		FINAL FINISH	MIT APPROVAL 11/20/63	SCALE 1/1 / WT / SHEET 2 OF 2

1007144 K

1007144

REVISIONS TDRR 01580				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
1008104	Frame, Tray 4	1
1006774	Insulator, Wrapost, Female Miniature	240
1006781-2	Contact, Wrapost, Female Miniature	240
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

1007154	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
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MATERIAL:

MIT
INSTRUMENTATION LAB
CONTRACT
NAS 9-153
APPROVED — DATE 6-14-63
CHECKED
DRAWN
APPROVED FOR MSC Jack Barnard
MIT/IL APPROVAL — DATE 14 June 63

FRAME ASSEMBLY,
TRAY 4

SCALE
UNIT WT.
CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.
DWG. NO.
MANNED
SPACECRAFT CENTER
HOUSTON TEXAS
NASA DRAWING NO.
1007144
SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

Class A Release
TDRR 08054

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 4

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 4

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 4 for use in APOLLO Guidance and Navigation Equipment.

WKupfer 30 Apr 64
MIT/IL DATE

4/30/64
NASA/MSC APPROVAL DATE

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 4

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 4, Drawing 1007144, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007144	Final Test Method for Frame Assembly Tray 4

DRAWINGS

APOLLO G&N

1007144	Frame Assembly Tray 4
1015736	Wiring Harness A Tray 4 (For Reference Only)
1015742	Wire List A-A

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007145

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	DT. WK

REVISIONS TDRR 01560

PART NO.	DESCRIPTION	REQD.
1008105	Frame, Tray 5	1
1006774	Insulator, Wrapost, Female Miniature	195
1006781-2	Contact, Wrapost, Female Miniature	195
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1
1010620-1	Pin, Guide	20
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	30
1008098	Screw, Socket Head, Externally Relieved Body	1
1008099-1	Washer (Special)	30
1008099-2	Washer (Special)	1
1008092	Washer (Special)	30
MS 16624-15	Ring, Retaining	30
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

NEXT ASSY	USED ON
1007155	

APPLICATION

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DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES

DO NOT SCALE THIS DRAWING

MATERIAL:

MIT INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED		6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL — DATE

FRAME ASSEMBLY,
TRAY 5

SCALE	UNIT WT.	CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.

DWG. NO

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

NASA DRAWING NO.
1007145

SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

APOLLO G&N Specification
PS-1007145
30 April 1964
Class A Release
TDRR 08054

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 5

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
8-18-64	A	11694	1,2	WR.	

This specification consists of page i to iii and 1 to [illegible] inclusive.

APOLLO G&N Specification
PS-1007145
30 April 1964

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 5

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 5 for use in APOLLO Guidance and Navigation equipment.

30 Apr 64
MIT/IL DATE

4/30/64
NASA/MSC DATE

APOLLO G&N Specification
PS1007145 A

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 5

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 5, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM1007145	Final Test Method for Frame Assembly Tray 5

DRAWINGS

APOLLO G&N

1007145	Frame Assembly Tray 5
1007165	Frame Assembly Tray 5

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

APOLLO G&N Specification
PS-1007145
30 April 1964
Class A Release
TDRR [illegible]

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 5

Record of Revisions

Ⓜ

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
[illegible]	A	[illegible]	[illegible]	WK.	

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 5

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 5, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM1007145	Final Test Method for Frame Assembly Tray 5

DRAWINGS

APOLLO G&N

1007145	Frame Assembly Tray 5
1007165	Frame Assembly Tray 5

3. REQUIREMENTS

3.1 GENERAL SPECIFICATION. Unless otherwise specified, all the requirements of Specification ND1002210 shall apply as requirements of this specification.

3.2 DESCRIPTION. The tray is to be used in the Power and Servo Assembly as a mounting frame and as an interconnection for the modules used in the CDU and Gyro-Accelerometer Electronics Assembly.

3.3 FUNCTIONAL REQUIREMENTS

3.3.1 Insulation Resistance Test. The insulation resistance test shall be conducted from each individual connector pin, with the exception of K3 of connector 45A5-P1, to the assembly frame. The resistance from each connector pin to the frame assembly shall be equal to or greater than 100 megohms.

3.3.2 Continuity and DC Resistance and Shorting. The continuity and dc resistance and short test shall be as specified in JDC09801 of FTM1007145.

3.4 PERFORMANCE AND PRODUCT CHARACTERISTICS

3.4.1 Service Life

3.4.1.1 Operating Life. The assembly shall meet performance specifications for at least 2000 hours of operation, excluding the supplier's test time of the completed unit.

3.4.1.2 Shelf Life. The assembly shall be packaged as specified in MIL-P-116, Method 2, and shall have a shelf life of at least 5 years, without operation, at ambient room temperature after final acceptance at the supplier's facility.

3.4.2 Reliability. Design objectives require maximum reliability of the assembly during its period of useful life. Every effort shall be made to design and produce units capable of meeting a maximum failure rate of 0.2 failures per million hours.

1007145

REVISIONS TDRR 01560

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	DT. WK
	B	REVISED PER TDRR 02707	8-21-63	D.T.

PART NO.	DESCRIPTION	REQD.
1008105	Frame, Tray 5	1
1006774	Insulator, Wrapost, Female Miniature	195
1006781-2	Contact, Wrapost, Female Miniature	195
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1
1010620-1	Pin, Guide	20
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	30
1008098	Screw, Socket Head, Externally Relieved Body	1
1008099-1	Washer (Special)	30
1008099-2	Washer (Special)	1
1008092	Washer (Special)	30
MS 16624-15	Ring, Retaining	30
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

1007155	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL:

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INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED		6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard
MIT/IL APPROVAL DATE

FRAME ASSEMBLY,
TRAY 5

SCALE
UNIT WT.
CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.
DWG. NO.
MANNED
SPACECRAFT CENTER
HOUSTON TEXAS
NASA DRAWING NO.
1007145
SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

APOLLO G&N Specification
PS-1007145 B
30 April 1964
Class A Release
TDRR [illegible]

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 5

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
8/18/64				WK.	
2/9/65	B	16240	1	WK	WJR

This specification consists of page i
to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 5

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 5, hereafter called the assembly.

1.2 CLASSIFICATION. The requirements for Part Numbers 1007145, 1007165, 1021215-011 and 1007535-021 shall be designated as Type I.

2. APPLICABLE DOUCMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM1007145	Final Test Method for Frame Assembly Tray 5

DRAWINGS

APOLLO G&N

1007145	Frame Assembly Tray 5
1007165	Frame Assembly Tray 5
1007535	Frame Assembly Tray 5
1021215	Frame Assembly Tray 5

1007145

REVISIONS TDRR 0150				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	
	B	REVISED PER TDRR 02707	8-21-63	
	C	REVISED PER TDRR 02869	8-21-63	

PART NO.	DESCRIPTION	REQD.
1008105	Frame, Tray 5	1
1006774	Insulator, Wrapost, Female Miniature	195
1006781-2	Contact, Wrapost, Female Miniature	195
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	20
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	30
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	60
1008099-2	Washer	1
1004207	Drive Cylinder	30
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45
1008145	Pin, Spring	30

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

NEXT ASSY	USED ON
1007155	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES

DO NOT SCALE THIS DRAWING

MATERIAL:

MIT
INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED		6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
	14 Nov 63

FRAME ASSEMBLY,
TRAY 5

SCALE
UNIT WT.
CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.

DWG. NO.

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

NASA DRAWING NO.
1007145

SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007145

REVISIONS TDRR 0158				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	AT. WK
	B	REVISED PER TDRR 02707	8-21-63	D.T.
	C	REVISED PER TDRR 02869	8-26-63	
	D	REVISED PER TDRR 03000	9-12-63	WK

PART NO.	DESCRIPTION	REQD.
1008105	Frame, Tray 5	1
1006774	Insulator, Wrapost, Female Miniature	195
1006781-2	Contact, Wrapost, Female Miniature	195
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	20
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	30
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	60
1008099-2	Washer	1
1004207	Drive Cylinder	30
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45
1008145	Pin, Spring	30

PART NO.	DESCRIPTION	REQD.
1006750-39	Resistor 2k, 1/4W, 2%	6
1006750-73	Resistor 51k, 1/4W, 2%	2

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

1007155	
NEXT ASSY	USED ON
APPLICATION	

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NAS 9-153

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DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE

FRAME ASSEMBLY,
TRAY 5

SCALE	UNIT WT.	CODE IDENT.

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NASA DRAWING NO.
1007145
SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007145

REVISIONS TDRR 0158

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	DT. WK
	B	REVISED PER TDRR 02707	8-21-63	D.T. /
	C	REVISED PER TDRR 02869	8-26-63	
	D	REVISED PER TDRR 03000	9-12-63	WK
	E	SUPERSEDED PER TDRR 03773		RPK WK

PART NO.	DESCRIPTION	REQD.
1008105	Frame, Tray 5	1
1006774	Insulator, Wrapost, Female Miniature	195
1006781-2	Contact, Wrapost, Female Miniature	195
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	20
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	30
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	60
1008099-2	Washer	1
1004207	Drive Cylinder	30
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45
1008145	Pin, Spring	30

PART NO.	DESCRIPTION	REQD.
1006750-39	Resistor 2k, 1/4W, 2%	6
1006750-73	Resistor 51k, 1/4W, 2%	2

REV E REPLACED BY REV F

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

1007155	
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APPLICATION	

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FRACTIONS DECIMALS ANGLES
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MATERIAL:

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INSTRUMENTATION LAB
CONTRACT
NAS 9-153
APPROVED D. A. Test DATE 6-14-63
CHECKED
DRAWN
APPROVED FOR MSC Jack Barnard
MIT/IL APPROVAL DATE

FRAME ASSEMBLY,
TRAY 5

SCALE
UNIT WT.
CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.
DWG. NO.
MANNED
SPACECRAFT CENTER
HOUSTON TEXAS
NASA DRAWING NO.
1007145
SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

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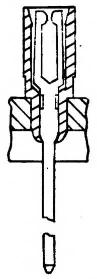
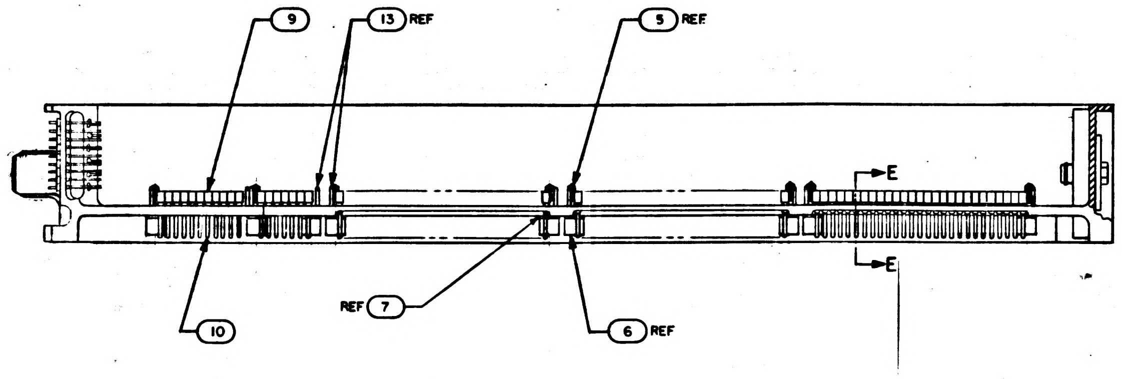
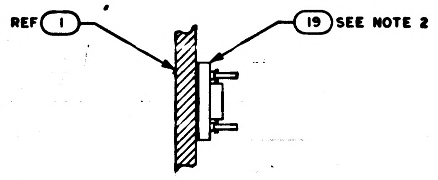
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDRR 03773	10-8-63	WH

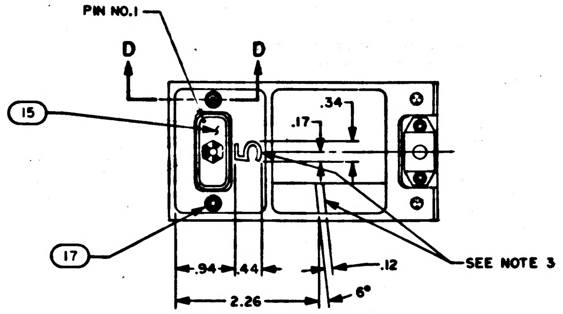


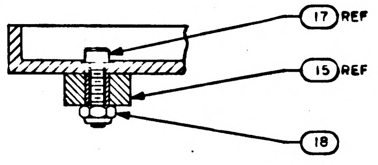
SECTION E-E



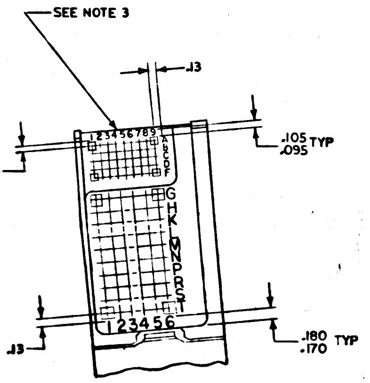


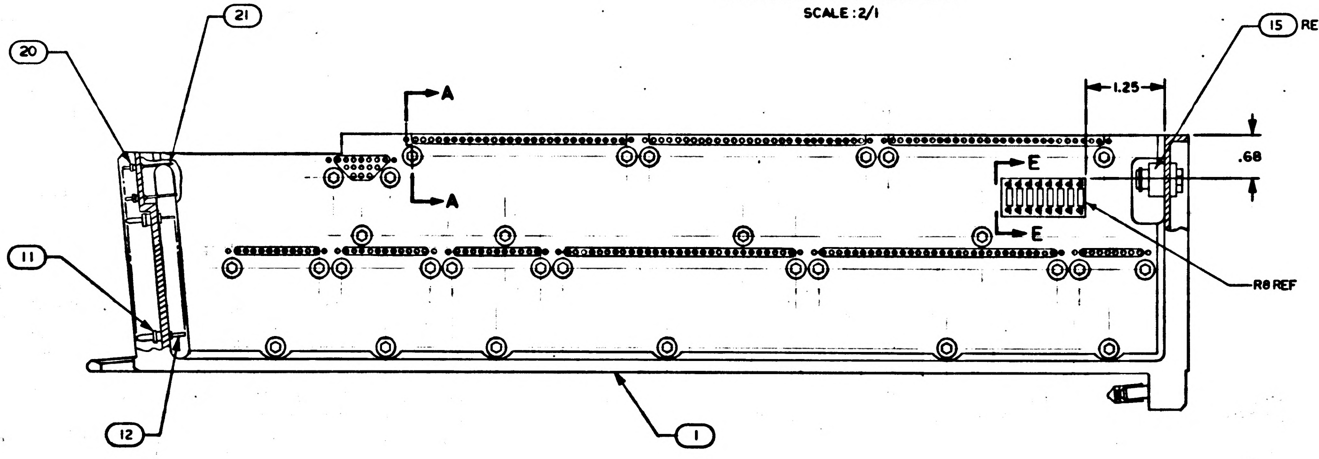
PARTIAL SECTION E-E
SCALE: 2/1

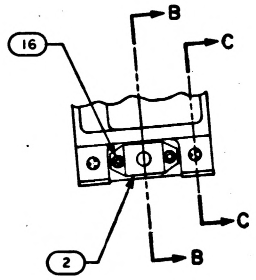


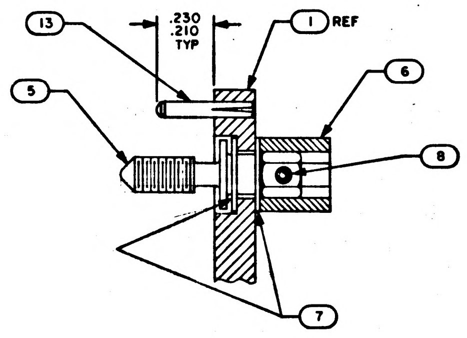


PARTIAL SECTION D-D
SCALE: 2/1

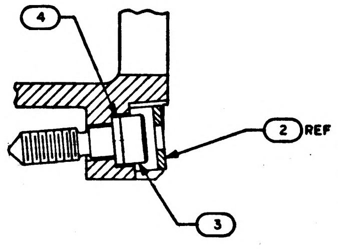




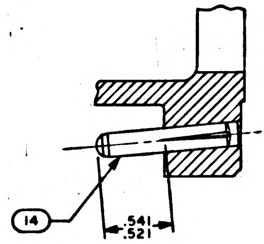




PARTIAL SECTION A-A
SCALE: 4/1



SECTION B-B
SCALE: 2/1



SECTION C-C
SCALE: 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686
3. MARK PER ND 1002019, WHITE
4. ASSEMBLE FIND NUMBERS 9, 10, 11 AND 12 PER ND 1002136

REV F REPLACES REV E

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010095	WIRING DIAGRAM	REF
45	1006782-2	CONTACT, WRAPOST MALE MIN	21
45	1006775	INSULATOR, MALE WRAPOST MIN	20
1	1007099	BUFFER RESISTORS ASSEMBLY	19
2	MA21045 C 04	NUT, SELF-LOCKING, HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-10	SCREW, CAP, SOCKET HEAD	16
1	1010622-1	CONNECTOR, RECEPTACLE	15
2	1010620-2	PIN, GUIDE	14
20	1010620-1	PIN, GUIDE	13
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	12
60	1010383	INSULATOR, WRAPOST, MALE	11
196	1006781-2	CONTACT, WRAPOST, FEMALE, MIN	10
196	1006774	INSULATOR, WRAPOST, FEMALE, MIN	9
30	1008145	PIN, SPRING	8
60	1004206	WASHER, THRUST	7
30	1004207	DRIVE CYLINDER	6
30	1008095	SCREW, JACK	5
1	1008099-2	WASHER,	4
1	1008098	SCREW, SOCKET HEAD	3
1	1001317	RETAINER, JACK SCREW	2
1	1008105	FRAME	1

LIST OF MATERIALS

1007155	
NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
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MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN Ken Healy DATE 12 Sep 63
CHECKED Aug 7 1963
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL 10-8-63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007145
SCALE 1/1
WT
SHEET 1 OF 1

1007145 E

MASTER

INCHES
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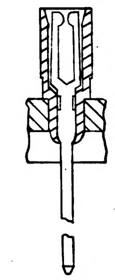
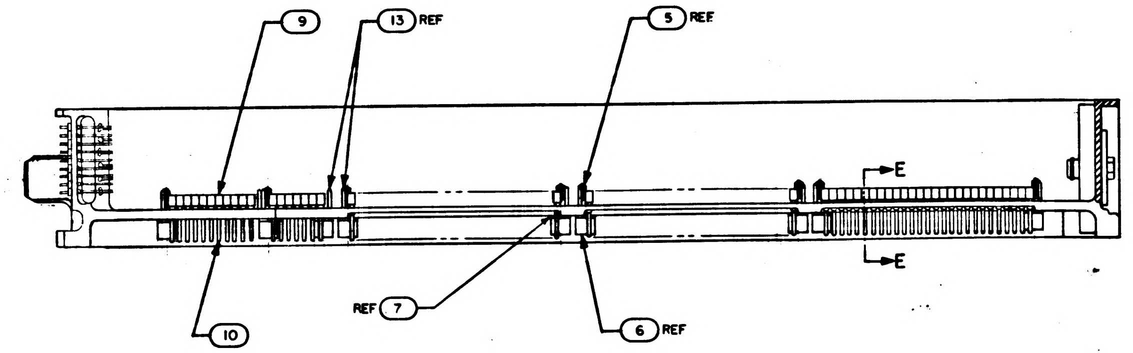
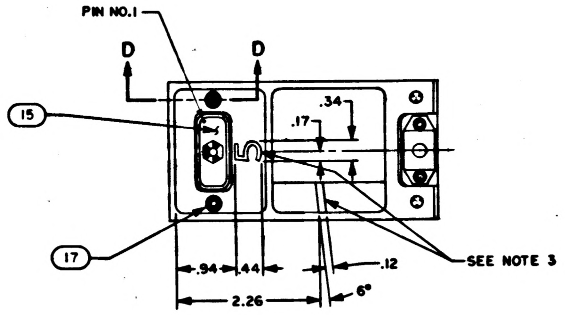
REVISIONS

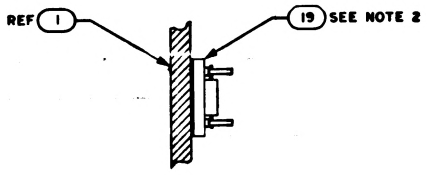
SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDRR 03773	10-16-63	WR
G	REVISED PER TDRR 04788	11-20-63	



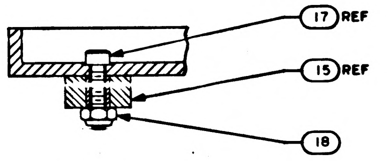
SECTION E-E



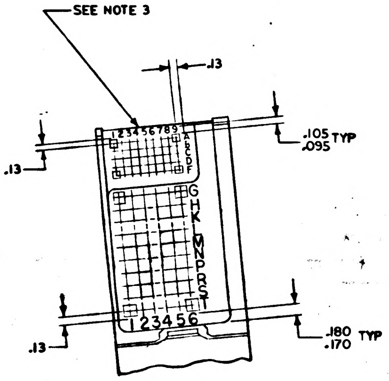


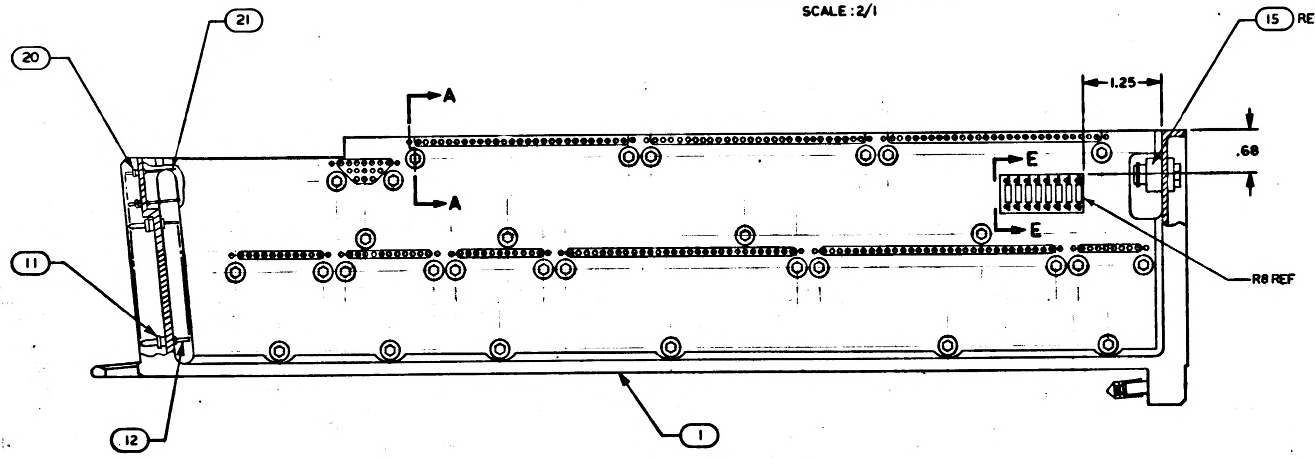


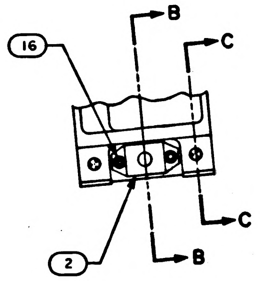
PARTIAL SECTION E-E
SCALE:2/1

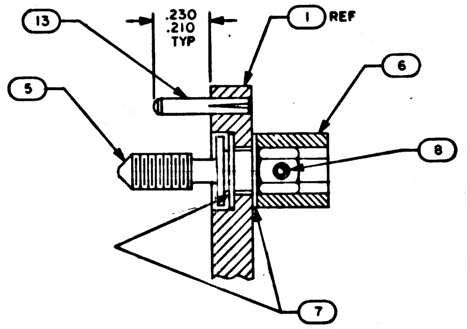


PARTIAL SECTION D-D
SCALE:2/1

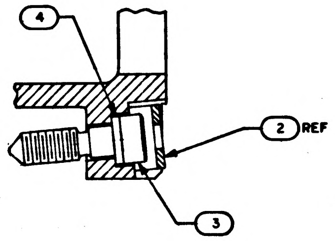




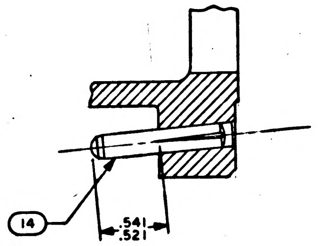




PARTIAL SECTION A-A
SCALE:4/1



SECTION B-B
SCALE:2/1



SECTION C-C
SCALE:2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686
3. MARK PER ND 1002019, WHITE
4. ASSEMBLE FIND NUMBERS 9,10,11 AND 12 PER ND 1002136
5. BOND FIND NOS. 22.23,24.25AND26 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME.

REV F REPLACES REV E

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010095	WIRING DIAGRAM	REF
1	1015753	WIRE LIST AA	26
1	1015752	WIRING HARNESS D	25
1	1015751	WIRING HARNESS C	24
1	1015750	WIRING HARNESS B	23
1	1015749	WIRING HARNESS A	22
45	1006782-2	CONTACT, WRAPOST MALE MIN	21
45	1006775	INSULATOR, MALE WRAPOST MIN	20
1	1007099	BUFFER RESISTORS ASSEMBLY	19
2	MA21045 C 04	NUT, SELF-LOCKING, HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-10	SCREW, CAP, SOCKET HEAD	16
1	1010622-1	CONNECTOR, RECEPTACLE	15
2	1010620-2	PIN, GUIDE	14
20	1010620-1	PIN, GUIDE	13
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	12
60	1010383	INSULATOR, WRAPOST, MALE	11
196	1006781-2	CONTACT, WRAPOST, FEMALE, MIN	10
196	1006774	INSULATOR, WRAPOST, FEMALE, MIN	9
30	1008145	PIN, SPRING	8
60	1004206	WASHER, THRUST	7
30	1004207	DRIVE CYLINDER	6
30	1008095	SCREW, JACK	5
1	1008099-2	WASHER,	4
1	1008098	SCREW, SOCKET HEAD	3
1	1001317	RETAINER, JACK SCREW	2
1	1008105	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007155	

APPLICATION

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MATERIAL
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FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO.
CONTRACT
DRAWN Ken Healy DATE 18 Sept 63
CHECKED [illegible] 7 Oct 63
APPROVAL [illegible] Oct-8-63
APPROVAL
NASA APPROVAL W J Rhine 10-8-63
MIT APPROVAL [illegible] Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007145
SCALE 1/1
WT
SHEET 1 OF 2

1007145 G

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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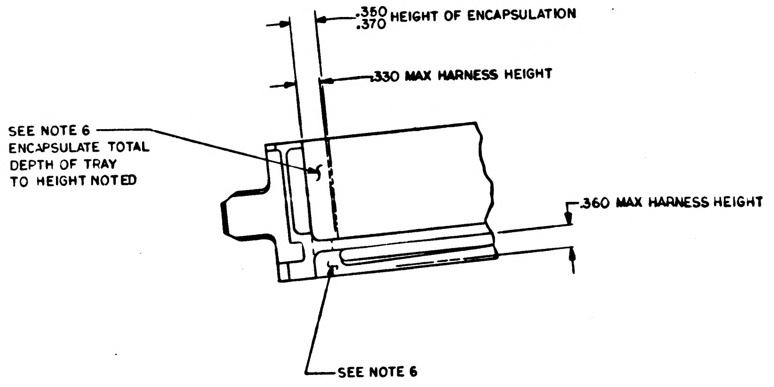
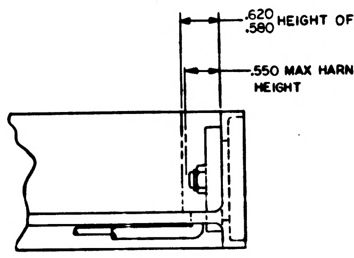
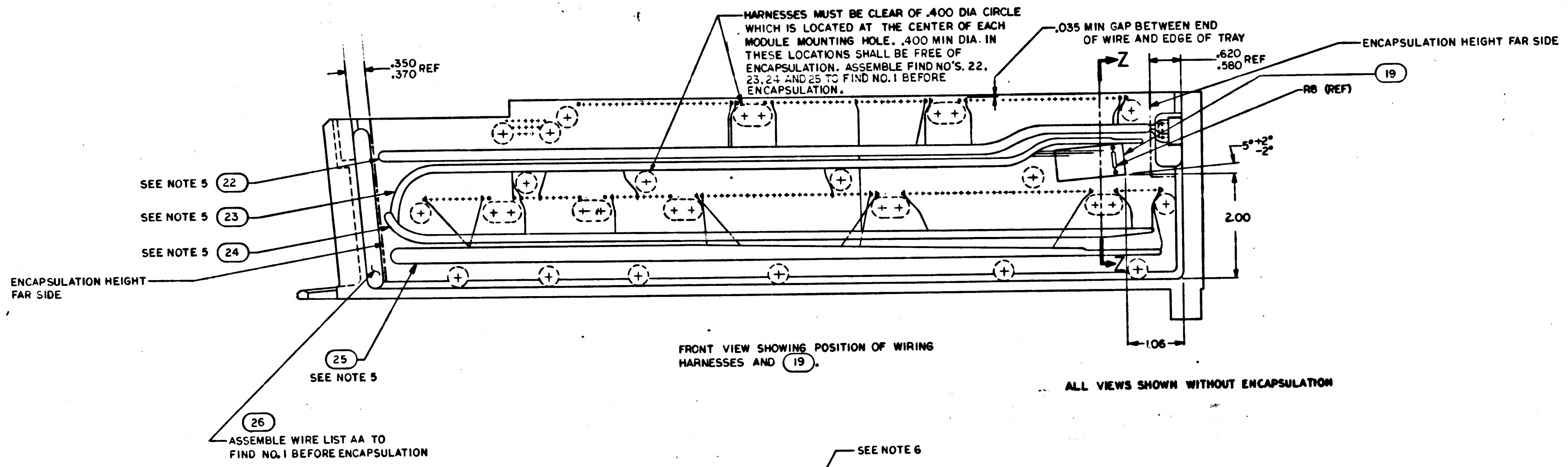
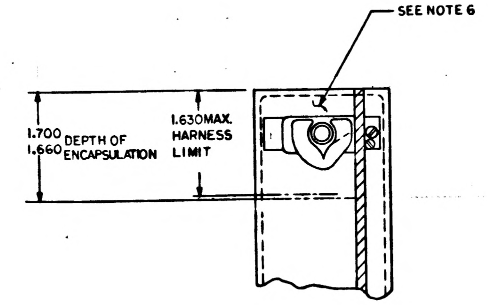

.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT


HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE. .400 MIN DIA. IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO'S. 22, 23, 24 AND 25 TO FIND NO. 1 BEFORE ENCAPSULATION.
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
ENCAPSULATION HEIGHT FAR SIDE
.350
.370 REF
Z
.620
.580 REF
19
R8 (REF)
5° +2° -2°
2.00
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
ENCAPSULATION HEIGHT FAR SIDE
.106
25
SEE NOTE 5
26
ASSEMBLE WIRE LIST AA TO FIND NO. 1 BEFORE ENCAPSULATION

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND (19).

ALL VIEWS SHOWN WITHOUT ENCAPSULATION


SEE NOTE 6
1.700
1.660 DEPTH OF ENCAPSULATION
1.630 MAX. HARNESS LIMIT

PARTIAL SECTION Z Z

REV G THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007155	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN L. Kyahn DATE 14 Nov 63
CHECKED Joe Morton
APPROVAL D. R. Flott 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL L. Holzlwahr

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

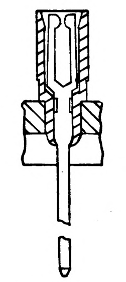
FRAME ASSEMBLY
TRAY 5

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007145
SCALE 1/1
WT
SHEET 2 OF 2

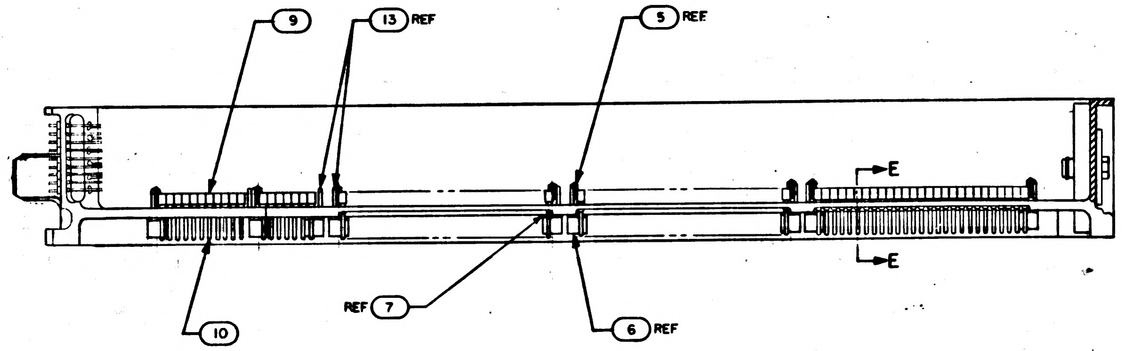
INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

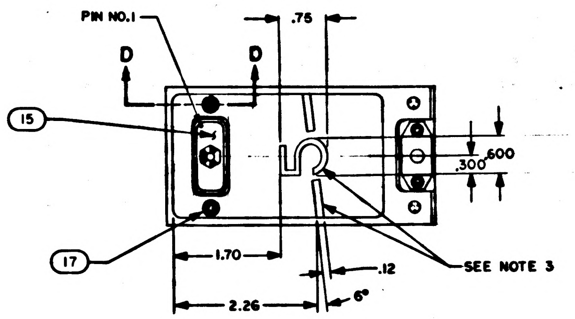
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

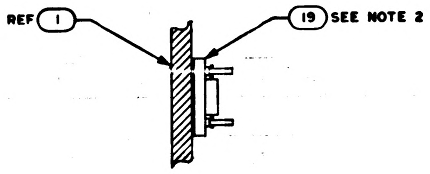
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDRR 03773	10-8-63	
G	REVISED PER TDRR 04788	11-20-63	
H	REVISED PER TDRR 05328	12-2-63	



SECTION E-E







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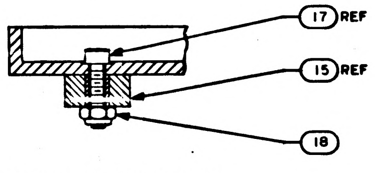

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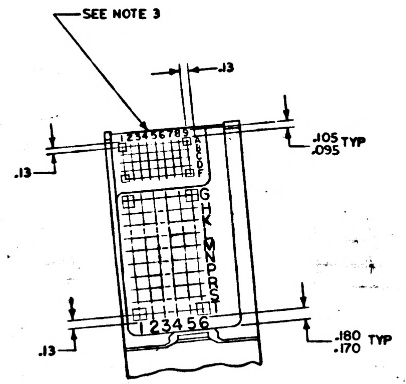

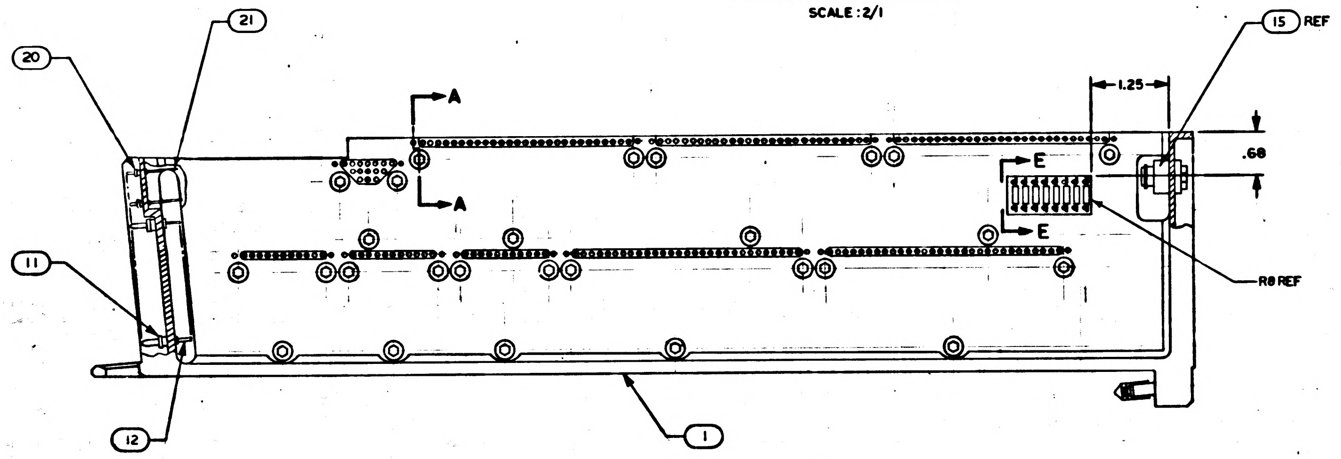

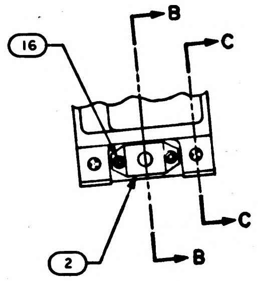

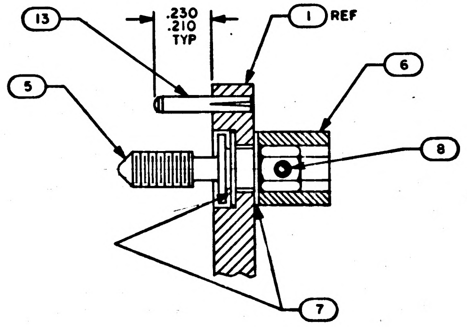

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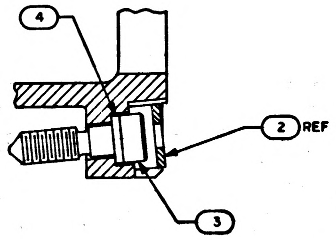
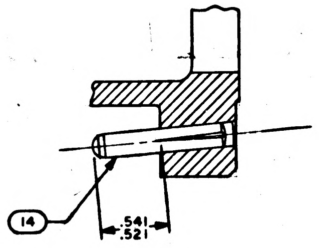
SCALE: 4/1



SECTION B-B
SCALE: 2/1



SECTION C-C
SCALE: 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686
3. MARK PER ND 1002019, WHITE
4. ASSEMBLE FIND NUMBERS 9,10,11 AND 12 PER ND 1002136
5. BOND FIND NO'S. 22,23,24,25 AND 26 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6 ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME.

REV F REPLACES REV E

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010095	WIRING DIAGRAM	REF
1	1015753	WIRE LIST AA	26
1	1015752	WIRING HARNESS D	25
1	1015751	WIRING HARNESS C	24
1	1015750	WIRING HARNESS B	23
1	1015749	WIRING HARNESS A	22
45	1006782-2	CONTACT, WRAPOST MALE MIN	21
45	1006775	INSULATOR, MALE WRAPOST MIN	20
1	1007099	BUFFER RESISTORS ASSEMBLY	19
2	MA21045 C 04	NUT, SELF-LOCKING, HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-10	SCREW, CAP, SOCKET HEAD	16
1	1010622-1	CONNECTOR, RECEPTACLE	15
2	1010620-2	PIN, GUIDE	14
18	1010620-1	PIN, GUIDE	13
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	12
60	1010383	INSULATOR, WRAPOST, MALE	11
186	1006781-2	CONTACT, WRAPOST, FEMALE, MIN	10
188	1006774	INSULATOR, WRAPOST, FEMALE, MIN	9
27	1008145	PIN, SPRING	8
54	1004206	WASHER, THRUST	7
27	1004207	DRIVE CYLINDER	6
27	1008095	SCREW, JACK	5
1	1008099-2	WASHER,	4
1	1008098	SCREW, SOCKET HEAD	3
1	1001317	RETAINER, JACK SCREW	2
1	1008105	FRAME	1

LIST OF MATERIALS

1007155	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG NO. CONTRACT
DRAWN Ken Healy DATE 12 Sept 63
CHECKED 7 Oct 63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL 10-8-63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

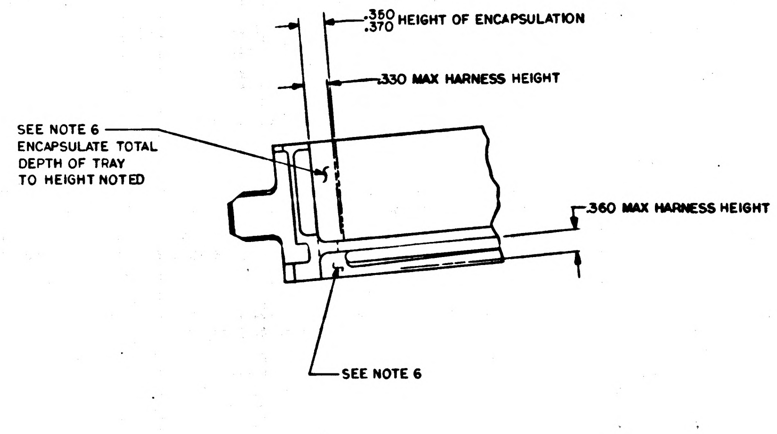
FRAME ASSEMBLY
TRAY 5

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007145
SCALE 1/1 WT SHEET 1 OF 2

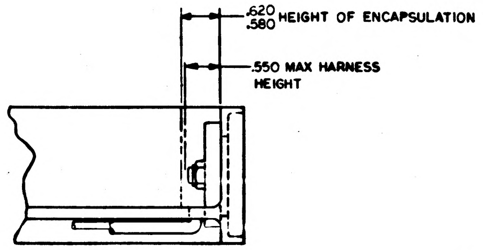
MASTER

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

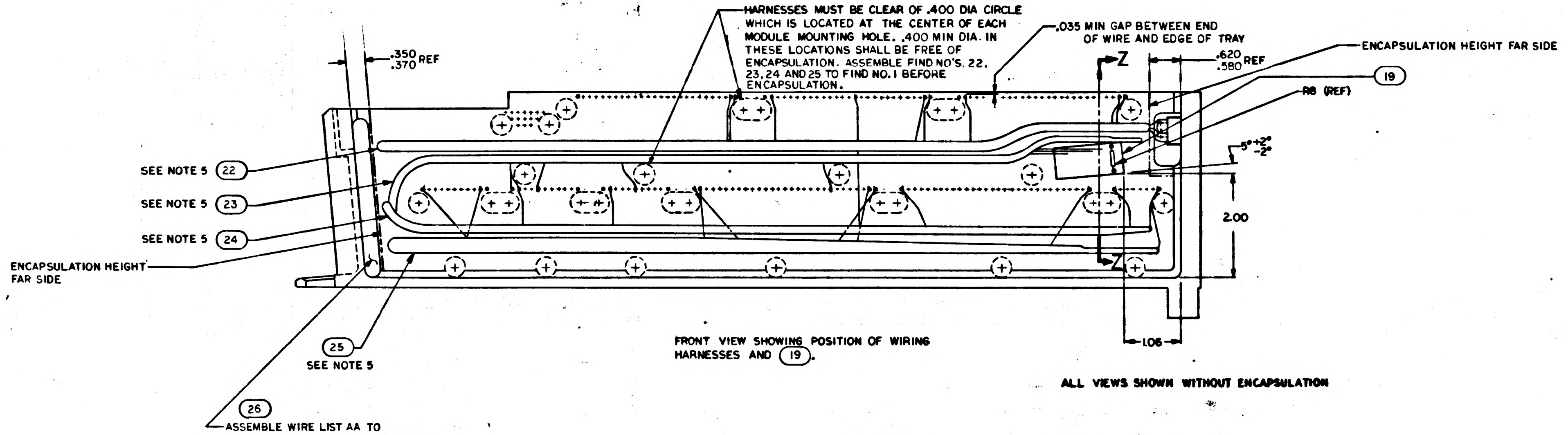
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
G	THIS SHEET ADDED PER TDRR 04788		
H	REVISED PER TDRR 05328	12-2-63	



.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6



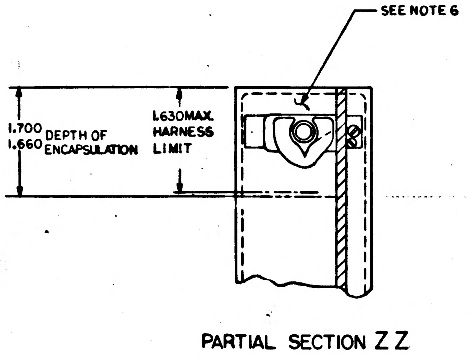
.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT



HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE. .400 MIN DIA. IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO'S. 22, 23, 24 AND 25 TO FIND NO. 1 BEFORE ENCAPSULATION.
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
19
R8 (REF)
Z
Z
5° +2° -2°
2.00
1.06
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
ENCAPSULATION HEIGHT FAR SIDE
25
SEE NOTE 5
26
ASSEMBLE WIRE LIST AA TO FIND NO. 1 BEFORE ENCAPSULATION

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND (19).

ALL VIEWS SHOWN WITHOUT ENCAPSULATION



SEE NOTE 6
1.700
1.660 DEPTH OF ENCAPSULATION
1.630 MAX. HARNESS LIMIT

PARTIAL SECTION ZZ

1007145 H

REV G THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MASTER

1007155	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN L. Kyalun DATE 14 Nov 63
CHECKED Martin
APPROVAL D. R. 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007145
SCALE 1/1
WT
SHEET 2 OF 2

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SYM	DESCRIPTION	DATE	APPROVAL
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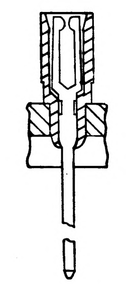
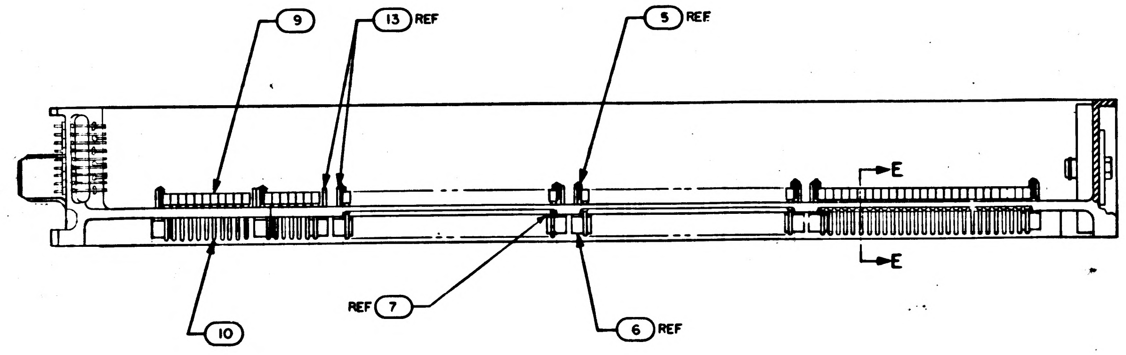
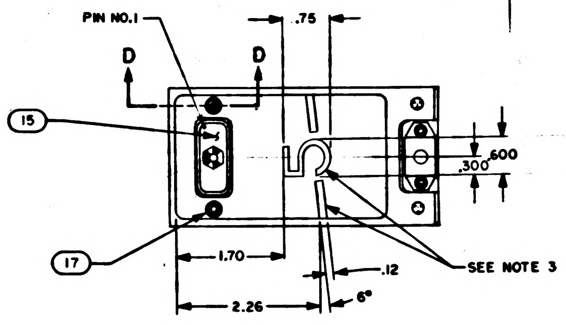
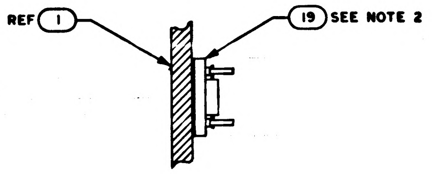
H	REVISED PER TDRR 05328	12-2-63	
J	REVISED PER TDRR 05546	30 JAN 64	



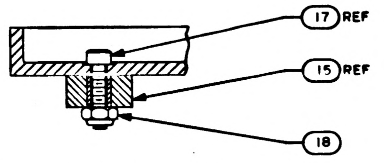
SECTION E-E







PARTIAL SECTION E-E
SCALE: 2/1



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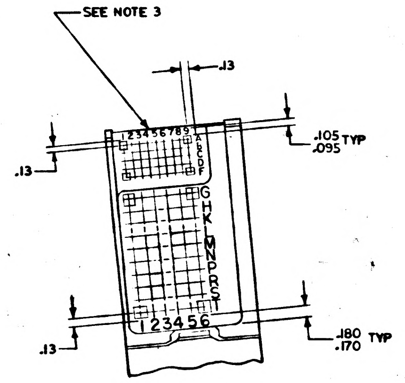

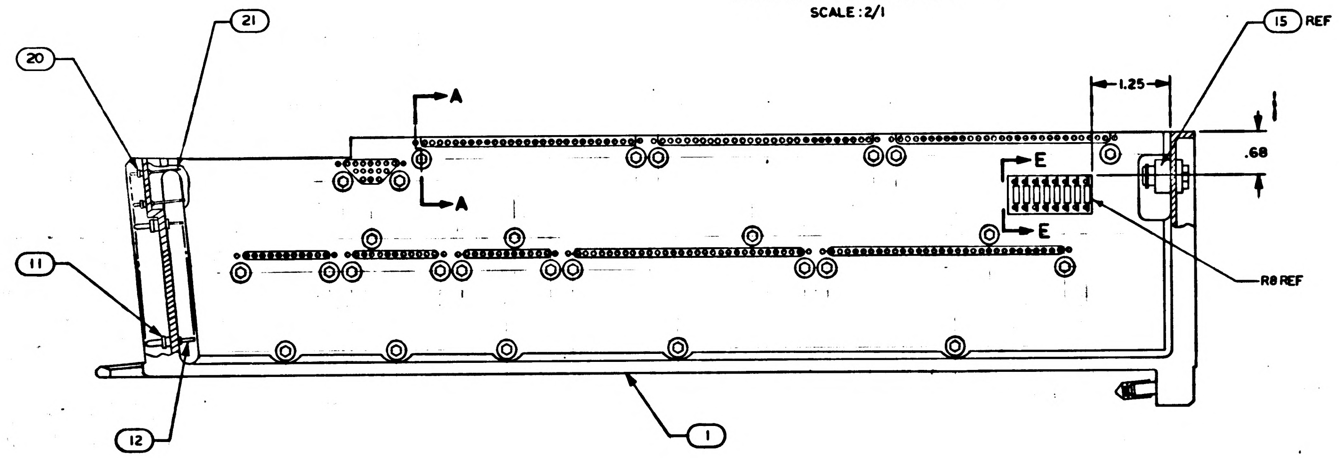

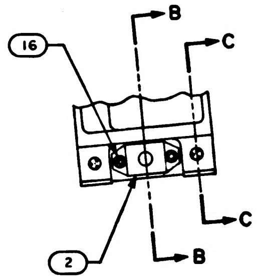

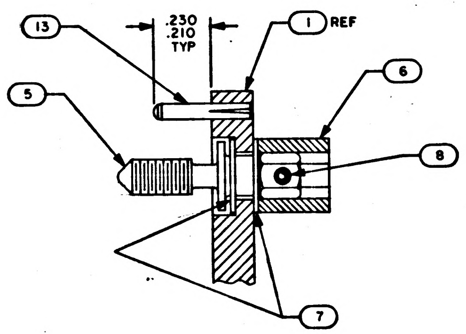

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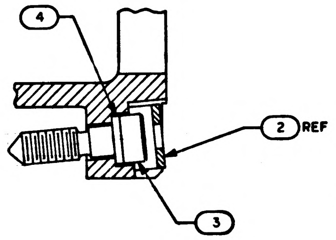
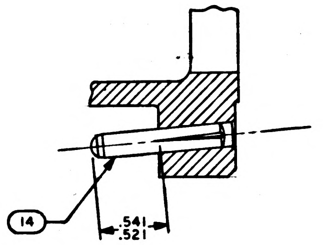


SECTION B-B
SCALE: 2/1



SECTION C-C
SCALE: 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686
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1	1015750	WIRING HARNESS B	23
1	1015749	WIRING HARNESS A	22
45	1006782-2	CONTACT, WRAPOST MALE MIN	21
45	1006775	INSULATOR, MALE WRAPOST MIN	20
1	1007099	BUFFER RESISTORS ASSEMBLY	19
2	MA21045 C 04	NUT, SELF-LOCKING, HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-10	SCREW, CAP, SOCKET HEAD	16
1	1010622-1	CONNECTOR, RECEPTACLE	15
2	1010620-2	PIN, GUIDE	14
18	1010620-1	PIN, GUIDE	13
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	12
60	1010383	INSULATOR, WRAPOST, MALE	11
166	1006781-2	CONTACT, WRAPOST, FEMALE, MIN	10
188	1006774	INSULATOR, WRAPOST, FEMALE, MIN	9
27	1008145	PIN, SPRING	8
54	1004206	WASHER, THRUST	7
27	1004207	DRIVE CYLINDER	6
27	1008095	SCREW, JACK	5
1	1008099-2	WASHER,	4
1	1008098	SCREW, SOCKET HEAD	3
1	1001317	RETAINER, JACK SCREW	2
1	1008175	FRAME	1

LIST OF MATERIALS

MASTER

1007155	
NEXT ASSY	USED ON
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MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN Ken Healy DATE 18 Sept 63
CHECKED
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

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SIZE E
NASA DRAWING NO. 1007145
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SHEET 1 OF 2

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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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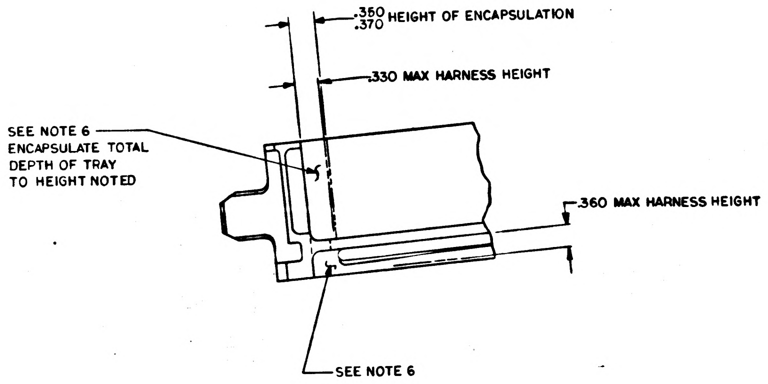
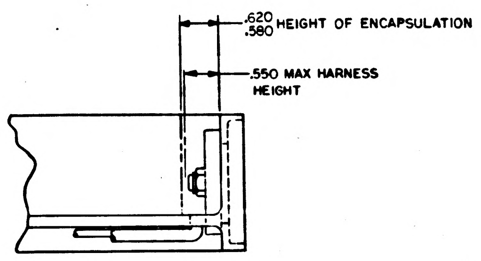
H	REVISED PER TDRR 05328	12-2-63	
J	REVISED PER TDRR 05546	30 Jan 64	


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6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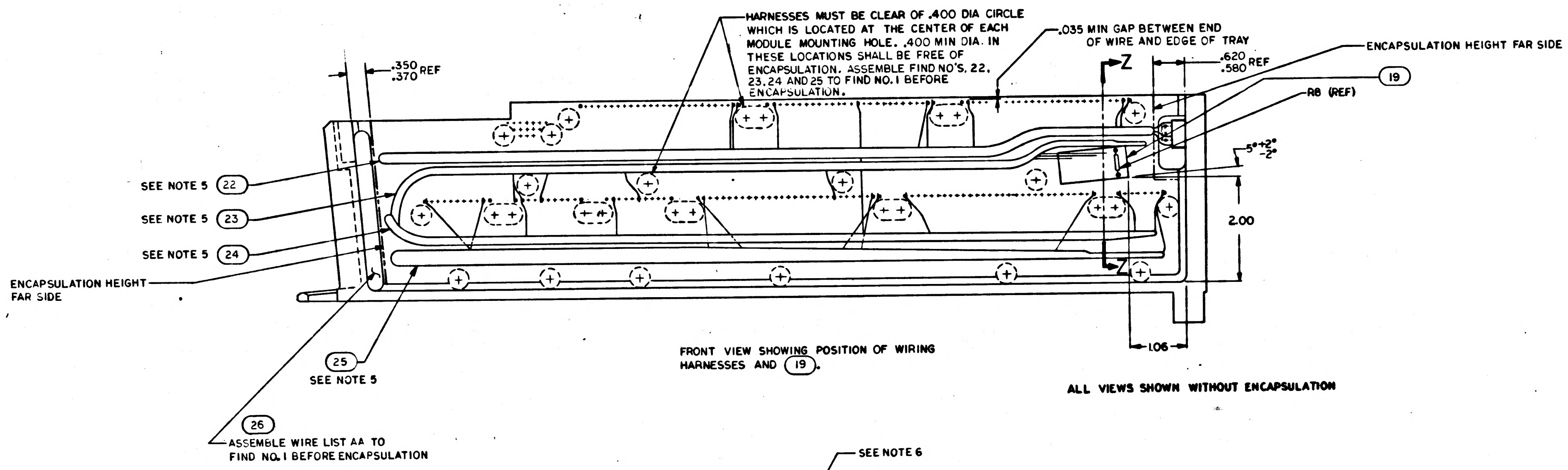
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT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.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
ENCAPSULATION HEIGHT FAR SIDE
.350
.370 REF
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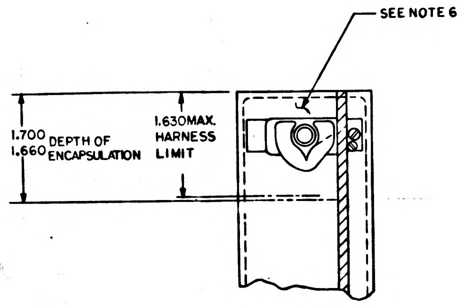
Z
19
R8 (REF)
5° +2° -2°
2.00
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
ENCAPSULATION HEIGHT FAR SIDE
Z
1.06
25
SEE NOTE 5
26
ASSEMBLE WIRE LIST AA TO FIND NO. 1 BEFORE ENCAPSULATION

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND (19).

ALL VIEWS SHOWN WITHOUT ENCAPSULATION


SEE NOTE 6
1.700
1.660 DEPTH OF ENCAPSULATION
1.630 MAX. HARNESS LIMIT

PARTIAL SECTION ZZ

REV G THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007155	

APPLICATION

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MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT
DRAWN L. Kraly DATE 14 Nov 63
CHECKED Lee Martin
APPROVAL D. R. Hart 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

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SCALE 1/1
WT
SHEET 2 OF 2

MASTER

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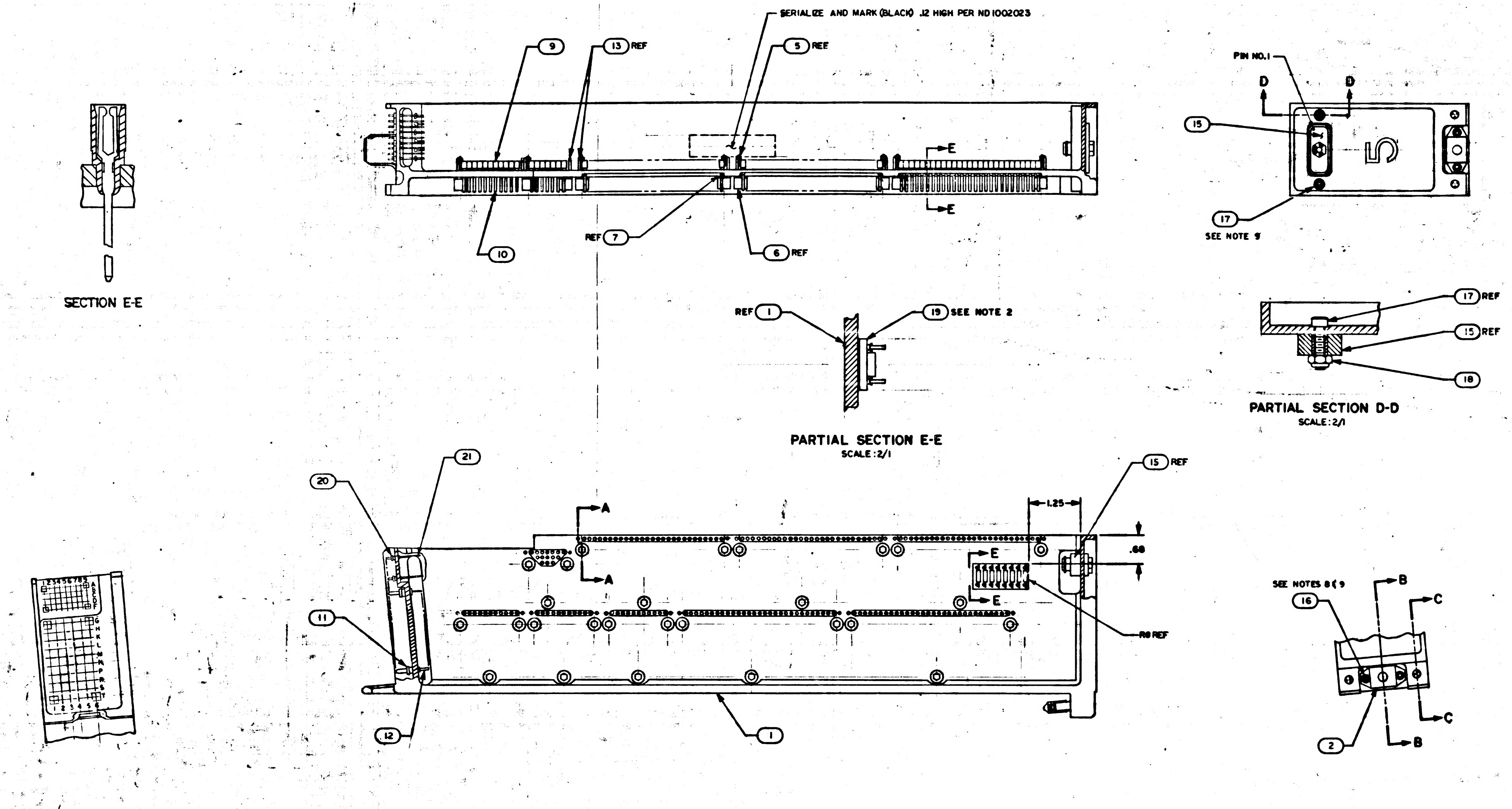
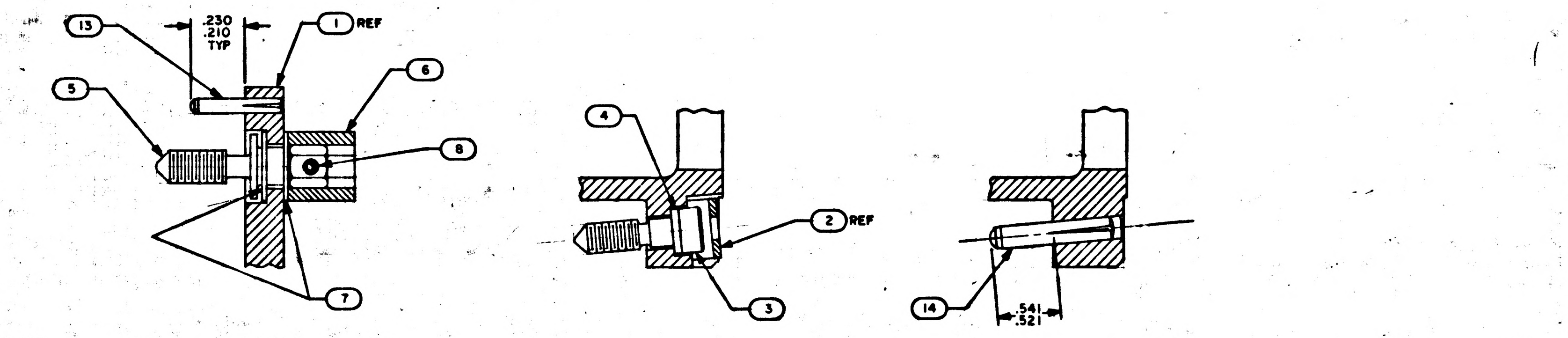
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDRR 03773	10-8-63	
G	REVISED PER TDRR 04788	11-20-63	
H	REVISED PER TDRR 05328	12-2-63	
J	REVISED PER TDRR 05546	30 Jan 64	
K	REVISED PER TDRR 06477	28 Feb 64	





PARTIAL SECTION A-A
SCALE: 4/1

SECTION B-B
SCALE: 2/1

SECTION C-C
SCALE: 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ~~BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004~~ USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686
~~3. MARK PER ND1002019, WHITE~~
4. ASSEMBLE FIND NUMBERS 9,10,11 AND 12 PER ND 1002136
5. BOND FIND NOS. 22,23,24,25 AND 26 TO FIND NO. 1 PER ND1002004 AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
8. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

REV F REPLACES REV E

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010095	WIRING DIAGRAM	REF
1	1015753	WIRE LIST AA	26
1	1015752	WIRING HARNESS D	25
1	1015751	WIRING HARNESS C	24
1	1015750	WIRING HARNESS B	23
1	1015749	WIRING HARNESS A	22
45	1006782-2	CONTACT, WRAPOST MALE MIN	21
45	1006775	INSULATOR, MALE WRAPOST MIN	20
1	1007099	BUFFER RESISTORS ASSEMBLY	19
2	MA21045 C 04	NUT, SELF-LOCKING, HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-3	SCREW, CAP, SOCKET HEAD	16
1	1010622-1	CONNECTOR, RECEPTACLE	15
2	1010620-2	PIN, GUIDE	14
18	1010620-1	PIN, GUIDE	13
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	12
60	1010383-1	INSULATOR, WRAPOST, MALE	11
188	1006781-2	CONTACT, WRAPOST, FEMALE, MIN	10
188	1006774	INSULATOR, WRAPOST, FEMALE, MIN	9
27	1008145	PIN, SPRING	8
54	1004206	WASHER, THRUST	7
27	1004207	DRIVE CYLINDER	6
27	1008095	SCREW, JACK	5
1	1008099-2	WASHER,	4
1	1008098	SCREW, SOCKET HEAD	3
1	1001317	RETAINER, JACK SCREW	2
1	1008105	FRAME	1

LIST OF MATERIALS

1007155	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN Ken Healy DATE 12 Sep 63
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL W J Rhine 10-5-63
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007145
SCALE 1/1 WT SHEET 1 OF

1007145 K

INCHES
PHOTOGRAPHIC SCALE ONLY

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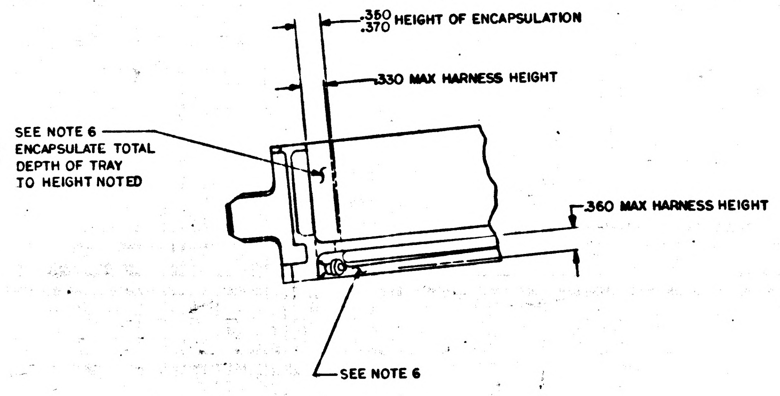
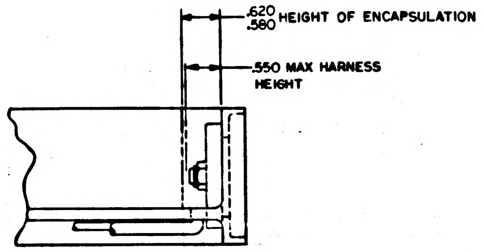
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
G	THIS SHEET ADDED PER TDRR 04788		
H	REVISED PER TDRR 05326	12-2-63	
J	REVISED PER TDRR 05546	30 Jan 64	
K	REVISED PER TDRR 06477		


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6
ENCAPSULATE TOTAL
DEPTH OF TRAY
TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6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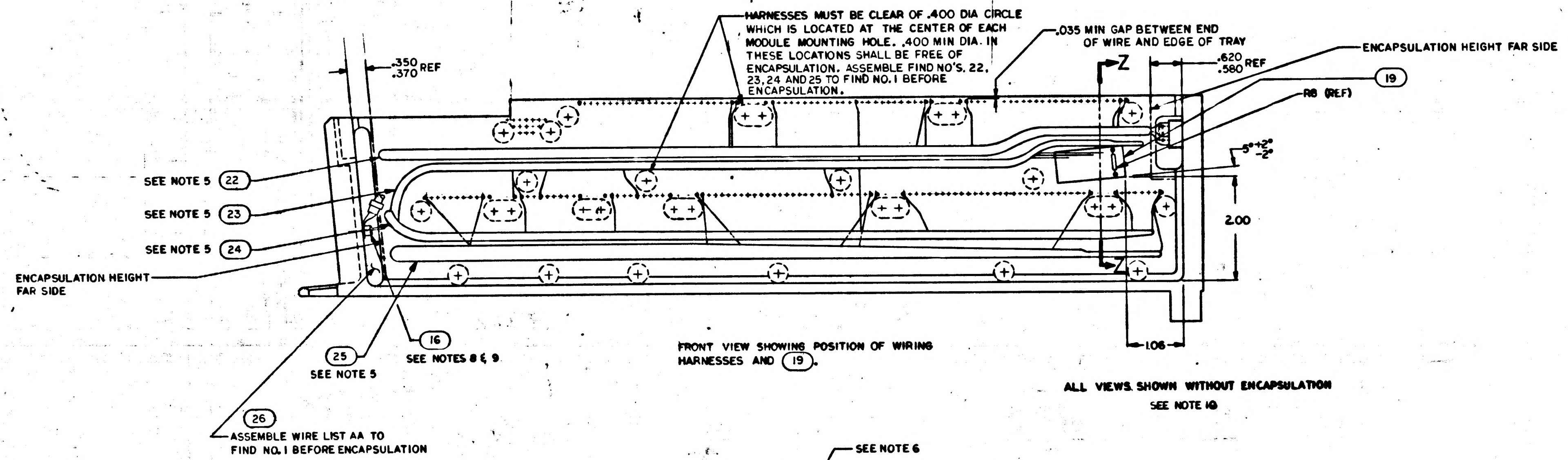
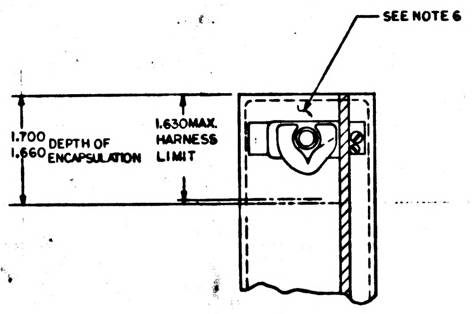
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS
HEIGHT

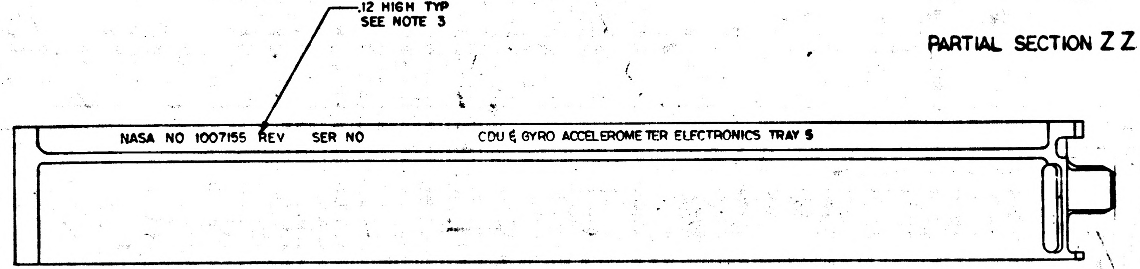

HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE. .400 MIN DIA. IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO'S. 22, 23, 24 AND 25 TO FIND NO. 1 BEFORE ENCAPSULATION.
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
Z
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
19
R8 (REF)
5° +2° −2°
2.00
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
ENCAPSULATION HEIGHT FAR SIDE
16
SEE NOTES 8 & 9
25
SEE NOTE 5
1.06
26
ASSEMBLE WIRE LIST AA TO FIND NO. 1 BEFORE ENCAPSULATION

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND (19).

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10


SEE NOTE 6
1.700
1.660 DEPTH OF ENCAPSULATION
1.630 MAX. HARNESS LIMIT

PARTIAL SECTION Z Z


.12 HIGH TYP
SEE NOTE 3
NASA NO 1007155 REV SER NO
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5

MARKING VIEW AFTER ENCAPSULATION

MASTER

REV G THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007155	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN L. Kozlo DATE 14 Nov 63
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

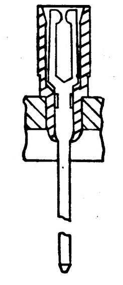
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007145
SCALE 1/1 WT SHEET 2 OF 2

1007145 K

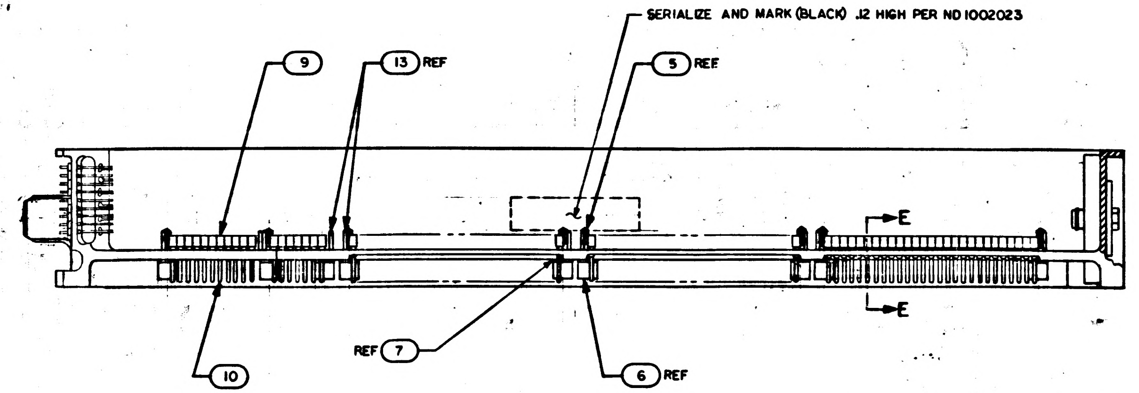
INCHES
PHOTOGRAPHIC SCALE ONLY

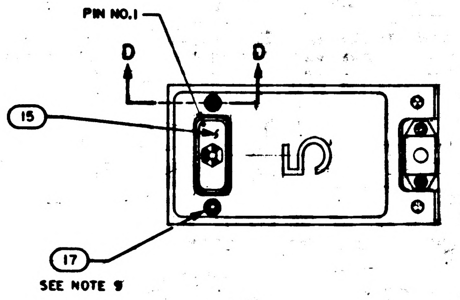
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

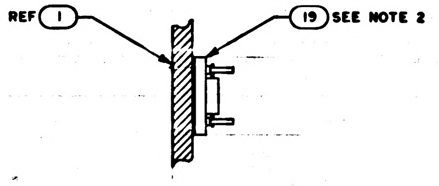
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDRR 03773	10-[illegible]	WH
G	REVISED PER TDRR 04288	11-20-63	
H	REVISED PER TDRR 05328	12-8-63	
J	REVISED PER TDRR 05546	30 Jan 64	WK
K	REVISED PER TDRR 06477	64	WK
L	REVISED PER TDRR 06888		WK



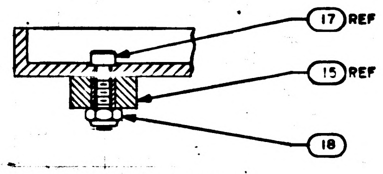
SECTION E-E







PARTIAL SECTION E-E
SCALE: 2/1



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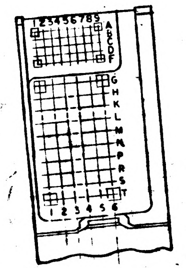
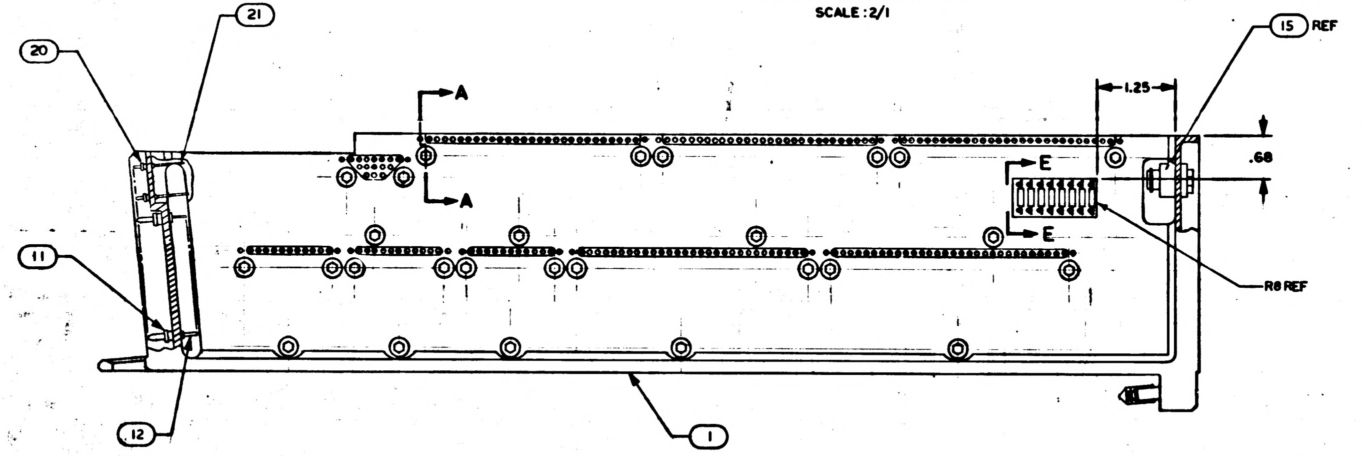
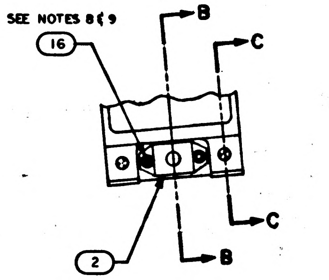
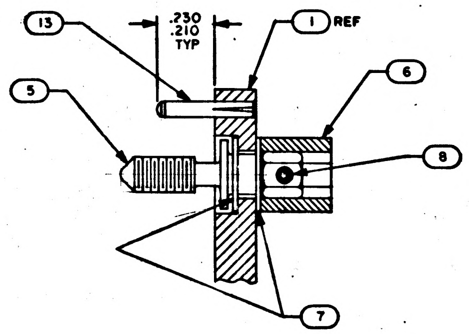
SCALE: 2/1









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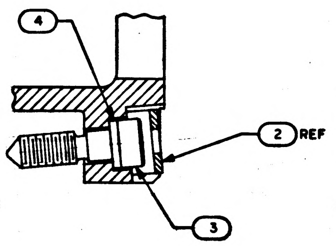

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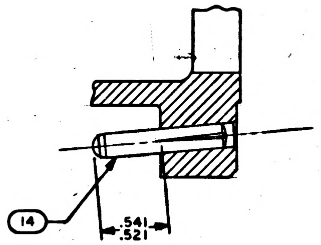
SCALE: 2/1



SECTION C-C
SCALE: 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. BOND FIND NO. 19 ~~TO FIND NO. 1 PER ND 1002004~~ USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686
3. MARK PER ND 1002019 WHITE
4. ASSEMBLE FIND NUMBERS 9, 10, 11 AND 12 PER ND 1002136
5. BOND FIND NOS. 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
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REV F REPLACES REV E

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010095	WIRING DIAGRAM	REF
1	1015753	WIRE LIST AA	26
1	1015752	WIRING HARNESS D	25
1	1015751	WIRING HARNESS C	24
1	1015750	WIRING HARNESS B	23
1	1015749	WIRING HARNESS A	22
45	1006782-2	CONTACT, WRAPOST MALE MIN	21
45	1006775	INSULATOR, MALE WRAPOST MIN	20
1	1007099	BUFFER RESISTORS ASSEMBLY	19
2	MA21C45 C04	NUT, SELF-LOCKING, HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-3	SCREW, CAP, SOCKET HEAD	16
1	1010622-1	CONNECTOR, RECEPTACLE	15
2	1010620-2	PIN, GUIDE	14
18	1010620-1	PIN, GUIDE	13
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	12
60	1010383-1	INSULATOR, WRAPOST, MALE	11
188	1006781-2	CONTACT, WRAPOST, FEMALE, MIN	10
188	1006774	INSULATOR, WRAPOST, FEMALE, MIN	9
27	1008145	PIN, SPRING	8
54	1004206	WASHER, THRUST	7
27	1004207	DRIVE CYLINDER	6
27	1008095	SCREW, JACK	5
1	1008099-2	WASHER,	4
1	1008098	SCREW, SOCKET HEAD	3
1	1001317	RETAINER, JACK SCREW	2
1	1008105	FRAME	1

LIST OF MATERIALS

1007155		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.02 ANGLES ±1° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS DWG. NO. CONTRACT	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN Ken Healy DATE [illegible] CHECKED [illegible] APPROVAL [illegible] 10-8-63 APPROVAL	FRAME ASSEMBLY TRAY 5
APPLICATION		HEAT TREATMENT FINAL FINISH	NASA APPROVAL [illegible] 10-8-63 MIT APPROVAL [illegible] 10-8-63	CODE IDENT NO. SIZE E NASA DRAWING NO. 1007145 SCALE 1/1 WT SHEET 1 OF

1007145

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REVISIONS

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H	REVISED PER TDRR 05326	[illegible]-2-63	[illegible]
J	REVISED PER TDRR 05546	[illegible] Jan 64	GVC WK
K	REVISED PER TDRR 06477	[illegible] 64	GVC WK
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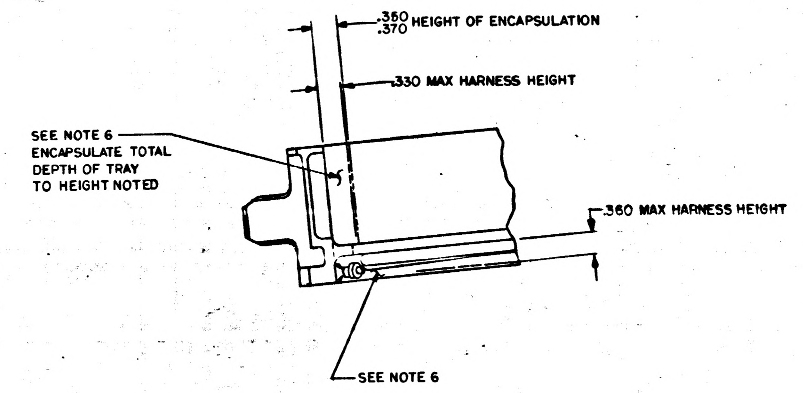
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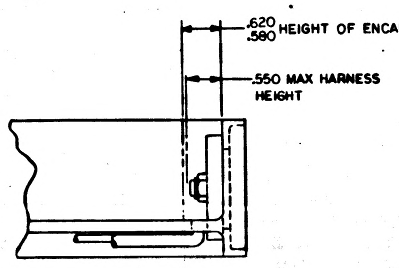
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6
ENCAPSULATE TOTAL
DEPTH OF TRAY
TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6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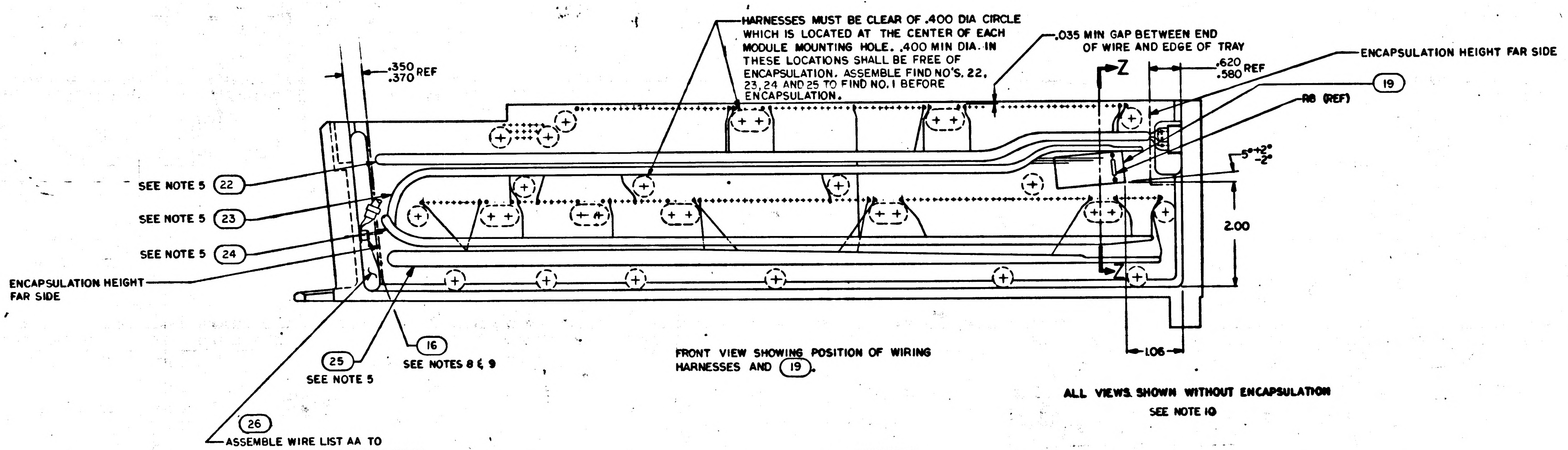
HEIGHT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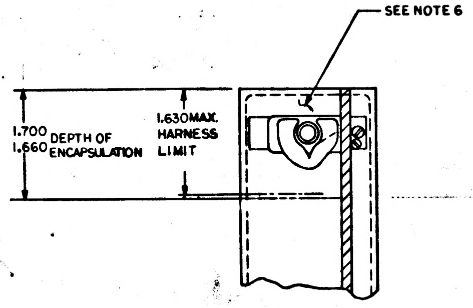
.370 REF
HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE. .400 MIN DIA. IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO'S. 22, 23, 24 AND 25 TO FIND NO. 1 BEFORE ENCAPSULATION.
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
19
R8 (REF)
5° +2° -2°
2.00
1.06
Z
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
ENCAPSULATION HEIGHT FAR SIDE
25
SEE NOTE 5
16
SEE NOTES 8 & 9
26
ASSEMBLE WIRE LIST AA TO FIND NO. 1 BEFORE ENCAPSULATION

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND (19).

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10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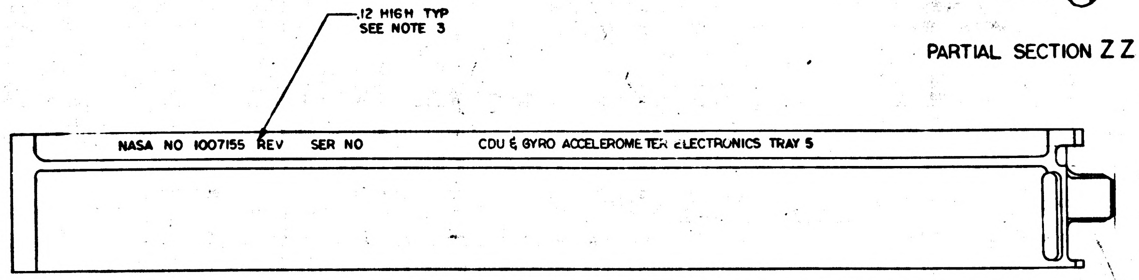
1.660 DEPTH OF ENCAPSULATION
1.630 MAX. HARNESS LIMIT

PARTIAL SECTION Z Z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SEE NOTE 3
NASA NO 1007155 REV SER NO
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5

MARKING VIEW AFTER ENCAPSULATION

REV G THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MASTER

1007155	
NEXT ASSY	USED ON
APPLICATION	

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TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN L. Keahn DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible] 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL L. Hazeltine

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

CODE IDENT NO.	SIZE	NASA DRAWING NO.
	E	1007145
SCALE 1/1	WT	SHEET 2 OF 2

INCHES
PHOTOGRAPHIC SCALE ONLY

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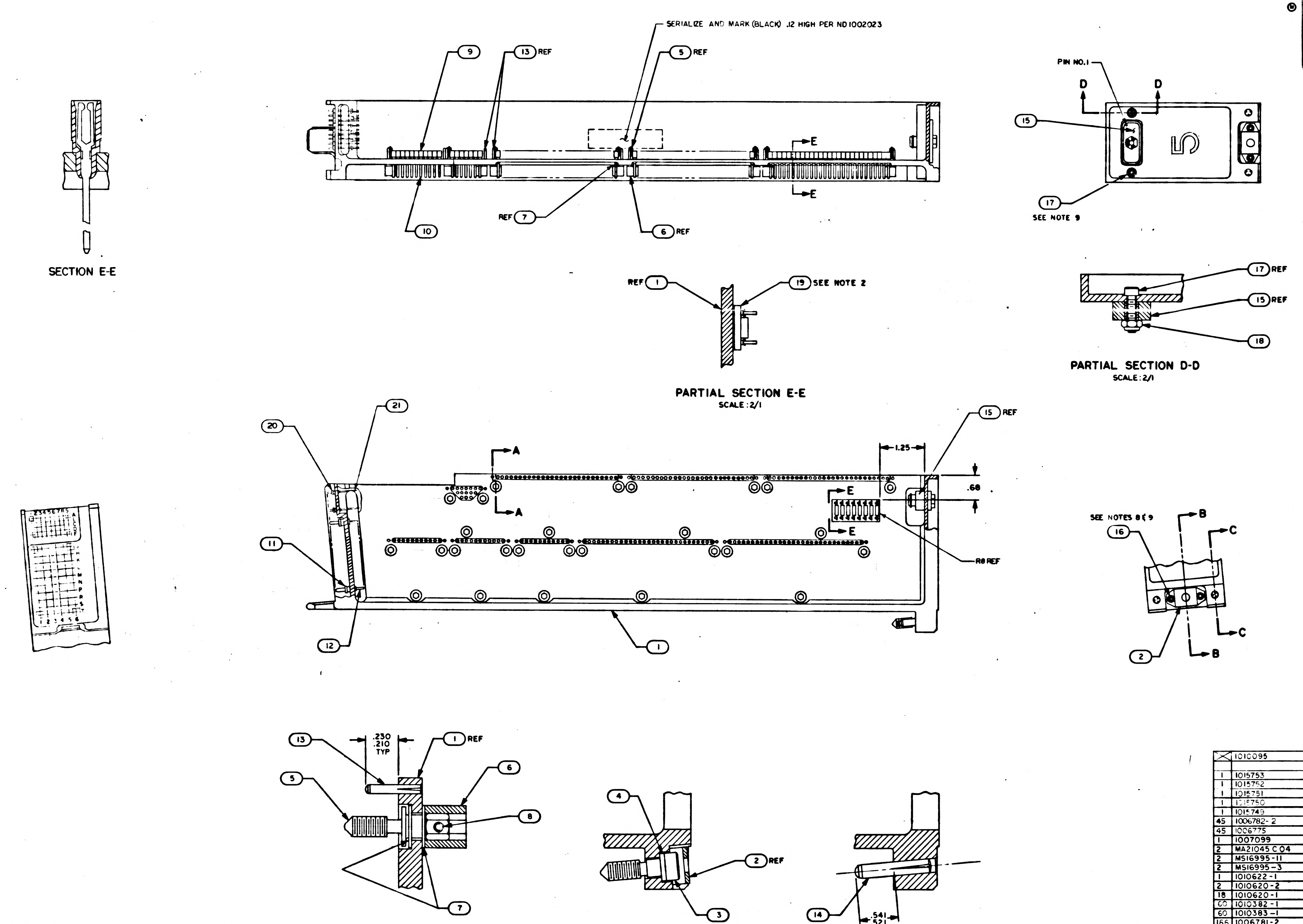
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDRR [illegible]	[illegible]	[illegible]
G	REVISED PER TDRR [illegible]	[illegible]	[illegible]
H	REVISED PER TDRR 05328	12-2-63	[illegible]
J	REVISED PER TDRR 05546	[illegible]	[illegible]
K	REVISED PER TDRR 06077	[illegible]	[illegible]
L	REVISED PER TDRR 06888		[illegible]
M	REVISED PER TDRR 07138	6 APR 64	RWT



PARTIAL SECTION A-A
SCALE: 4/1

SECTION B-B
SCALE: 2/1

SECTION C-C
SCALE: 2/1

M	L
SHEET 1	SHEET 2
REVISION STATUS OF SHEETS	

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686
3. MARK PER ND 1002019 WHITE
4. ASSEMBLE FIND NUMBERS 9,10,11 AND 12 PER ND 1002136
5. BOND FIND NOS. 22.23.24.25 AND 26 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
8. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

REV F REPLACES REV E

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010095	WIRING DIAGRAM	REF
1	1015753	WIRE LIST AA	26
1	1015752	WIRING HARNESS D	25
1	1015751	WIRING HARNESS C	24
1	1015750	WIRING HARNESS B	23
1	1015749	WIRING HARNESS A	22
45	1006782-2	CONTACT, WRAPOST MALE MIN	21
45	1006775	INSULATOR, MALE WRAPOST MIN	20
1	1007099	BUFFER RESISTORS ASSEMBLY	19
2	MA21045 C 04	NUT, SELF-LOCKING, HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-3	SCREW, CAP, SOCKET HEAD	16
1	1010622-1	CONNECTOR, RECEPTACLE	15
2	1010620-2	PIN, GUIDE	14
18	1010620-1	PIN, GUIDE	13
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	12
60	1010383-1	INSULATOR, WRAPOST, MALE	11
166	1006781-2	CONTACT, WRAPOST, FEMALE, MIN	10
188	1006774	INSULATOR, WRAPOST, FEMALE, MIN	9
27	MS171433	PIN, SPRING	8
54	1004206	WASHER, THRUST	7
27	1004207	DRIVE CYLINDER	6
27	1008095	SCREW, JACK	5
1	1008099-2	WASHER,	4
1	1008098	SCREW, SOCKET HEAD	3
1	1001317	RETAINER, JACK SCREW	2
1	1008105	FRAME	1

LIST OF MATERIALS

1007155	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
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MATERIAL
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INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG NO CONTRACT NAS 9-4065
DRAWN Ken Healy DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible] 10-8-63
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007145
SCALE 1/1 WT SHEET 1 OF 2

1007145

REVISIONS TDRR 01560

ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
1008106	Frame, Tray 5	1
1006774	Insulator, Wrapost, Female Miniature	240
1006781-2	Contact, Wrapost, Female Miniature	240
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

1007155	
NEXT ASSY	USED ON
APPLICATION	

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APPROVED	D. G. Hoag	6-14-63
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APPROVED FOR MSC
Jack Barnard
MIT/IL APPROVAL DATE

FRAME ASSEMBLY,
TRAY 5

SCALE	UNIT WT.	CODE IDENT.

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DWG. NO.
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HOUSTON TEXAS
NASA DRAWING NO.
1007145
SHEET 1 OF 1

INCHES
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PHOTOGRAPHIC SCALE ONLY

APOLLO G&N Specification
PS-1007145
30 April 1964
Class A Release
TDRR 08054

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 5

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 5

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 5 for use in APOLLO Guidance and Navigation equipment.

30 Apr 64
MIT/IL DATE

4/30/64
NASA/MSC DATE

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 5

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 5, Drawing 1007145, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. - The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007145	Final Test Method for Frame Assembly Tray 5

DRAWINGS

APOLLO G&N

1007145	Frame Assembly Tray 5
1015749	Wiring Harness A Tray 5 (For Reference Only)
1015750	Wiring Harness B
1015751	Wiring Harness C
1015752	Wiring Harness D
1015753	Wire List A-A

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REVISIONS TDRR 0158				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	JT. WK

PART NO.	DESCRIPTION	REQD.
1008106	Frame, Tray 6	1
1006774	Insulator, Wrapost, Female Miniature	105
1006781-2	Contact, Wrapost, Female Miniature	105
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1
1010620-1	Pin, Guide	16
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	25
1008098	Screw, Socket Head, Externally Relieved Body	1
1008099-1	Washer (Special)	25
1008099-2	Washer (Special)	1
1008092	Washer (Special)	25
MS 16624-15	Ring, Retaining	25
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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		DATE
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Jack Barnard

MIT/IL APPROVAL	DATE
	14 Jun 63

FRAME ASSEMBLY,
TRAY 6

SCALE	UNIT WT.	CODE IDENT.

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SHEET 1 OF 1

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Class A Release
TDRR 08054

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 6

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
8-18-64	A	11693	1,2	WR	

This specification consists of page i to iii and 1 to 4 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 6

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 6 for use in APOLLO Guidance and Navigation equipment.

30 Apr 64
MIT/IL DATE

4/30/64
NASA/MSC DATE

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 6

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 6, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007146	Final Test Method for Frame Assembly Tray 6

DRAWINGS

APOLLO G&N

1007146	Frame Assembly Tray 6
1007166	Frame Assembly Tray 6

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APOLLO G&N Specification
PS-1007146
30 April 1964
Class A Release
TDRR [illegible]

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 6

Record of Revisions

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Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
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This specification consists of page i
to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 6

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 6, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007146	Final Test Method for Frame Assembly Tray 6

DRAWINGS

APOLLO G&N

1007146	Frame Assembly Tray 6
1007166	Frame Assembly Tray 6

3. REQUIREMENTS

3.1 GENERAL SPECIFICATION. Unless otherwise specified, all of the requirements of Specification ND-1002210 shall apply as requirements of this specification.

3.2 DESCRIPTION. The tray is to be used in the Power and Servo Assembly as a mounting frame and an interconnection for the modules used in the CDU and Power Supply Electronics Assembly.

3.3 FUNCTIONAL REQUIREMENTS

3.3.1 Insulation Resistance Test. The insulation resistance test shall be conducted from each individual connector pin, with the exception of N4 of connector 45A6-P1, to the frame assembly. The resistance from each connector pin to the assembly frame shall be equal to or greater than 100 megohms.

3.3.2 Continuity and DC Resistance and Shorting. The continuity and dc resistance and shorts test shall be as specified in JDC 09806 of FTM1007146.

3.4 PERFORMANCE AND PRODUCTION CHARACTERISTICS

3.4.1 Service Life.

3.4.1.1 Operating Life. The assembly shall meet performance specifications for at least 2000 hours of operation, excluding the supplier's test time of the completed unit.

3.4.1.2 Shelf Life. The assembly shall be packaged as specified in MIL-P-116, Method 2, and shall have a shelf life of at least 5 years, without operation, at ambient room temperature after final acceptance at the supplier's facility.

3.4.2 Reliability. Design objectives require maximum reliability of the assembly during its period of useful life. Every effort shall be made to design and produce units capable of meeting a maximum failure rate of 0.2 failures per million hours.

1007146

REVISIONS TDRR 0158				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	J.T. Wil
	B	REVISED PER TDRR 02706	8/21/63	

PART NO.	DESCRIPTION	REQD.
1008106	Frame, Tray 6	1
1006774	Insulator, Wrapost, Female Miniature	105
1006781-2	Contact, Wrapost, Female Miniature	105
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1
1010620-1	Pin, Guide	16
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	25
1008098	Screw, Socket Head, Externally Relieved Body	1
1008099-1	Washer (Special)	25
1008099-2	Washer (Special)	1
1008092	Washer (Special)	25
MS 16624-15	Ring, Retaining	25
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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Jack Barnard

MIT/IL APPROVAL	DATE
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FRAME ASSEMBLY,
TRAY 6

SCALE	UNIT WT.	CODE IDENT.

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APOLLO G&N Specification
PS1007146 B
30 April 1964
Class A Release
TDRR [illegible]

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 6

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓐ 8-18-64	[illegible]	[illegible]	[illegible]	WK	
2-9-65	B	16241	1	WK	WJR

This specification consists of page i
to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 6

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 6, hereafter called the assembly.

1.2 CLASSIFICATION. The requirements for Part Numbers 1007146, 1007166, 1021216-011 and 1007446-011 shall be designated as Type I.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007146	Final Test Method for Frame Assembly Tray 6

DRAWINGS

APOLLO G&N

1007146	Frame Assembly Tray 6
1007166	Frame Assembly Tray 6
1007466	Frame Assembly Tray 6
1021216	Frame Assembly Tray 6

1007146

		REVISIONS TDRR 0150		
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	DT. WK
	B	REVISED PER TDRR 02706	8/21/63	
	C	REVISED PER TDRR 02870	8-28-63	J.J.M

PART NO.	DESCRIPTION	REQD.
1008106	Frame, Tray 6	1
1006774	Insulator, Wrapost, Female Miniature	105
1006781-2	Contact, Wrapost, Female Miniature	105
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	16
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	25
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	50
1008099-2	Washer (Special)	1
1004207	Drive Cylinder	25
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45
1008145	Pin, Spring	25

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

1007156	
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FRAME ASSEMBLY,
TRAY 6

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ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	ST. WK
	B	REVISED PER TDRR 02706	8/21/63	
	C	REVISED PER TDRR 02870	8-28-63	
	D	REVISED PER TDRR 03000	9-12-63	WK

REVISIONS TDRR 01580

PART NO.	DESCRIPTION	REQD.
1008106	Frame, Tray 6	1
1006774	Insulator, Wrapost, Female Miniature	105
1006781-2	Contact, Wrapost, Female Miniature	105
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	16
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	25
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	50
1008099-2	Washer (Special)	1
1004207	Drive Cylinder	25
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45
1008145	Pin, Spring	25

PART NO.	DESCRIPTION	REQD.
1006750-60	Resistor 15K, 1/4W, 2%	3
1006750-56	Resistor 10K, 1/4W, 2%	3

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

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MIT/IL APPROVAL
DATE
14 June 63

FRAME ASSEMBLY,
TRAY 6

SCALE
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PART NO.	DESCRIPTION	REQD.
1008106	Frame, Tray 6	1
1006774	Insulator, Wrapost, Female Miniature	105
1006781-2	Contact, Wrapost, Female Miniature	105
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	16
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	25
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	50
1008099-2	Washer (Special)	1
1004207	Drive Cylinder	25
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45
1008145	Pin, Spring	25

REVISIONS TDRR 0158

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	WK
	B	REVISED PER TDRR 02706	8/21/63	
	C	REVISED PER TDRR 02870	8-28-63	
	D	REVISED PER TDRR 03000	9-12-63	WR
	E	SUPERSEDED PER TDRR 03773		

PART NO.	DESCRIPTION	REQD.
1006750-60	Resistor 15K, 1/4W, 2%	3
1006750-56	Resistor 10K, 1/4W, 2%	3

REV E REPLACED BY REV F

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

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MIT/IL APPROVAL	DATE
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FRAME ASSEMBLY,
TRAY 6

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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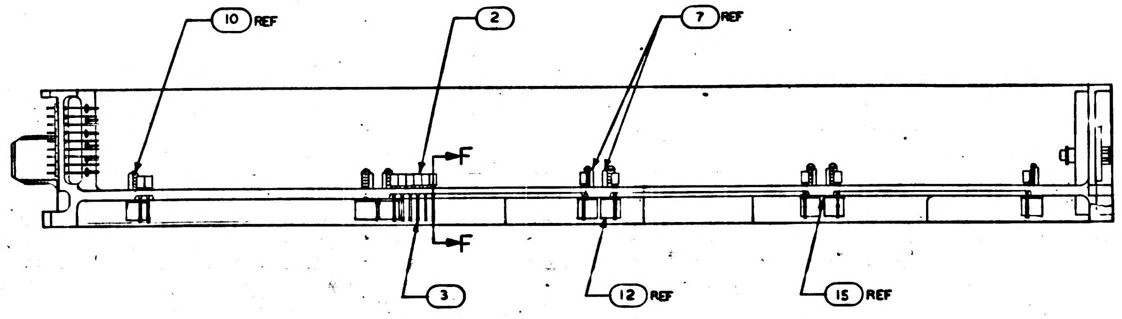
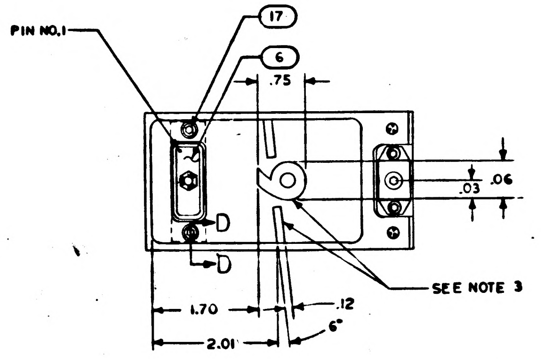
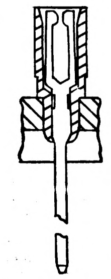
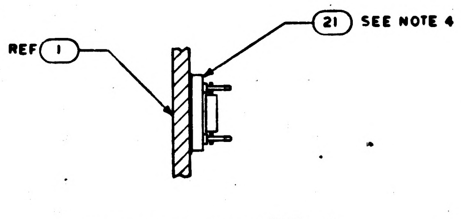
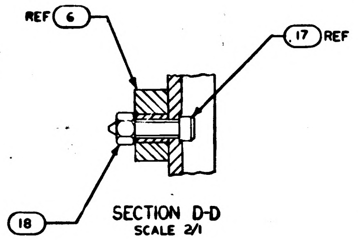





SECTION F-F
151 PLACES



PARTIAL SECTION E-E
SCALE 2/1



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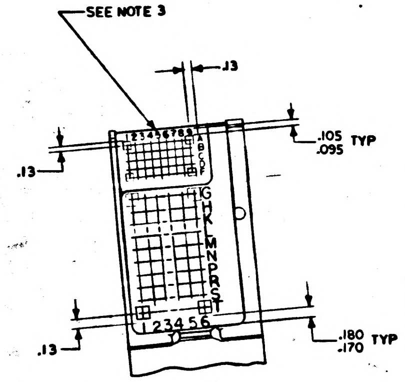
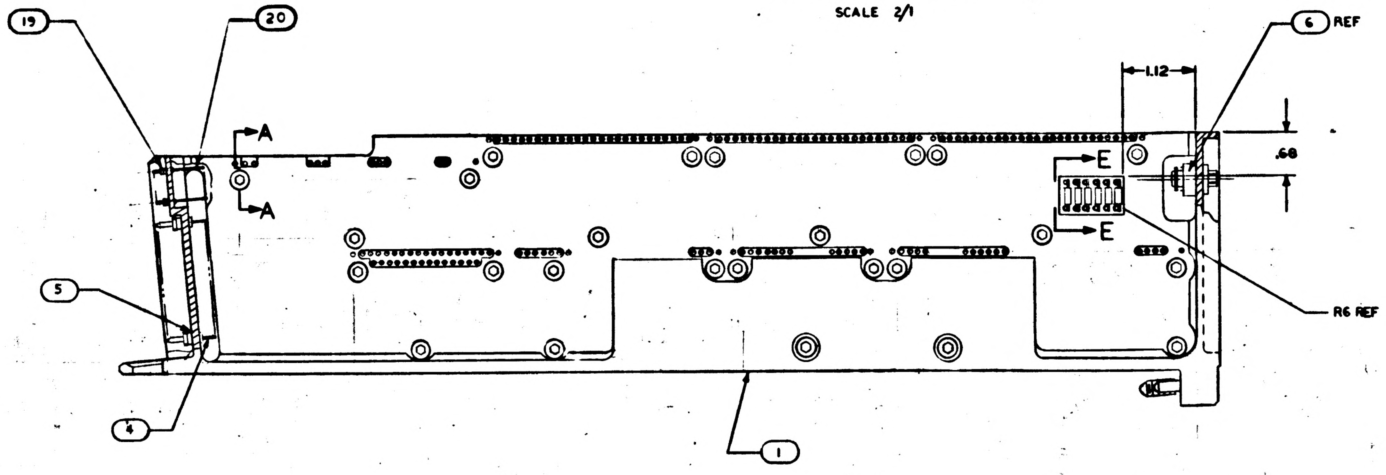
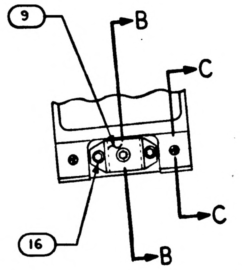
SCALE 2/1







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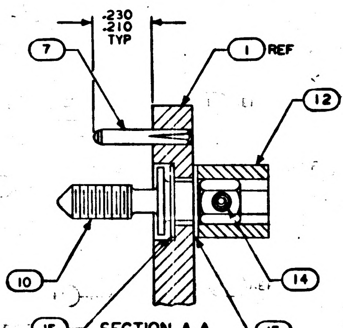
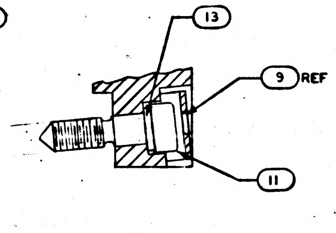
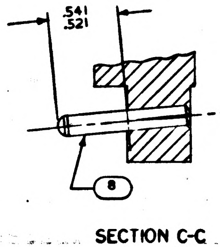


SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,19 AND 20 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO.21 TO FIND NO.1 PER ND 1002004 USING FLEXIBLE FORMULATION PER NASA DRAWING 1010657 AND NASA DRAWING 1010686

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010096	WIRING DIAGRAM	REF
1	1007110	BUFFER RESISTORS ASSEMBLY	21
45	1006782-2	CONTACT, WRAPOST, MALE MIN	20
45	1006775	INSULATOR, WRAPOST, MALE MIN	19
2	MS21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-10	SCREW, CAP, SOCKET HEAD	16
50	1004206	WASHER, THRUST	15
25	1008145	PIN, SPRING	14
1	1008099-2	WASHER,	13
25	1004207	DRIVE CYLINDER	12
1	1008098	SCREW, SOCKET HEAD	11
25	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
16	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
60	1010383	INSULATOR, WRAPOST MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
151	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
151	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008106	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007156	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN J.F. Walsh DATE 8/4/63
CHECKED E.P. Kingsbury 7 Oct 63
APPROVAL D.R. Test 10-4-63
APPROVAL
NASA APPROVAL W.J. Rhine 10-8-63
MIT APPROVAL W. Keeffe 8 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007146
SCALE 1/1
WT
SHEET 1 OF 1

MASTER

INCHES
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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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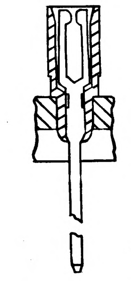
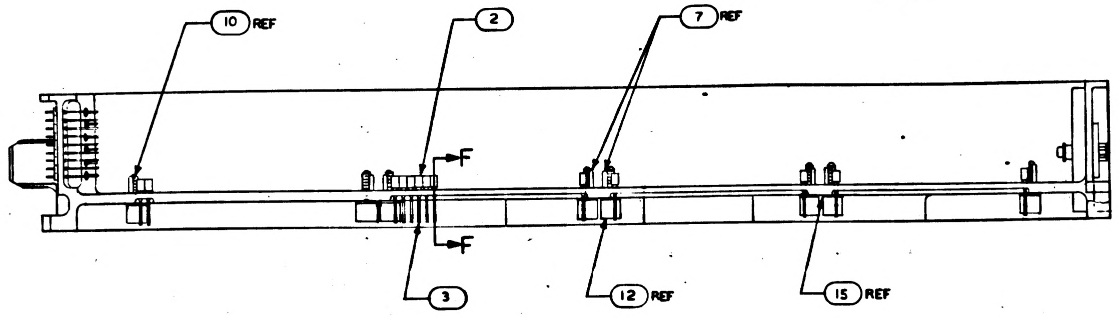
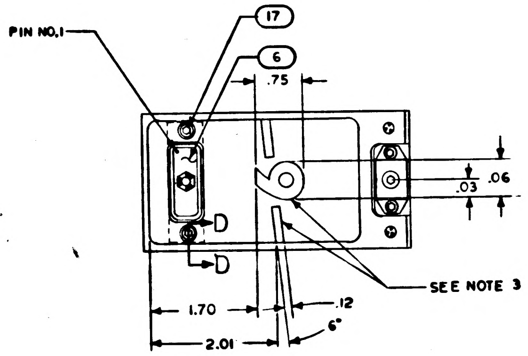
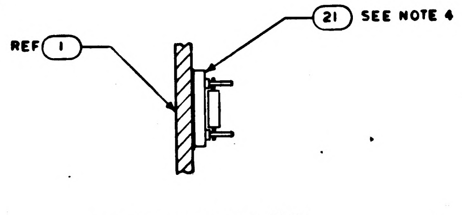
G	REVISED PER TDRR 04749	1-17-63	

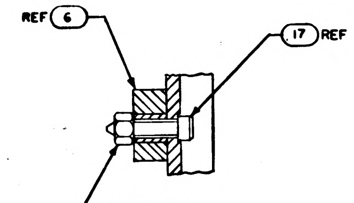




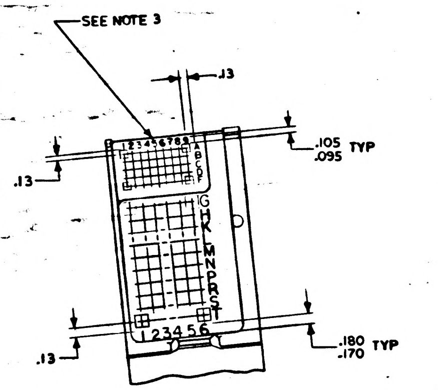


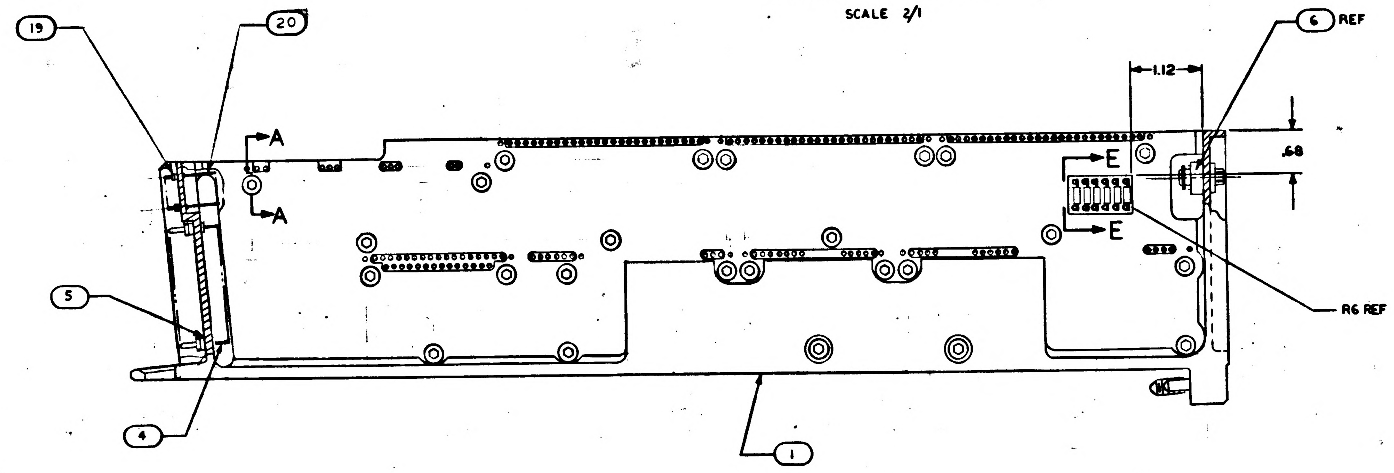


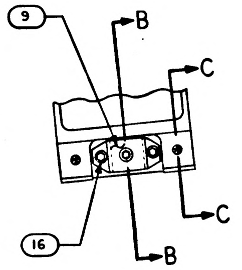
PARTIAL SECTION E-E
SCALE 2/1



SECTION D-D
SCALE 2/1







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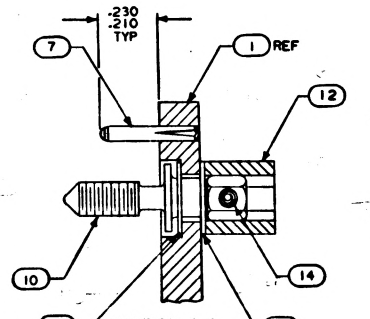
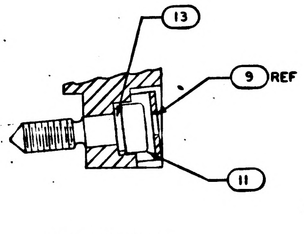
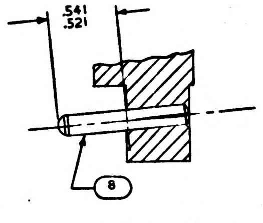


SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,19 AND 20 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO.21 TO FIND NO.1 PER ND 1002004 USING FLEXIBLE FORMULATION PER NASA DRAWING 1010657 AND NASA DRAWING 1010686
5. BOND FIND NOS 22,23,24,25, & 26 TO FIND NO.1 PER ND1002004 AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010096	WIRING DIAGRAM	REF
1	1015768	WIRE LIST AA	26
1	1015767	WIRING HARNESS D	25
1	1015766	WIRING HARNESS C	24
1	1015765	WIRING HARNESS B	23
1	1015764	WIRING HARNESS A	22
1	1007110	BUFFER RESISTORS ASSEMBLY	21
45	1006782-2	CONTACT, WRAPOST, MALE MIN	20
45	1006775	INSULATOR, WRAPOST, MALE MIN	19
2	MS21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-10	SCREW, CAP, SOCKET HEAD	16
50	1004206	WASHER, THRUST	15
25	1008145	PIN, SPRING	14
1	1008099-2	WASHER,	13
25	1004207	DRIVE CYLINDER	12
1	1008098	SCREW, SOCKET HEAD	11
25	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
16	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
60	1010383	INSULATOR, WRAPOST MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
151	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
151	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008106	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007156	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ±   DECIMALS ±.02   ANGLES ±1°
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INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO   CONTRACT
DRAWN J.F. Walsh   DATE 8/14/63
CHECKED [illegible] 7 Oct 63
APPROVAL [illegible] 11-8-63
APPROVAL
NASA APPROVAL W.J. Rhine 10-8-63
MIT APPROVAL W. Keller 8 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO.   SIZE E   NASA DRAWING NO. 1007146
SCALE 1/1   WT   SHEET 1 OF 2

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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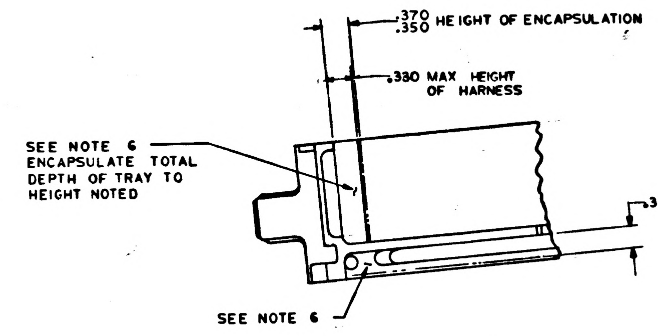
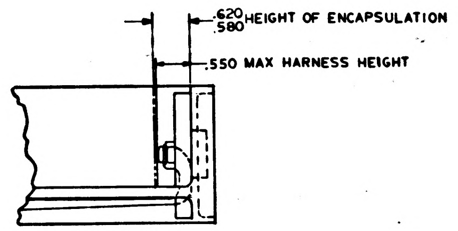
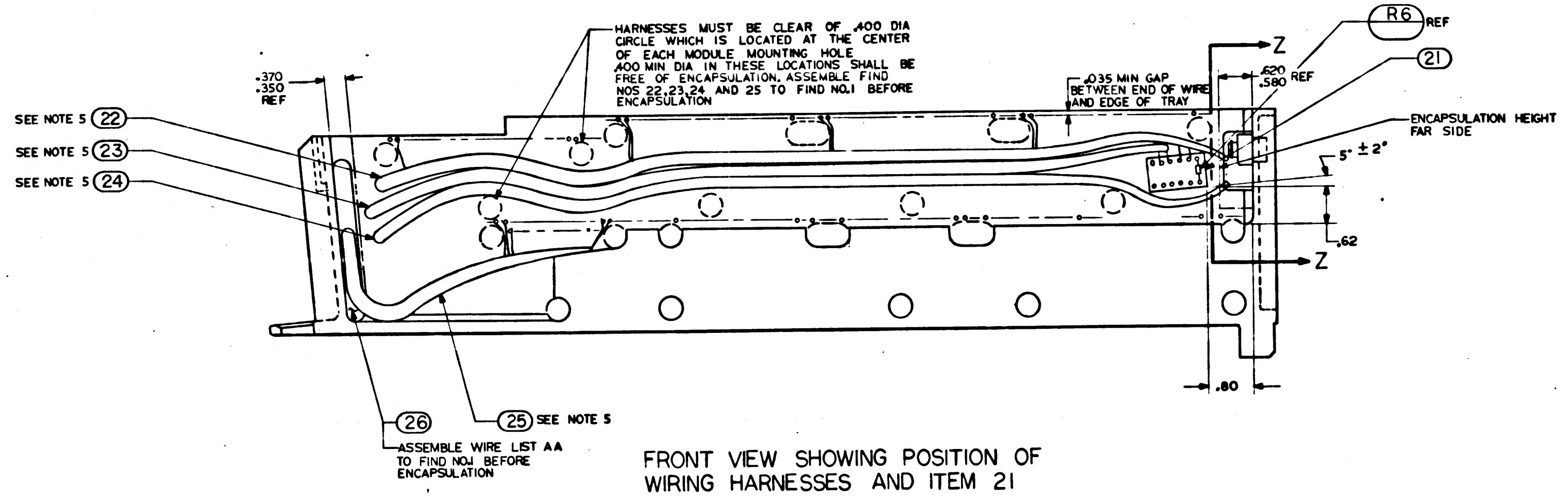
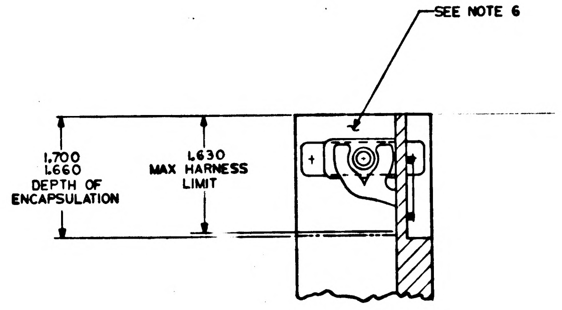

.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT


HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
.370
.350
REF
SEE NOTE 5 (22)
SEE NOTE 5 (23)
SEE NOTE 5 (24)
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
R6 REF
(21)
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
Z
.80
(26)
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
(25) SEE NOTE 5

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION


SEE NOTE 6
1.700
1.660
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z

REV G THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

1007156	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
CONTRACT NAS 9-497
DRAWN DATE
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007146
SCALE 1/1
WT
SHEET 2 OF 2

INCHES
PHOTOGRAPHIC SCALE ONLY

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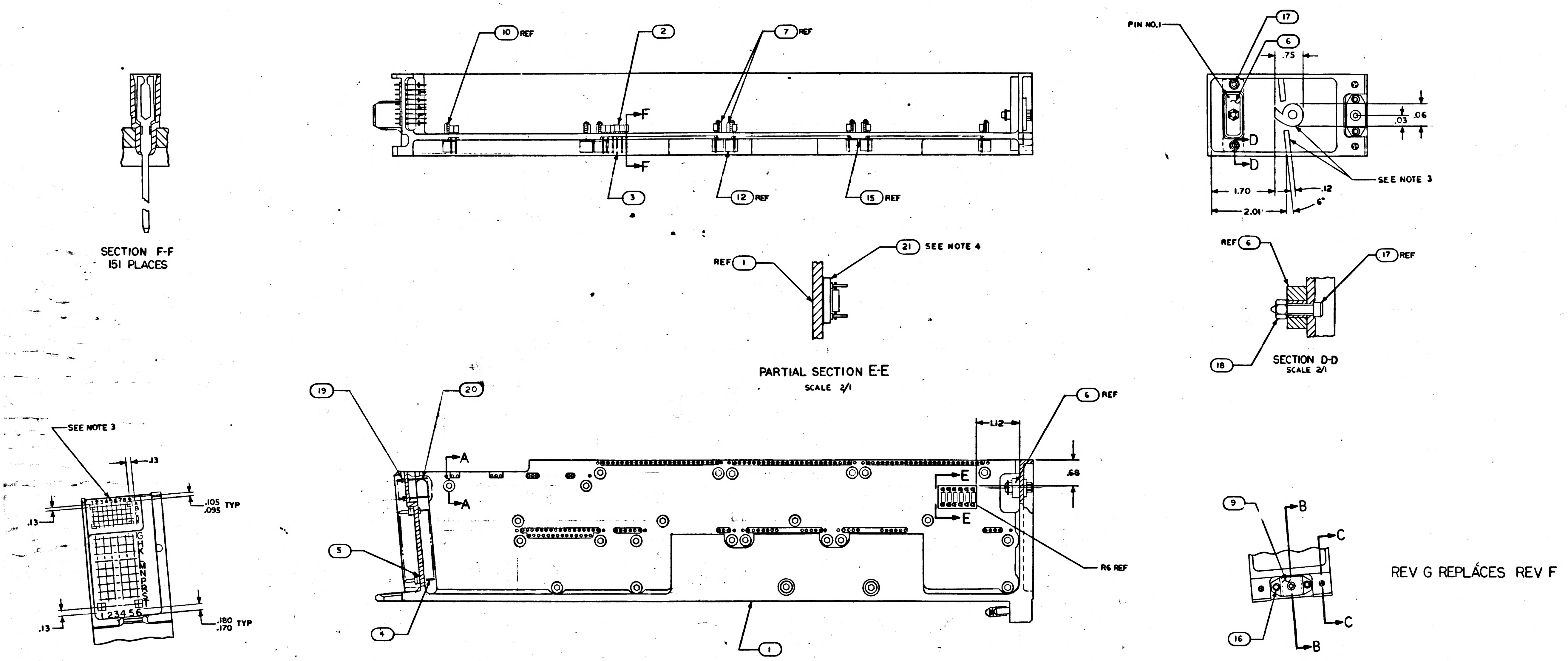
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDRR 03773	10-8-63	
G	REVISED PER TDRR 04789	1-17-63	
H	REVISED PER TDRR 05546		

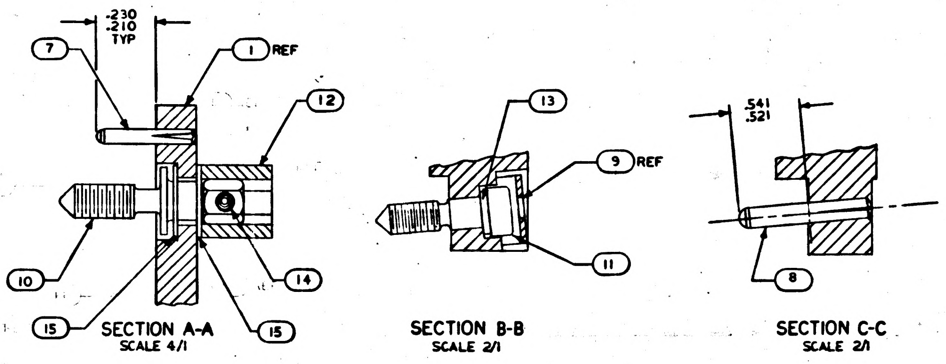


SECTION F-F
151 PLACES

PARTIAL SECTION E-E
SCALE 2/1

SECTION D-D
SCALE 2/1

REV G REPLACES REV F



SECTION A-A
SCALE 4/1

SECTION B-B
SCALE 2/1

SECTION C-C
SCALE 2/1

NOTES:
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6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
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25	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
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16	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
60	1010383	INSULATOR, WRAPOST MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
151	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
151	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008176	FRAME	1

LIST OF MATERIALS

1007156	
NEXT ASSY	USED ON
APPLICATION	

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DWG. NO. CONTRACT
DRAWN J.F. Whelp DATE 8/4/63
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL 8/1/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007146
SCALE 1/1
WT
SHEET 1 OF 2

MASTER

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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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H	REVISED PER TDRR 05546	30 JAN 69	

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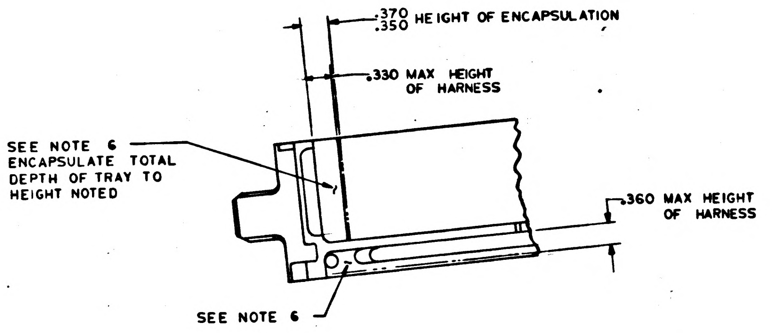
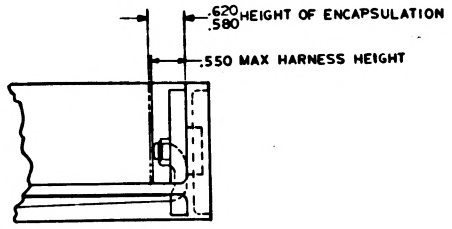
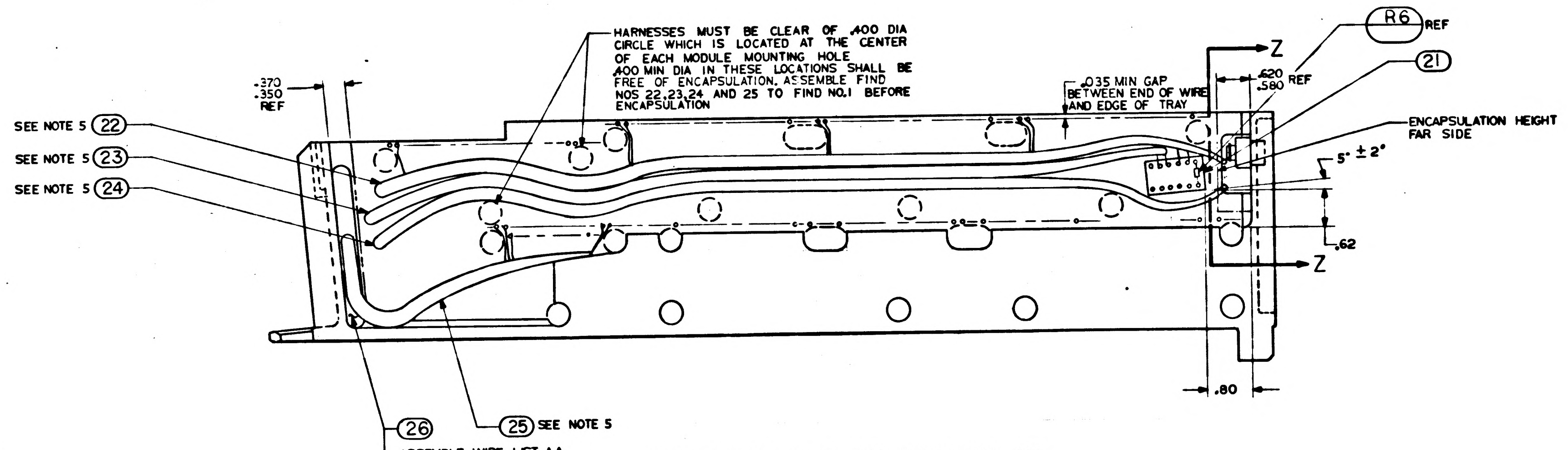


.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6



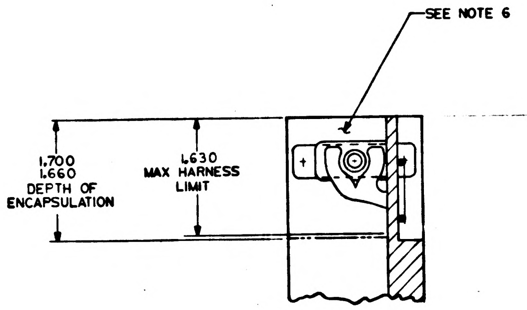
.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT



HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
.370
.350
REF
SEE NOTE 5 (22)
SEE NOTE 5 (23)
SEE NOTE 5 (24)
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
(R6) REF
(21)
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
Z
.80
(26)
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
(25) SEE NOTE 5

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION



SEE NOTE 6
1.700
1.660
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z

REV G THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

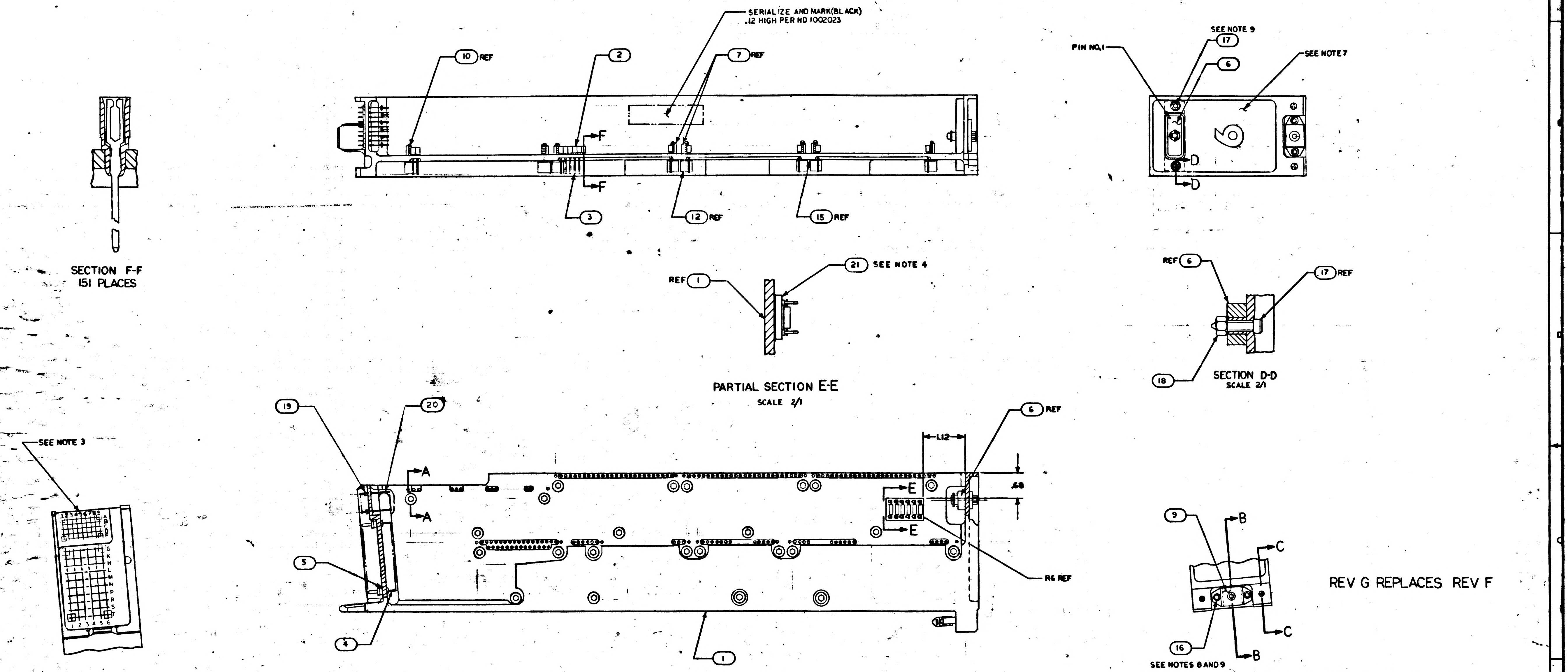
LIST OF MATERIALS

1007156		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS XX ±.02 ANGLES ± DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS DWG NO CONTRACT NAS 9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN DATE CHECKED APPROVAL 11-30-63 APPROVAL	FRAME ASSEMBLY TRAY 6
APPLICATION		HEAT TREATMENT	NASA APPROVAL	CODE IDENT NO. SIZE E NASA DRAWING NO. 1007146
		FINAL FINISH	MIT APPROVAL	SCALE 1/1 WT SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDPR 03773	10-8-63	
G	REVISED PER TDRR 03789	1-17-63	JHf
H	REVISED PER TDRR 05546	30 Jan 64	8-4 WK
J	REVISED PER TDRR. 06478	7/10/64	WK



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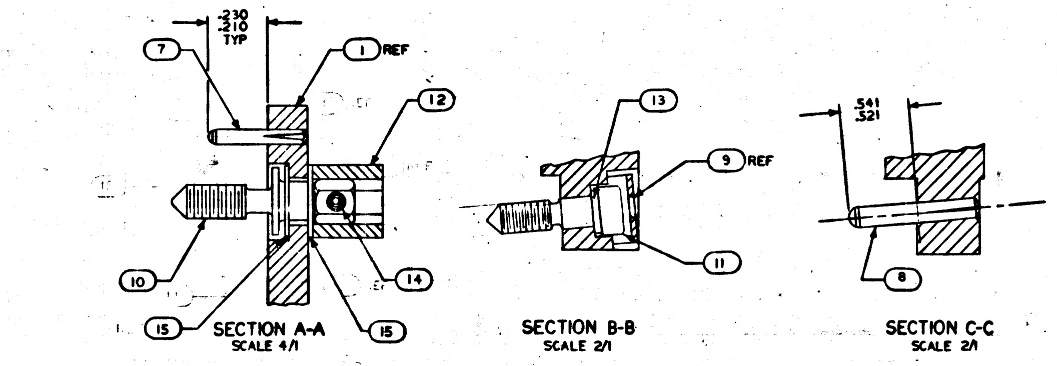

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
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1	1015767	WIRING HARNESS D	25
1	1015766	WIRING HARNESS C	24
1	1015765	WIRING HARNESS B	23
1	1015764	WIRING HARNESS A	22
1	1007110	BUFFER RESISTORS ASSEMBLY	21
45	1006782-2	CONTACT, WRAPOST, MALE MIN	20
45	1006775	INSULATOR, WRAPOST, MALE MIN	19
2	MS21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
50	1004206	WASHER, THRUST	15
25	1008145	PIN, SPRING	14
1	1008099-2	WASHER,	13
25	1004207	DRIVE CYLINDER	12
1	1008098	SCREW, SOCKET HEAD	11
25	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
16	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
60	1010383-1	INSULATOR, WRAPOST MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
151	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
151	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008106	FRAME	1

LIST OF MATERIALS

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,19 AND 20 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO.21 TO FIND NO.1 PER ND 1002004 USING FLEXIBLE FORMULATION PER NASA DRAWING 1010657 AND NASA DRAWING 1010686
5. BOND FIND NOS 22, 23, 24, 25, & 26 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
8. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 AND 17 TO FIND NO.1 TO BE 5.0/5.5 IN LB.
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

MASTER

1007156	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN J.F. Walsh DATE 8/1/63
CHECKED E.P. Kingsbury 7/12/63
APPROVAL 10-4-63
APPROVAL
NASA APPROVAL W.J. Rhine 10-8-63
MIT APPROVAL 8/20/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

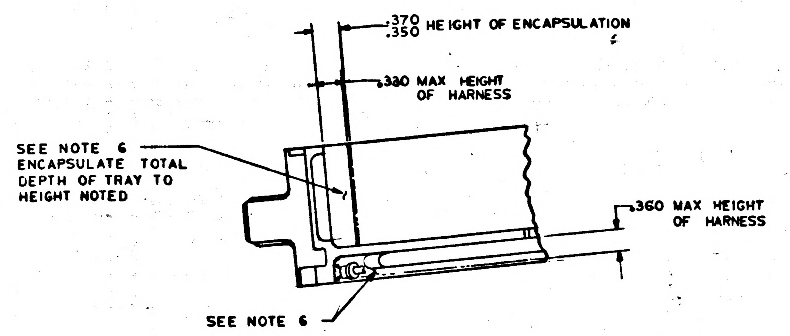
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007146
SCALE 1/1
WT
SHEET 1 OF 2

1007146

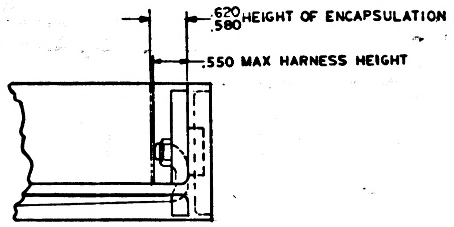
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

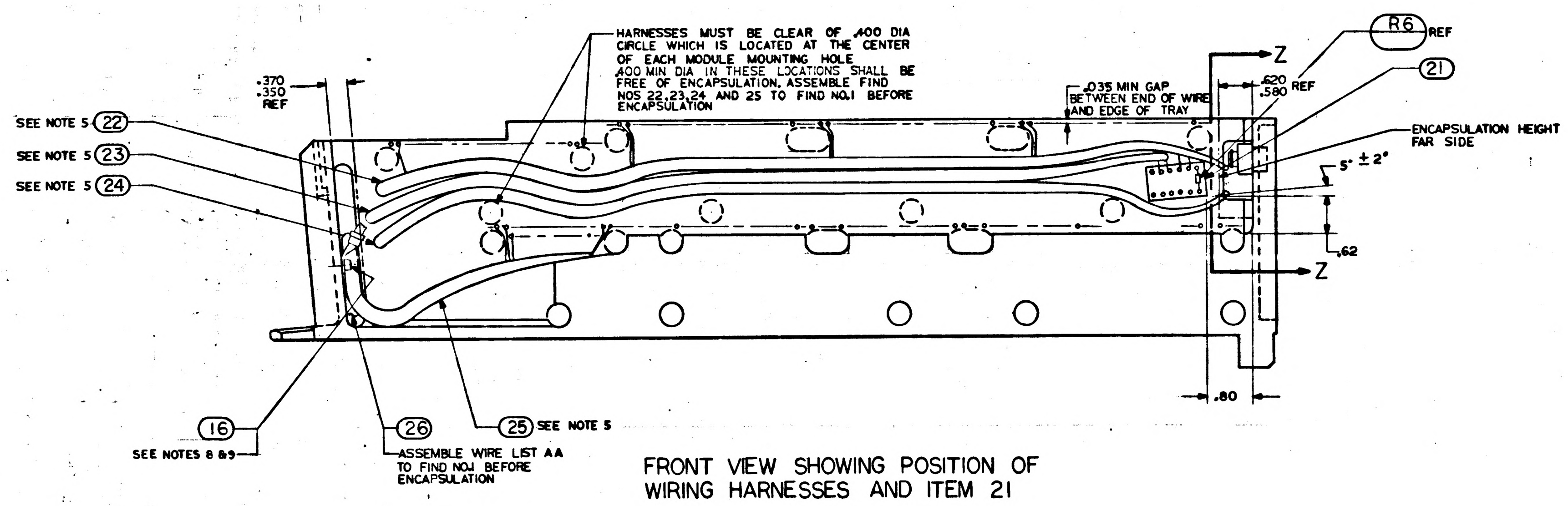
SYM	DESCRIPTION	DATE	APPROVAL
G	THIS SHEET ADDED PER TDRR 04787	4-20-63	
H	REVISED PER TDRR 05546	30 Jan 64	WK
J	REVISED PER TDRR 06478	9/18/64	WK



.370 .350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6



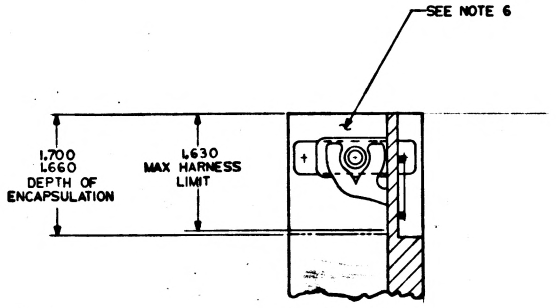
.620 .580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT



HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
.370 .350 REF
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
R6 REF
.620 .580 REF
21
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
Z
.80
16
SEE NOTES 8 & 9
26
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
25 SEE NOTE 5

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

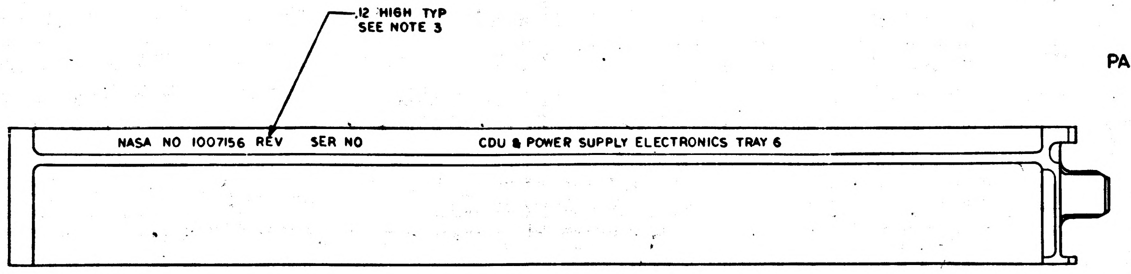
ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10



SEE NOTE 6
1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z-Z

REV G THIS SHEET ADDED



.12 HIGH TYP SEE NOTE 3
NASA NO 1007156 REV SER NO CDU & POWER SUPPLY ELECTRONICS TRAY 6

MARKING VIEW AFTER ENCAPSULATION

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007156	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
XX ± .02 ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT NAS 9-497
DRAWN DATE
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007146
SCALE 1/1 WT SHEET 2 OF 2

1007146

INCHES
PHOTOGRAPHIC SCALE ONLY

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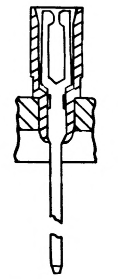
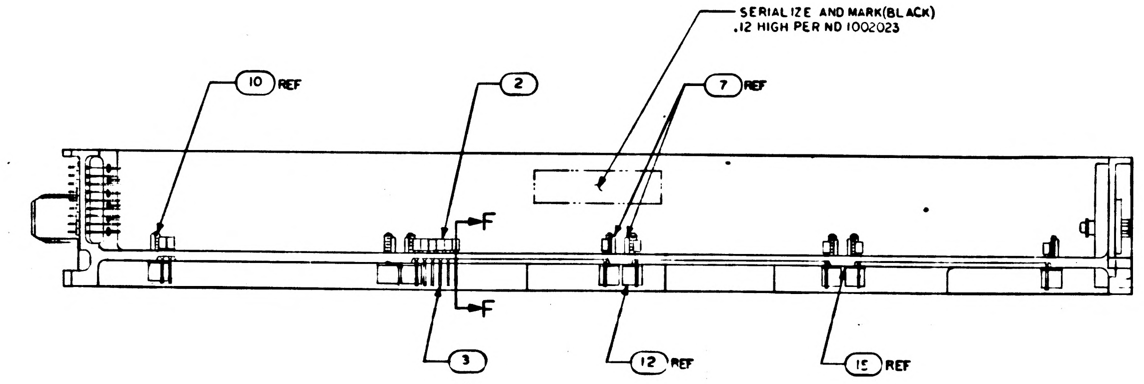
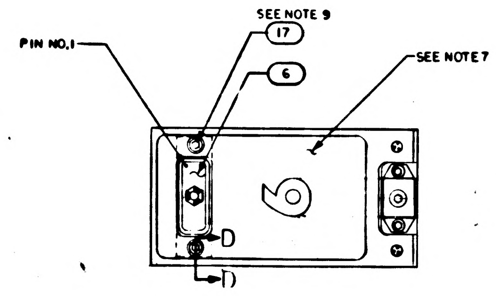
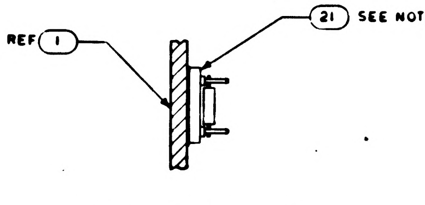
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDPR 03773	[illegible]	[illegible]
G	REVISED PER TDRR 04749	[illegible]	[illegible]
H	REVISED PER TDRR 05546	[illegible]	[illegible]
J	REVISED PER TDRR [illegible]	[illegible]	[illegible]
K	REVISED PER TDRR 07138	31 MAR 64	PBK



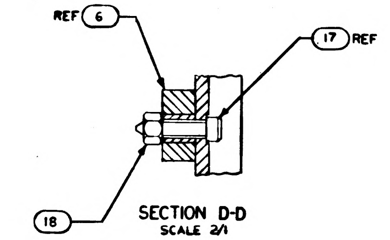
SECTION F-F
151 PLACES



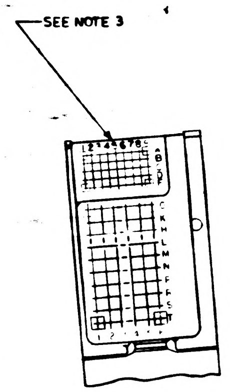


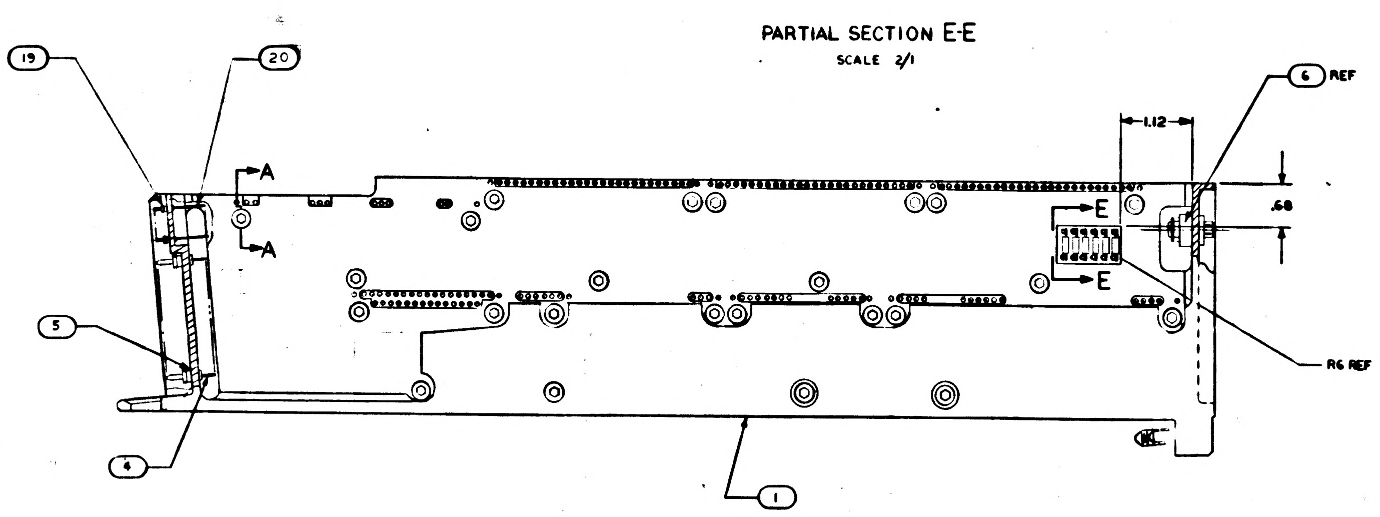


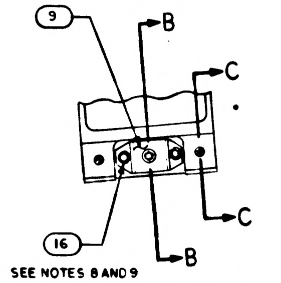
PARTIAL SECTION E-E
SCALE 2/1



SECTION D-D
SCALE 2/1







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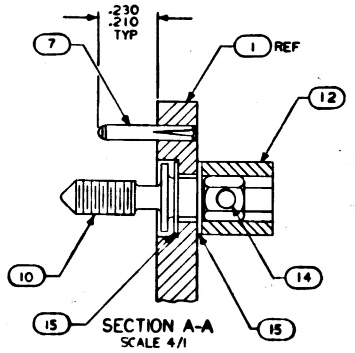
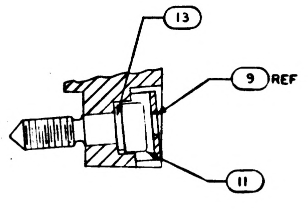
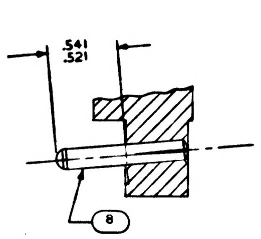


SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,19 AND 20 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO.21 TO FIND NO.1 PER ND 1002004 USING FLEXIBLE FORMULATION PER NASA DRAWING 1010657 AND NASA DRAWING 1010686
5. BOND FIND NOS 22,23,24,25, & 26 TO FIND NO.1 PER ND1002004 AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
8. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 AND 17 TO FIND NO.1 TO BE 5.0/5.5 IN LB.
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005.
- ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60.
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010096	WIRING DIAGRAM	REF
1	1015768	WIRE LIST AA	2
1	1015767	WIRING HARNESS D	2
1	1015766	WIRING HARNESS C	2
1	1015765	WIRING HARNESS B	2
1	1015764	WIRING HARNESS A	22
1	1007110	BUFFER RESISTORS ASSEMBLY	21
45	1006782-2	CONTACT, WRAPOST, MALE MIN	20
45	1006775	INSULATOR, WRAPOST, MALE MIN	19
2	MS21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
50	1004206	WASHER, THRUST	15
25	MS171433	PIN, SPRING	14
1	1008099-2	WASHER,	13
25	1004207	DRIVE CYLINDER	12
1	1008098	SCREW, SOCKET HEAD	11
25	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
16	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
60	1010383-1	INSULATOR, WRAPOST MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
151	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
151	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008106	FRAME	1

LIST OF MATERIALS

1007156	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO Contract NAS 9-497
DRAWN J.F. Webb DATE 8/14/63
CHECKED 7 AUG 63
APPROVAL 8/14/63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL 8/16/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY TRAY 6

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007146
SCALE 1/1
WT
SHEET 1 OF 2

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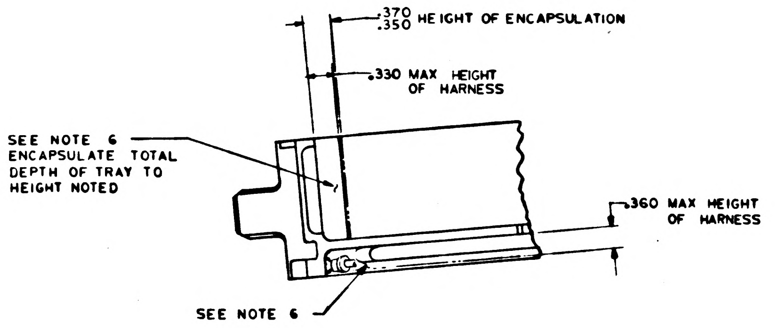
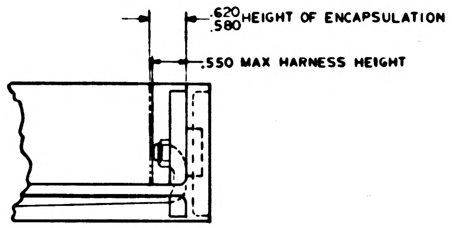
REVISIONS

	SYM	DESCRIPTION	DATE	APPROVAL
M	G	THIS SHEET ADDED PER TDRR 04789	11-20-63	PJL
M	H	REVISED PER TDRR 05546	20 Jan 64	WK
	J	REVISED PER TDRR 06478	4/16	WK
	K	REVISED PER TDRR 07138	31 MAR 64	SWP PBR


.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6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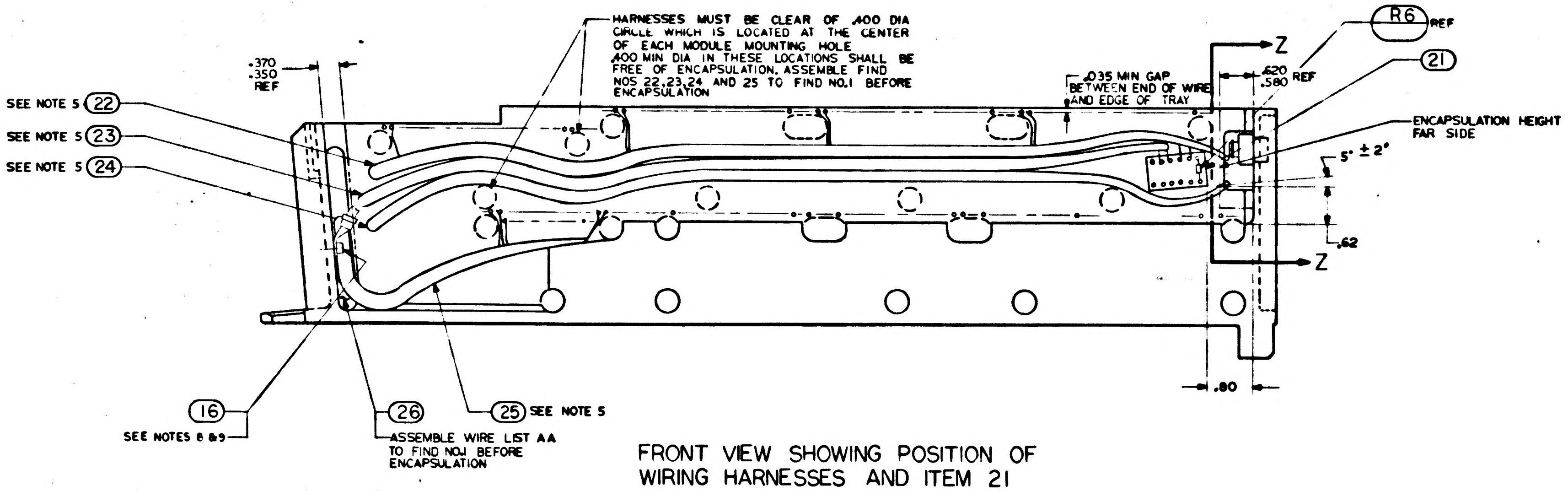
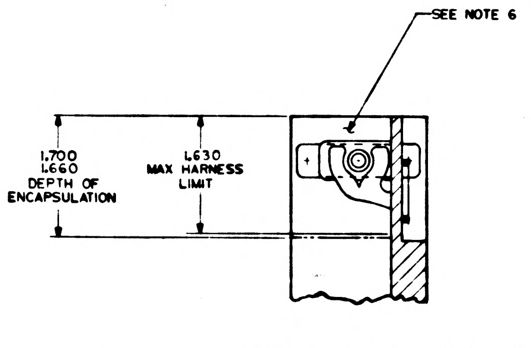
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT


HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22, 23, 24 AND 25 TO FIND NO. 1 BEFORE ENCAPSULATION
R6 REF
Z
21
.370
.350
REF
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
Z
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
.80
16
SEE NOTES 8 & 9
26
ASSEMBLE WIRE LIST AA TO FIND NO. 1 BEFORE ENCAPSULATION
25 SEE NOTE 5

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10


SEE NOTE 6
1.700
1.660
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z

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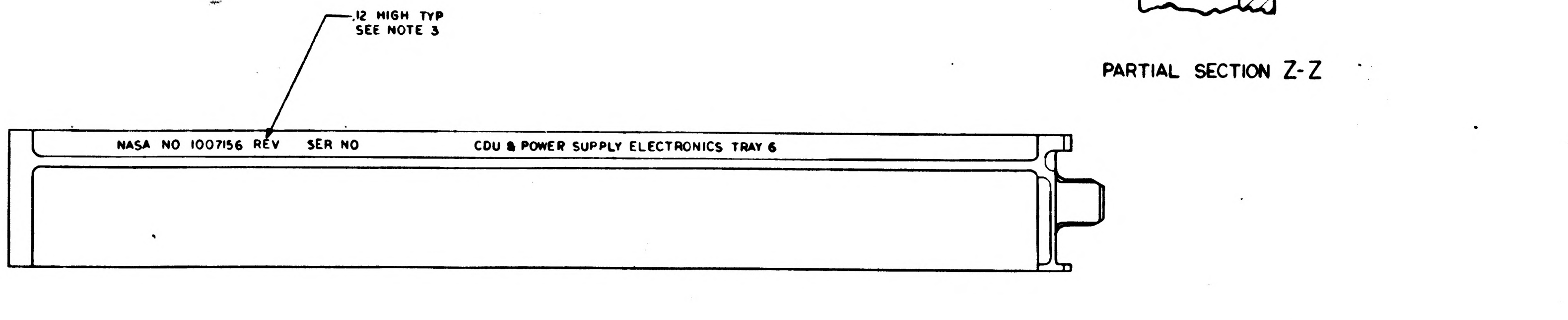
.12 HIGH TYP
SEE NOTE 3
NASA NO 1007156 REV SER NO
CDU & POWER SUPPLY ELECTRONICS TRAY 6

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007156	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
XX ± .02 ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

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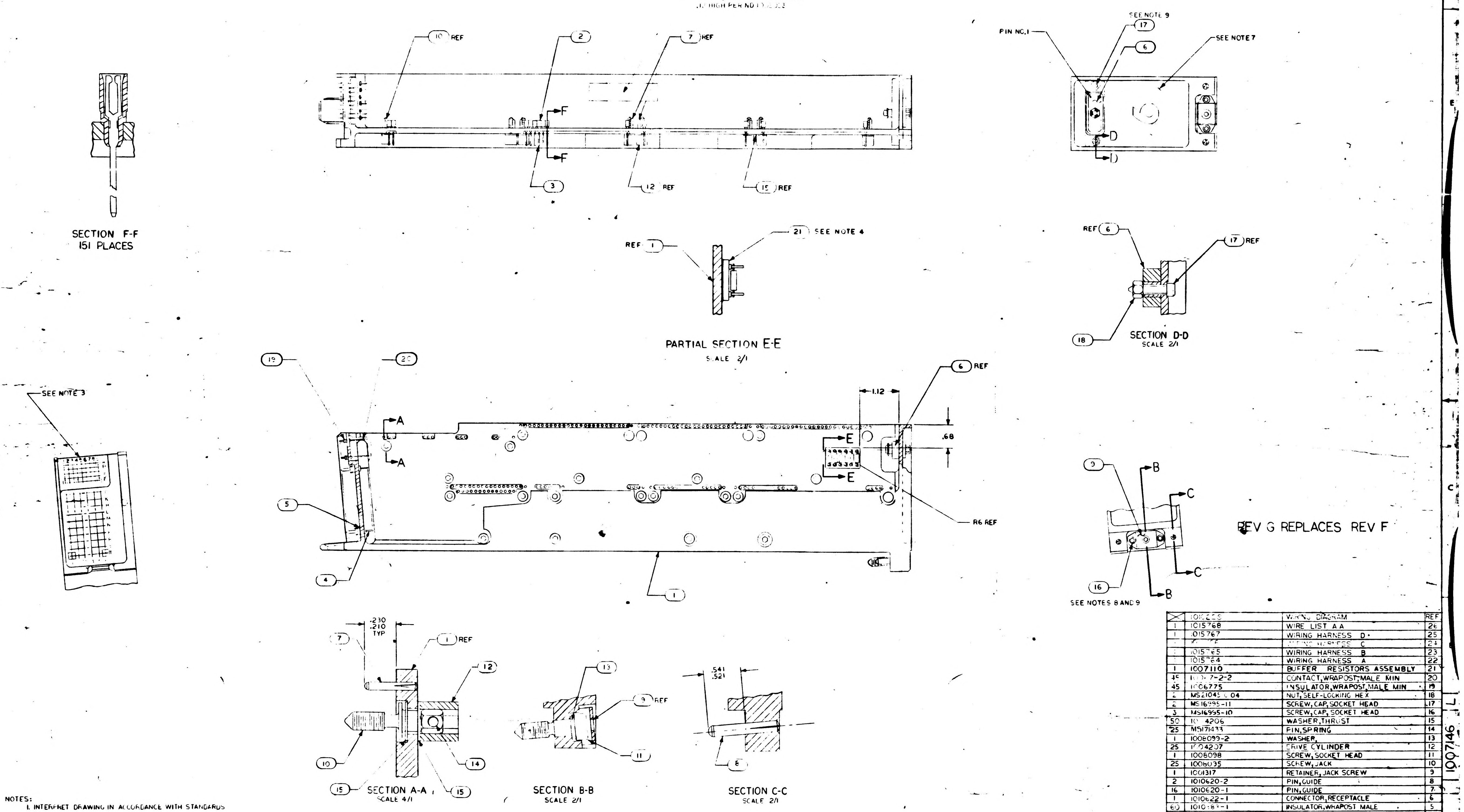
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN DATE
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007146
SCALE 1/1
WT
SHEET 2 OF 2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDPR		
G	REVISED PER TDRR 0749		
H	REVISED PER TDRR 05546		
J	REVISED PER TDRR		WR
K	REVISED PER TDRR 07138	31 MAR 64	
L	REVISED PER TDRR 14323	23 NOV 64	


SEE NOTE 9
PIN NO.1
SEE NOTE 7
10 REF
2
7 REF
F
F
3
12 REF
15 REF
D
D
17
6
SECTION F-F
151 PLACES
REF 1
21 SEE NOTE 4
PARTIAL SECTION E-E
SCALE 2/1
REF 6
17 REF
18
SECTION D-D
SCALE 2/1
SEE NOTE 3
19
20
6 REF
1.12
.68
A
A
E
E
5
4
1
R6 REF
9
B
B
C
C
16
SEE NOTES 8 AND 9
REV G REPLACES REV F
.230
.210
TYP
7
1 REF
12
10
14
15
15
SECTION A-A
SCALE 4/1
13
9 REF
11
SECTION B-B
SCALE 2/1
.541
.521
6
SECTION C-C
SCALE 2/1

	1010229	WIRING DIAGRAM	REF
1	1015768	WIRE LIST A A	26
1	1015767	WIRING HARNESS D	25
	10157	WIRING HARNESS C	24
	1015765	WIRING HARNESS B	23
	1015764	WIRING HARNESS A	22
1	1007110	BUFFER RESISTORS ASSEMBLY	21
45	100 7-2-2	CONTACT, WRAPOST, MALE MIN	20
45	1006775	INSULATOR, WRAPOST, MALE MIN	19
2	MS21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
50	10 4206	WASHER, THRUST	15
25	MS171433	PIN, SPRING	14
1	1008099-2	WASHER,	13
25	1004207	DRIVE CYLINDER	12
1	1008098	SCREW, SOCKET HEAD	11
25	1008035	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
16	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
60	1010383-1	INSULATOR, WRAPOST MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
151	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
151	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008106	FRAME	1
QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,19 AND 20 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO.21 TO FIND NO.1 PER ND 1002004 USING FLEXIBLE FORMULATION PER NASA DRAWING 1010657 AND NASA DRAWING 1010686
5. BOND FIND NOS 22,23,24,25,& 26 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
8. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 AND 17 TO FIND NO.1 TO BE 5.0/5.5 IN LB
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 100 2005 ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60 ALL [illegible] CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

1007156		
NEXT ASSY	USED ON	
APPLICATION		

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DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS .02 ANGLES 1°
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DWG NO Contract NAS 9-497
DRAWN F. Webb DATE 8/14/63
CHECKED 7-27-63
APPROVAL 10-1-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL 8 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

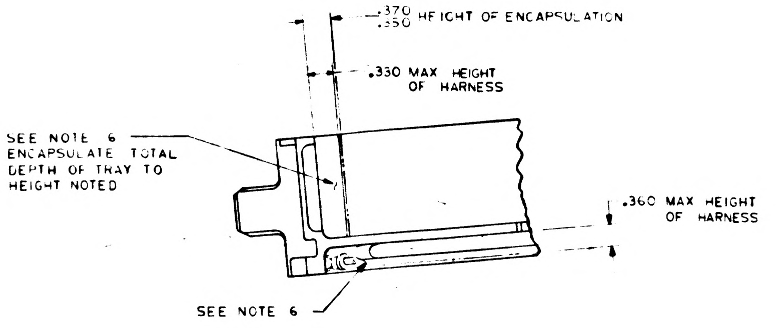
FRAME ASSEMBLY
TRAY 6

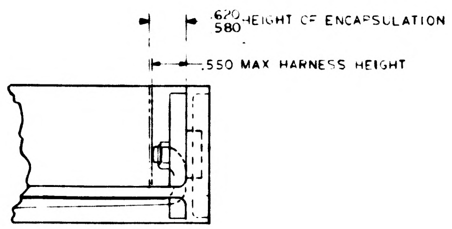
CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007146
SCALE 1/1
WT
SHEET 1 OF 2

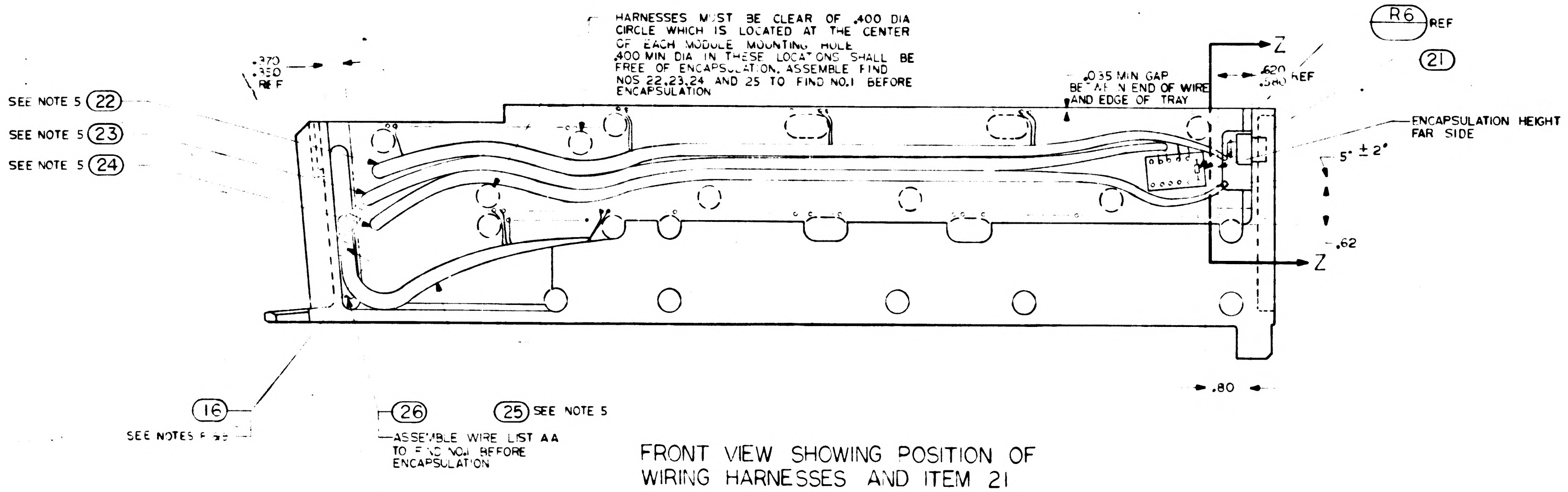
1007146 L

[illegible]

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
G	THIS SHEET ADDED PER TDRR 04782	11 20 63	PRC
H	REVISED PER TDRR 05546		
J	REVISED PER TDRR		
K	REVISED PER TDRR 07135	31 MAR 64	JWP DBR
L	REVISED PER TDRR 14323	23-NOV-64	

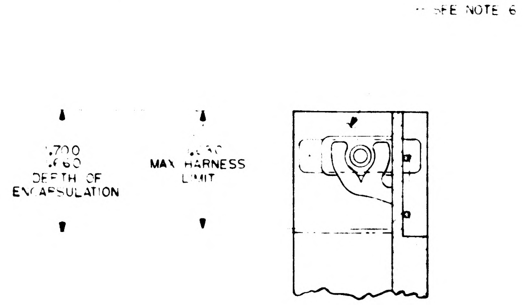

.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT


HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
.370
.350
REF
SEE NOTE 5 (22)
SEE NOTE 5 (23)
SEE NOTE 5 (24)
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
R6 REF
(21)
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
Z
.80
(16)
SEE NOTES 5 & 8
(26)
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
(25) SEE NOTE 5

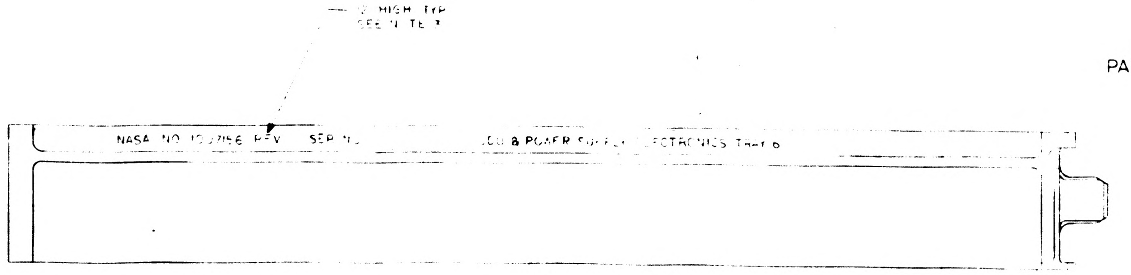
FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10


SEE NOTE 6
.700
.660
DEPTH OF ENCAPSULATION
.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z

REV G THIS SHEET ADDED


.12 HIGH TYP
SEE NOTE 3
NASA NO 1007156 REV SER NO
PSA & POWER SUPPLY ELECTRONICS TRAY 6

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007156	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGL
XX ± .02
DO NOT SCALE THIS DRAWING
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DRAWN DATE 11-20-63
CHECKED 11-20-63
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007146
SCALE 1/1
WT
SHEET 2 OF 2

L
1007146

1007146

REVISIONS TDRR 0154				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL

	PART NO.	DESCRIPTION	REQD.
	1008106	Frame, Tray 6	1
	1006774	Insulator, Wrapost, Female Miniature	240
	1006781-2	Contact, Wrapost, Female Miniature	240
	1010382-1	Contact, Blade Edge Connector	84
	1010383	Insulator, Wrapost, Male	84
*	ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1

- NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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1007156	
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DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
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MATERIAL:

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INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED	D. R. Scott	6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
	14 June 63

FRAME ASSEMBLY,
TRAY 6

SCALE	UNIT WT.	CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.
DWG. NO.

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

NASA DRAWING NO.
1007146

SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

Class A Release
TDRR 08057

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 6

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page i to iii and 1 to [illegible] inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 6

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 6 for use in APOLLO Guidance and Navigation equipment.

30 Apr 64
MIT/IL DATE

4/30/64
NASA/MSC DATE

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 6

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 6, Drawing 1007146, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. -- The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007146	Final Test Method for Frame Assembly Tray 6

DRAWINGS

APOLLO G&N

1007146	Frame Assembly Tray 6
1015764	Wiring Harness Array 6 (For Reference Only)
1015765	Wiring Harness B
1015766	Wiring Harness C
1015767	Wiring Harness D
1015768	Wire List A-A

INCHES
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PHOTOGRAPHIC SCALE ONLY

1007147 Ⓜ

REVISIONS TDRR 01550

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	DT. WK

PART NO.	DESCRIPTION	REQD.
1008107	Frame Tray 7	1
1006774	Insulator, Wrapost, Female Miniature	104
1006781-2	Contact, Wrapost, Female Miniature	104
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female Receptacle	1
1010620-1	Pin, Guide	12
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	19
1008098	Screw, Socket Head, Externally Relieved Body	1
1008099-1	Washer (Special)	19
1008099-2	Washer (Special)	1
1008092	Washer (Special)	19
MS 16624-15	Ring, Retaining	19
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

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APPROVED		6-19-63
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APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL DATE

FRAME ASSEMBLY,
TRAY 7

SCALE UNIT WT. CODE IDENT.

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SHEET 1 OF 1

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APOLLO G&N Specification
PS-1007147 A
30 April 1964
Class II Release
TDRR [illegible]

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 7

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
8-18-64	A	11690	1,2	WK	EJR

This specification consists of page i to iii and 1 to 2 inclusive.

APOLLO G&N Specification
PS-1007147 A
30 April 1964

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 7

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 7 for use in APOLLO Guidance and Navigation equipment.

30 Apr 64
MIT/IL DATE

[illegible]
NASA/MSC DATE

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 7

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 7, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007147	Final Test Method for Frame Assembly Tray 7

DRAWINGS

APOLLO G&N

1007147	Frame Assembly Tray 7
1007167	Frame Assembly Tray 7

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PHOTOGRAPHIC SCALE ONLY

APOLLO G&N Specification

PS-1007147 A
30 April 1964
Class A Release
TDRR [illegible]

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 7

Record of Revisions

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Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
[illegible]	[illegible]	[illegible]	[illegible]	WK	WJR

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION
FOR
FRAME ASSEMBLY TRAY 7

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 7, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007147	Final Test Method for Frame Assembly Tray 7

DRAWINGS

APOLLO G&N

1007147	Frame Assembly Tray 7
1007167	Frame Assembly Tray 7

3. REQUIREMENTS

3.1 GENERAL SPECIFICATION. Unless otherwise specified, all of the requirements of Specification ND-1002210 shall apply as requirements of this specification.

3.2 DESCRIPTION. The tray is to be used in the Power and Servo Assembly as a mounting frame and an interconnection for the modules used in the Miscellaneous Electronics Assembly.

3.3 FUNCTION REQUIREMENTS

3.3.1 Insulation Resistance Test. The insulation resistance test shall be conducted from each individual connector pin with the exception of L6 of connector 45A7-P1, to the frame assembly. The resistance from each connector pin to the assembly frame shall be equal to or greater than 100 megohms.

3.3.2 Continuity and DC Resistance and Shorting. The continuity and dc resistance and shorts test shall be as specified in JDC 09809 of FTM1007147.

3.4 PERFORMANCE AND PRODUCT CHARACTERISTICS

3.4.1 Service Life

3.4.1.1 Operating Life. The assembly shall meet performance specifications for at least 2000 hours of operation, excluding the supplier's test time of the completed unit.

3.4.1.2 Shelf Life. The assembly shall be packaged as specified in MIL-P-116, Method 2, and shall have a shelf life of at least 5 years, without operation, at ambient room temperature after final acceptance at the supplier's facility.

3.4.2 Reliability. Design objectives require maximum reliability of the assembly during its period of useful life. Every effort shall be made to design and produce units capable of meeting a maximum failure rate of 0.2 failures per million hours.

		REVISIONS TDRR 01580		
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	ST. WK
	B	REVISED PER TDRR 02705	8/21/63	

1007147

PART NO.	DESCRIPTION	REQD.
1008107	Frame Tray 7	1
1006774	Insulator, Wrapost, Female Miniature	104
1006781-2	Contact, Wrapost, Female Miniature	104
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female Receptacle	1
1010620-1	Pin, Guide	12
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	19
1008098	Screw, Socket Head, Externally Relieved Body	1
1008099-1	Washer (Special)	19
1008099-2	Washer (Special)	1
1008092	Washer (Special)	19
MS 16624-15	Ring, Retaining	19
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

1007157	
NEXT ASSY	USED ON
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DIMENSIONS ARE IN INCHES
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NAS 9-153

		DATE
APPROVED	R. Ritter	6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
	63

FRAME ASSEMBLY,
TRAY 7

SCALE	UNIT WT.	CODE IDENT.

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LABORATORY
CAMBRIDGE, MASS.

DWG. NO.

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SPACECRAFT CENTER
HOUSTON TEXAS

NASA DRAWING NO.
1007147

SHEET 1 OF 1

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APOLLO G&N Specification

PS-1007147 B
30 April 1964
Class A Release
TDRR [illegible]

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 7

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
[illegible]	[illegible]	[illegible]	[illegible]	WK	WJR
2/9/65	B	16243	1	W.K.	W.J.R.

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 7

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 7, hereafter called the assembly.

1.2 CLASSIFICATION. The requirements for Part Numbers 1007147, 1007167, 1021217-011 and 1007537-021 shall be designated as Type I.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007147	Final Test Method for Frame Assembly Tray 7

DRAWINGS

APOLLO G&N

1007147	Frame Assembly Tray 7
1007167	Frame Assembly Tray 7
1007537	Frame Assembly Tray 7
1021217	Frame Assembly Tray 7

1007147

REVISIONS TDRR 01560				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	D.T. WK
	B	REVISED PER TDRR 02705	8/21/63	
	C	REVISED PER TDRR 02871	8 26 63	J.J.M.

PART NO.	DESCRIPTION	REQD.
1008107	Frame Tray 7	1
1006774	Insulator, Wrapost, Female Miniature	104
1006781-2	Contact, Wrapost, Female Miniature	104
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	12
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	19
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	38
1008099-2	Washer (Special)	1
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	
MS 21045 C 04	Nut, Self-Locking Hex	
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45
1008145	Pin Spring	19
1004207	Drive Cylinder	19
1000100-1	Terminal Insulated	4

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

1007157	
NEXT ASSY	USED ON
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FRACTIONS DECIMALS ANGLES

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NAS 9-153

		DATE
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CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
L. E. Larson	6-14-63

FRAME ASSEMBLY,
TRAY 7

SCALE	UNIT WT.	CODE IDENT.

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SHEET 1 OF 1

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APOLLO G&N Specification

PS-1007147 C
30 April 1964
Class A Release
TDRR

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 7

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
[illegible]	[illegible]	[illegible]	[illegible]	WK	WJR
2/9/65	B	16243	1	W.K.	W.J.R.
3/23/65	C	17793	1, 2	W.K.	ACM

This specification consists of page i
to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 7

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 7, hereafter called the assembly.

1.2 CLASSIFICATION. The requirements for the equipment covered by this specification shall be classified as follows. Unless identified by the respective type, all requirements of this specification are applicable for all types.

a. Type I: The requirements for Part Numbers 1007147, 1007167, 1007537-021 and 1021217-011 shall be designated as Type I.

b. Type II: The requirements for Part Number 1007537-011 shall be designated as Type II.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007147	Final Test Method for Frame Assembly Tray 7

DRAWINGS

APOLLO G&N

1007147	Frame Assembly Tray 7
1007167	Frame Assembly Tray 7
1007537	Frame Assembly Tray 7
1021217	Frame Assembly Tray 7

3. REQUIREMENTS

3.1 GENERAL SPECIFICATION. Unless otherwise specified, all of the requirements of Specification ND-1002210 shall apply as requirements of this specification.

3.2 DESCRIPTION. The tray is to be used in the Power and Servo Assembly as a mounting frame and an interconnection for the modules used in the Miscellaneous Electronics Assembly.

3.3 FUNCTION REQUIREMENTS

3.3.1 Insulation Resistance Test. The insulation resistance test shall be conducted from each individual connector pin with the exception of L6 of connector 45A7-P1, to the frame assembly. The resistance from each connector pin to the assembly frame shall be equal to or greater than 100 megohms.

3.3.2 Continuity and DC Resistance and Shorting. The continuity and dc resistance and shorts test shall be as specified in JDC 09809 for Type I and JDC 11199 for Type II of Specification FTM1007147.

3.4 PERFORMANCE AND PRODUCT CHARACTERISTICS

3.4.1 Service Life

3.4.1.1 Operating Life. The assembly shall meet performance specifications for at least 2000 hours of operation, excluding the supplier's test time of the completed unit.

3.4.1.2 Shelf Life. The assembly shall be packaged as specified in MIL-P-116, Method 2, and shall have a shelf life of at least 5 years, without operation, at ambient room temperature after final acceptance at the supplier's facility.

3.4.2 Reliability. Design objectives require maximum reliability of the assembly during its period of useful life. Every effort shall be made to design and produce units capable of meeting a maximum failure rate of 0.2 failures per million hours.

1007147

REVISIONS TDRR 01560

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	DT. WK
	B	REVISED PER TDRR 02705	8/21/63	
	C	REVISED PER TDRR 02871	8-27-63	J.J.M.
	D	REVISED PER TDRR 03000	9-12-63	WK

PART NO.	DESCRIPTION	REQD.
1008107	Frame Tray 7	1
1006774	Insulator, Wrapost, Female Miniature	104
1006781-2	Contact, Wrapost, Female Miniature	104
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
1010622-1	Connector Receptacle	1
1010622-2	Connector Receptacle	1
1010620-1	Pin, Guide	12
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	19
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	38
1008099-2	Washer (Special)	1
1007092	Assembly, Buffer Resistor Module	1
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	4
MS 21045 C 04	Nut, Self-Locking Hex	4
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45
1008145	Pin Spring	19
1004207	Drive Cylinder	19
1000100-1	Terminal Insulated	4

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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Jack Barnard

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FRAME ASSEMBLY,
TRAY 7

SCALE	UNIT WT.	CODE IDENT.

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	B	REVISED PER TDRR 02705	8/21/63	
	C	REVISED PER TDRR 02871	8 28 63	J.J.M.
	D	REVISED PER TDRR 03000	9-12-63	WR
	E	SUPERSEDED PER TDRR 03773		

PART NO.	DESCRIPTION	REQD.
1008107	Frame Tray 7	1
1006774	Insulator, Wrapost, Female Miniature	104
1006781-2	Contact, Wrapost, Female Miniature	104
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
1010622-1	Connector Receptacle	1
1010622-2	Connector Receptacle	1
1010620-1	Pin, Guide	12
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	19
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	38
1008099-2	Washer (Special)	1
1007092	Assembly, Buffer Resistor Module	1
MS 16995-10	Screw, Cap, Socket Head	2
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1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45
1008145	Pin Spring	19
1004207	Drive Cylinder	19
1000100-1	Terminal Insulated	4

REV E REPLACED BY REV F

MASTER

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LIST OF PARTS AND MATERIALS

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APPROVED FOR MSC: Jack Barnard
MIT/IL APPROVAL — DATE: 63

FRAME ASSEMBLY,
TRAY 7

SCALE
UNIT WT.
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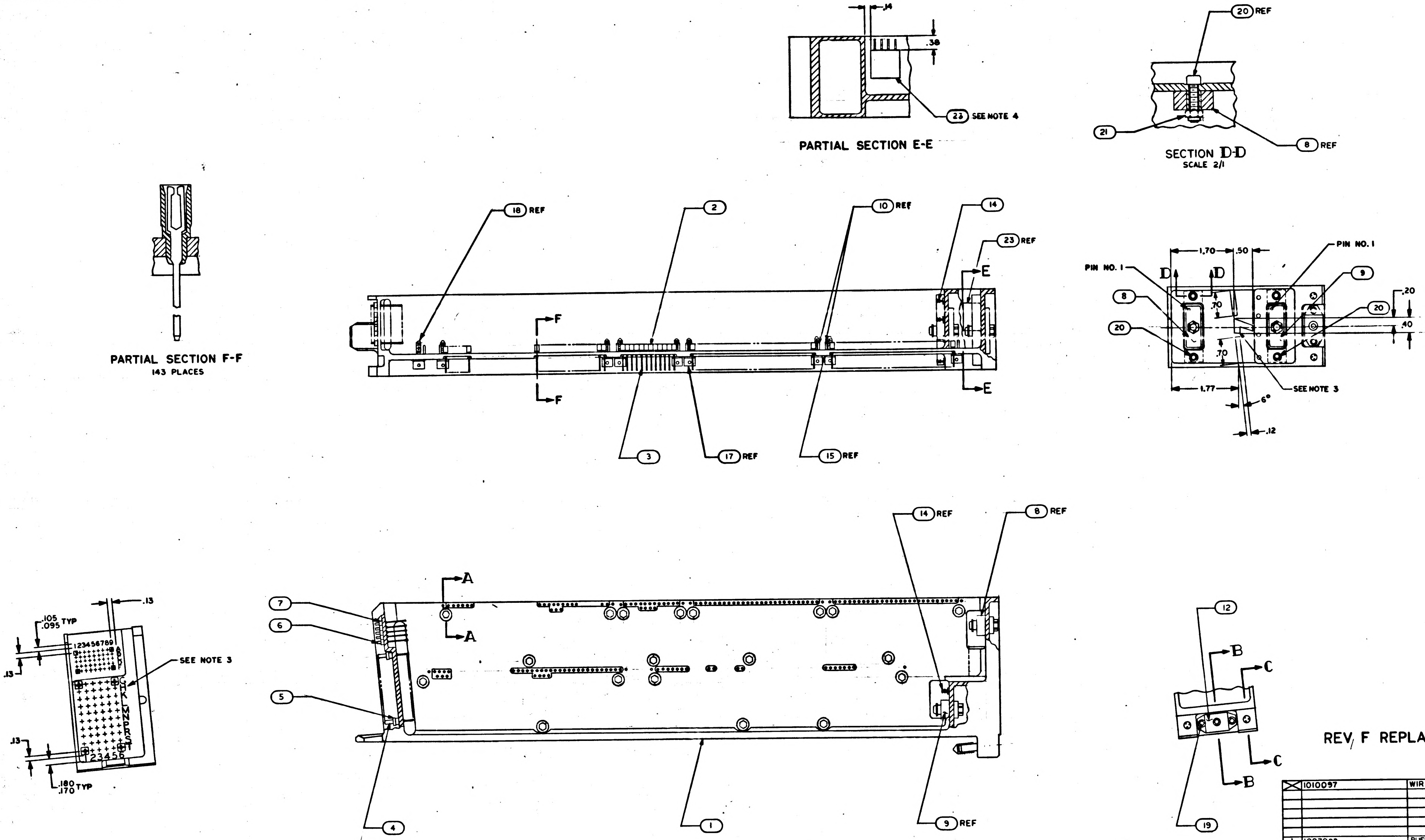

.14
.38
23 SEE NOTE 4
PARTIAL SECTION E-E
20 REF
21
8 REF
SECTION D-D
SCALE 2/1
PARTIAL SECTION F-F
143 PLACES
18 REF
2
10 REF
14
23 REF
E
F
F
E
3
17 REF
15 REF
PIN NO. 1
1.70
.50
PIN NO. 1
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.70
.70
.20
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.12
SEE NOTE 3
14 REF
8 REF
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9 REF
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SEE NOTE 3
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.13
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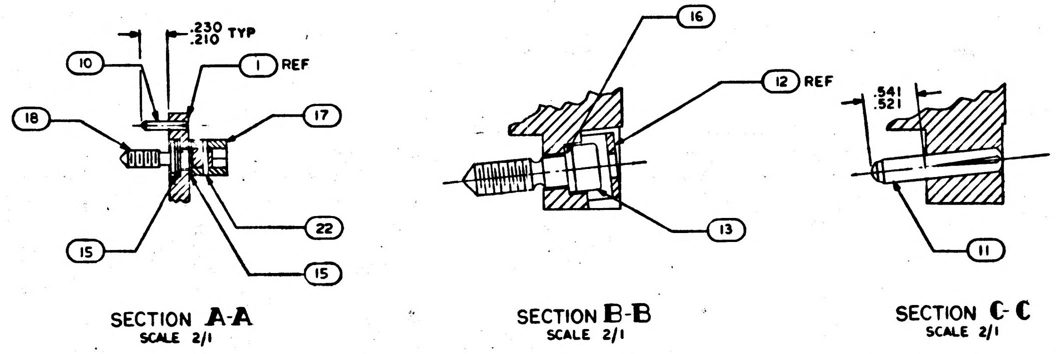
12
B
C
C
B
19

REV/ F REPLACES REV E

☒	1010097	WIRING DIAGRAM	REF
1	1007092	BUFFER RESISTOR MODULE ASSY	23
19	1008145	PIN, SPRING	22
4	MS 21045 C 04	NUT, SELF-LOCKING HEX	21
4	MS 16995-11	SCREW, CAP, SOCKET HEAD	20
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	19
19	1008095	SCREW, JACK	18
19	1004207	DRIVE CYLINDER	17
1	1008099-2	WASHER	16
38	1004206	WASHER THRUST	15
4	1000100-1	TERMINAL, INSULATED	14
1	1008098	SCREW, SOCKET HEAD	13
1	1001317	RETAINER, JACK SCREW	12
2	1010620-2	PIN, GUIDE	11
12	1010620-1	PIN, GUIDE	10
1	1010622-2	CONNECTOR, RECEPTACLE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
45	1006775	INSULATOR, WRAPOST, MALE MIN	7
45	1006782-2	CONTACT, WRAPOST, MALE MIN	6
60	1010383	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
143	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
143	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008107	FRAME	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007147 E



.230
.210 TYP
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1 REF
18
17
22
15
15
SECTION A-A
SCALE 2/1
16
12 REF
13
SECTION B-B
SCALE 2/1
.541
.521
11
SECTION C-C
SCALE 2/1

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019, WHITE
4. BOND FIND NO. 23 TO FIND NO. 1 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND NASA DWG 1010686

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APPROVAL 10-8-63
APPROVAL
NASA APPROVAL W J Rhine 10-8-63
MIT APPROVAL 8 Oct 63

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FRAME ASSEMBLY
TRAY 7

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007147
SCALE 1/1
WT
SHEET 1 OF 1

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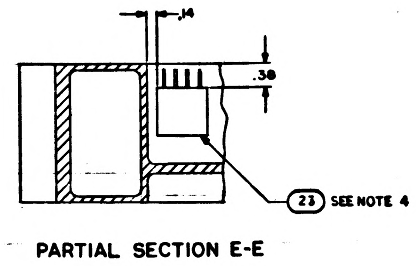
G	REVISED PER TDRR 04790	11-20-63	



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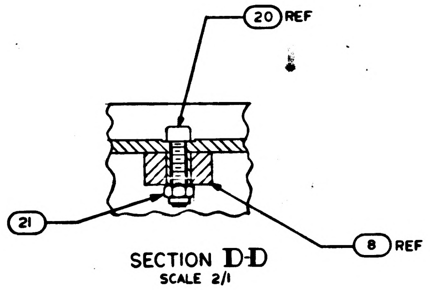

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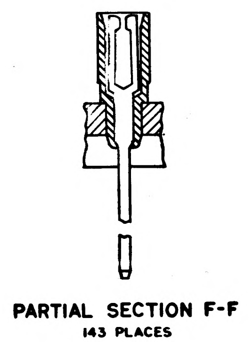
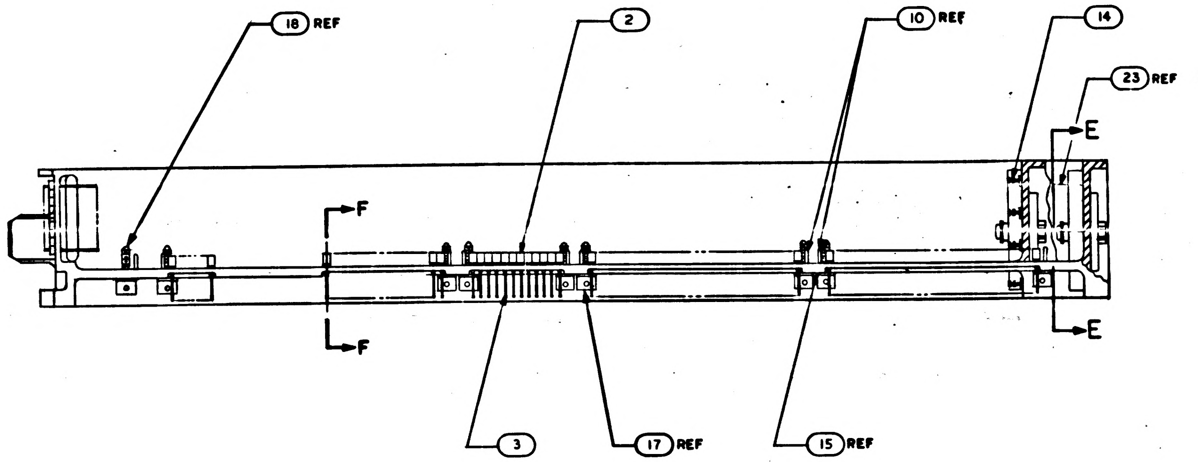
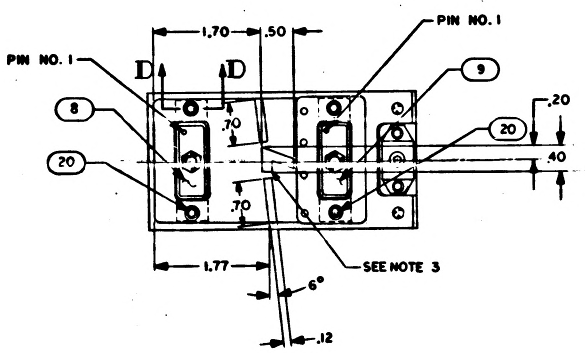
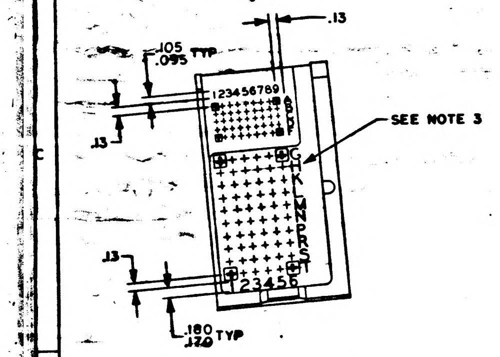
SCALE 2/1

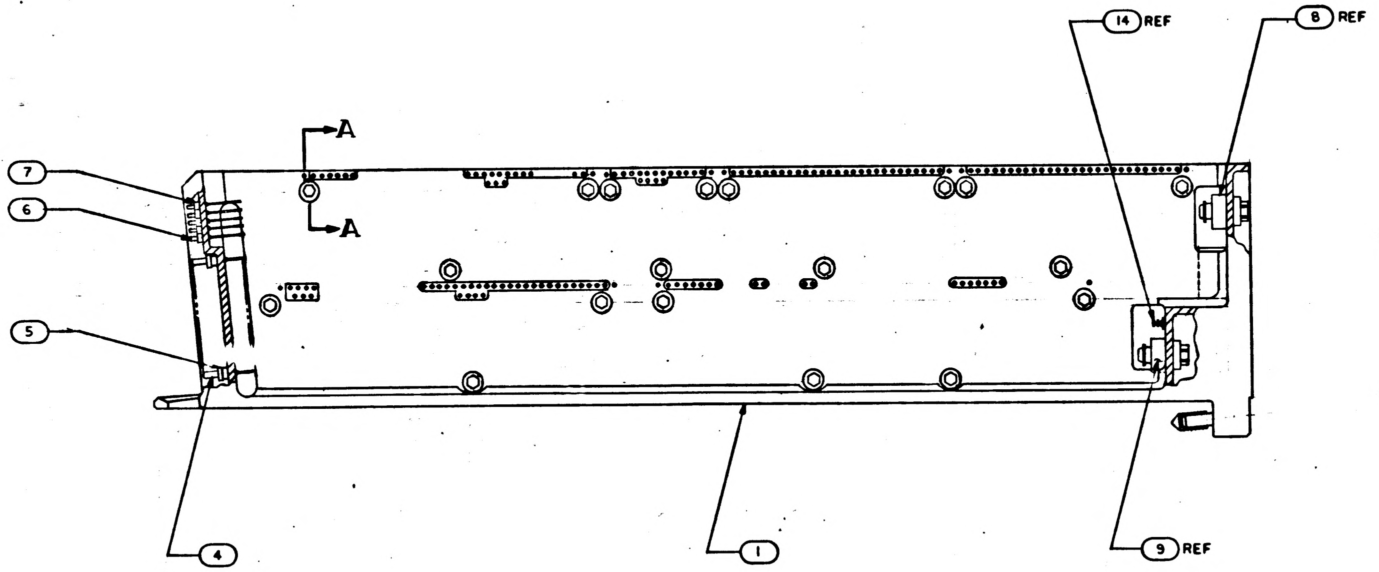


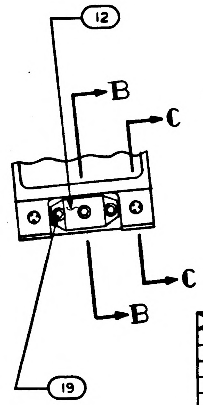
PARTIAL SECTION F-F
143 PLACES











REV F REPLACES REV E

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
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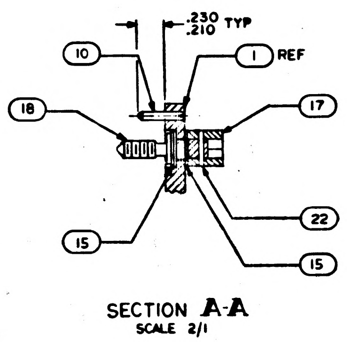
1	1015758	WIRE LIST A A	28
1	1015757	WIRING HARNESS D	27
1	1015756	WIRING HARNESS C	26
1	1015755	WIRING HARNESS B	25
1	1015754	WIRING HARNESS A	24
1	1007092	BUFFER RESISTOR MODULE ASSY	23
19	1008145	PIN, SPRING	22
4	MS 21045 C 04	NUT, SELF-LOCKING HEX	21
4	MS 16995-11	SCREW, CAP, SOCKET HEAD	20
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	19
19	1008095	SCREW, JACK	18
19	1004207	DRIVE CYLINDER	17
1	1008099-2	WASHER	16
38	1004206	WASHER THRUST	15
4	1000100-1	TERMINAL, INSULATED	14
1	1008098	SCREW, SOCKET HEAD	13
1	1001317	RETAINER, JACK SCREW	12
2	1010620-2	PIN, GUIDE	11
12	1010620-1	PIN, GUIDE	10
1	1010622-2	CONNECTOR, RECEPTACLE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
45	1006775	INSULATOR, WRAPOST, MALE MIN	7
45	1006782-2	CONTACT, WRAPOST, MALE MIN	6
60	1010383	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
143	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
143	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008107	FRAME	1

LIST OF MATERIALS

1007147 G

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019, WHITE
4. BOND FIND NO. 23 TO FIND NO. 1 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND NASA DWG 1010686
5. BOND FIND NUMBERS 24, 25, 26, 27 AND 28 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME



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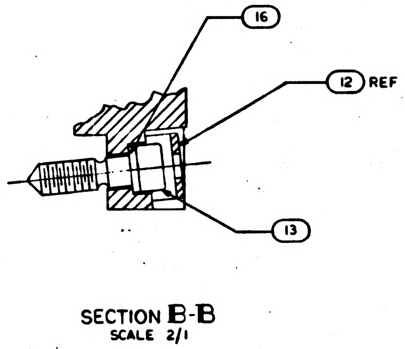

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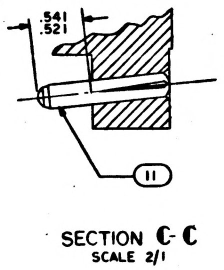

SECTION C-C
SCALE 2/1

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DRAWN S. Banang DATE 8/21/63
CHECKED R.P. King Jerry Bowers
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL W J Rhine 10-8-63
MIT APPROVAL 11/20/63

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FRAME ASSEMBLY
TRAY 7

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007147
SCALE 1/1
WT
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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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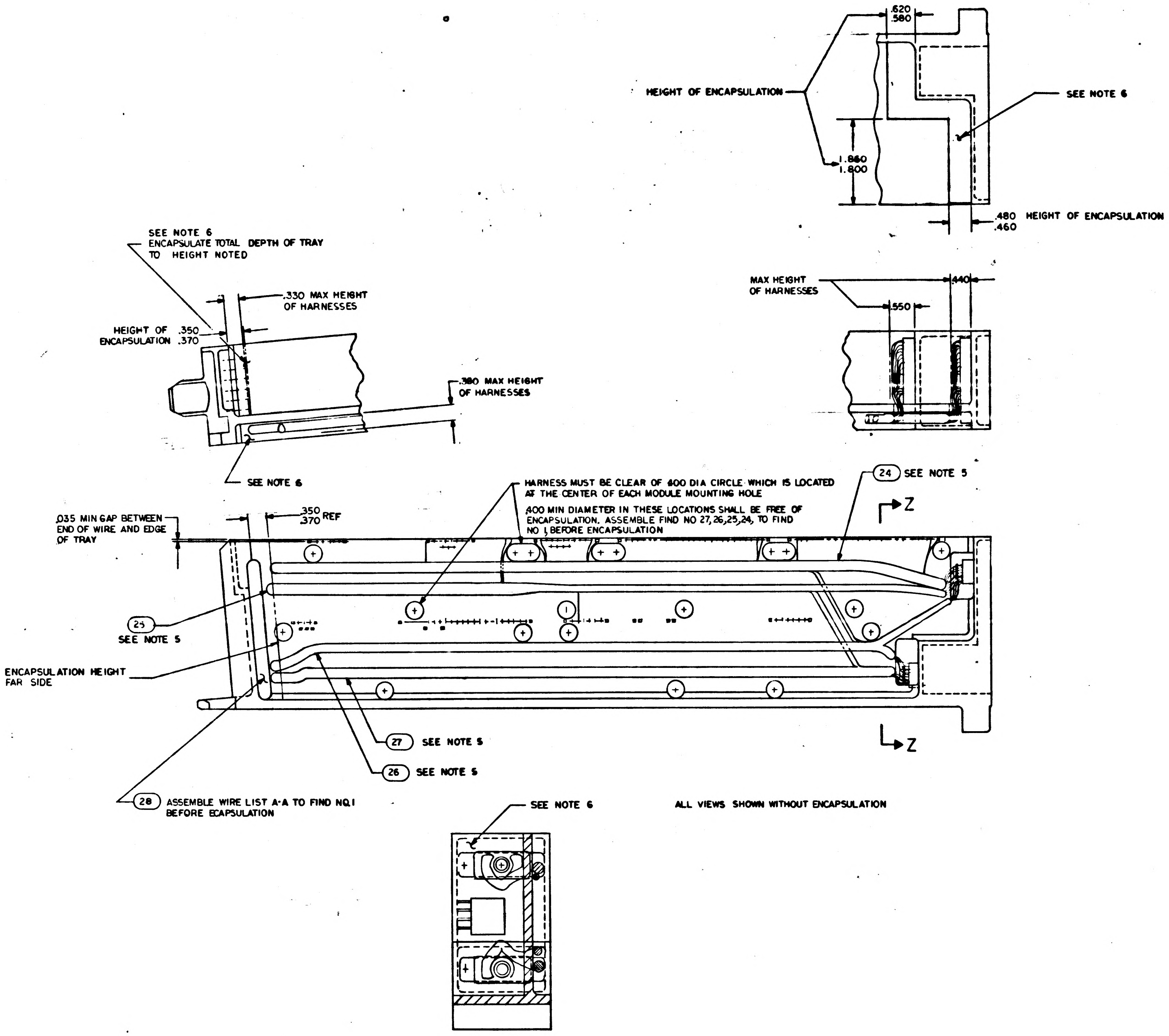

.620
.580
HEIGHT OF ENCAPSULATION
SEE NOTE 6
1.860
1.800
.480
.460
HEIGHT OF ENCAPSULATION
SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY
TO HEIGHT NOTED
.330 MAX HEIGHT
OF HARNESSES
HEIGHT OF ENCAPSULATION
.350
.370
.380 MAX HEIGHT
OF HARNESSES
MAX HEIGHT
OF HARNESSES
.550
.440
SEE NOTE 6
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 27,26,25,24, TO FIND NO 1, BEFORE ENCAPSULATION
24 SEE NOTE 5
Z
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
25
SEE NOTE 5
ENCAPSULATION HEIGHT FAR SIDE
1
Z
27 SEE NOTE 5
26 SEE NOTE 5
28 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ECAPSULATION
SEE NOTE 6

ALL VIEWS SHOWN WITHOUT ENCAPSULATION

SECTION Z-Z

REV G THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007141	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
CONTRACT NAS 9-153
DRAWN J. Crowley DATE 11-14-63
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007147
SCALE FULL
WT
SHEET 2 OF 2

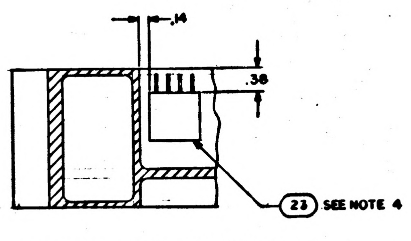
1007147 G

INCHES
PHOTOGRAPHIC SCALE ONLY

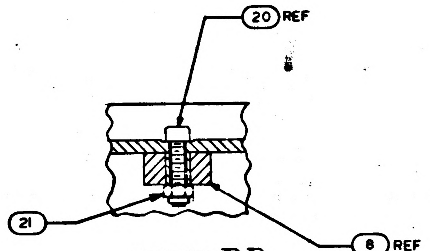
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDRR 03773	10-9-63	
G	REVISED PER TDRR 04790	11-20-63	
H	REVISED PER TDRR 00266	12-9-63	



PARTIAL SECTION E-E



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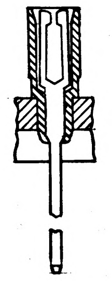
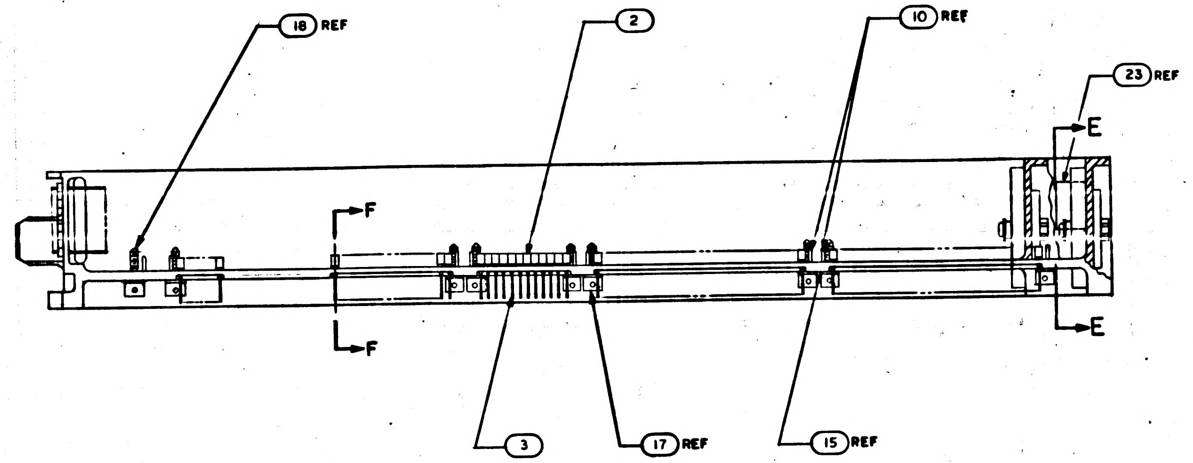
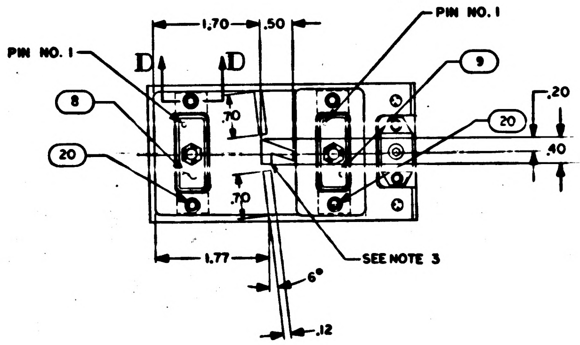
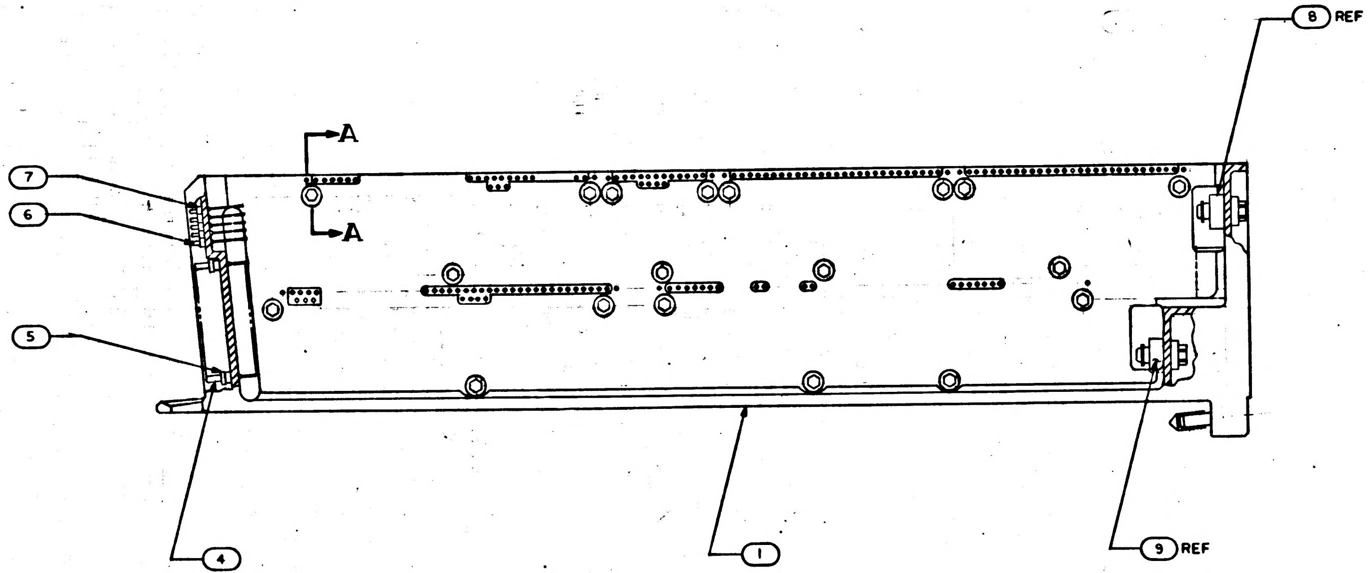
SCALE 2/1

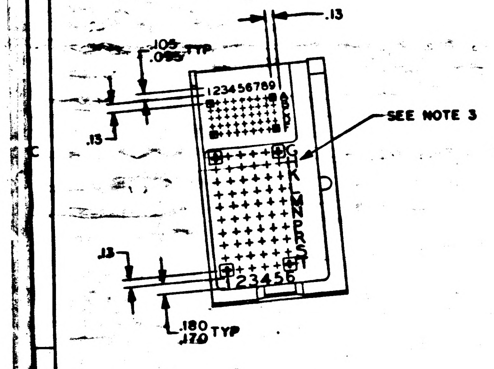


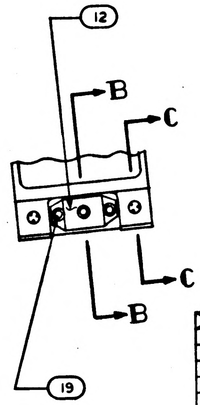
PARTIAL SECTION F-F
143 PLACES









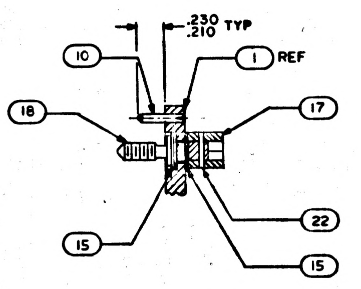


REV F REPLACES REV E

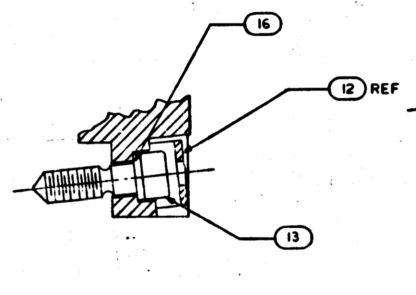
☒	1010097	WIRING DIAGRAM	REF
1	1015758	WIRE LIST A A	28
1	1015757	WIRING HARNESS D	27
1	1015756	WIRING HARNESS C	26
1	1015755	WIRING HARNESS B	25
1	1015754	WIRING HARNESS A	24
1	1007092	BUFFER RESISTOR MODULE ASSY	23
19	1008145	PIN, SPRING	22
4	MS 21045 C 04	NUT, SELF-LOCKING HEX	21
4	MS 16995-11	SCREW, CAP, SOCKET HEAD	20
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	19
19	1008095	SCREW, JACK	18
19	1004207	DRIVE CYLINDER	17
1	1008099-2	WASHER	16
38	1004206	WASHER THRUST	15
			14
1	1008098	SCREW, SOCKET HEAD	13
1	1001317	RETAINER, JACK SCREW	12
2	1010620-2	PIN, GUIDE	11
12	1010620-1	PIN, GUIDE	10
1	1010622-2	CONNECTOR, RECEPTACLE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
45	1006775	INSULATOR, WRAPOST, MALE MIN	7
45	1006782-2	CONTACT, WRAPOST, MALE MIN	6
60	1010383	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
143	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
143	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008107	FRAME	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

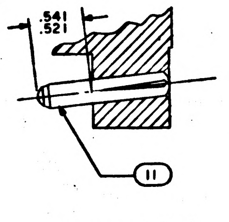
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019, WHITE
4. BOND FIND NO. 23 TO FIND NO. 1 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND NASA DWG 1010686
5. BOND FIND NUMBERS 24,25,26,27 AND 28 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

MASTER

NEXT ASSY	USED ON
1007157	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN Bonanno DATE 8/21/63
CHECKED
APPROVAL 10-2-63
APPROVAL
NASA APPROVAL W J Rhine 10-8-63
MIT APPROVAL 8 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007147
SCALE 1/1 WT SHEET 1 OF 2

1007147

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REVISIONS

	SYM	DESCRIPTION	DATE	APPROVAL
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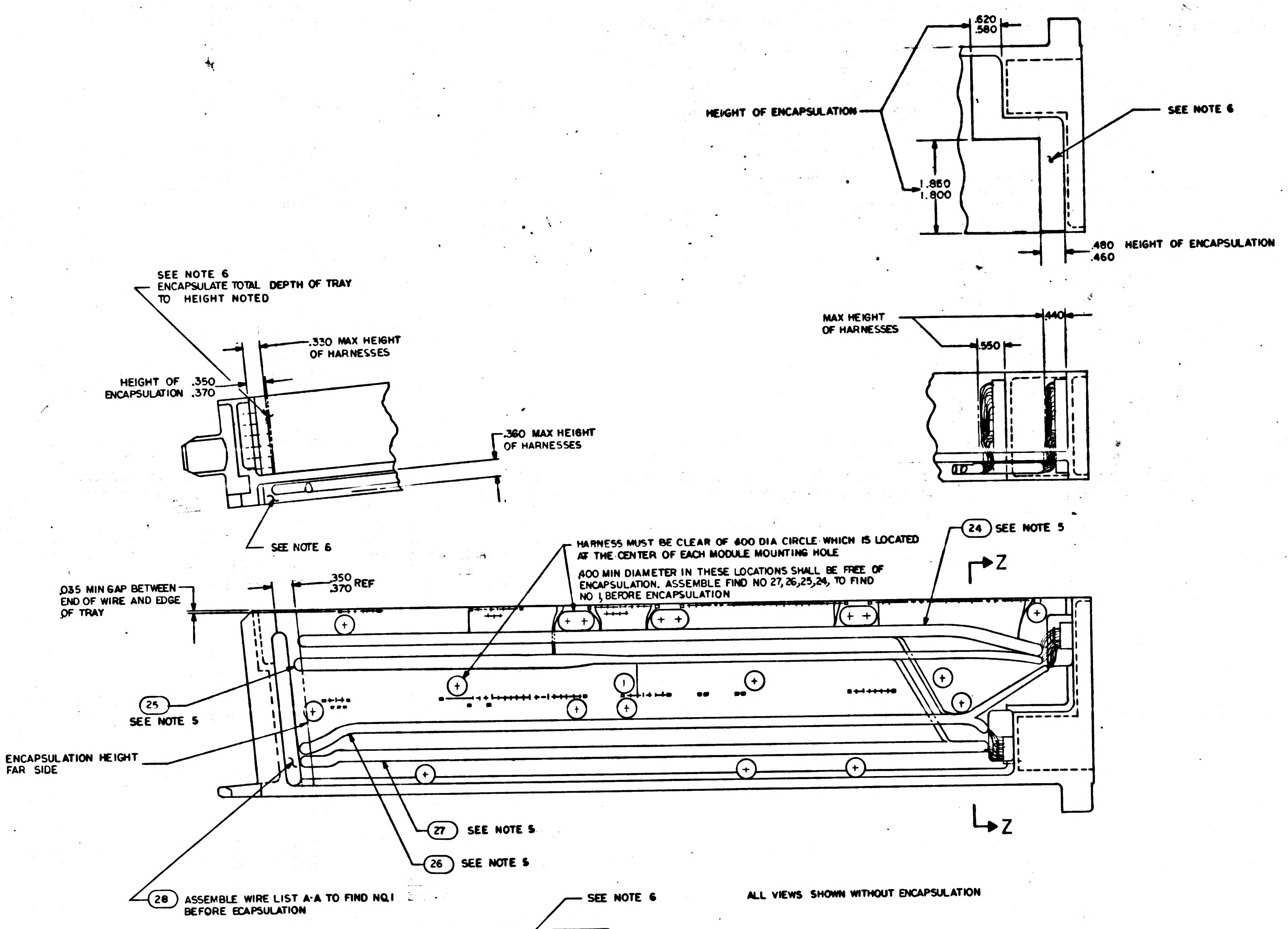
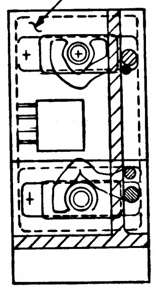
	H	REVISED PER TDRR 05266	12-17-63	


HEIGHT OF ENCAPSULATION
.620
.580
SEE NOTE 6
1.860
1.800
.480
.460
HEIGHT OF ENCAPSULATION
SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY
TO HEIGHT NOTED
.330 MAX HEIGHT
OF HARNESSES
HEIGHT OF ENCAPSULATION
.350
.370
.360 MAX HEIGHT
OF HARNESSES
SEE NOTE 6
MAX HEIGHT
OF HARNESSES
.440
.550
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 27, 26, 25, 24, TO FIND NO 1 BEFORE ENCAPSULATION
24 SEE NOTE 5
Z
.035 MIN GAP BETWEEN
END OF WIRE AND EDGE
OF TRAY
.350
.370
REF
25
SEE NOTE 5
ENCAPSULATION HEIGHT
FAR SIDE
Z
27 SEE NOTE 5
26 SEE NOTE 5
28 ASSEMBLE WIRE LIST A-A TO FIND NO.1
BEFORE ECAPSULATION
SEE NOTE 6

ALL VIEWS SHOWN WITHOUT ENCAPSULATION



SECTION Z-Z

REV G THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007141	
NEXT ASSY	USED ON
APPLICATION	

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INSTRUMENTATION LAB
CAMBRIDGE, MASS
CONTRACT NAS 9-153
DRAWN J. Crowley DATE 11-14-63
CHECKED 11-18-63
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL 11/20/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007147
SCALE FULL
WT
SHEET 2 OF 2

PHOTOGRAPHIC SCALE ONLY
INCHES

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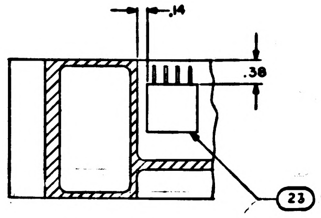
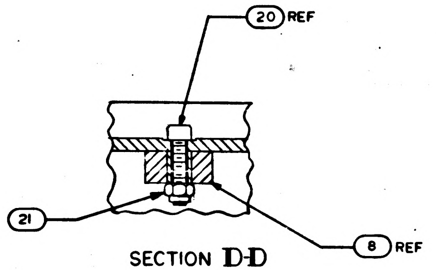
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDRR 03773	[illegible]	[illegible]
G	REVISED PER TDRR 04790	[illegible] 63	[illegible]
H	REVISED PER TDRR 05266	12-17-63	[illegible]
J	REVISED PER TDRR 05546	27 DEC 63	[illegible]



PARTIAL SECTION E-E



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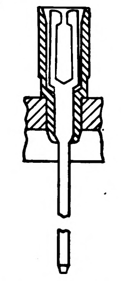
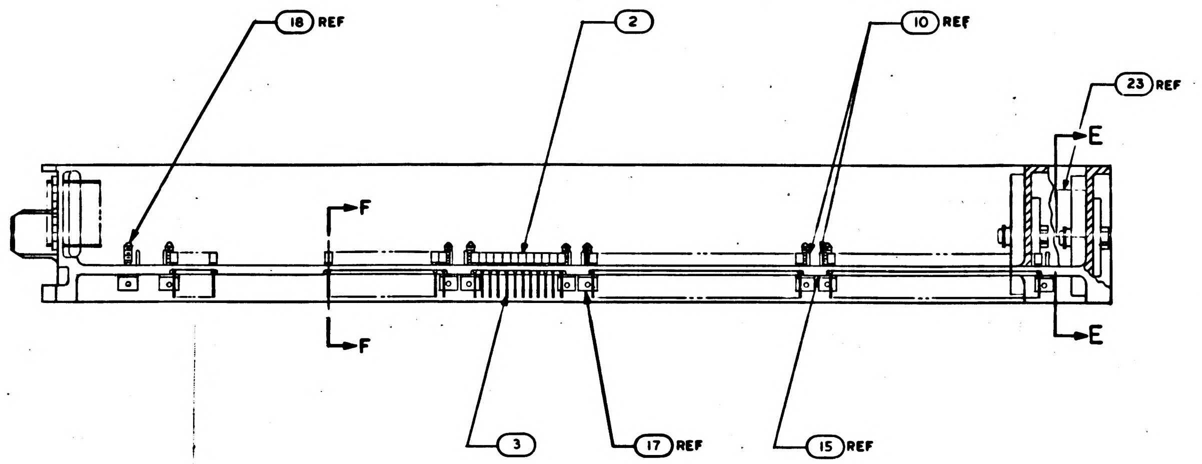
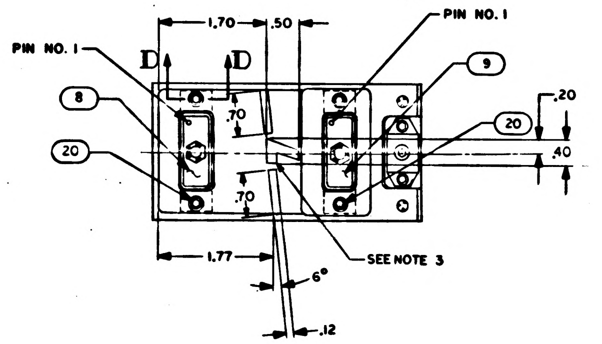
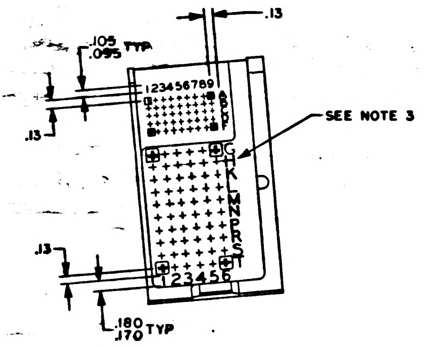
SCALE 2/1

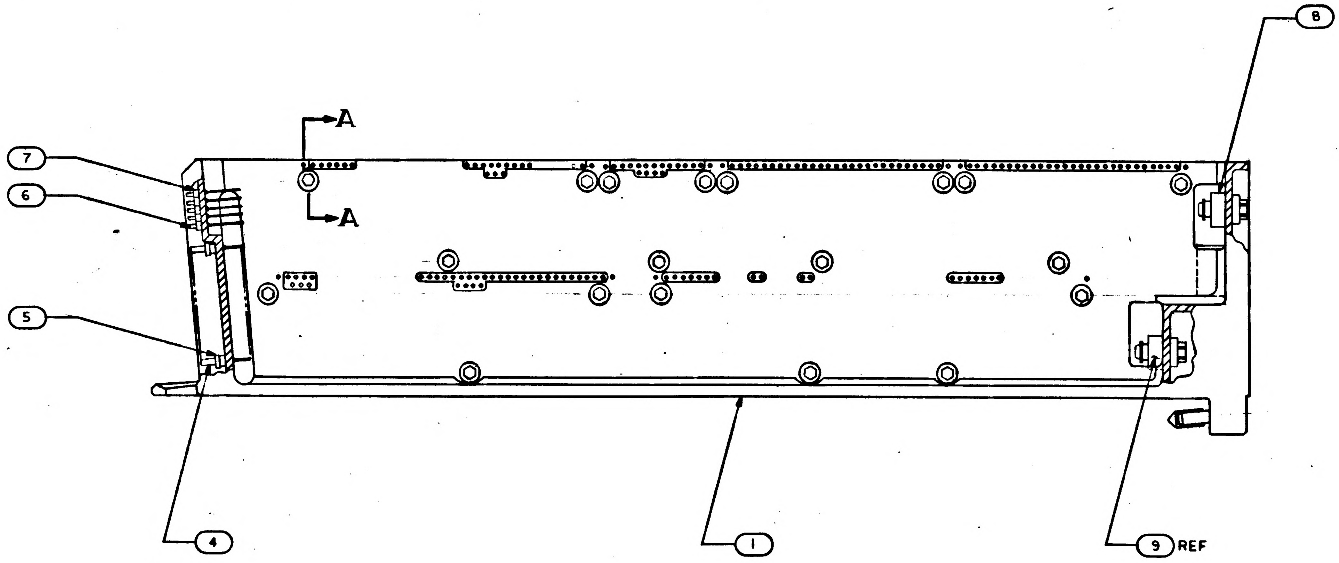


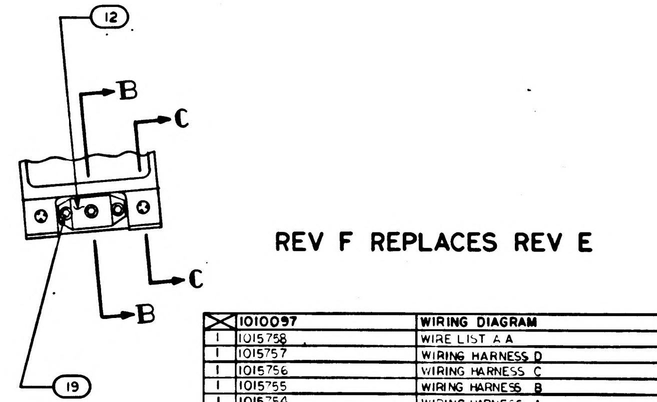
PARTIAL SECTION F-F
143 PLACES











REV F REPLACES REV E

⨯	1010097	WIRING DIAGRAM	REF
1	1015758	WIRE LIST A A	28
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60	1010383	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
143	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
143	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008177	FRAME	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
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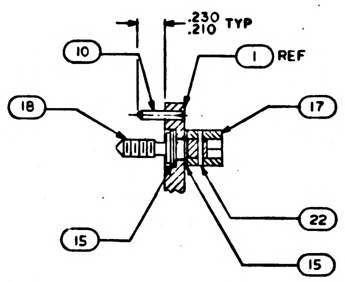
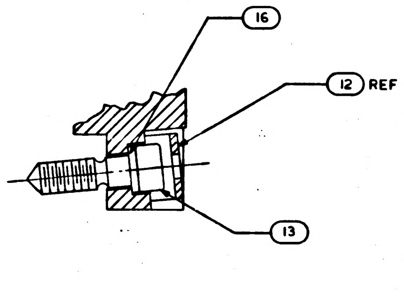
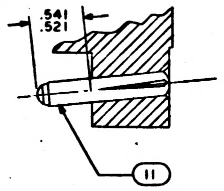


SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

MASTER

1007157	
NEXT ASSY	USED ON
APPLICATION	

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HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN S. Bonanno DATE 8/21/63
CHECKED [illegible] 3 OCT 63
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL W. J. Rhine 10-8-63
MIT APPROVAL W. Kupfer 8 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

CODE IDENT NO. | SIZE E | NASA DRAWING NO. 1007147
SCALE 1/1 | WT | SHEET 1 OF 2

SYM	DESCRIPTION	DATE	APPROVAL
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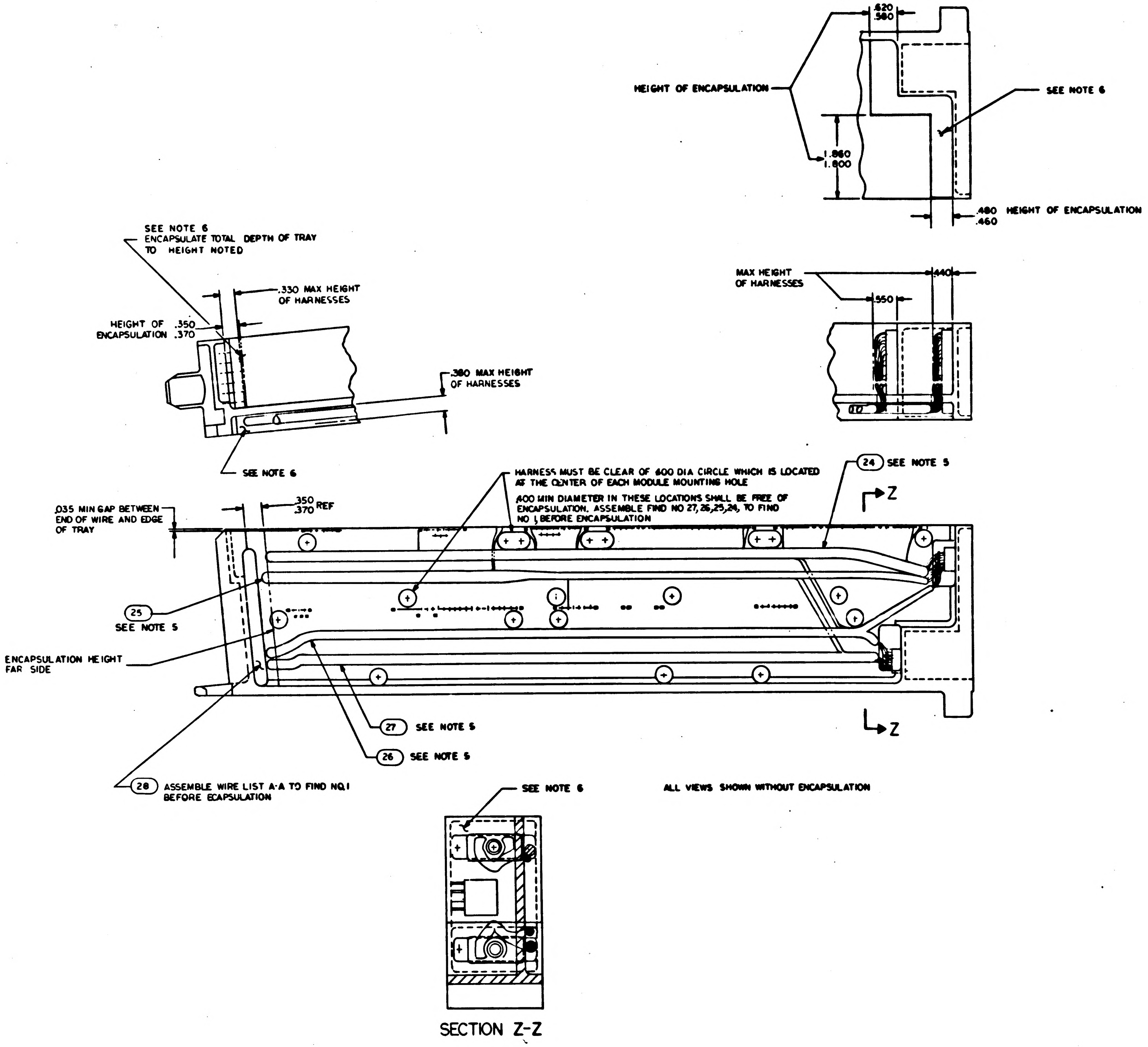
H	REVISED PER TDRR 05266		
J	REVISED PER TDRR 05546	27 DEC 63	


.620
.580
HEIGHT OF ENCAPSULATION
SEE NOTE 6
1.860
1.800
.480
.460
HEIGHT OF ENCAPSULATION
SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY
TO HEIGHT NOTED
.330 MAX HEIGHT
OF HARNESSES
HEIGHT OF .350
ENCAPSULATION .370
.380 MAX HEIGHT
OF HARNESSES
SEE NOTE 6
MAX HEIGHT
OF HARNESSES
.440
.550
HARNESS MUST BE CLEAR OF .600 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.600 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 27,26,25,24, TO FIND NO 1, BEFORE ENCAPSULATION
24 SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
Z
25
SEE NOTE 5
ENCAPSULATION HEIGHT FAR SIDE
Z
27 SEE NOTE 5
26 SEE NOTE 5
28 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ECAPSULATION
SEE NOTE 6
SECTION Z-Z

ALL VIEWS SHOWN WITHOUT ENCAPSULATION

REV G THIS SHEET ADDED

1007147 J

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007141
NEXT ASSY
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NASA APPROVAL
MIT APPROVAL

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HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

CODE IDENT NO
SIZE E
NASA DRAWING NO. 1007147
SCALE FULL
WT
SHEET 2 OF 2

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REVISIONS			
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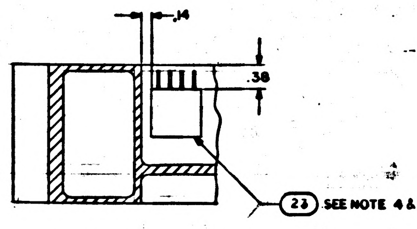
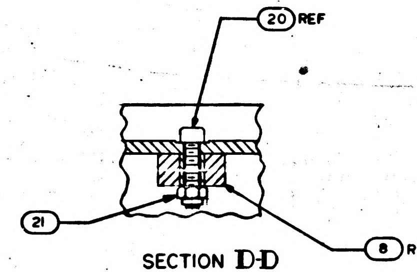
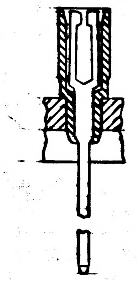
G	REVISED PER TDRR 04790	11-20-63	
H	REVISED PER TDRR 05266	12-17-63	
J	REVISED PER TDRR 05546	27 Dec 63	
K	REVISED PER TDRR 06470	1/15/64	



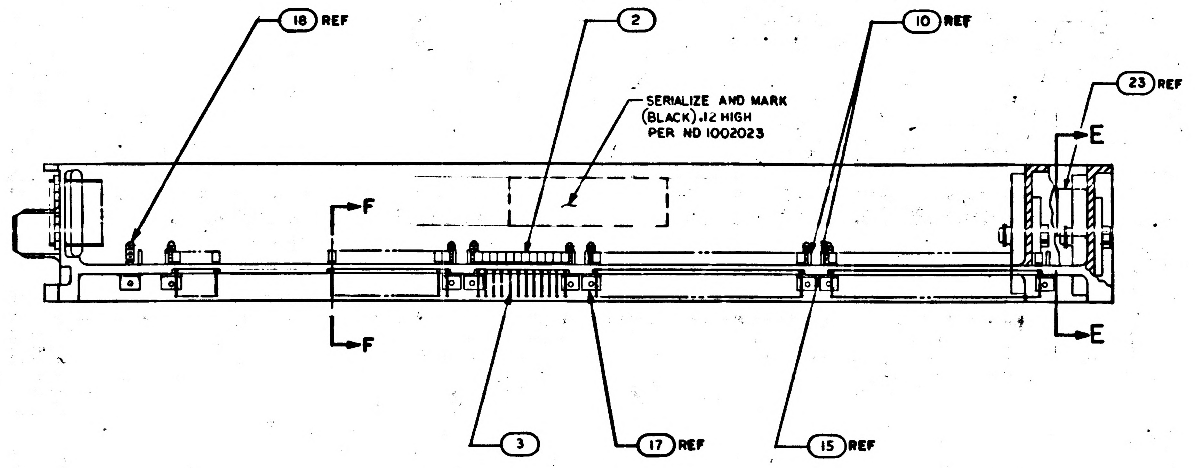
PARTIAL SECTION E-E

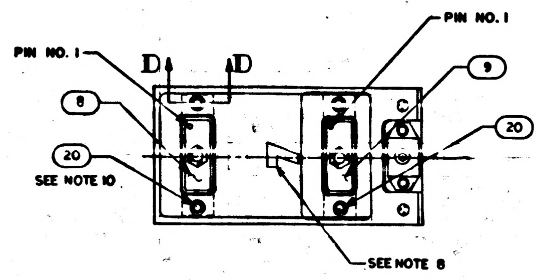


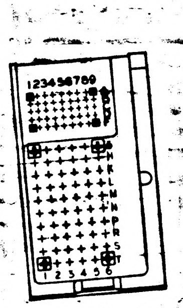
SECTION D-D
SCALE 2/1

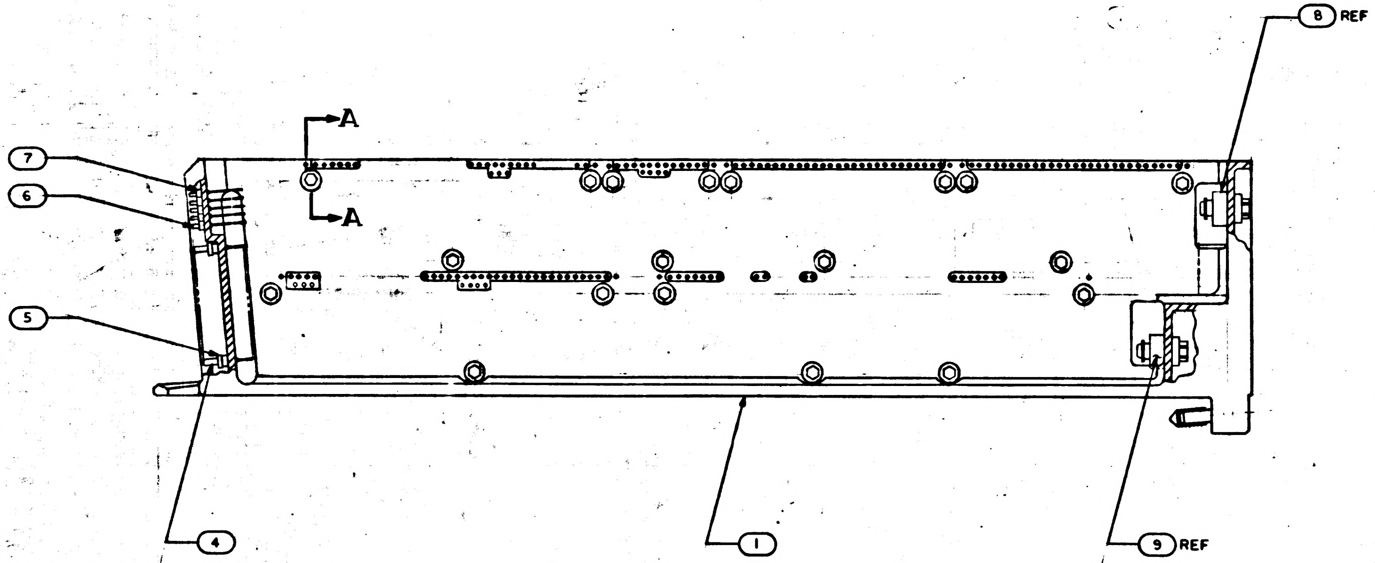


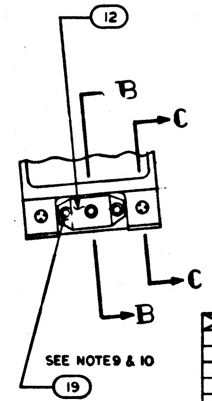
PARTIAL SECTION F-F
143 PLACES









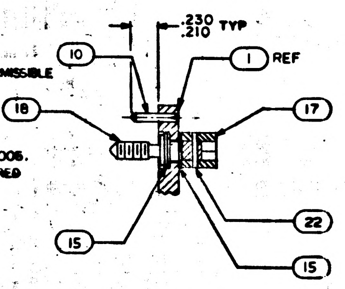


REV F REPLACES REV E

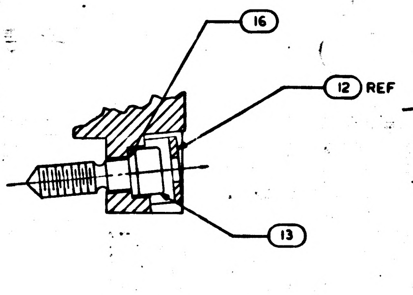
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136.
3. MARK PER ND 1002019
4. BOND FIND NO.23 TO FIND NO.1 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND NASA DWG 1010686
5. BOND FIND NUMBERS 24 25 26 27 AND 28 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO.23
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO.19 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NOS. 19 & 20 TO FIND NO.1 TO BE 5.0/5.5 IN LB
11. ALL NICKEL WIRE HARNESS TERMINATION TO BE WELDED PER ND 1002006. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT

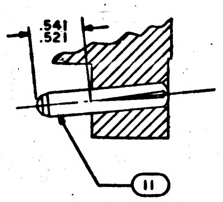
TERMINATION CHART	
FROM	TO
45A7 E9	45A7J1-35
E10	-2
E11	-1
E12	-14
E13	-7
E14	-20
E15	-27
E22	-22
E23	-38



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
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1	1015758	WIRE LIST A A	28
1	1015757	WIRING HARNESS D	27
1	1015756	WIRING HARNESS C	26
1	1015755	WIRING HARNESS B	25
1	1015754	WIRING HARNESS A	24
1	1007092	BUFFER RESISTOR MODULE ASSY	23
19	1008145	PIN, SPRING	22
4	MS 21045 C 04	NUT, SELF-LOCKING HEX	21
4	MS 16995-11	SCREW, CAP, SOCKET HEAD	20
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	19
19	1008095	SCREW, JACK	18
19	1004207	DRIVE CYLINDER	17
1	1008099-2	WASHER	16
38	1004206	WASHER THRUST	15
			14
1	1008098	SCREW, SOCKET HEAD	13
1	1001317	RETAINER, JACK SCREW	12
2	1010620-2	PIN, GUIDE	11
12	1010620-1	PIN, GUIDE	10
1	1010622-2	CONNECTOR, RECEPTACLE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
45	1006775	INSULATOR, WRAPOST, MALE MIN	7
45	1006782-2	CONTACT, WRAPOST, MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
143	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
143	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008107	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007157	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN S Baranig DATE 8/21/63
CHECKED R. P. King
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL W J Rhine 10-8-63
MIT APPROVAL 8 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

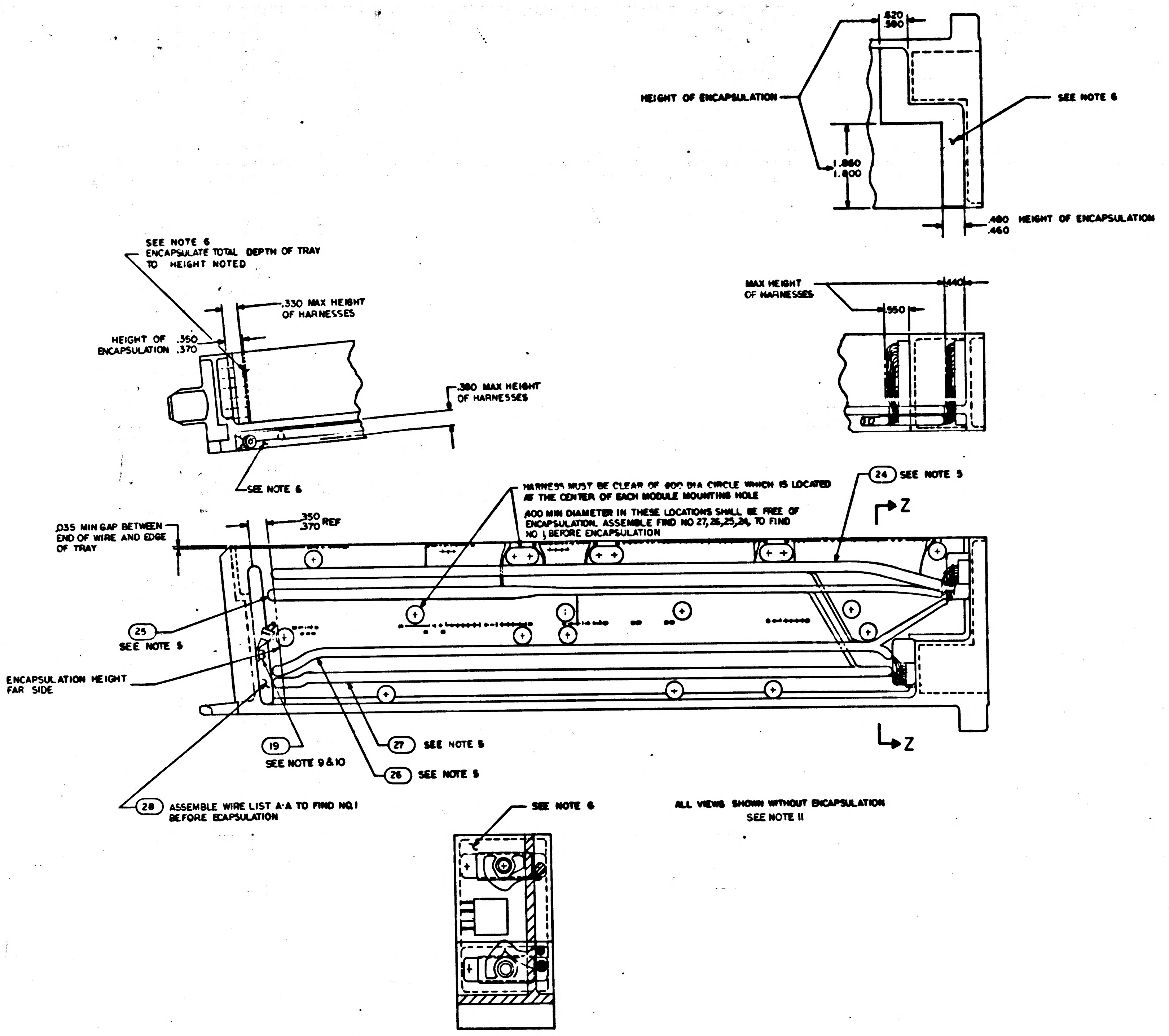
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007147
SCALE 1/1
WT
SHEET 1 OF 2

1007147 K

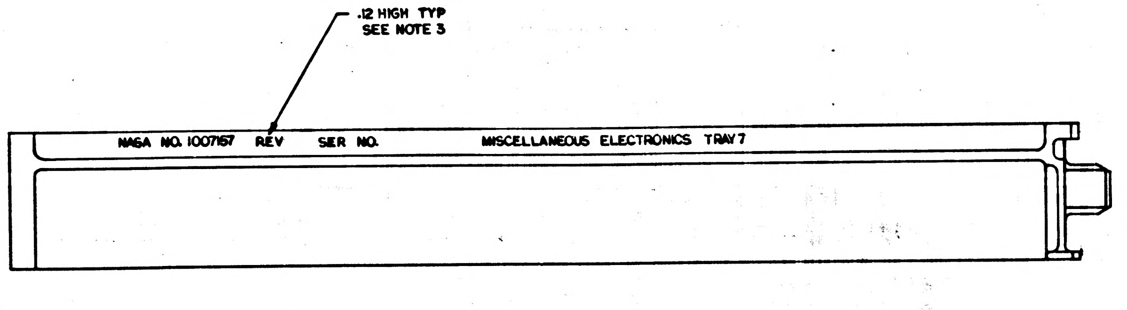
MASTER

INCHES
PHOTOGRAPHIC SCALE ONLY

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
G	THIS SHEET ADDED PER TDRR 04790	9-20-63	
H	REVISED PER TDRR 05266		
J	REVISED PER TDRR 05546	27 DEC 63	EPL
K	REVISED PER TDRR 06470		


HEIGHT OF ENCAPSULATION
.620
.580
SEE NOTE 6
1.860
1.800
.480
.460
HEIGHT OF ENCAPSULATION
MAX HEIGHT OF HARNESSES
.440
.550
SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY
TO HEIGHT NOTED
.330 MAX HEIGHT OF HARNESSES
HEIGHT OF ENCAPSULATION .350 .370
.380 MAX HEIGHT OF HARNESSES
SEE NOTE 6
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 27,26,25,24, TO FIND NO 1 BEFORE ENCAPSULATION
24 SEE NOTE 5
Z
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
25
SEE NOTE 5
ENCAPSULATION HEIGHT FAR SIDE
19
SEE NOTE 9 & 10
27 SEE NOTE 5
26 SEE NOTE 5
Z
28 ASSEMBLE WIRE LIST A-A TO FIND NO. 1 BEFORE ECAPSULATION
SEE NOTE 6
ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11

SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007167 REV SER NO. MISCELLANEOUS ELECTRONICS TRAY 7

MARKING VIEW AFTER ENCAPSULATION

REV G THIS SHEET ADDED

1007147 K

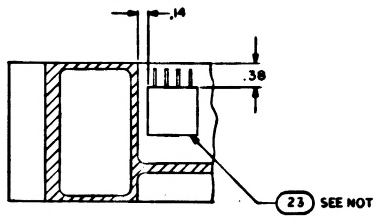
QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

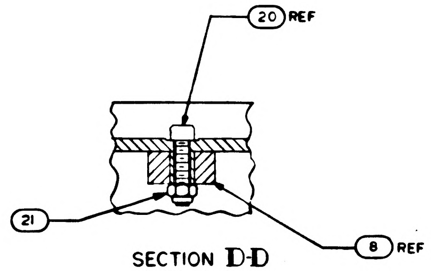
1007141		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ANGLES ± DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN DATE CHECKED APPROVAL APPROVAL	FRAME ASSEMBLY TRAY 7
APPLICATION		HEAT TREATMENT FINAL FINISH	NASA APPROVAL MIT APPROVAL L. Hafelstadt	CODE IDENT NO. SIZE E NASA DRAWING NO. 1007147 SCALE FULL WT SHEET 2 OF 2

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

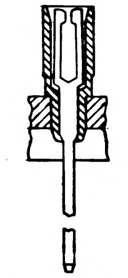
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
F	REVISED PER TDRR 03713		
G	REVISED PER TDRR 04790		
H	REVISED PER TDRR 05266		
J	REVISED PER TDRR 05546	27 DEC 63	
K	REVISED PER TDRR 06470		
L	REVISED PER TDRR 07138		PBR



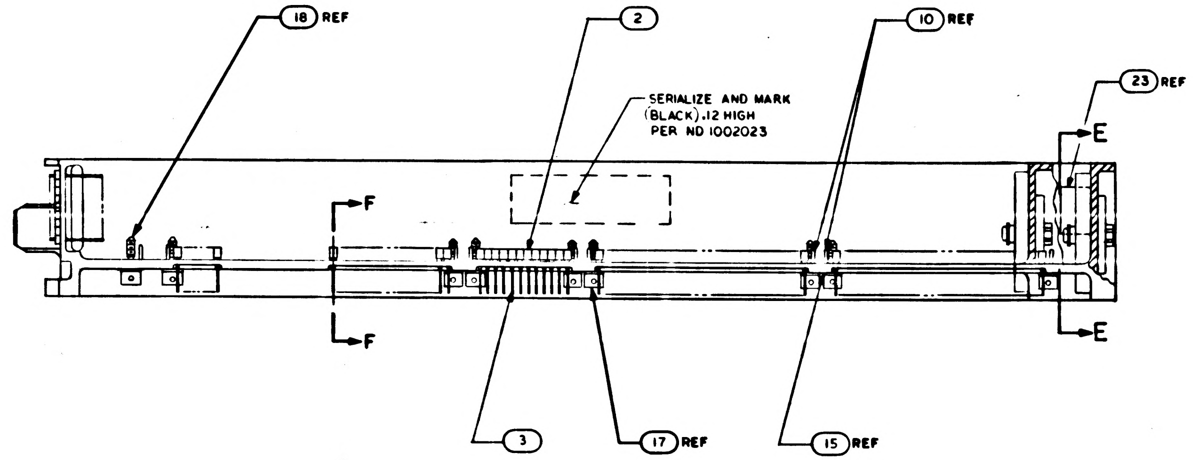
PARTIAL SECTION E-E

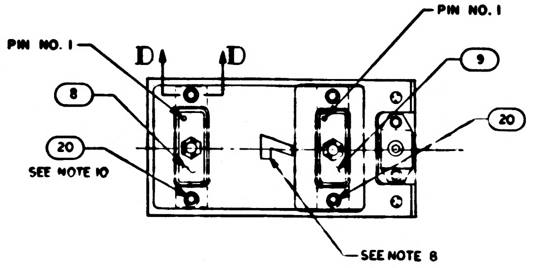


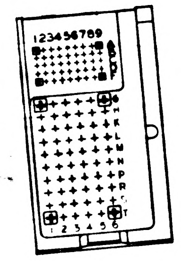
SECTION D-D
SCALE 2/1

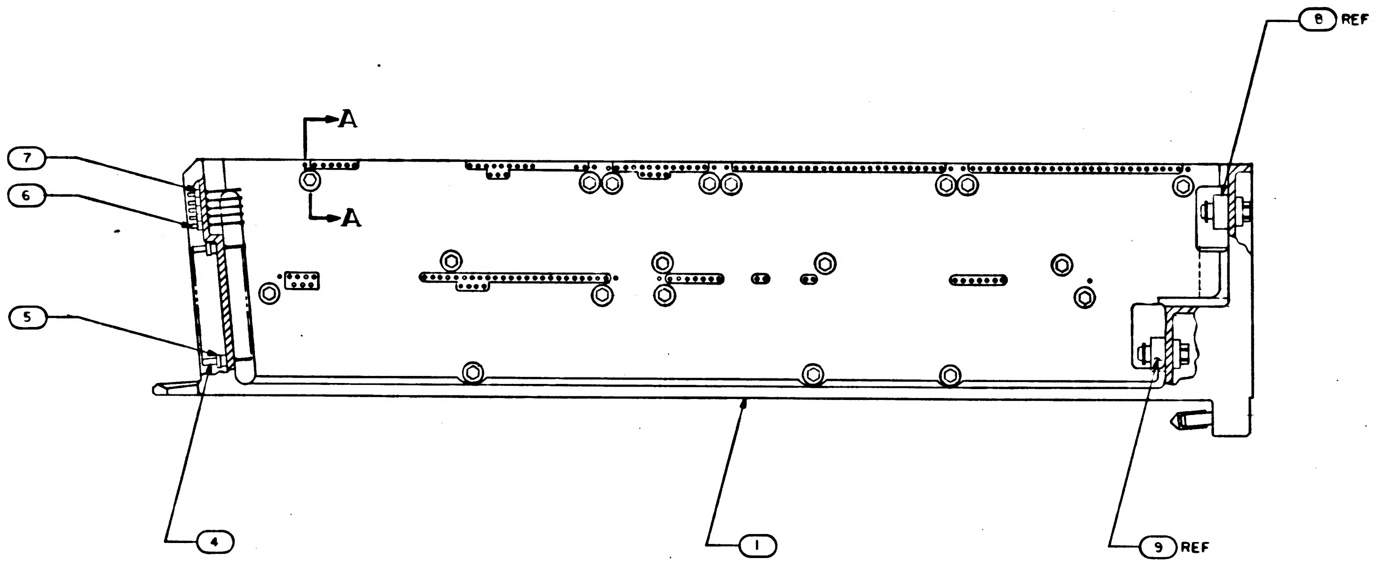


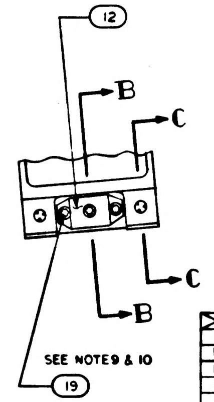
PARTIAL SECTION F-F
143 PLACES











REV F REPLACES REV E

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NO.23 TO FIND NO.1 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND NASA DWG 1010686
5. BOND FIND NUMBERS 24 25 26 27 AND 28 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
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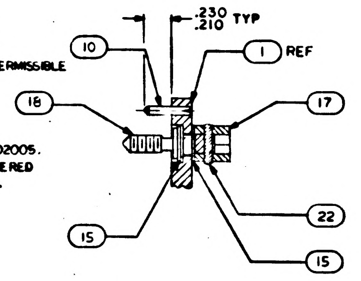
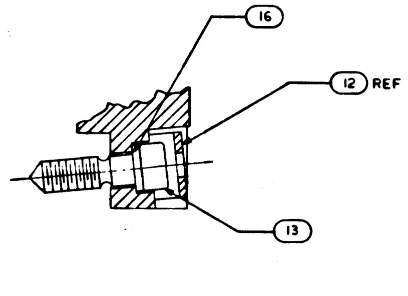
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO.19 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NOS. 19 & 20 TO FIND NO.1 TO BE 5.0/5.5 IN LB
11. ALL NICKEL WIRE HARNESS TERMINATION TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT

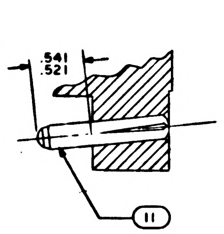
TERMINATION CHART	
FROM	TO
45A7 E9	45A7J1-35
E10	-2
E11	-1
E12	-14
E13	-7
E14	-20
E15	-27
E22	-22
E23	-38



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010097	WIRING DIAGRAM	REF
1	1015758	WIRE LIST A A	28
1	1015757	WIRING HARNESS D	27
1	1015756	WIRING HARNESS C	26
1	1015755	WIRING HARNESS B	25
1	1015754	WIRING HARNESS A	24
1	1007092	BUFFER RESISTOR MODULE ASSY	23
19	MS 171433	PIN, SPRING	22
4	MS 21045 C 04	NUT, SELF-LOCKING HEX	21
4	MS 16995-11	SCREW, CAP, SOCKET HEAD	20
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	19
19	1008095	SCREW, JACK	18
19	1004207	DRIVE CYLINDER	17
1	1008099-2	WASHER	16
38	1004206	WASHER THRUST	15
			14
1	1008098	SCREW, SOCKET HEAD	13
1	1001317	RETAINER, JACK SCREW	12
2	1010620-2	PIN, GUIDE	11
12	1010620-1	PIN, GUIDE	10
1	1010622-2	CONNECTOR, RECEPTACLE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
45	1006775	INSULATOR, WRAPOST, MALE MIN	7
45	1006782-2	CONTACT, WRAPOST, MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
143	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
143	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008107	FRAME	1

LIST OF MATERIALS

1007157	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN S Bonanno DATE 8/21/63
CHECKED
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL W Kupfer 8 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007147
SCALE 1/1
WT
SHEET 1 OF 2

[illegible]

SYM	DESCRIPTION	DATE	APPROVAL
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H	REVISED PER TDRR 05266		
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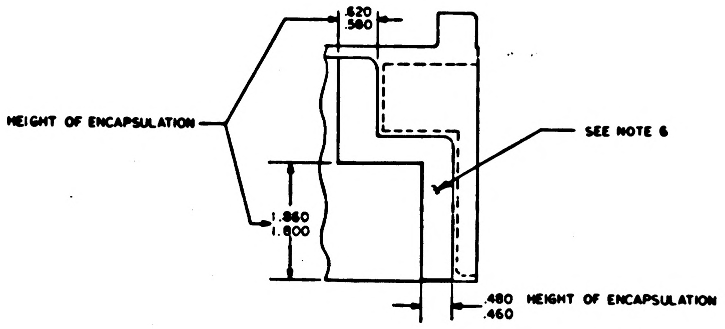
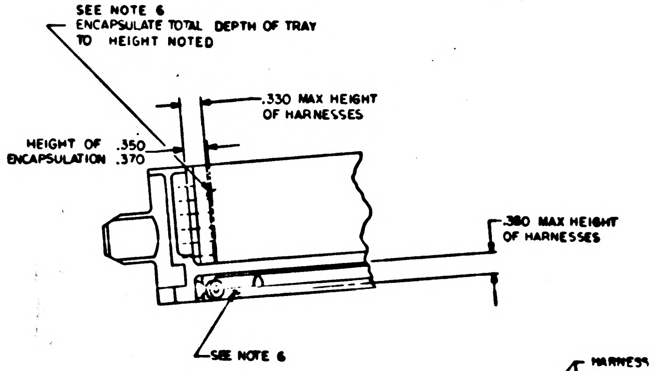
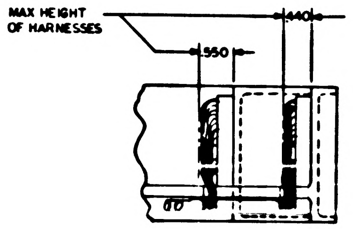
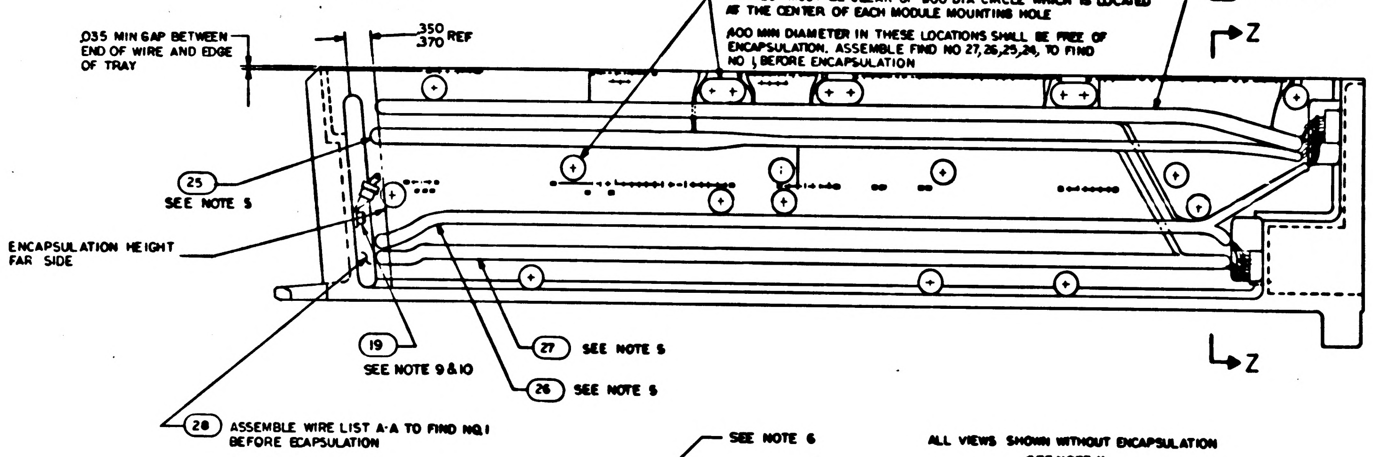
K	REVISED PER TDRR 06470	3/4/64	
L	REVISED PER TDRR 07138	31 MAR 64	J.W.

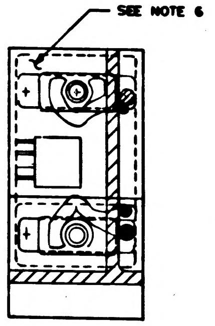

.620
.580
HEIGHT OF ENCAPSULATION
SEE NOTE 6
1.860
1.800
.480
.460
HEIGHT OF ENCAPSULATION


SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY
TO HEIGHT NOTED
.330 MAX HEIGHT OF HARNESSES
HEIGHT OF ENCAPSULATION .350 .370
.380 MAX HEIGHT OF HARNESSES
SEE NOTE 6

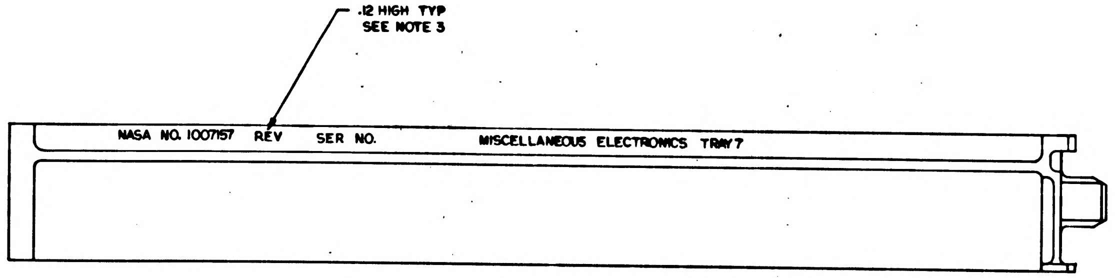

MAX HEIGHT OF HARNESSES
.440
.350


HARNESS MUST BE CLEAR OF .600 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 27, 26, 25, 24, TO FIND NO 1, BEFORE ENCAPSULATION
24 SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
Z
25
SEE NOTE 5
ENCAPSULATION HEIGHT FAR SIDE
19
SEE NOTE 9 & 10
27 SEE NOTE 5
26 SEE NOTE 5
Z
28 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ECAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007157 REV SER NO. MISCELLANEOUS ELECTRONICS TRAY7

MARKING VIEW AFTER ENCAPSULATION

REV G THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007141	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

CODE IDENT NO
SIZE E
NASA DRAWING NO. 1007147
SCALE FULL
WT
SHEET 2 OF 2

SYM	DESCRIPTION	DATE	APPROVAL
REVISIONS			
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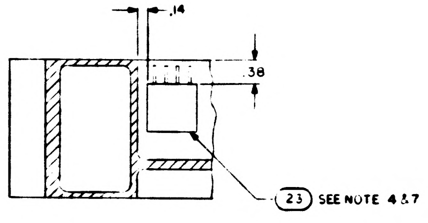
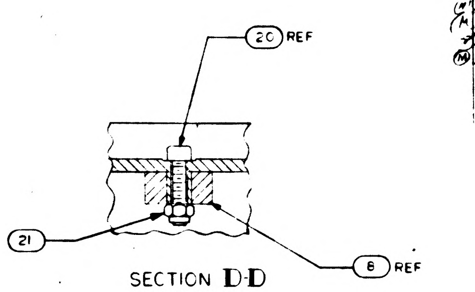
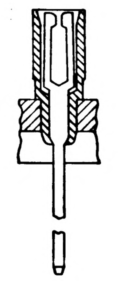
G	REVISED PER TDRR [illegible]	[illegible]	
H	REVISED PER TDRR [illegible]	[illegible]	
J	REVISED PER TDRR 05546	27 DEC 63	
K	REVISED PER TDRR [illegible]	[illegible]	
L	REVISED PER TDRR 07138	31 MAR 64	
M	REVISED PER TDRR 14323	23-NOV-64	



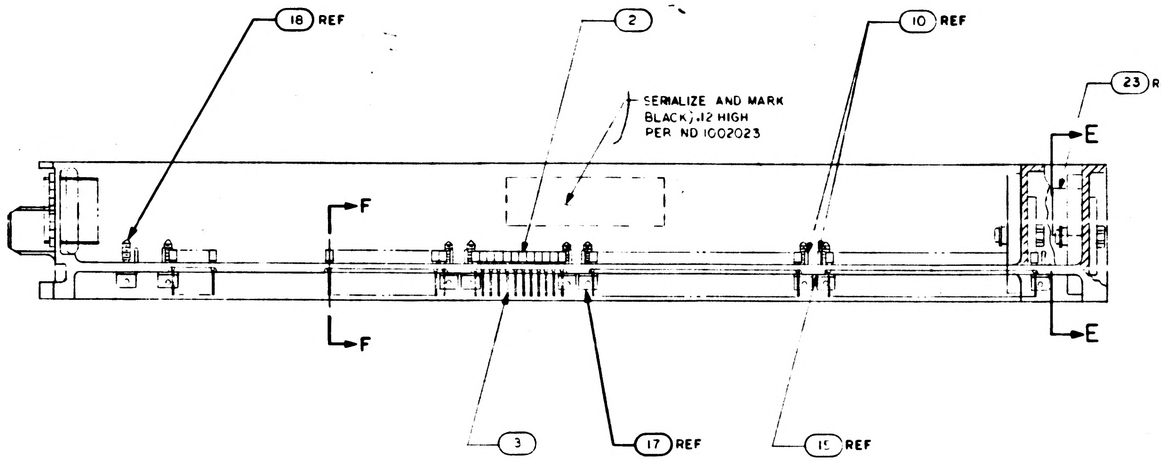
PARTIAL SECTION E-E

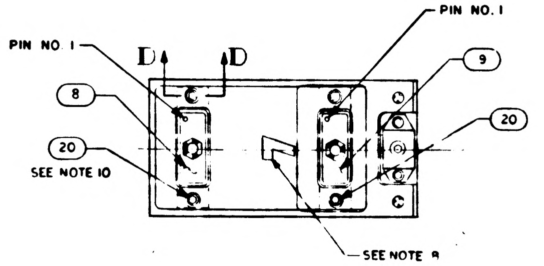


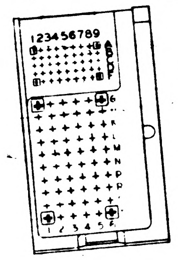
SECTION D-D
SCALE 2/1

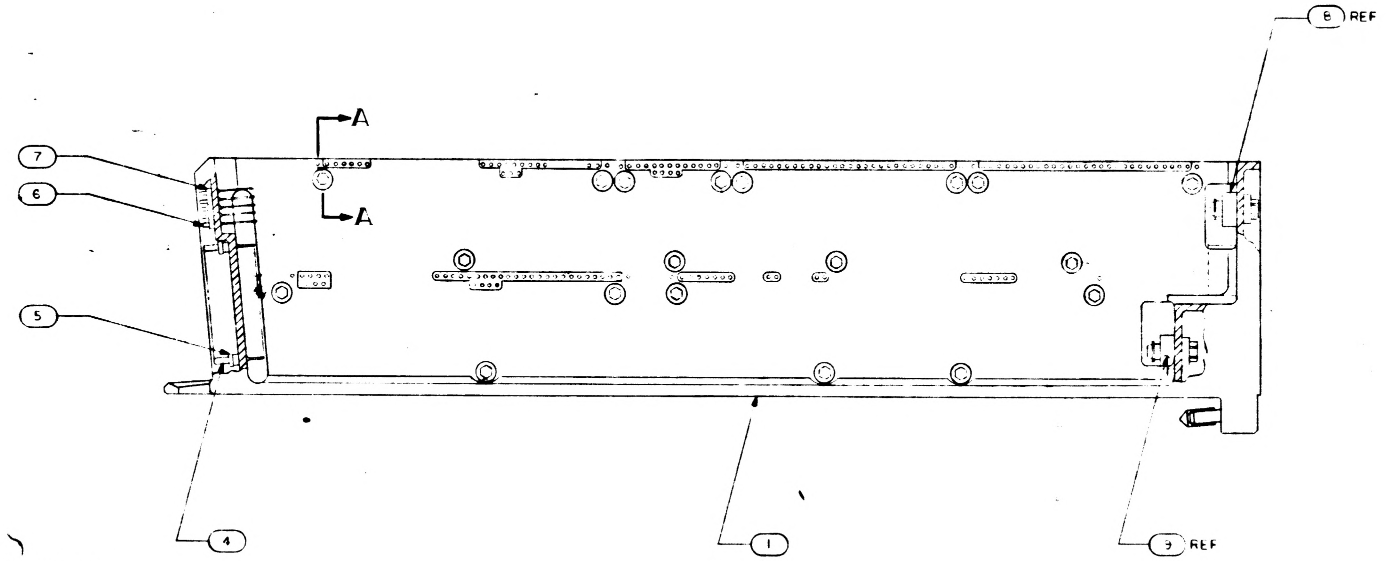


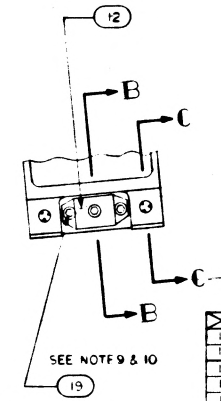
PARTIAL SECTION F-F
143 PLACES







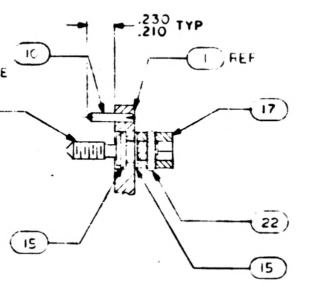




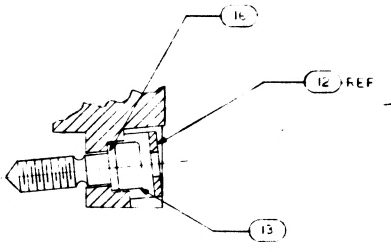
REV F REPLACES REV E

NOTES:

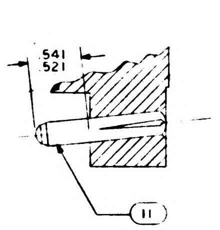
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NO.23 TO FIND NO.1 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND NASA DWG 1010686
5. BOND FIND NUMBERS 24 25 26 27 AND 28 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO.23
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO.19 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NOS. 19 & 20 TO FIND NO.1 TO BE 5.0/5.5 IN LB
11. ALL NICKEL WIRE HARNESS TERMINATION TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A7 E9	45A7J1-35
E 10	-2
E 11	-1
E 12	-14
E 13	-7
E 14	-20
E 15	-27
E 22	-22
E 23	-38

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	[illegible]	WIRING DIAGRAM	REF
1	[illegible]	WIRE LIST A A	28
1	[illegible]	WIRING HARNESS D	27
1	[illegible]	WIRING HARNESS C	26
1	[illegible]	WIRING HARNESS B	25
1	[illegible]	WIRING HARNESS A	24
1	1007092	BUFFER RESISTOR MODULE ASSY	23
19	MS 171433	PIN, SPRING	22
4	MS 21045 C 04	NUT, SELF-LOCKING HEX	21
4	MS 16995-11	SCREW, CAP, SOCKET HEAD	20
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	19
19	1008095	SCREW, JACK	18
19	1004207	DRIVE CYLINDER	17
1	1008099-2	WASHER	16
38	1004206	WASHER THRUST	15
			14
1	1008098	SCREW, SOCKET HEAD	13
1	1001317	RETAINER, JACK SCREW	12
2	1010620-2	PIN, GUIDE	11
12	1010620-1	PIN, GUIDE	10
1	1010622-2	CONNECTOR, RECEPTACLE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
45	1006775	INSULATOR, WRAPOST, MALE MIN	7
45	1006782-2	CONTACT, WRAPOST, MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
143	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
143	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008107	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007157	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
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CAMBRIDGE MASS
DWG NO Contract NAS 9-497
DRAWN DATE 8/21/63
CHECKED
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

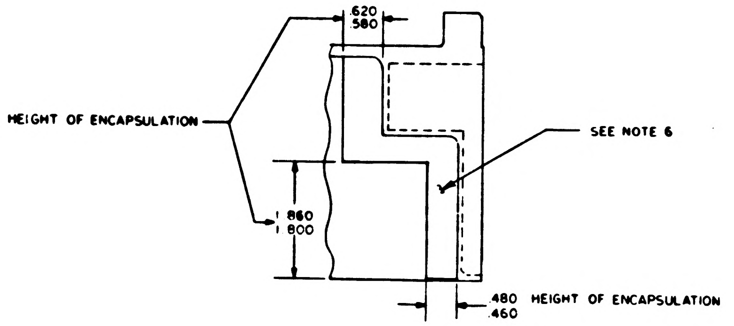
FRAME ASSEMBLY
TRAY 7

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007147
SCALE 1/1
WT
SHEET 1 OF 2

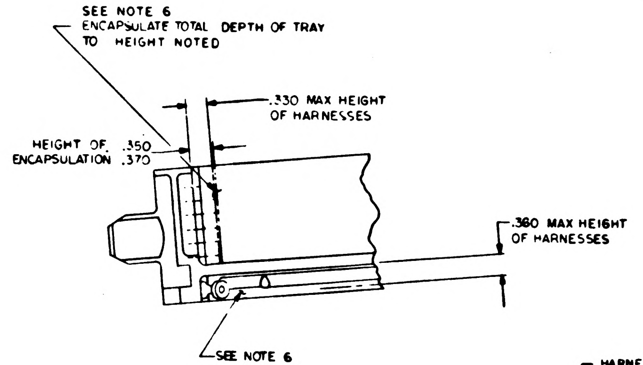
1007147 M

[illegible]

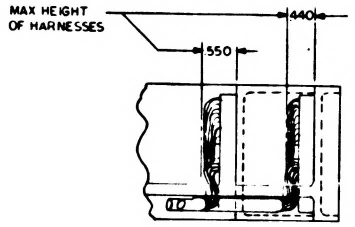
SYM	DESCRIPTION	DATE	APPROVAL
G	THIS SHEET ADDED PER TDRR 04790	20 63	[illegible]
H	REVISED PER TDRR 05266	[illegible]	[illegible]
J	REVISED PER TDRR 05546	[illegible]	PPF
K	REVISED PER TDRR [illegible]	[illegible]	[illegible]
L	REVISED PER TDRR 07138	3 MAR 64	J.W.C.
M	REVISED PER TDRR 14323	23 NOV -64	[illegible]



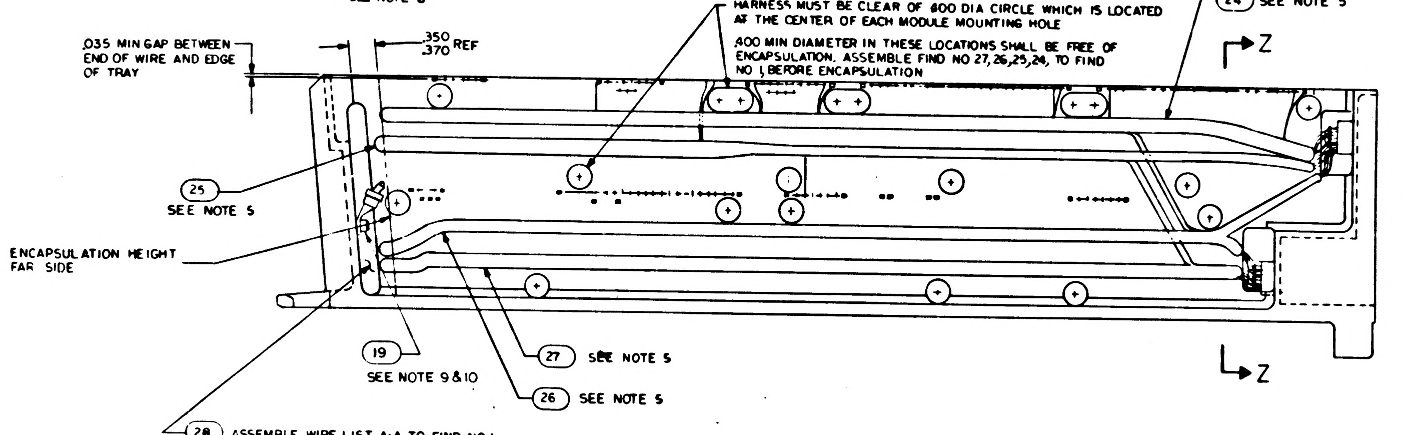
.620
.580
HEIGHT OF ENCAPSULATION
SEE NOTE 6
1.860
1.800
.480 HEIGHT OF ENCAPSULATION
.460



SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY
TO HEIGHT NOTED
.330 MAX HEIGHT
OF HARNESSES
HEIGHT OF .350
ENCAPSULATION .370
.380 MAX HEIGHT
OF HARNESSES
SEE NOTE 6



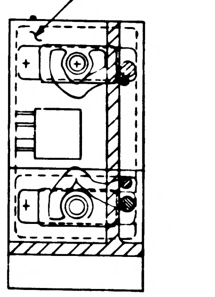
MAX HEIGHT
OF HARNESSES
.440
.550



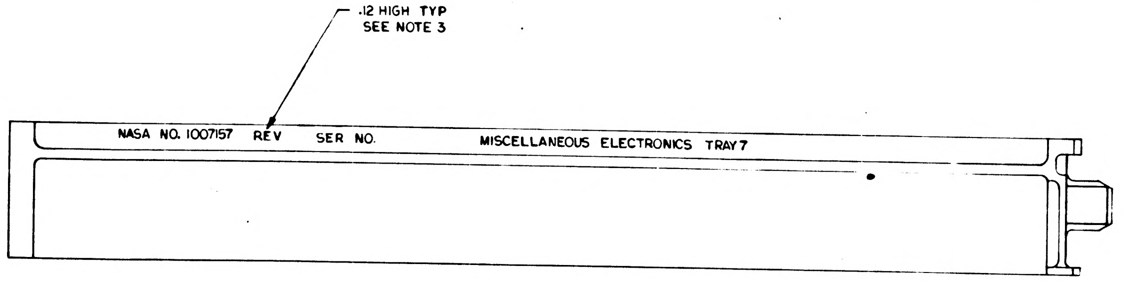
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 27,26,25,24, TO FIND NO 1 BEFORE ENCAPSULATION
24 SEE NOTE 5
Z
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
25
SEE NOTE 5
ENCAPSULATION HEIGHT FAR SIDE
19
SEE NOTE 9 & 10
27 SEE NOTE 5
26 SEE NOTE 5
Z

28 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ECAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z



.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007157 REV SER NO. MISCELLANEOUS ELECTRONICS TRAY 7

MARKING VIEW AFTER ENCAPSULATION

REV G THIS SHEET ADDED

1007147 M

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007141	
NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
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CAMBRIDGE MASS
Contract NAS 9-4065
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible] 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

CODE IDENT NO | SIZE E | NASA DRAWING NO 1007147
SCALE FULL | WT | SHEET 2 OF 2

1007147

REVISIONS TDRR 01550				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL

	PART NO.	DESCRIPTION	REQD.
	1008107	Frame Tray 7	1
	1006774	Insulator, Wrapost, Female Miniature	240
	1006781-2	Contact, Wrapost, Female Miniature	240
	1010382-1	Contact, Blade Edge Connector	84
	1010383	Insulator, Wrapost, Male	84
*	ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female Receptacle	1

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

1007157	
NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES

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INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED	B. R. Trest	6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE

FRAME ASSEMBLY,
TRAY 7

SCALE	UNIT WT.	CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.

DWG. NO.

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

NASA DRAWING NO.
1007147

SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

APOLLO G&N Specification
PS-1007147
30 April 1964
Class A Release
TDRR 08054

PROCUREMENT SPECIFICATION
FOR
FRAME ASSEMBLY TRAY 7

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION
FOR
FRAME ASSEMBLY TRAY 7

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 7 for use in APOLLO Guidance and Navigation equipment.

30 Apr 64
MIT/IL DATE

4/30/64
NASA/MSC DATE

PROCUREMENT SPECIFICATION
FOR
FRAME ASSEMBLY TRAY 7

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 7, Drawing 1007147, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. - The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007147	Final Test Method for Frame Assembly Tray 7

DRAWINGS

APOLLO G&N

1007147	Frame Assembly Tray 7
1015754	Wiring Harness A Tray 7 (For Reference Only)
1015755	Wiring Harness B
1015756	Wiring Harness C
1015757	Wiring Harness D
1015758	Wire List A-A

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007148

REVISIONS TDRR 01580

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	DT. WK

PART NO.	DESCRIPTION	REQD.
1008108	Frame, Tray 8	1
1006774	Insulator, Wrapost, Female Miniature	233
1006781-2	Contact, Wrapost, Female Miniature	233
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1
1010620-1	Pin, Guide	22
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	24
1008098	Screw, Socket Head, Externally Relieved Body	1
1008099-1	Washer (Special)	24
1008099-2	Washer (Special)	1
1008092	Washer (Special)	24
MS 16624-15	Ring, Retaining	24
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
1007158	

APPLICATION

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NAS 9-153

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APPROVED	B. R. Test	6-14-63
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APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
	14 Jul 63

FRAME ASSEMBLY,
TRAY 8

SCALE	UNIT WT.	CODE IDENT.

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NASA DRAWING NO.
1007148

SHEET 1 OF 1

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APOLLO G&N Specification
PS-1007148 A
30 April 1964

Class A Release
TDRR 08054

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY NO. 8

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
8-18-64	A	11692	1,2	WK	WJR

This specification consists of page i to iii and 1 to 2 inclusive.

APOLLO G&N Specification
PS-1007148 A
30 April 1964

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY NO. 8

This document describes the requirements and procedures for the procurement of the Frame Assembly Tray No. 8 to be used in the APOLLO Guidance and Navigation Equipment.

WKupfer 30 Apr 64
MIT/IL DATE

4/30/64
NASA/MSC DATE

APOLLO G&N Specification
PS1007148 A

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 8

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 8, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007148	Final Test Method for Frame Assembly Tray 8

DRAWINGS

APOLLO G&N

1007148	Frame Assembly Tray 8
1007168	Frame Assembly Tray 8

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

APOLLO G&N Specification
PS-1007148
30 April 1964
Class A Release
TDRR [illegible]

PROCUREMENT SPECIFICATION
FOR
FRAME ASSEMBLY TRAY NO. 8

Record of Revisions

Ⓜ

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
[illegible]	[illegible]	[illegible]	[illegible]	WK	WJR

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION
FOR
FRAME ASSEMBLY TRAY 8

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 8, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007148	Final Test Method for Frame Assembly Tray 8

DRAWINGS

APOLLO G&N

1007148	Frame Assembly Tray 8
1007168	Frame Assembly Tray 8

3. REQUIREMENTS

3.1 GENERAL SPECIFICATION. Unless otherwise specified, all of the requirements of Specification ND-1002210 shall apply as requirements of this specification.

3.2 DESCRIPTION. The tray is to be used in the Power and Servo Assembly as a mounting frame and as an interconnection for the modules used in the Optical Electronics Assembly.

3.3 FUNCTIONAL REQUIREMENTS

3.3.1 Insulation Resistance Test. The insulation resistance test shall be conducted from each individual connector pin, with the exception of R5 of connector 45A8-P1, to the frame assembly. The resistance from each connector pin to the assembly frame shall be equal to or greater than 100 megohms.

3.3.2 Continuity and DC Resistance and Shorting. The continuity and dc resistance and shorts test shall be as specified in JDC 09818 of FTM1007148.

3.4 PERFORMANCE AND PRODUCT CHARACTERISTICS

3.4.1 Service Life

3.4.1.1 Operating Life. The assembly shall meet performance specifications for at least 2000 hours of operation, excluding the supplier's test time of the completed unit.

3.4.1.2 Shelf Life. The assembly shall be packaged as specified in MIL-P-116, Method 2, and shall have a shelf life of at least 5 years, without operation, at ambient room temperature after final acceptance at the supplier's facility.

3.4.2 Reliability. Design objectives require maximum reliability of the assembly during its period of useful life. Every effort shall be made to design and produce units capable of meeting a maximum failure rate of 0.2 failures per million hours.

1007148

REVISIONS TDRR 01580				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	ST. WK
	B	REVISED PER TDRR 02705	8/21/63	

PART NO.	DESCRIPTION	REQD.
1008108	Frame, Tray 8	1
1006774	Insulator, Wrapost, Female Miniature	233
1006781-2	Contact, Wrapost, Female Miniature	233
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1
1010620-1	Pin, Guide	22
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	24
1008098	Screw, Socket Head, Externally Relieved Body	1
1008099-1	Washer (Special)	24
1008099-2	Washer (Special)	1
1008092	Washer (Special)	24
MS 16624-15	Ring, Retaining	24
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

1007158	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES

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NAS 9-153

		DATE
APPROVED	S. A. Test	6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
	6-14-63

FRAME ASSEMBLY,

TRAY 8

SCALE	UNIT WT.	CODE IDENT.

MIT
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LABORATORY
CAMBRIDGE, MASS.

DWG. NO.

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

NASA DRAWING NO.
1007148

SHEET 1 OF 1

INCHES
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APOLLO G&N Specification
PS1007148 B
30 April 1964

Class A Release
TDRR 08054

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY NO. 8

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 8/18/64	A	[illegible]	[illegible]	WK	WJR
2/9/65	B	16245	1	WK	WJR

This specification consists of page i
to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 8

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 8, hereafter called the assembly.

1.2 CLASSIFICATION. The requirements for Part Numbers 1007148, 1007168, 1021218-011 and 1007448-011 shall be designated as Type I.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007148	Final Test Method for Frame Assembly Tray 8

DRAWINGS

APOLLO G&N

1007148	Frame Assembly Tray 8
1007168	Frame Assembly Tray 8
1007448	Frame Assembly Tray 8
1021218	Frame Assembly Tray 8

1007148

REVISIONS TCRR 01580

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	
	B	REVISED PER TDRR 02705	8/24/63	
	C	REVISED PER TDRR 02872	8-24-63	

PART NO.	DESCRIPTION	REQD.
1008108	Frame, Tray 8	1
1006774	Insulator, Wrapost, Female Miniature	233
1006781-2	Contact, Wrapost, Female Miniature	233
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	22
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	24
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	48
1008099-2	Washer (Special)	1
1004207	Drive Cylinder	24
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45
1008145	Pin, Spring	24

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

1007158	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES

DO NOT SCALE THIS DRAWING

MATERIAL:

MIT
INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED		6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC

MIT/IL APPROVAL DATE

FRAME ASSEMBLY,
TRAY 8

SCALE UNIT WT. CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.

DWG. NO.

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

NASA DRAWING NO.
1007148

SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007148

REVISIONS TDRR 01580

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	DT. WK
	B	REVISED PER TDRR 02705	8/21/63	
	C	REVISED PER TDRR 02872	9-24-63	
	D	SUPERSEDED PER TDRR 03723	10-9-63	WK

PART NO.	DESCRIPTION	REQD.
1008108	Frame, Tray 8	1
1006774	Insulator, Wrapost, Female Miniature	233
1006781-2	Contact, Wrapost, Female Miniature	233
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	22
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	24
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	48
1008099-2	Washer (Special)	1
1004207	Drive Cylinder	24
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45
1008145	Pin, Spring	24

REV D REPLACED BY REV E

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
1007158	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES

DO NOT SCALE THIS DRAWING

MATERIAL:

MIT
INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED	A. R. Test	6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
	6-14-63

FRAME ASSEMBLY,
TRAY 8

SCALE	UNIT WT.	CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.

DWG. NO.

MANNED
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HOUSTON TEXAS

NASA DRAWING NO.
1007148

SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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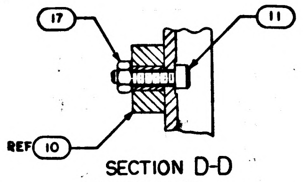
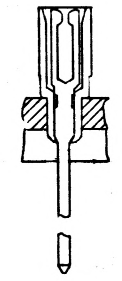
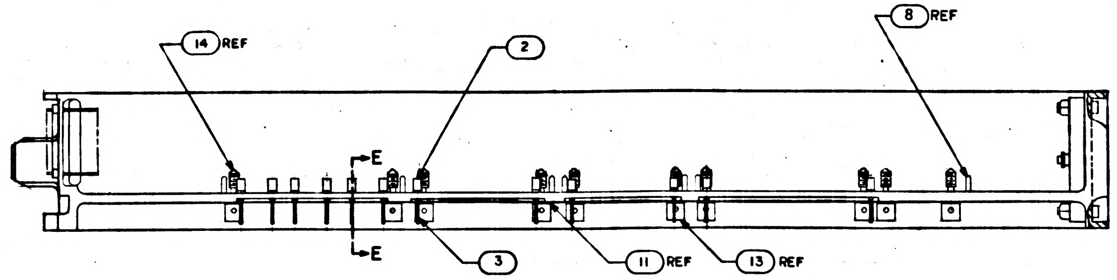
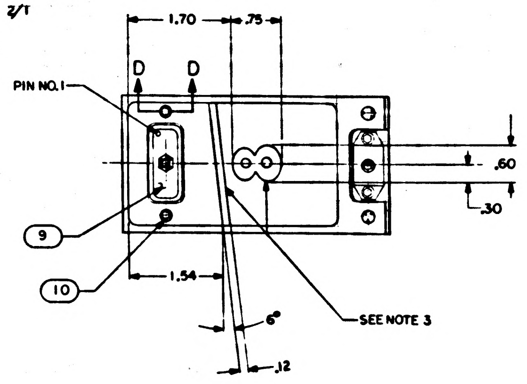


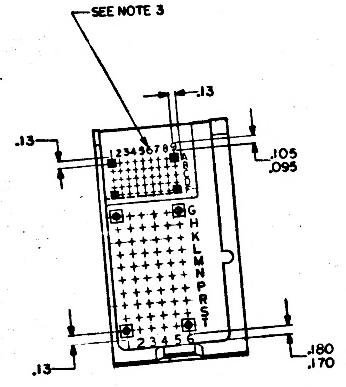
SECTION D-D
SCALE 2/1

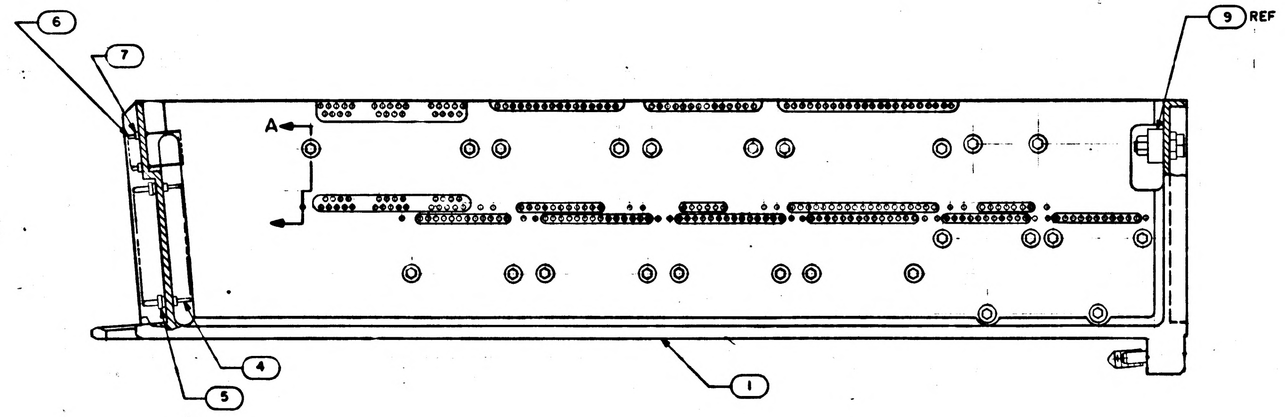


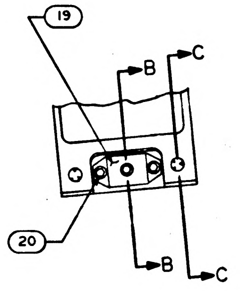
PARTIAL SECTION E-E
226 PLACES











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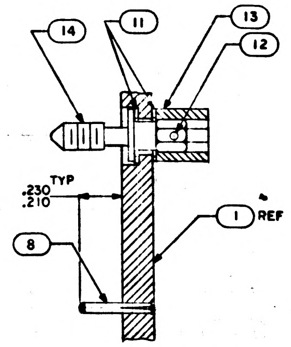
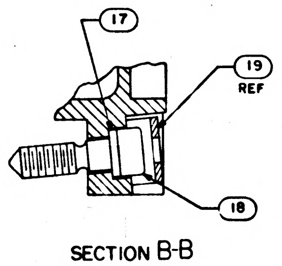
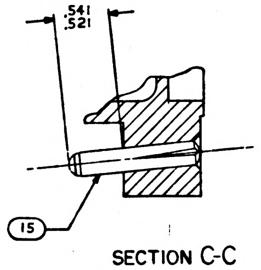


SECTION A-A
SCALE 3/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2 3 4 5 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010098	WIRING DIAGRAM	REF
2	MS16995-10	SCREW CAP SOCKET HEAD	20
1	1001317	RETAINER, JACK SCREW	19
1	1008098	SCREW, SOCKET HEAD	18
1	1008099-2	WASHER	17
2	MS 21045 C 04	NUT SELF-LOCKING HEX	16
2	1010620-2	PIN, GUIDE	15
24	1008095	SCREW, JACK	14
24	1004207	DRIVE CYLINDER	13
24	1008145	PIN SPRING	12
48	1004206	WASHER, THRUST	11
2	MS16995-11	SCREW, CAP, SOCKET HEAD	10
1	1010622-1	CONNECTOR RECEPTACLE	9
22	1010620-1	PIN GUIDE	8
45	1006775	INSULATOR, WRAPOST MALE MIN	7
45	1006782-2	CONTACT WRAPOST MALE MIN	6
60	1010383	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT BLADE EDGE CONN	4
226	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
226	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008108	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007158	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN DATE 8/29/63
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL 10-9-63
MIT APPROVAL 10/8/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 8

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007148
SCALE 1/1 WT SHEET 1 OF 1

1007148 E

MASTER

INCHES
PHOTOGRAPHIC SCALE ONLY

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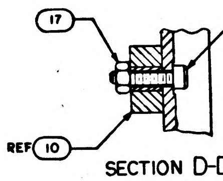
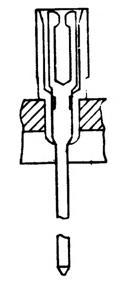
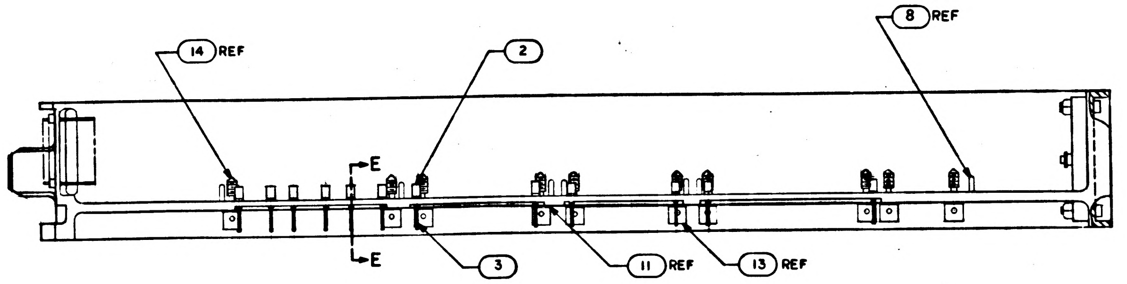
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR 05773	9-9-63	
F	REVISED PER TDRR 04791	11-20-63	

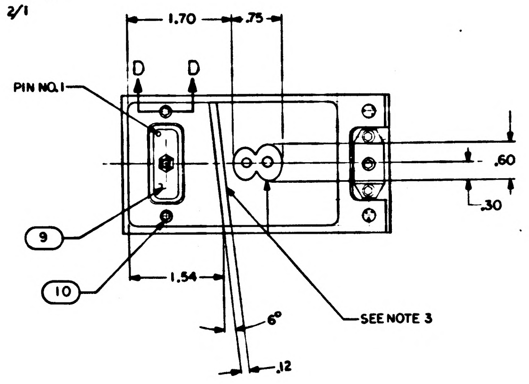


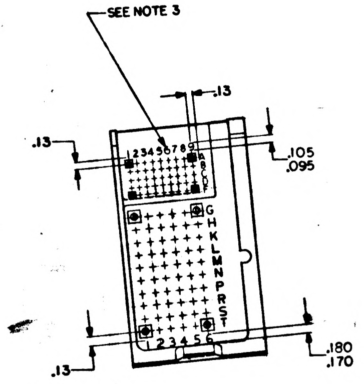
SECTION D-D
SCALE 2/1

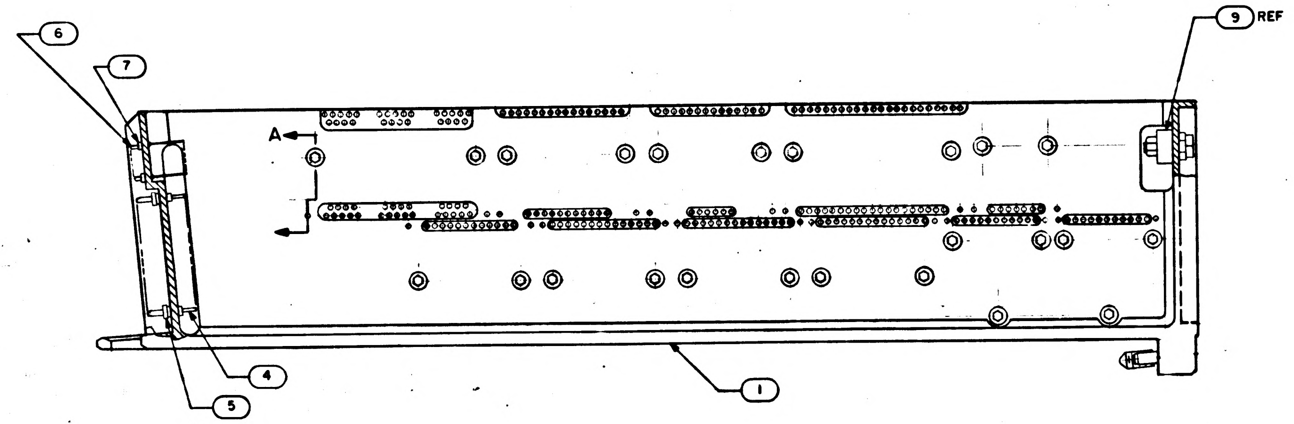


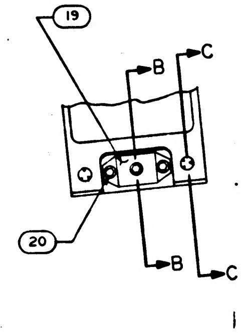
PARTIAL SECTION E-E
226 PLACES







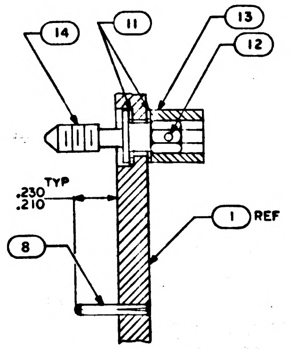




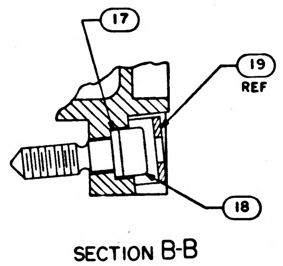
REV E REPLACES REV D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010098	WIRING DIAGRAM	REF
1	1015748	WIRE LIST A A	26
1	1015747	WIRING HARNESS E	25
1	1015746	WIRING HARNESS D	24
1	1015745	WIRING HARNESS C	23
1	1015744	WIRING HARNESS B	22
1	1015743	WIRING HARNESS A	21
2	MS16995-10	SCREW CAP SOCKET HEAD	20
1	1001317	RETAINER. JACK SCREW	19
1	1008098	SCREW, SOCKET HEAD	18
1	1008099-2	WASHER	17
2	MS 21045 C 04	NUT SELF-LOCKING HEX	16
2	1010620-2	PIN.GUIDE	15
24	1008095	SCREW. JACK	14
24	1004207	DRIVE CYLINDER	13
24	1008145	PIN SPRING	12
48	1004206	WASHER, THRUST	11
2	MS16995-11	SCREW. CAP. SOCKET HEAD	10
1	1010622-1	CONNECTOR RECEPTACLE	9
22	1010620-1	PIN GUIDE	8
45	1006775	INSULATOR.WRAPOST MALE MIN	7
45	1006782-2	CONTACT WRAPOST MALE MIN	6
60	1010383	INSULATOR, WRAPOST. MALE	5
60	1010382-1	CONTACT BLADE EDGE CONN	4
226	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
226	1006774	INSULATOR, WRAPOST. FEMALE MIN	2
1	1008108	FRAME	1

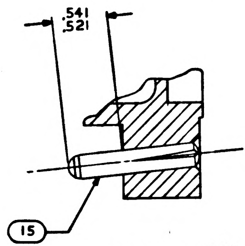
LIST OF MATERIALS



SECTION A-A
SCALE 3/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2 3 4 5 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME

MASTER

1007158	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
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INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO.
CONTRACT
DRAWN DATE 8/29/63
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL 10-9-63
MIT APPROVAL 9/10/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 8

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007148
SCALE 1/1
WT
SHEET 1 OF 2

INCHES
PHOTOGRAPHIC SCALE ONLY

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REVISIONS			
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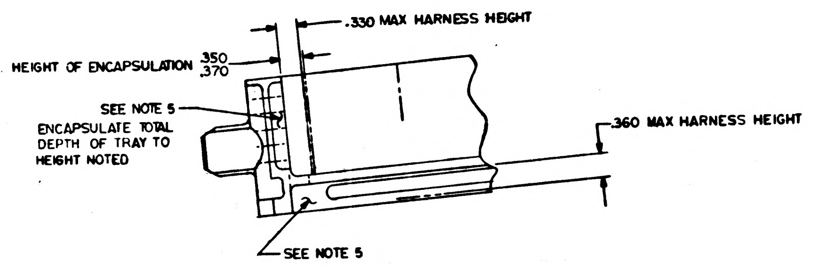
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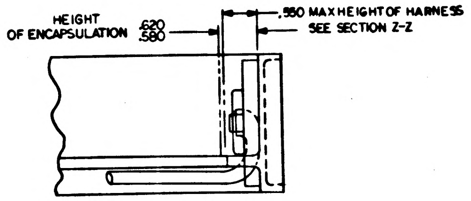
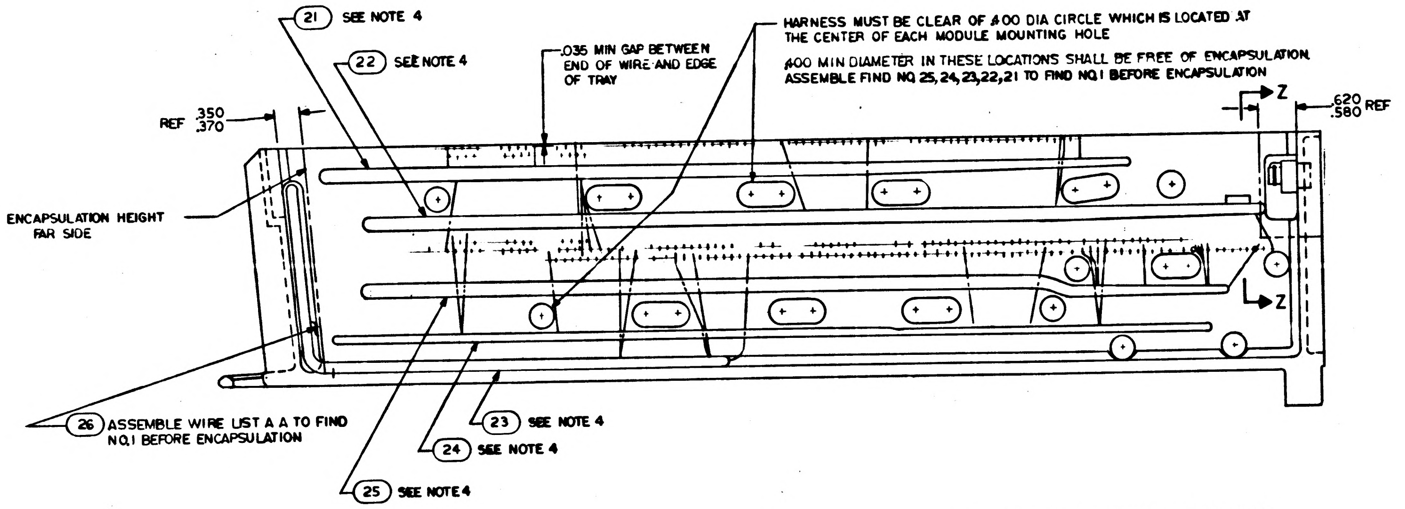
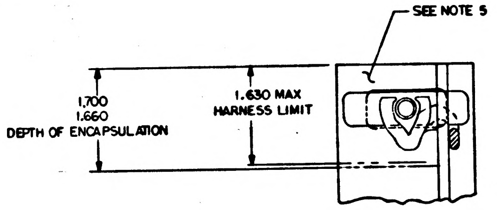
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5


HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z


21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF ⌀.400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
⌀.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION
ASSEMBLE FIND NO 25, 24, 23, 22, 21 TO FIND NO.1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO.1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION


SEE NOTE 5
1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z

REV F THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007158	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
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MATERIAL
HEAT TREATMENT
FINAL FINISH

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INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO.
CONTRACT NAS 9-4?7
DRAWN J. Crowley DATE
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRAME ASSEMBLY TRAY 8

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007148
SCALE 1/1
WT
SHEET 2 OF 2

1007148 F

INCHES
PHOTOGRAPHIC SCALE ONLY

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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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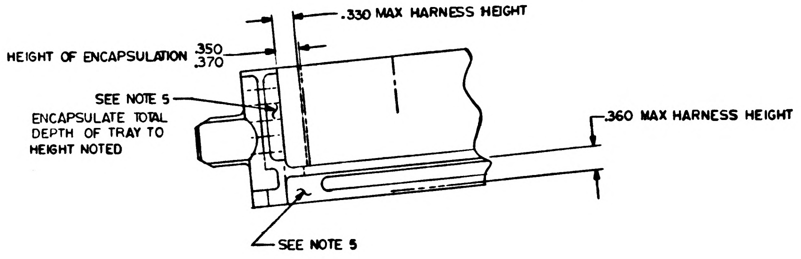
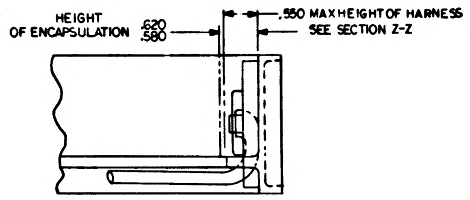
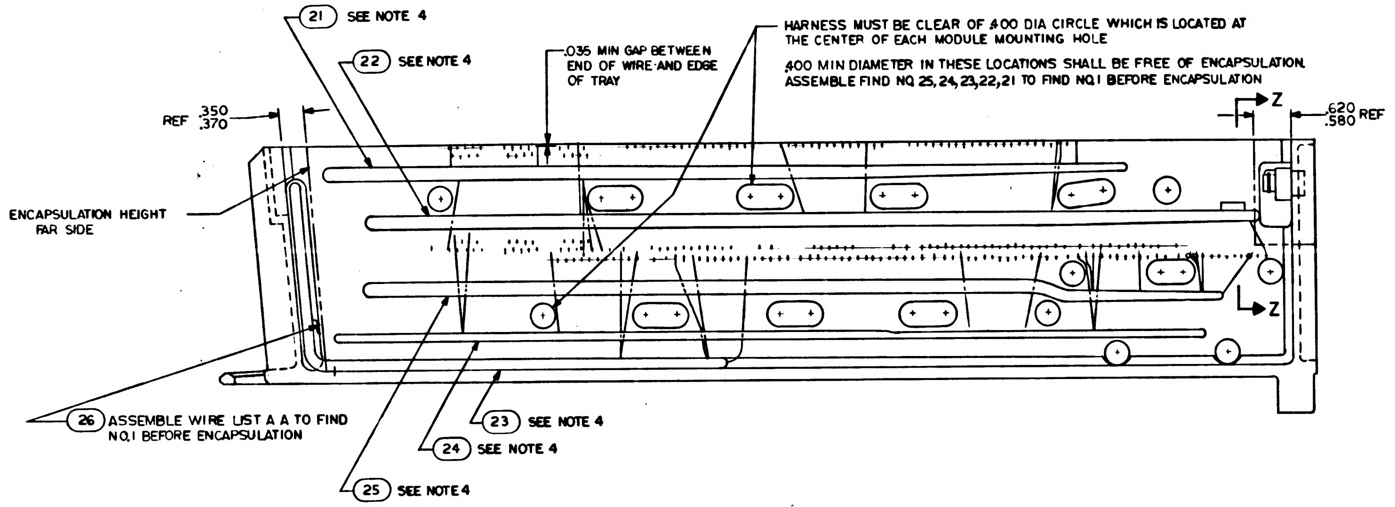
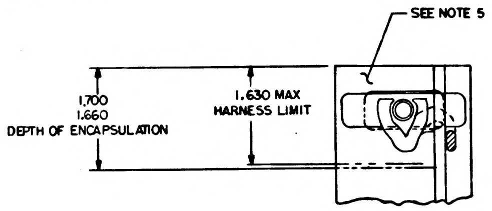
G	REVISED PER TDRR 05546	30 Jan 64	2-4


.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5


HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z


21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION.
ASSEMBLE FIND NO. 25, 24, 23, 22, 21 TO FIND NO.1 BEFORE ENCAPSULATION
REF .350 .370
Z
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
26 ASSEMBLE WIRE LIST A A TO FIND NO.1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION


SEE NOTE 5
1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z

REV F THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007158	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT NAS 9-497
DRAWN J. Gooley DATE
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

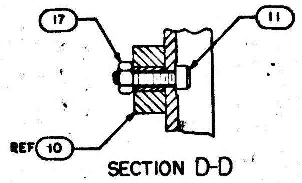
FRAME ASSEMBLY
TRAY 8

CODE IDENT NO.	SIZE	NASA DRAWING NO.
	E	1007148

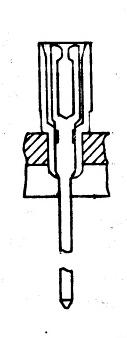
SCALE 1/1
WT
SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

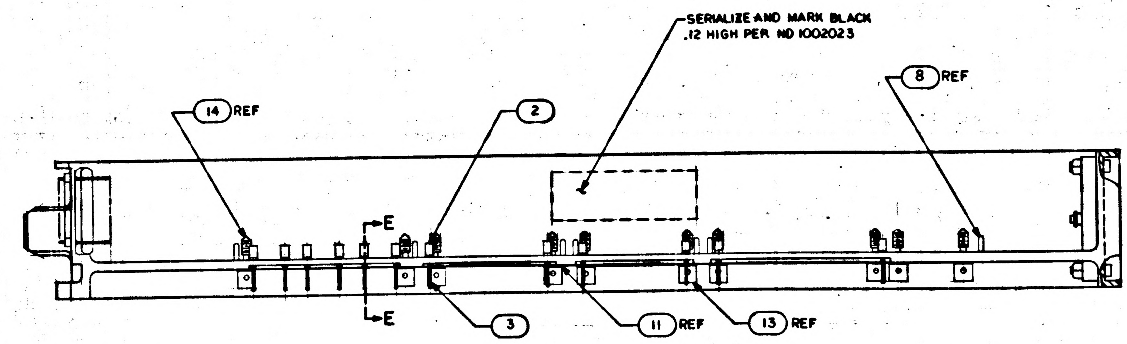
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR 05773	9-9-63	WK
F	REVISED PER TDRR 04791	11-20-63	
G	REVISED PER TDRR 05546		WK
H	REVISED PER TDRR 06476	4/11/64	WK

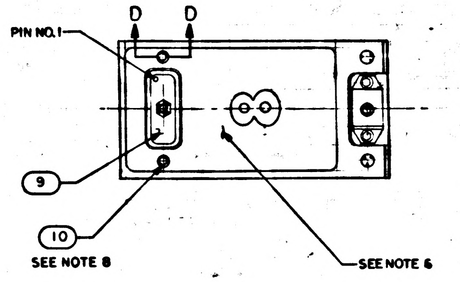


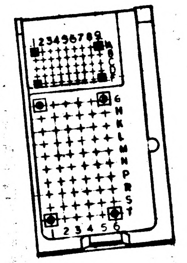
SECTION D-D
SCALE 2/1

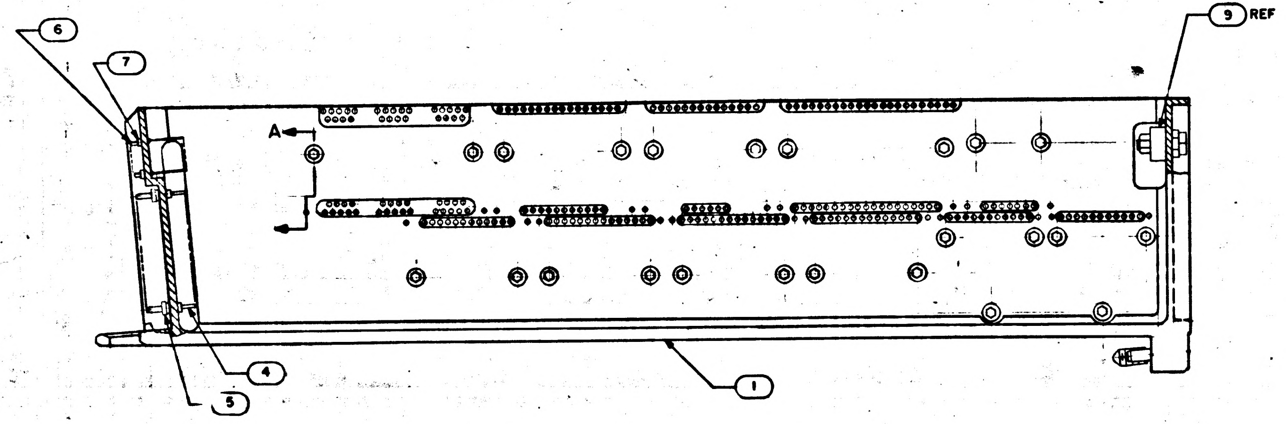


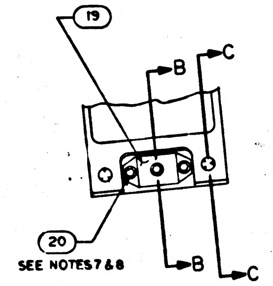
PARTIAL SECTION E-E
226 PLACES











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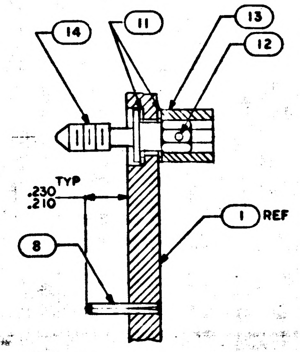
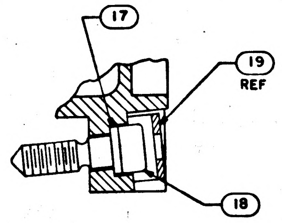
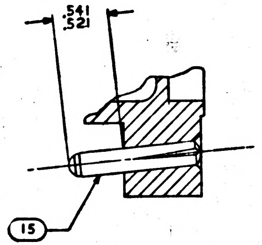


SECTION A-A
SCALE 3/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2 3 4 5 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FPRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO.20 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO. 10 AND 20 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	1010098	WIRING DIAGRAM	REF
1	1015748	WIRE LIST A A	26
1	1015747	WIRING HARNESS E	25
1	1015746	WIRING HARNESS D	24
1	1015745	WIRING HARNESS C	23
1	1015744	WIRING HARNESS B	22
1	1015743	WIRING HARNESS A	21
3	MS16995-10	SCREW CAP SOCKET HEAD	20
1	1001317	RETAINER, JACK SCREW	19
1	1008098	SCREW, SOCKET HEAD	18
1	1008099-2	WASHER	17
2	MS 21045 C 04	NUT SELF-LOCKING HEX	16
2	1010620-2	PIN, GUIDE	15
24	1008095	SCREW, JACK	14
24	1004207	DRIVE CYLINDER	13
24	1008145	PIN SPRING	12
48	1004206	WASHER, THRUST	11
2	MS16995-11	SCREW, CAP, SOCKET HEAD	10
1	1010622-1	CONNECTOR RECEPTACLE	9
22	1010620-1	PIN GUIDE	8
45	1006775	INSULATOR, WRAPOST MALE MIN	7
45	1006782-2	CONTACT WRAPOST MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST. MALE	5
60	1010382-1	CONTACT BLADE EDGE CONN	4
226	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
226	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008108	FRAME	1

LIST OF MATERIALS

1007158		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.02 ANGLES ± 1° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS. DWG. NO. CONTRACT	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN DATE 8/29/63 CHECKED 9-?-63 APPROVAL APPROVAL	FRAME ASSEMBLY TRAY 8
APPLICATION		HEAT TREATMENT	NASA APPROVAL 9-?-63	CODE IDENT NO. SIZE E NASA DRAWING NO. 1007148
		FINAL FINISH	MIT APPROVAL 9/10/63	SCALE 1/1 WT SHEET 1 OF 2

1007148 H

INCHES
PHOTOGRAPHIC SCALE ONLY

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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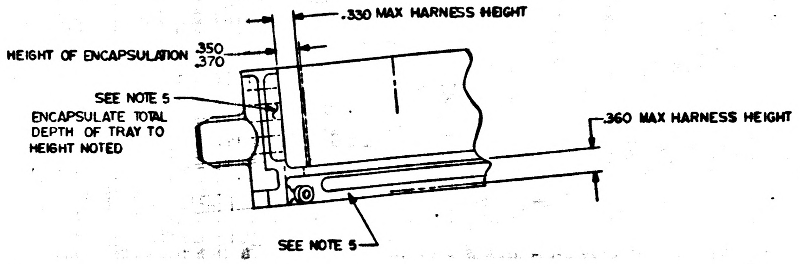
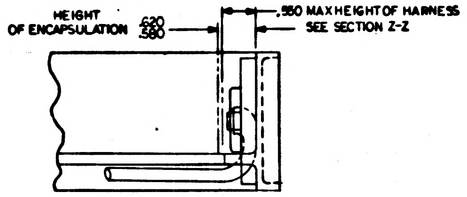
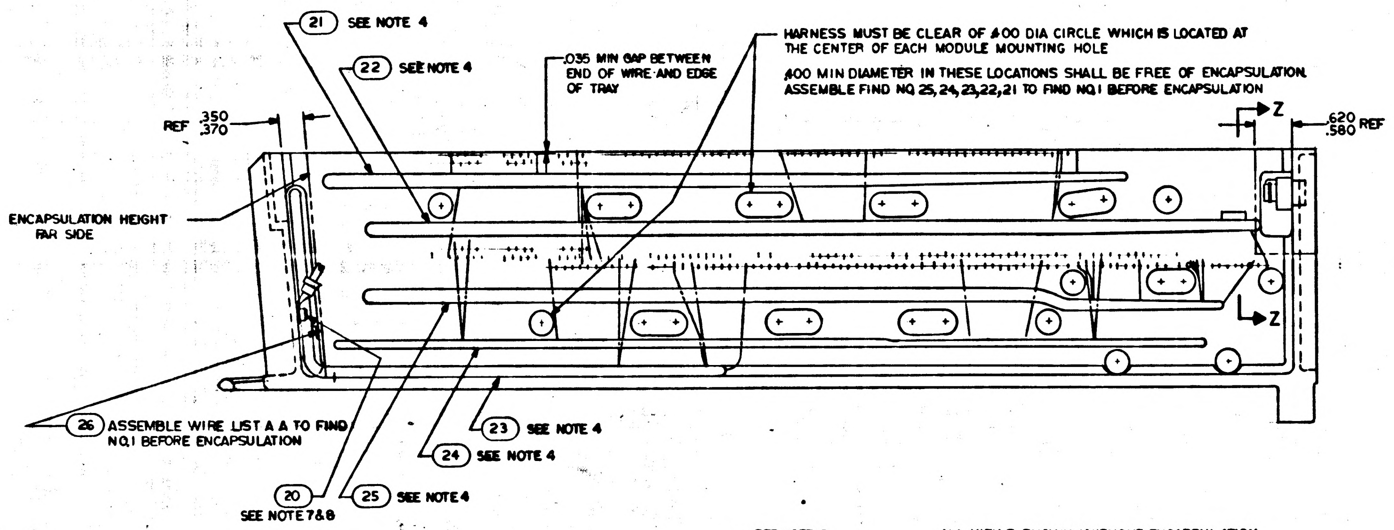
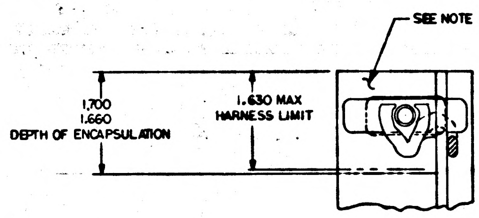
G	REVISED PER TDRR 05546	30 Jan 69	2-4 WK
H	REVISED PER TDRR 06476		WK


.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5

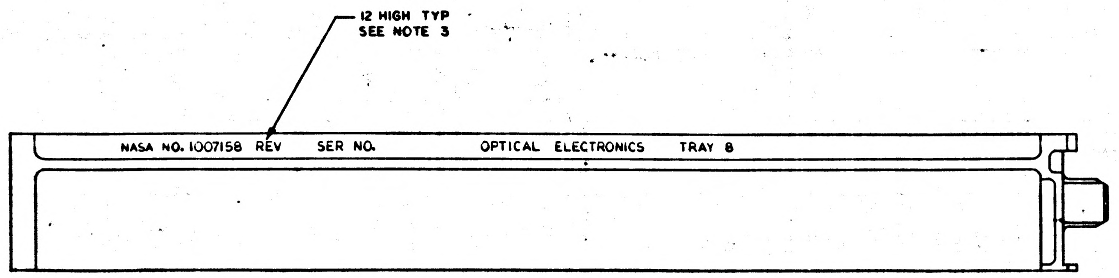

HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS
SEE SECTION Z-Z


21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION.
ASSEMBLE FIND NO. 25, 24, 23, 22, 21 TO FIND NO. 1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.700
1.660
DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z


12 HIGH TYP
SEE NOTE 3
NASA NO. 1007158 REV SER NO. OPTICAL ELECTRONICS TRAY 8

MARKING VIEW AFTER ENCAPSULATION

REV F THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007158	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS. NAS 9-497
DWG. NO. CONTRACT
DRAWN J. Gaudes DATE
CHECKED
APPROVAL 11-20-68
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY B

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007148
SCALE 1/1
WT
SHEET 2 OF 2

1007148 H

INCHES
PHOTOGRAPHIC SCALE ONLY

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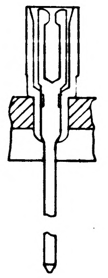
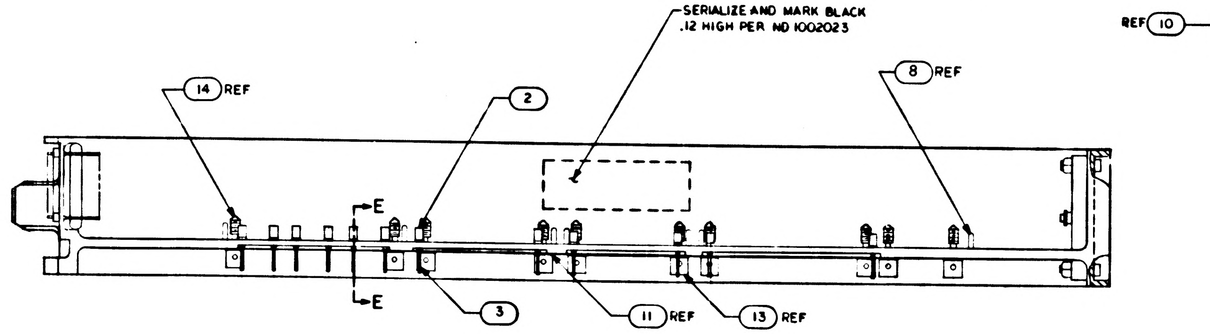
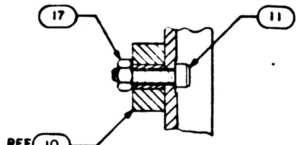
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR 05773	9-63	
F	REVISED PER TDRR 04791	11-20-63	
G	REVISED PER TDRR 05546	30-64	
H	REVISED PER TDRR 56476		WK
J	REVISED PER TDRR 07138	31 MAR 64	



PARTIAL SECTION E-E

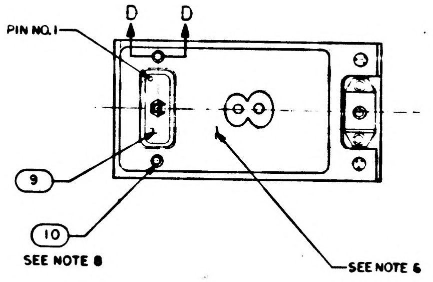
226 PLACES

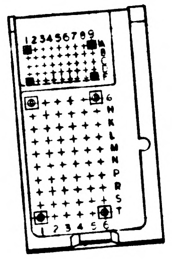


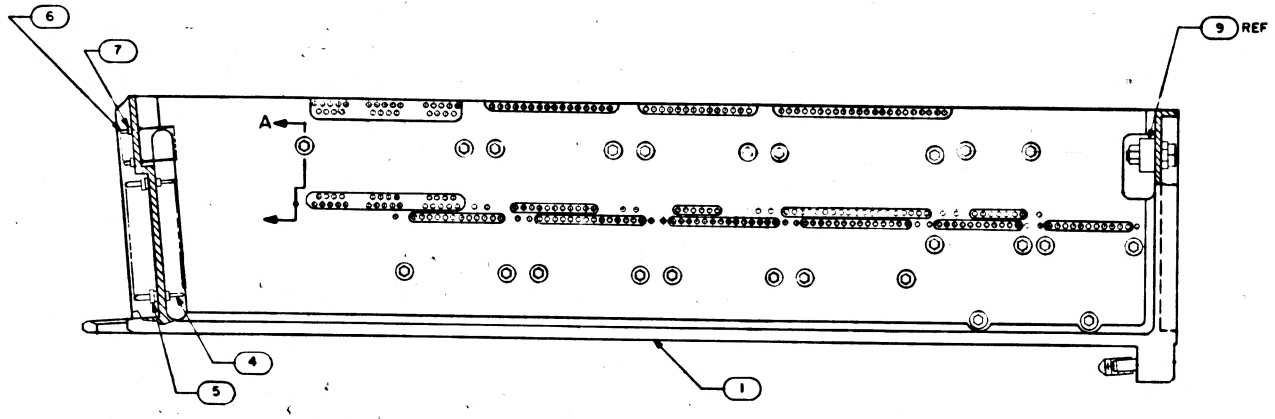


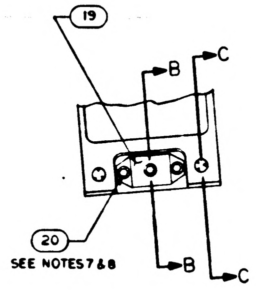
SECTION D-D

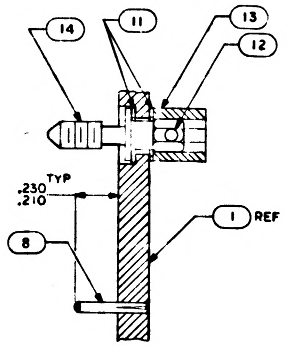
SCALE 2/1





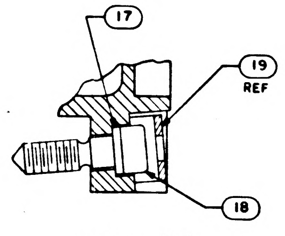






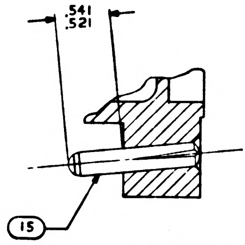
SECTION A-A

SCALE 3/1



SECTION B-B

SCALE 2/1



SECTION C-C

SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2 3 4 5 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO.21,22,23,24,25 AND 26 TO FIND NO.1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO.20 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO.10 AND 20 TO FIND NO.1 TO BE 5.0/5.5 IN.LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005.
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn 60.
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.

REV E REPLACES REV D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010098	WIRING DIAGRAM	REF
1	1015748	WIRE LIST A A	2
1	1015747	WIRING HARNESS E	2
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1	1015744	WIRING HARNESS B	2
1	1015743	WIRING HARNESS A	2
3	MS16995-10	SCREW CAP SOCKET HEAD	2
1	1001317	RETAINER, JACK SCREW	19
1	1008098	SCREW, SOCKET HEAD	18
1	1008099-2	WASHER	17
2	MS 21C45 C04	NUT SELF-LOCKING HEX	16
2	1010620-2	PIN, GUIDE	15
24	1008095	SCREW, JACK	14
24	1004207	DRIVE CYLINDER	13
24	MS171433	PIN SPRING	12
48	1004206	WASHER, THRUST	11
2	MS16995-11	SCREW, CAP, SOCKET HEAD	10
1	1010622-1	CONNECTOR RECEPTACLE	9
22	1010620-1	PIN GUIDE	8
45	1006775	INSULATOR, WRAPOST MALE MIN	7
45	1006782-2	CONTACT WRAPOST MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT BLADE EDGE CONN	4
226	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
226	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008108	FRAME	1

LIST OF MATERIALS

1007158	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO Contract NAS 9-497
DRAWN DATE 8-7-63
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL 10-9-63
MIT APPROVAL 10-63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 8

CODE IDENT NO. SIZE E NASA DRAWING NO 1007148
SCALE 1/1 WT SHEET 1 OF 2

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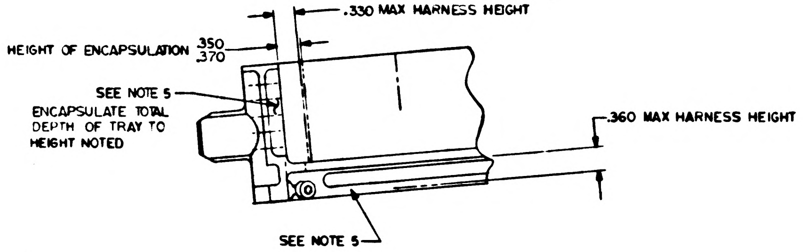
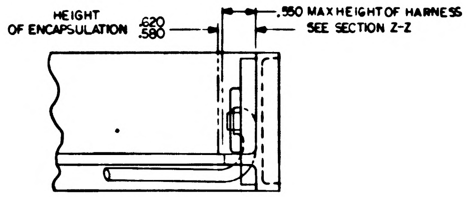
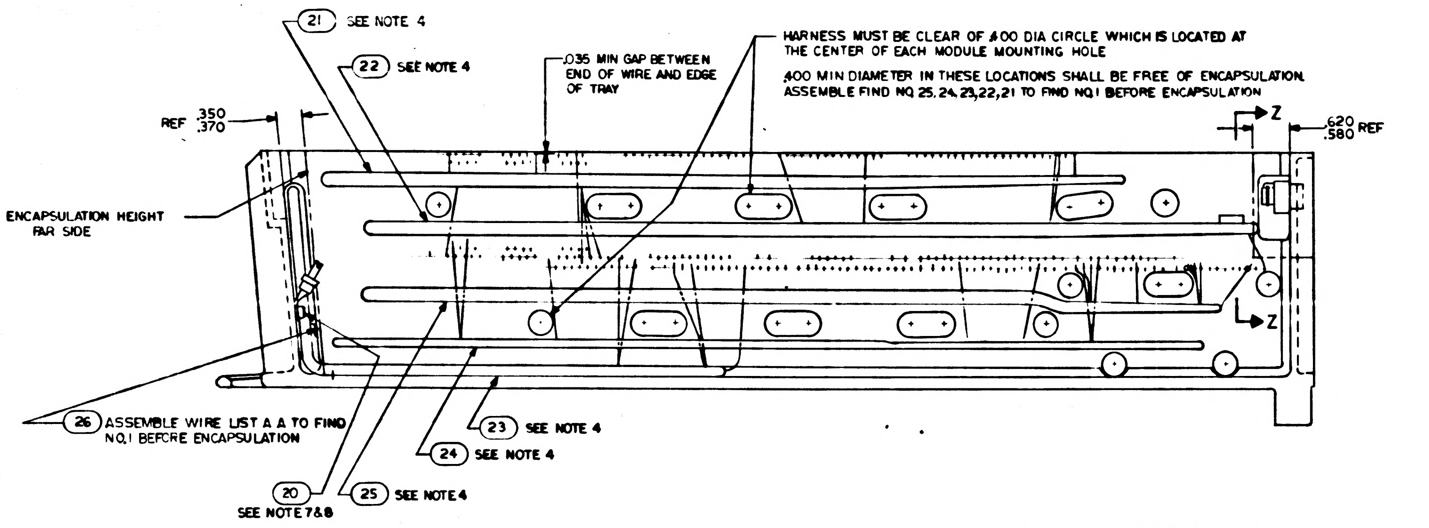
REVISIONS

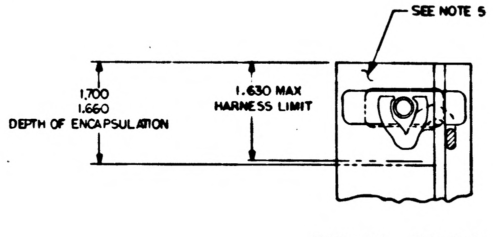
SYM	DESCRIPTION	DATE	APPROVAL
F	THIS SHEET ADDED PER TDRR 04791		
G	REVISED PER TDRR 05546	30 Jan 59	WR
H	REVISED PER TDRR 06076		WR
J	REVISED PER TDRR 07138	MAR 64	


.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5

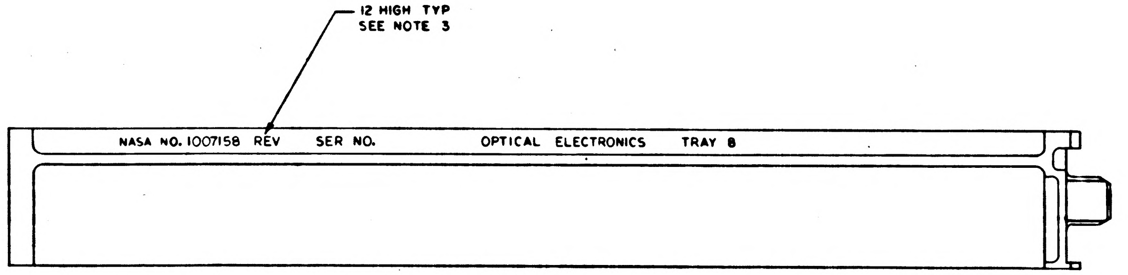

HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z


21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION.
ASSEMBLE FIND NO 25,24,23,22,21 TO FIND NO.1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO.1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z


12 HIGH TYP SEE NOTE 3
NASA NO. 1007158 REV SER NO. OPTICAL ELECTRONICS TRAY 8

MARKING VIEW AFTER ENCAPSULATION

REV F THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007158	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

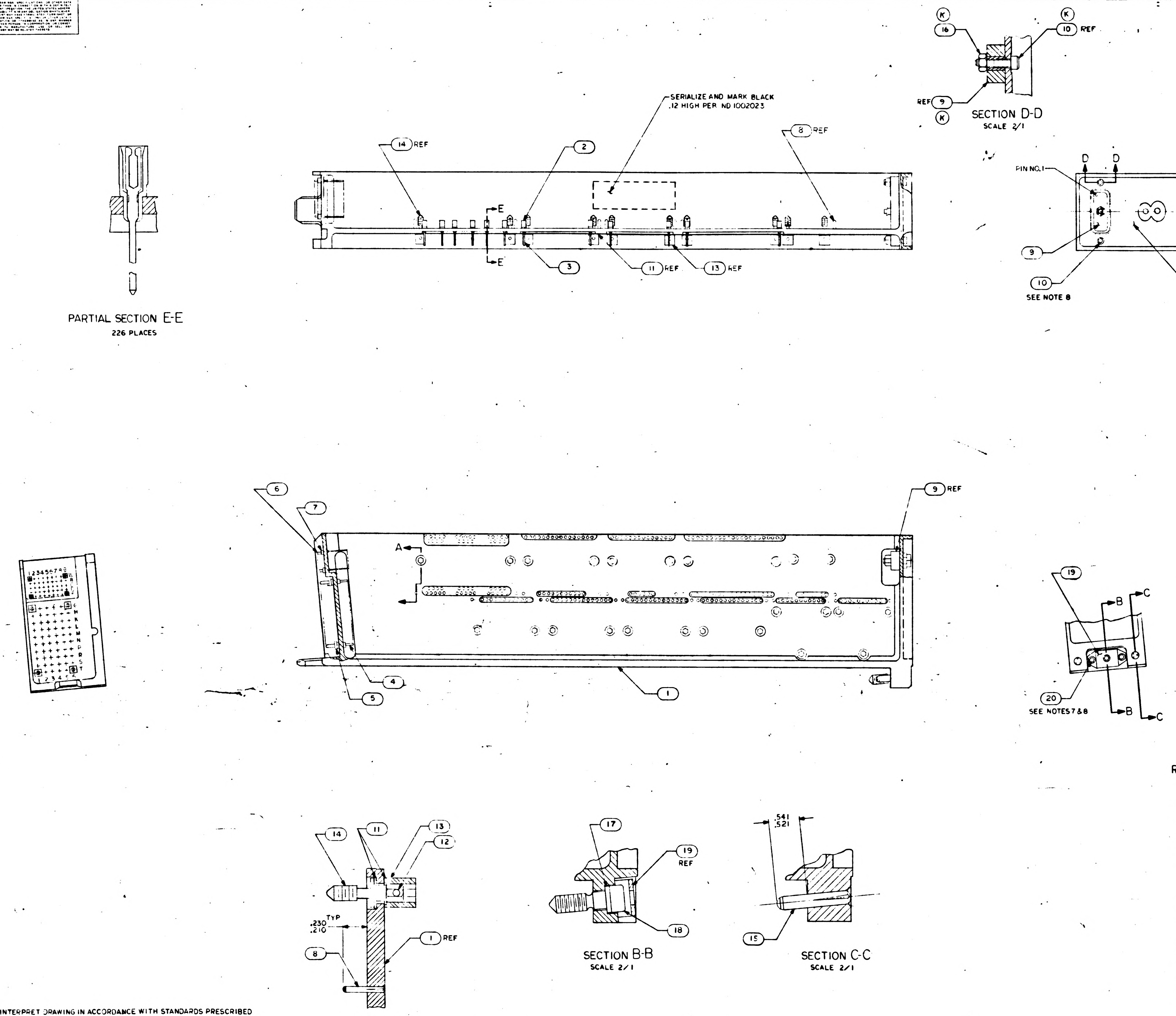
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN
DATE
CHECKED
APPROVAL 11-20-58
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 8

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007148
SCALE 1/1
WT
SHEET 2 OF 2

SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR 03713	10-7-63	
F	REVISED PER TDRR 04791	11-20-63	
G	REVISED PER TDRR 05546	30	WK
H	REVISED PER TDRR 06476		WK
J	REVISED PER TDRR 07138	31 MAR 64	
K	REVISED PER TDRR 07939	1 MAY 64	



SECTION D-D
SCALE 2/1
16
10 REF
REF 9
K
SERIALIZE AND MARK BLACK .12 HIGH PER ND 1002023
14 REF
2
8 REF
E
3
11 REF
13 REF
PIN NO. 1
D
9
10
SEE NOTE 8
SEE NOTE 6
PARTIAL SECTION E-E
226 PLACES
6
7
9 REF
A
4
5
1
19
B
C
20
SEE NOTES 7 & 8
14
11
13
12
.230 .210 TYP
8
1 REF
17
19 REF
18
.541 .521
15
SECTION A-A
SCALE 3/1
SECTION B-B
SCALE 2/1
SECTION C-C
SCALE 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2 3 4 5 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO 21,22,23,24,25 AND 26 TO FIND NO.1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO.20 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-6565 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO.10 AND 20 TO FIND NO.1 TO BE 5.0/5.5 IN.LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005.
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571.Sn60.
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.

REV E REPLACES REV D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010098	WIRING DIAGRAM	REF
1	1015748	WIRE LIST A A	26
1	1015747	WIRING HARNESS E	25
1	1015746	WIRING HARNESS D	24
1	1015745	WIRING HARNESS C	23
1	1015744	WIRING HARNESS B	22
1	1015743	WIRING HARNESS A	21
3	MS16995-10	SCREW CAP SOCKET HEAD	20
1	1001317	RETAINER, JACK SCREW	19
1	1008098	SCREW, SOCKET HEAD	18
1	1008099-2	WASHER	17
2	MS21045C04	NUT SELF-LOCKING HEX	16
2	1010620-2	PIN, GUIDE	15
24	1008095	SCREW, JACK	14
24	1004207	DRIVE CYLINDER	13
24	MS171433	PIN, SPRING	12
48	1004206	WASHER, THRUST	11
2	MS16995-11	SCREW, CAP SOCKET HEAD	10
1	1010622-1	CONNECTOR RECEPTACLE	9
22	1010620-1	PIN GUIDE	8
45	1006775	INSULATOR, WRAPOST MALE MIN	7
45	1006782-2	CONTACT WRAPOST MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT BLADE EDGE CONN	4
226	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
226	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008108	FRAME	1

LIST OF MATERIALS

1007158	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO Contract NAS 9-497
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL 10-9-63
MIT APPROVAL

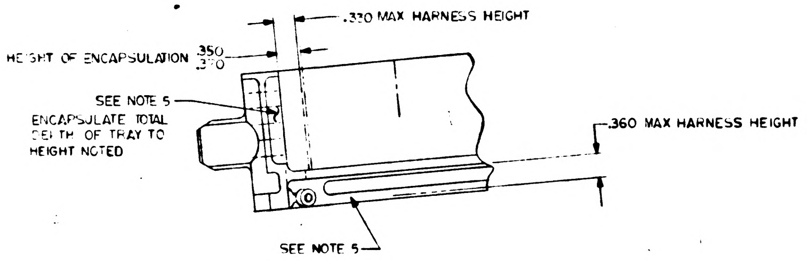
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 8

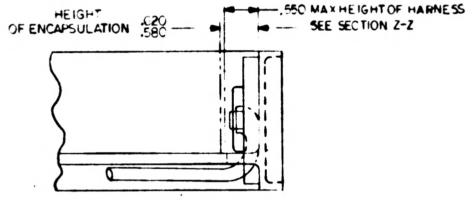
CODE IDENT NO
SIZE E
NASA DRAWING NO 1007148
SCALE 1/1
WT
SHEET 1 OF 2

1007148 K

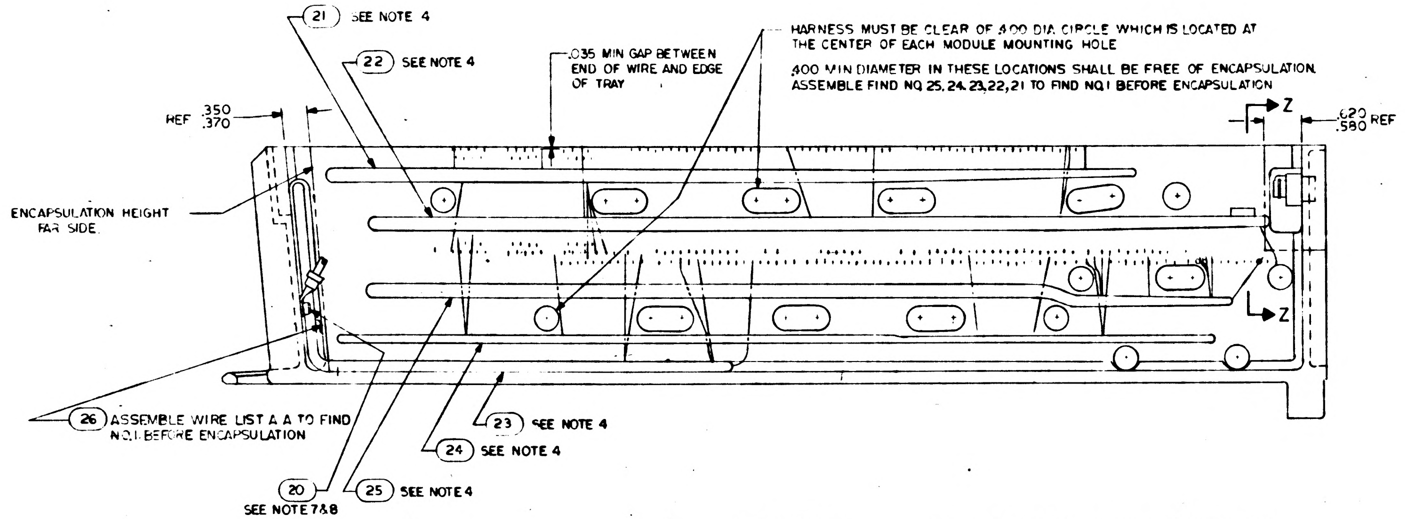
SYM	DESCRIPTION	DATE	APPROVAL
F	THIS SHEET ADDED PER TDRR [illegible]	[illegible]	
G	REVISED PER TDRR 05546	[illegible]	
H	REVISED PER TDRR [illegible]	[illegible]	
J	REVISED PER TDRR 07138	31 MAR 64	
K	REVISED PER TDRR 07939	MAY 64	



.320 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5

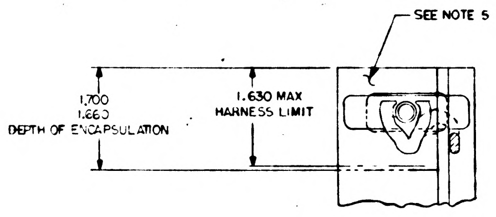


HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS
SEE SECTION Z-Z



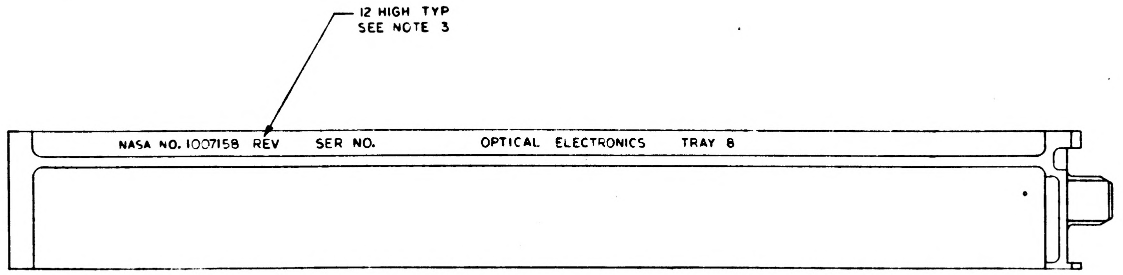
21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION
ASSEMBLE FIND NO. 25, 24, 23, 22, 21 TO FIND NO. 1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9



SEE NOTE 5
1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z



12 HIGH TYP
SEE NOTE 3
NASA NO. 1007158 REV SER NO. OPTICAL ELECTRONICS TRAY 8

MARKING VIEW AFTER ENCAPSULATION

REV F THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007158	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO Contract NAS 9-497
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible] 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 8

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007148
SCALE 1/1
WT
SHEET 2 OF 2

1007148 K

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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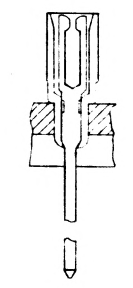
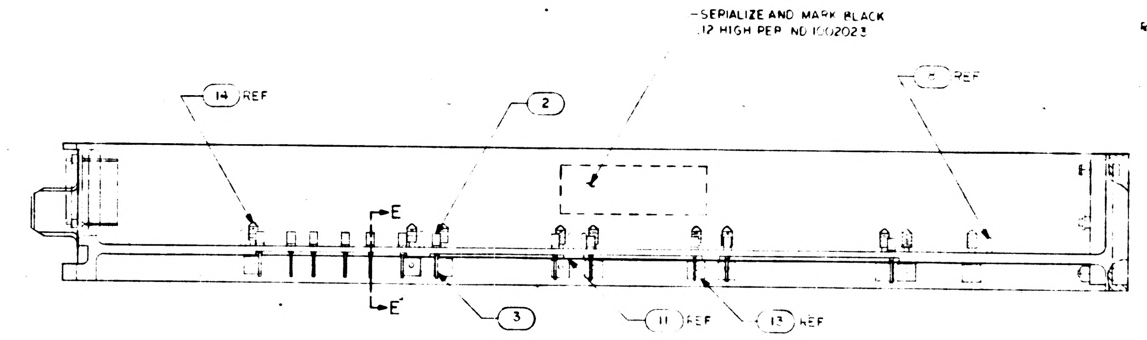
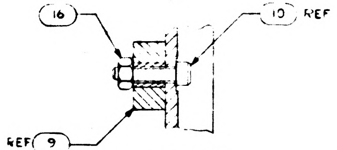
-	REVISED PER TDRR 04791	[illegible] 63	[illegible]
G	REVISED PER TDRR 05546	30 [illegible]	WF
H	REVISED PER TDRR [illegible]	[illegible]	WK
J	REVISED PER TDRR 07138	31 MAR 64	[illegible]
K	REVISED PER TDRR 07939	1 MAY 64	[illegible]
L	REVISED PER TDRR 14323	23 NOV 64	[illegible]

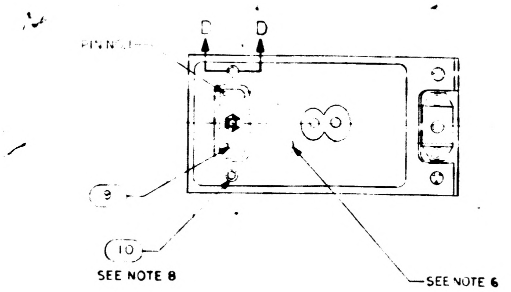


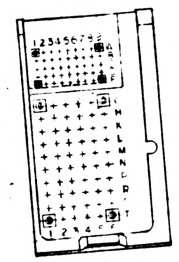
PARTIAL SECTION E-E
226 PLACES

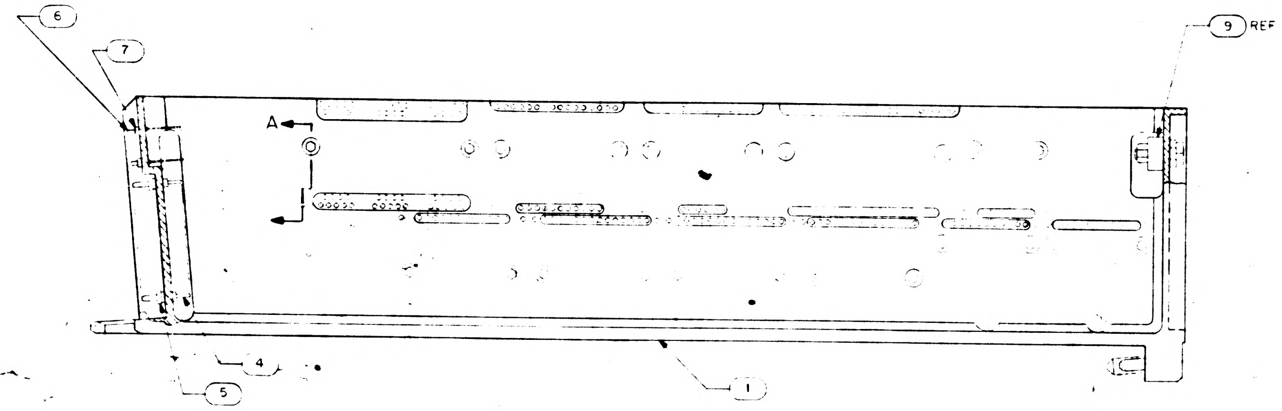


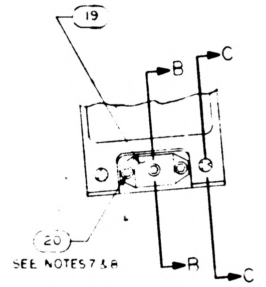


SECTION D-D
SCALE 2/1









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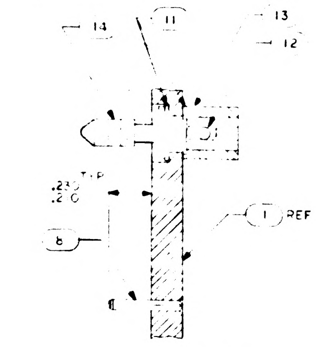
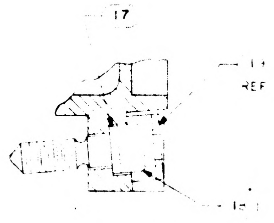
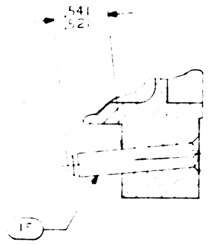


SECTION A-A
SCALE 5/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND [illegible]
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO 21,22,23,24,25 AND 26 TO FIND NO 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 BLACK [illegible] FOAM, FLUSH TO [illegible] BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT [illegible] NO.20 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-6565 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO.10 AND 20 TO FIND NO. 1 TO BE [illegible] IN.LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND [illegible].
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6672 USING SOLDER PER QQ-S-571,Sn60.
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
X	1010230	WIRING DIAGRAM	REF
1	1015748	WIRE LIST A A	26
1	[illegible]	WIRING HARNESS E	25
1	[illegible]	WIRING HARNESS D	24
1	[illegible]	WIRING HARNESS C	23
1	[illegible]	WIRING HARNESS B	22
1	[illegible]	WIRING HARNESS A	21
3	MS16995-10	SCREW CAP SOCKET HEAD	20
1	1001317	RETAINER, JACK SCREW	19
1	1008098	SCREW, SOCKET HEAD	18
1	1008099-2	WASHER	17
2	MS21045C04	NUT SELF-LOCKING HEX	16
2	1010620-2	PIN, GUIDE	15
24	[illegible]	SCREW, JACK	14
24	1004207	DRIVE CYLINDER	13
24	MS171433	[illegible]	12
48	1004206	WASHER, THRUST	11
2	MS16995-11	SCREW, CAP, SOCKET HEAD	10
1	1010622-1	CONNECTOR RECEPTACLE	9
22	1010620-1	PIN GUIDE	8
45	[illegible]	INSULATOR, WRAPOST MALE MIN	7
45	[illegible]	CONTACT WRAPOST MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT BLADE EDGE CONN	4
226	[illegible]	CONTACT, WRAPOST, FEMALE MIN	3
[illegible]	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	[illegible]	FRAME	1

LIST OF MATERIALS

1007158		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS .02 ANGLES	M I T INSTRUMENTATION LAB CAMBRIDGE MASS DWG NO Contract NAS 9-497
NEXT ASSY	USED ON	DO NOT SCALE THIS DRAWING	DRAWN DATE
APPLICATION		MATERIAL	CHECKED
		HEAT TREATMENT	APPROVAL
		FINAL FINISH	APPROVAL
			NASA APPROVAL 10-9-63
			MIT APPROVAL 9/ 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 8

CODE IDENT NO	SIZE	NASA DRAWING NO
	E	1007148
SCALE 1/1	WT	SHEET 1 OF 2

[illegible]

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
F	THIS SHEET ADDED PER TDRR 04791		
G	REVISED PER TDRR 05546		
H	REVISED PER TDRR		WK
J	REVISED PER TDRR 07138	64	
K	REVISED PER TDRR 07939	1 MAY 64	
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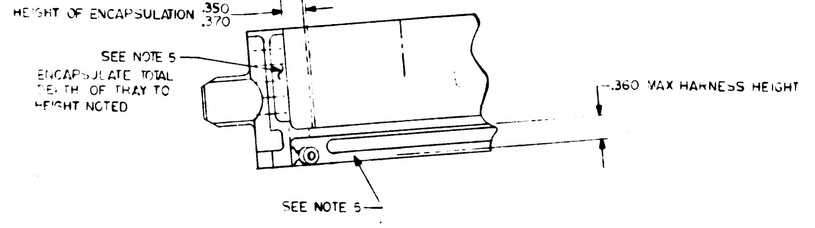
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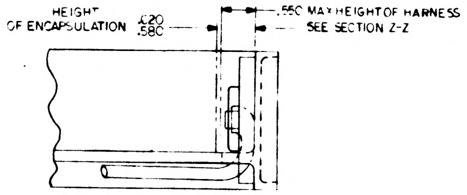
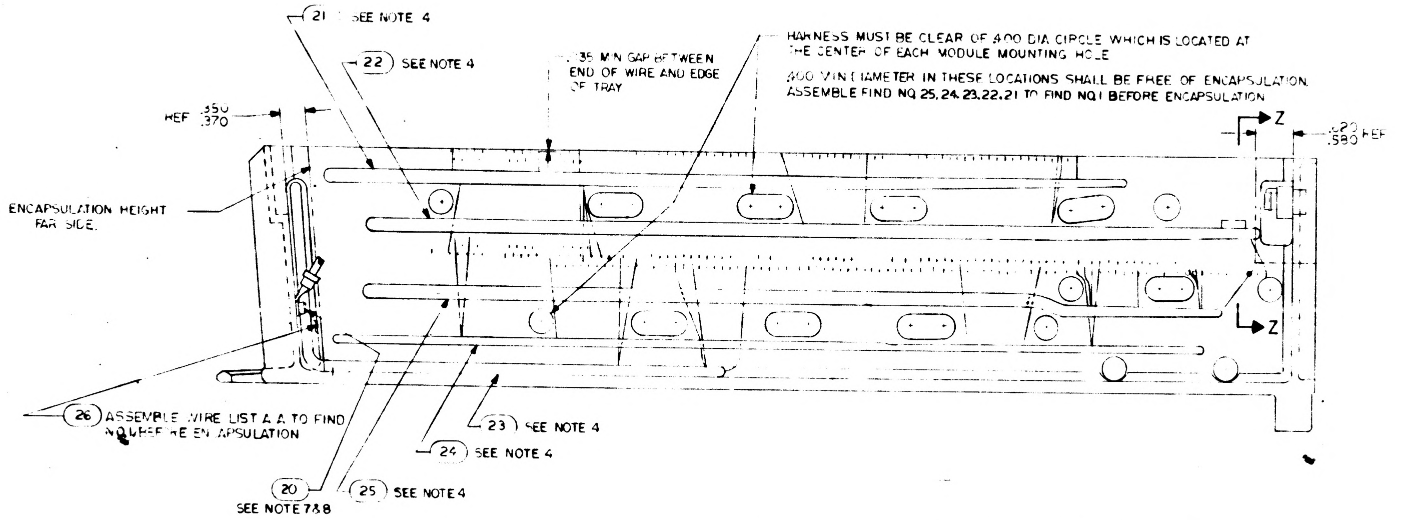
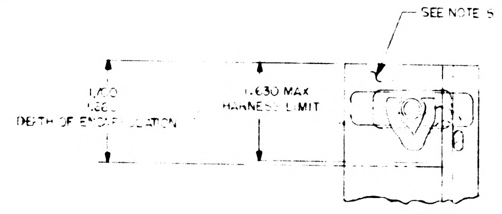
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5

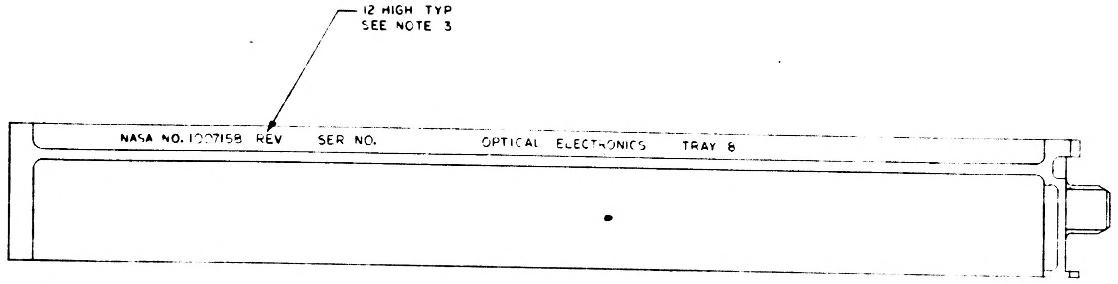

HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z


21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION.
ASSEMBLE FIND NO. 25, 24, 23, 22, 21 TO FIND NO. 1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE.
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.700
1.660
DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z


12 HIGH TYP
SEE NOTE 3
NASA NO. 1007158 REV SER NO. OPTICAL ELECTRONICS TRAY 8

MARKING VIEW AFTER ENCAPSULATION

REV F THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007158	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES DO NOT SCALE THIS DRAWING	M I T INSTRUMENTATION LAB Cambridge, Mass. DWG NO Contract NAS 9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY / USED ON	MATERIAL	DRAWN DATE CHECKED APPROVAL C.B. 11-20-63 APPROVAL	FRAME ASSEMBLY TRAY 8
APPLICATION	HEAT TREATMENT	NASA APPROVAL	CODE IDENT NO / SIZE E / NASA DRAWING NO 1007148
	FINAL FINISH	MIT APPROVAL	SCALE 1/1 / WT / SHEET 2 OF 2

1007148

REVISIONS TDRR 01540

ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
1008108	Frame, Tray 8	1
1006774	Insulator, Wrapost, Female Miniature	240
1006781-2	Contact, Wrapost, Female Miniature	240
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

1007158	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL:

MIT
INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED	R. R. Test	6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
	14 June

FRAME ASSEMBLY,
TRAY 8

SCALE	UNIT WT.	CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.
DWG. NO.
MANNED
SPACECRAFT CENTER
HOUSTON TEXAS
NASA DRAWING NO.
1007148
SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

APOLLO G&N Specification
PS-1007148
30 April 1964
Class A Release
TDRR 08054

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY NO. 8

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY NO. 8

This document describes the requirements and procedures for the procurement of the Frame Assembly Tray No. 8 to be used in the APOLLO Guidance and Navigation Equipment.

WKupfer 30 Apr 64
MIT/IL DATE

4/30/64
NASA/MSC DATE

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 8

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 8, Drawing 1007148, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007148	Final Test Method for Frame Assembly Tray 8

DRAWINGS

APOLLO G&N

1007148	Frame Assembly Tray 8
1015743	Wiring Harness A Tray 8
1015744	Wiring Harness B
1015745	Wiring Harness C
1015746	Wiring Harness D
1015747	Wiring Harness E
1015748	Wire List A-A

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007149

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	WK

REVISIONS TDRR 01580

PART NO.	DESCRIPTION	REQD.
1008109	Frame, Tray 9	1
1006774	Insulator, Wrapost, Female Miniature	232
1006781-2	Contact, Wrapost, Female Miniature	232
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1
1010620-1	Pin, Guide	20
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	21
1008098	Screw, Socket Head, Externally Relieved Body	1
1008099-1	Washer (Special)	21
1008099-2	Washer (Special)	1
1008092	Washer (Special)	21
MS 16624-15	Ring, Retaining	21
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

NEXT ASSY	USED ON
1007159	

APPLICATION

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DIMENSIONS ARE IN INCHES
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MATERIAL:

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CONTRACT
NAS 9-153

		DATE
APPROVED		6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
	14 June

FRAME ASSEMBLY,
TRAY 9

SCALE	UNIT WT.	CODE IDENT.

MIT
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LABORATORY
CAMBRIDGE, MASS.

DWG. NO.

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HOUSTON TEXAS

NASA DRAWING NO.
1007149

SHEET 1 OF 1

INCHES
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APOLLO G&N Specification
PS-1007149 A
30 April 1964
Class A Release
TDRR 03054

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 9

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
8-18-64	A	11691	1,2	WK	WJR

This specification consists of page i to iii and 1 to 8 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 9

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 9 for use in APOLLO Guidance and Navigation Equipment.

W Kupfer 30 Apr 64
MIT/IL DATE

[illegible]
NASA/MSC APPROVAL DATE

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 9

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 9, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATION

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007149	Final Test Method for Frame Assembly Tray 9

DRAWINGS

APOLLO G&N

1007149	Frame Assembly Tray 9
1007169	Frame Assembly Tray 9

INCHES
0 1 2
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APOLLO G&N Specification
PS-1007149
30 April 1964
Class A Release
TDRR 08054

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 9

Record of Revisions

Ⓜ

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
[illegible]	A	[illegible]	[illegible]	WK	WJR

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 9

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 9, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATION	
Military	
MIL-P-116	Preservation, Methods of
APOLLO G&N	
ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007149	Final Test Method for Frame Assembly Tray 9
DRAWINGS	
APOLLO G&N	
1007149	Frame Assembly Tray 9
1007169	Frame Assembly Tray 9

3. REQUIREMENTS

3.1 GENERAL SPECIFICATION. Unless otherwise specified, all of the requirements of Specification ND-1002210 shall apply as requirements of this specification.

3.2 DESCRIPTION. The tray is to be used in the Power and Servo Assembly as a mounting frame and as an interconnection for the modules used in the Optical Electronics Assembly.

3.3 FUNCTIONAL REQUIREMENTS

3.3.1 Insulation Resistance Test. The insulation resistance test shall be conducted from each individual connector pin, with the exception of P8 of connector 45A9-P1, to the frame assembly. The resistance from each connector pin to the assembly frame shall be equal to or greater than 100 megohms.

3.3.2 Continuity and DC Resistance and Shorting. The continuity and dc resistance and shorts test shall be as specified in JDC 09821 of FTM1007149.

3.4 PERFORMANCE AND PRODUCT CHARACTERISTICS

3.4.1 Service Life.

3.4.1.1 Operating Life. The assembly shall meet performance specifications for at least 2000 hours of operation, excluding the supplier's test time of the completed unit.

3.4.1.2 Shelf Life. The assembly shall be packaged as specified in MIL-P-116, Method 2, and shall have a shelf life of at least 5 years, without operation, at ambient room temperature after final acceptance at the supplier's facility.

3.4.2 Reliability. Design objectives require maximum reliability of the assembly during its period of useful life. Every effort shall be made to design and produce units capable of meeting a maximum failure rate of 0.2 failures per million hours.

1007149

REVISIONS TDRR 01580

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	ST. WK
	B	REVISED PER TDRR 02705	8/21/63	

PART NO.	DESCRIPTION	REQD.
1008109	Frame, Tray 9	1
1006774	Insulator, Wrapost, Female Miniature	232
1006781-2	Contact, Wrapost, Female Miniature	232
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
• ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1
1010620-1	Pin, Guide	20
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	21
1008098	Screw, Socket Head, Externally Relieved Body	1
1008099-1	Washer (Special)	21
1008099-2	Washer (Special)	1
1008092	Washer (Special)	21
MS 16624-15	Ring, Retaining	21
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45

• NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

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NEXT ASSY	USED ON
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NAS 9-153

		DATE
APPROVED		6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
	14 June

FRAME ASSEMBLY,

TRAY 9

SCALE	UNIT WT.	CODE IDENT.

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NASA DRAWING NO.
1007149

SHEET 1 OF 1

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APOLLO G&N Specification
PS1007149 B
30 April 1964
Class A Release
TDRR [illegible]

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 9

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
				WK	WJR
2/9/65	B	16247	1 RB/ac	WK	WJR

This specification consists of page i
to iii and 1 to 3 inclusive.

APOLLO G&N Specification
PS1007149 B

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 9

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 9, hereafter called the assembly.

1.2 CLASSIFICATION. The requirements for the equipment covered by this specification shall be classified as follows. Unless identified by the respective types, all requirements of this specification are applicable for all types.

a. Type I: The requirements for Part Numbers 1007149, 1007169, 1021219-011 shall be designated as Type I.

b. Type II: The requirements for Part Number 1007449-011 shall be designated as Type II.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATION

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007149	Final Test Method for Frame Assembly Tray 9

DRAWINGS

APOLLO G&N

1007149	Frame Assembly Tray 9
1007169	Frame Assembly Tray 9
1007449	Frame Assembly Tray 9
1021219	Frame Assembly Tray 9

1007149

	REVISIONS TDRR 01580			
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	JT. WK
	B	REVISED PER TDRR 02705	8/21/63	
	C	REVISED PER TDRR 02873	8-28-63	J.S.M.

PART NO.	DESCRIPTION	REQD.
1008109	Frame, Tray 9	1
1006774	Insulator, Wrapost, Female Miniature	232
1006781-2	Contact, Wrapost, Female Miniature	232
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	20
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	21
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	42
1008099-2	Washer (Special)	1
1004207	Drive Cylinder	21
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45
1008145	Pin, Spring	21

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

1007159		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES DO NOT SCALE THIS DRAWING MATERIAL:
NEXT ASSY	USED ON	
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MIT INSTRUMENTATION LAB CONTRACT NAS 9-153	DATE
APPROVED D. R. Tait	6-14-63
CHECKED	
DRAWN	
APPROVED FOR MSC Jack Barnard	
MIT/IL APPROVAL	DATE
	14 June 63

FRAME ASSEMBLY,

TRAY 9

SCALE	UNIT WT.	CODE IDENT.

MIT INSTRUMENTATION LABORATORY
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NASA DRAWING NO.
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ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01709	6-26-63	JT. WK
	B	REVISED PER TDRR 02705	8/21/63	
	C	REVISED PER TDRR 02873	8-28-63	J.S.M.
	D	SUPERSEDED PER TDRR 03772		WK

REVISIONS TDRR 01580

PART NO.	DESCRIPTION	REQD.
1008109	Frame, Tray 9	1
1006774	Insulator, Wrapost, Female Miniature	232
1006781-2	Contact, Wrapost, Female Miniature	232
1010382-1	Contact, Blade Edge Connector	60
1010383	Insulator, Wrapost, Male	60
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	20
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	21
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	42
1008099-2	Washer (Special)	1
1004207	Drive Cylinder	21
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1006782-2	Contact, Wrapost-Male, Miniature	45
1006775	Insulator, Wrapost-Male, Miniature	45
1008145	Pin, Spring	21

REV D REPLACED BY REV E

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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DRAWN
APPROVED FOR MSC Jack Barnard
MIT/IL APPROVAL DATE 14 June

FRAME ASSEMBLY,
TRAY 9

SCALE
UNIT WT.
CODE IDENT.

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NASA DRAWING NO. 1007149
SHEET 1 OF 1

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REVISIONS			
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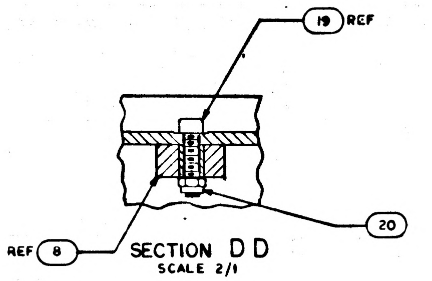

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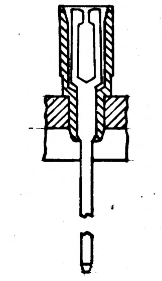
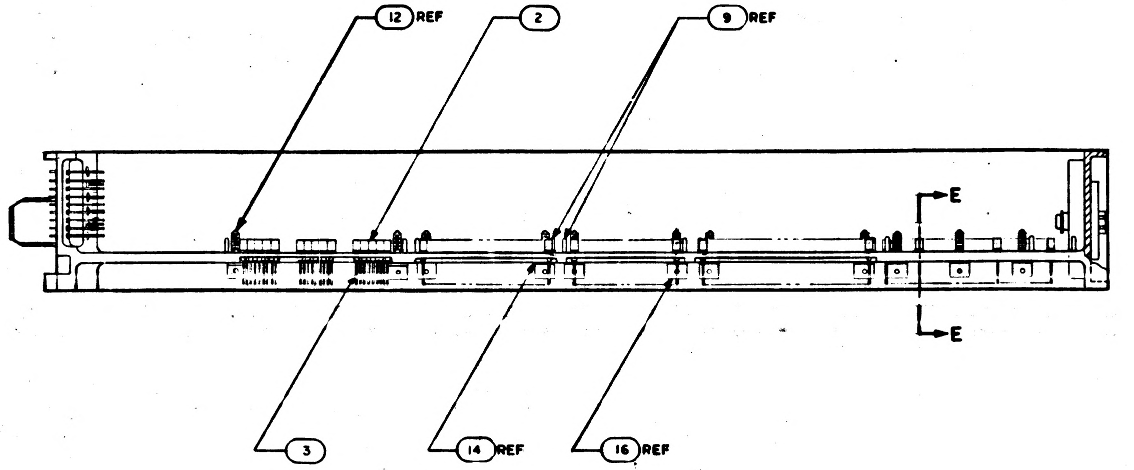
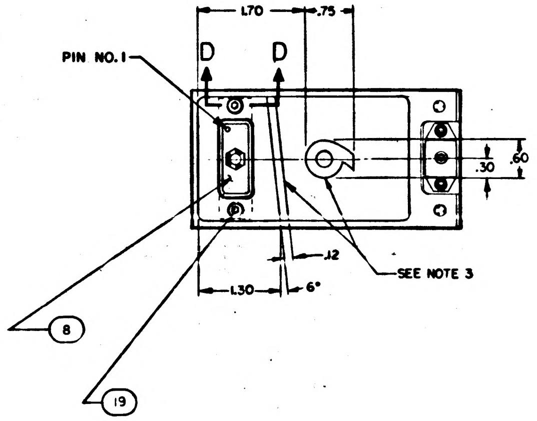
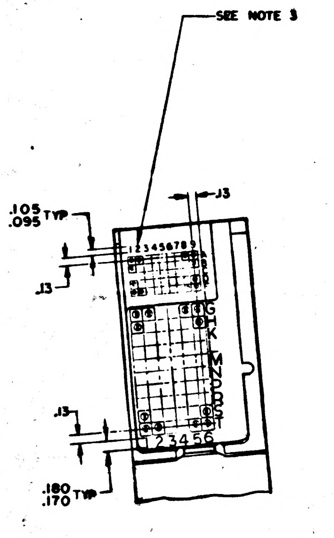
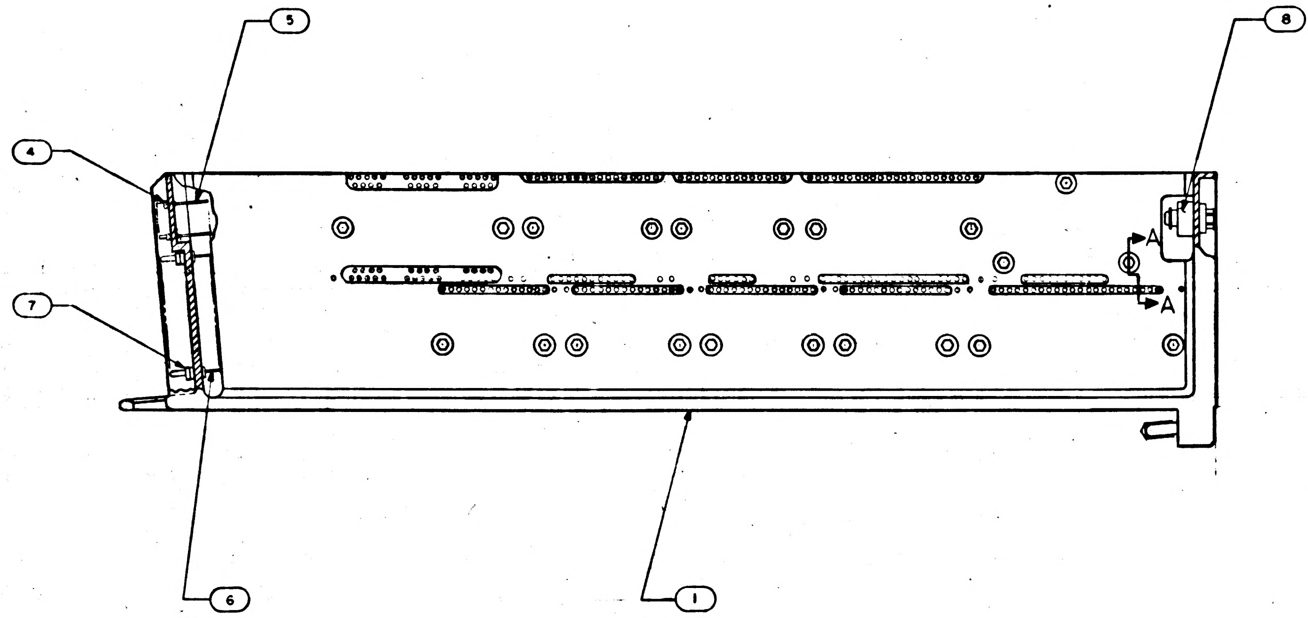


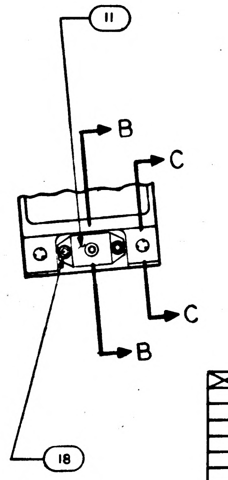
PARTIAL SECTION E-E
232 PLACES











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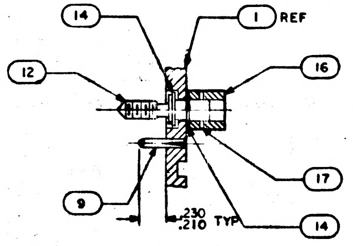

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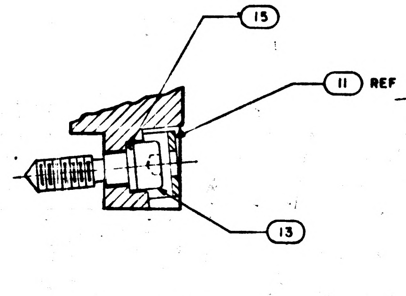

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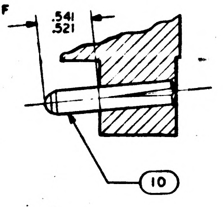

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NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010099	WIRING DIAGRAM	REF
2	MS 21045 C 04	NUT, SELF LOCKING HEX	20
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	19
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	18
21	1008145	SPRING, SPIRAL	17
21	1004207	DRIVE CYLINDER	16
1	1008099-2	WASHER	15
42	1004206	WASHER THRUST	14
1	1008098	SCREW, SOCKET HEAD	13
21	1008095	SCREW, JACK	12
1	1001317	RETAINER, JACK SCREW	11
2	1010620-2	PIN, GUIDE	10
20	1010620-1	PIN, GUIDE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
60	1010383	INSULATOR, WRAPOST MALE	7
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
45	1006782-2	CONTACT, WRAPOST MALE MIN	5
45	1006775	INSULATOR, WRAPOST MALE MIN	4
232	1006781-2	CONTACT, WRAPOST FEMALE MIN	3
232	1006774	INSULATOR, WRAPOST FEMALE MIN	2
1	1008109	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007159	

APPLICATION

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DWG. NO. CONTRACT
DRAWN DATE 9-6-63
CHECKED
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL 8 Oct 63

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FRAME ASSEMBLY
TRAY 9

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007149
SCALE 1/1
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SHEET 1 OF 1

1007149 E

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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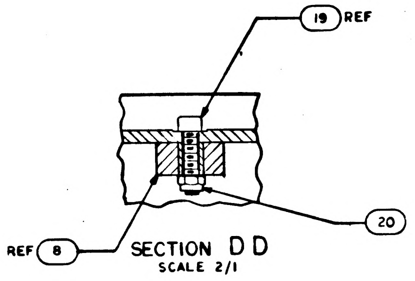
F	REVISED PER TDRR 04792	11 20 63	



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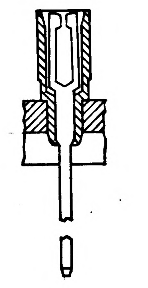
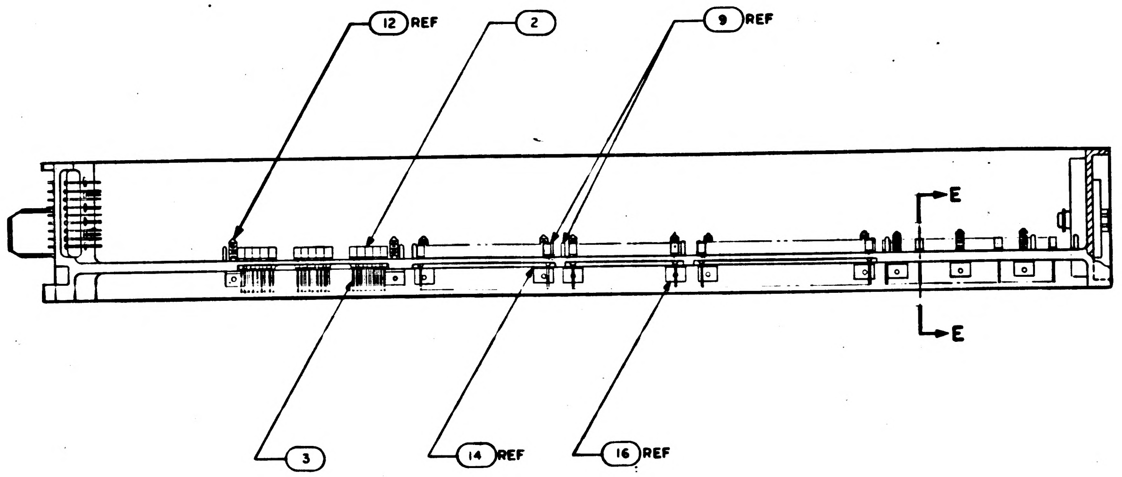
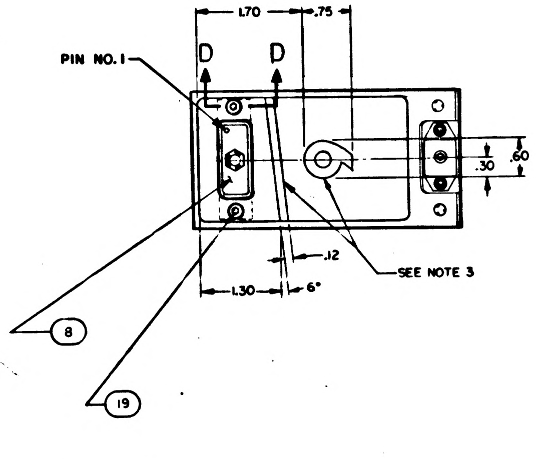
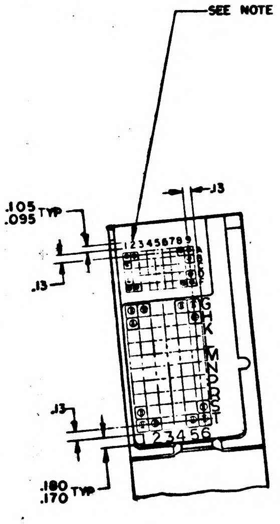
SCALE 2/1

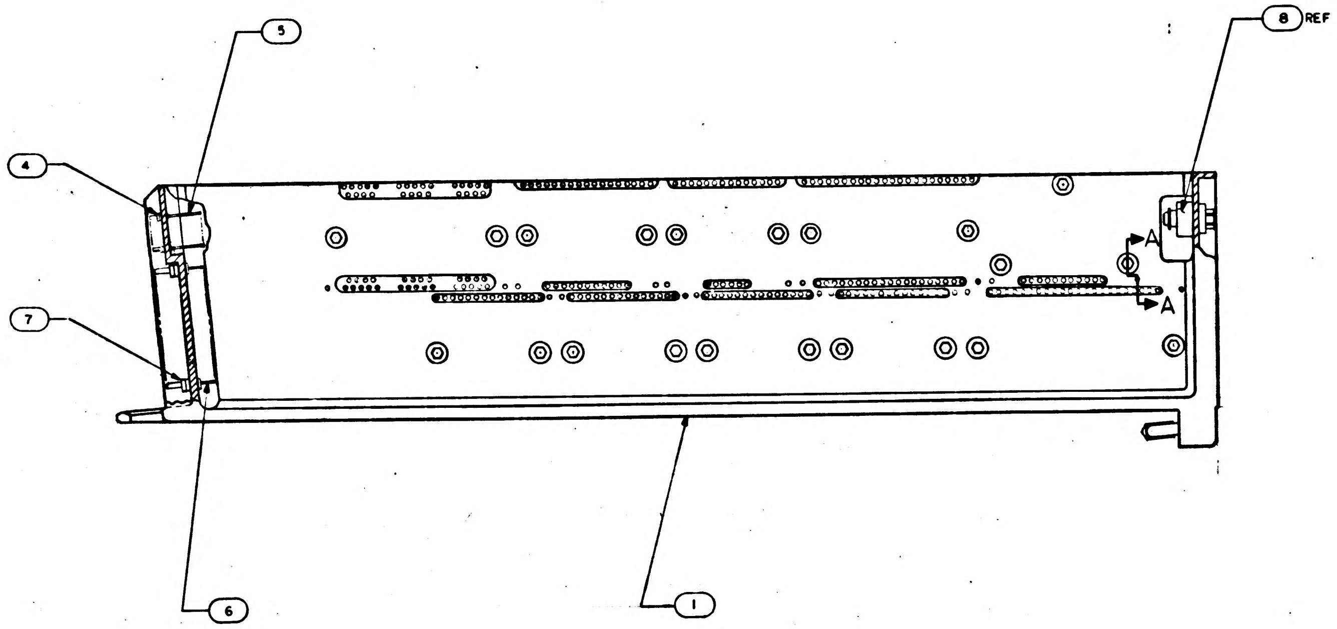


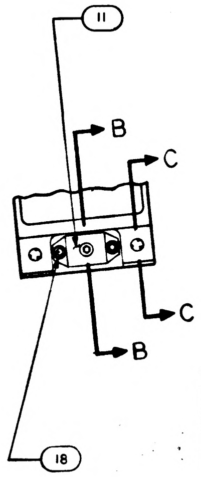
PARTIAL SECTION E-E
232 PLACES











REV F REPLACES REV E

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
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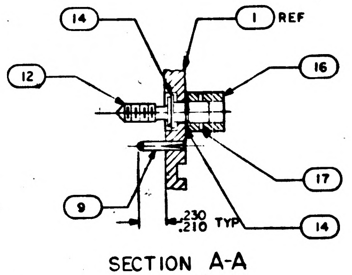
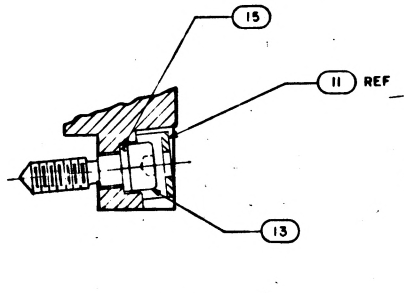
1	1015763	WIRING HARNESS D	24
1	1015762	WIRING HARNESS C	23
1	1015761	WIRING HARNESS B	22
1	1015760	WIRING HARNESS A	21
2	MS 21045 C 04	NUT, SELF LOCKING HEX	20
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	19
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	18
21	1008145	SPRING, SPIRAL	17
21	1004207	DRIVE CYLINDER	16
1	1008099-2	WASHER	15
42	1004206	WASHER THRUST	14
1	1008098	SCREW, SOCKET HEAD	13
21	1008095	SCREW, JACK	12
1	1001317	RETAINER, JACK SCREW	11
2	1010620-2	PIN, GUIDE	10
20	1010620-1	PIN, GUIDE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
60	1010383	INSULATOR, WRAPOST MALE	7
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
45	1006782-2	CONTACT, WRAPOST MALE MIN	5
45	1006775	INSULATOR, WRAPOST MALE MIN	4
232	1006781-2	CONTACT, WRAPOST FEMALE MIN	3
232	1006774	INSULATOR, WRAPOST FEMALE MIN	2
1	1008109	FRAME	1

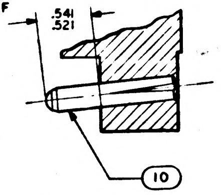
LIST OF MATERIALS



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NOS 21, 22, 23, 24 AND 25 TO FIND NO. 1 PER ND 1002004 AS NECESSARY.
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME

MASTER

1007159		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
NEXT ASSY	USED ON	DO NOT SCALE THIS DRAWING
APPLICATION		MATERIAL
		HEAT TREATMENT
		FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN DATE 9-6-63
CHECKED
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007149
SCALE 1/1
WT
SHEET 1 OF 2

INCHES
PHOTOGRAPHIC SCALE ONLY

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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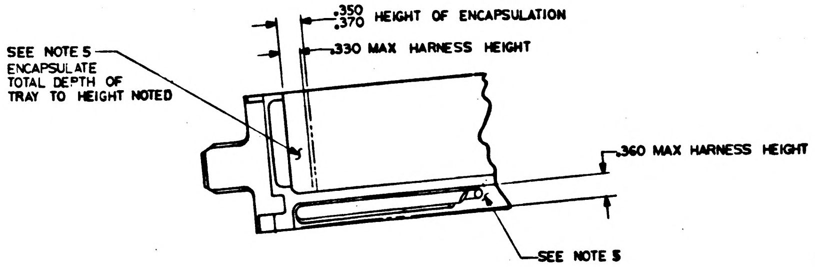
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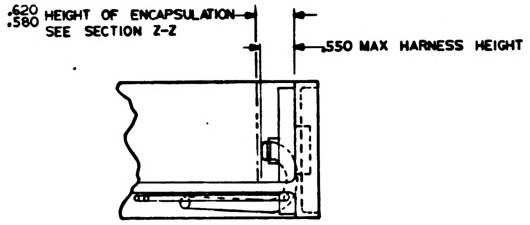
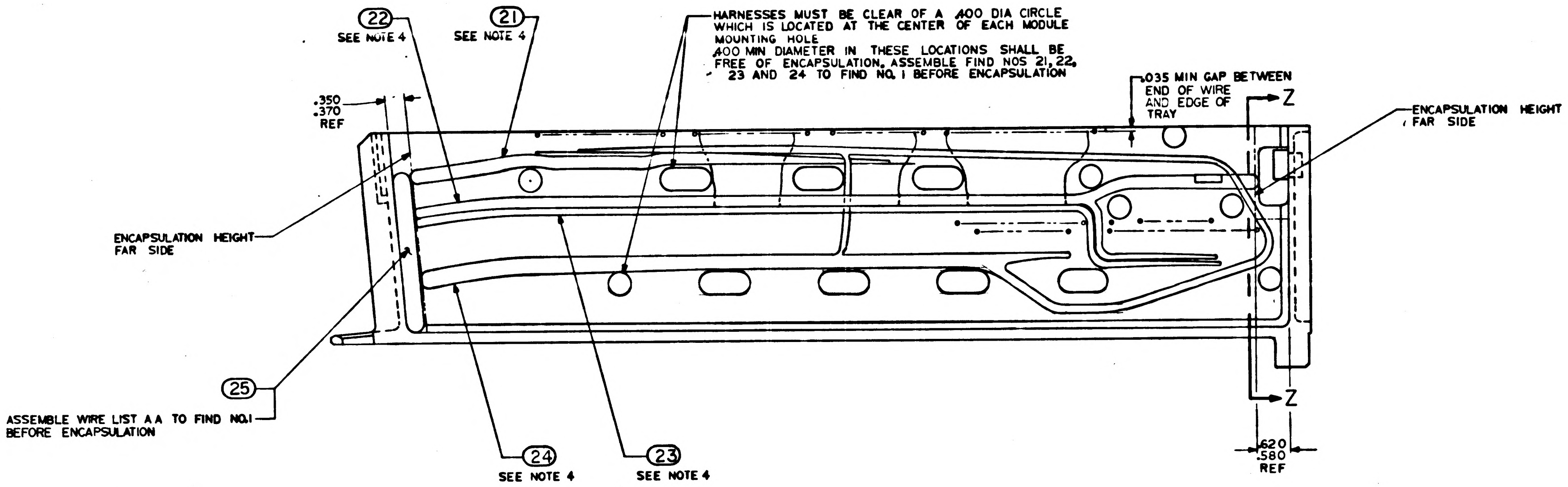
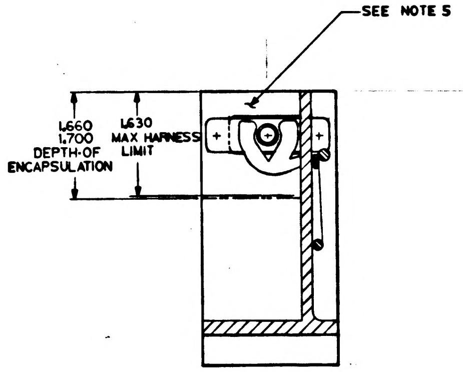
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5


.620
.580 HEIGHT OF ENCAPSULATION
SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT


22
SEE NOTE 4
21
SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
.350
.370
REF
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
24
SEE NOTE 4
23
SEE NOTE 4
Z
.620
.580
REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION


SEE NOTE 5
1.660
1.700
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

SECTION Z-Z

REV F THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
		LIST OF MATERIALS	

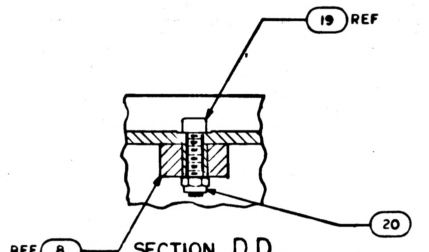
1007159		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ±	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS DWG NO. CONTRACT	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	DO NOT SCALE THIS DRAWING	DRAWN Ciampaglia DATE 11-14-68 CHECKED [illegible] APPROVAL D.B.Test 11-20-68 APPROVAL	FRAME ASSEMBLY TRAY 9
APPLICATION		MATERIAL HEAT TREATMENT FINAL FINISH	NASA APPROVAL [illegible] MIT APPROVAL [illegible]	CODE IDENT NO. SIZE E NASA DRAWING NO 1007149 SCALE 1/1 WT SHEET 2 OF 2

1007149 F

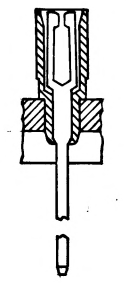
INCHES
0 1
PHOTOGRAPHIC SCALE ONLY

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

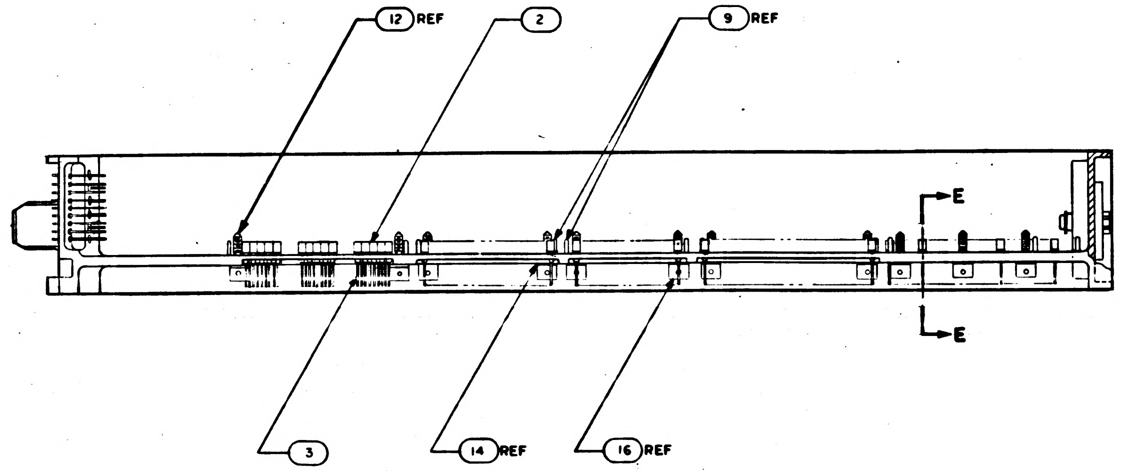
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR 03773	10-8-63	[illegible]
F	REVISED PER TDRR 04792	[illegible]	[illegible]
6	REVISED PER TDRR 05546	30 Jan 69	[illegible]

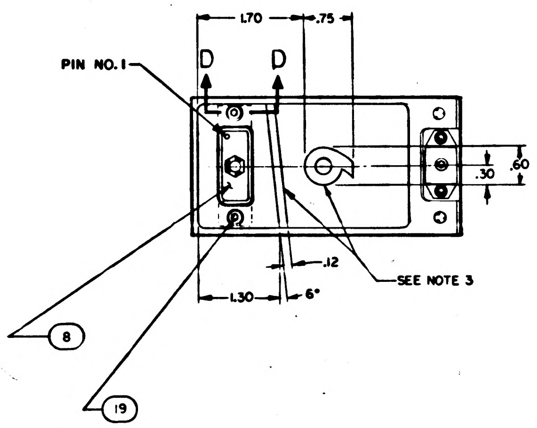


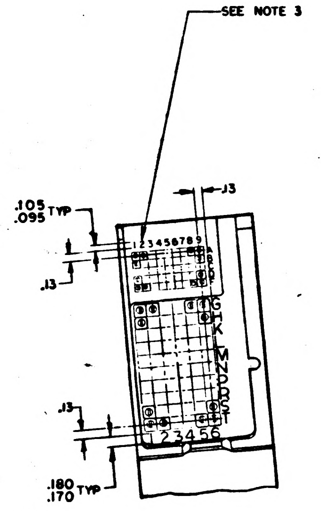
SECTION D D
SCALE 2/1

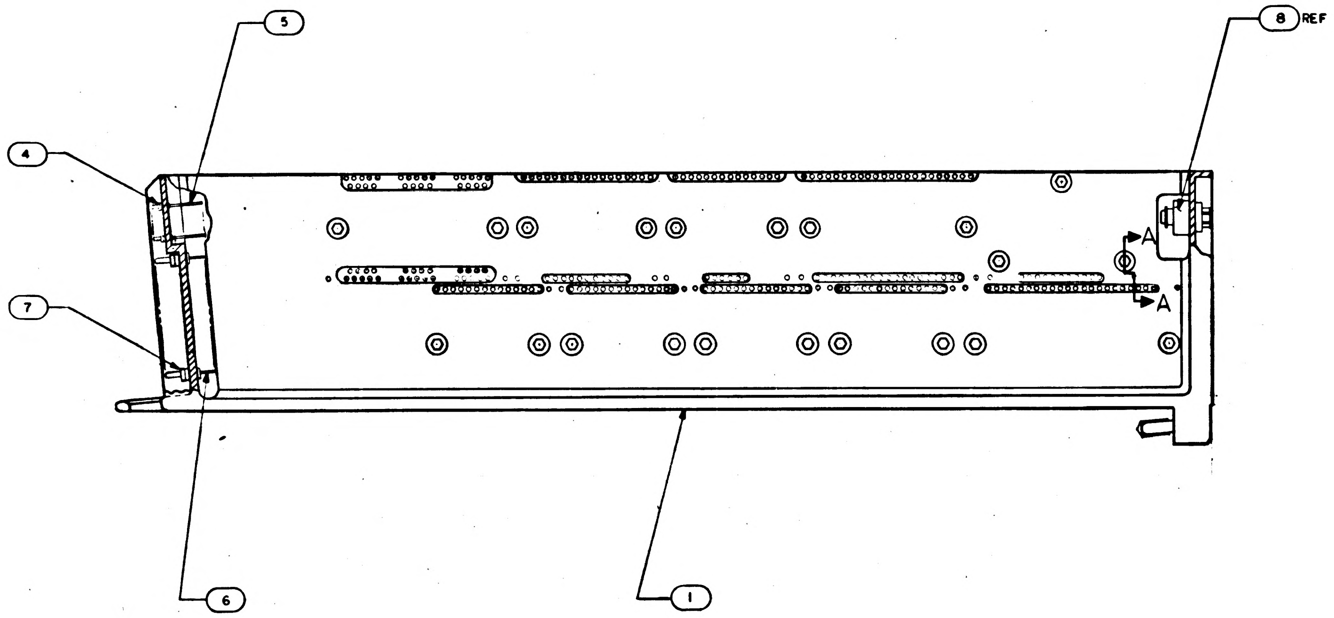


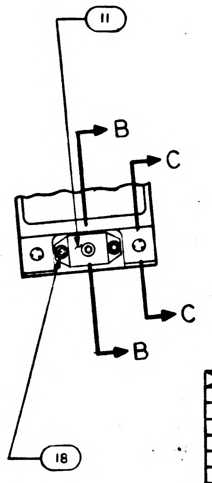
PARTIAL SECTION E-E
232 PLACES











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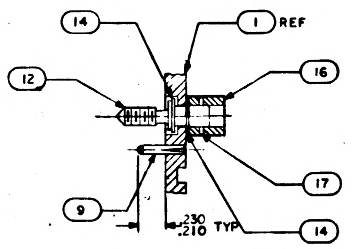
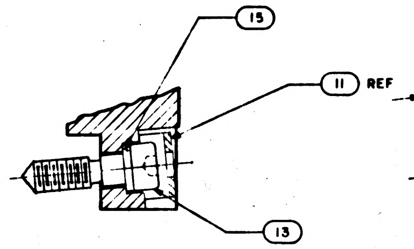
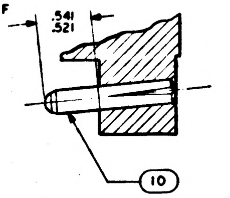


SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE
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QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010099	WIRING DIAGRAM	REF
1	1015759	WIRE LIST A A	25
1	1015763	WIRING HARNESS D	24
1	1015762	WIRING HARNESS C	23
1	1015761	WIRING HARNESS B	22
1	1015760	WIRING HARNESS A	21
2	MS 21045 C 04	NUT, SELF LOCKING HEX	20
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	19
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	18
21	1008145	SPRING, SPIRAL	17
21	1004207	DRIVE CYLINDER	16
1	1008099-2	WASHER	15
42	1004206	WASHER THRUST	14
1	1008098	SCREW, SOCKET HEAD	13
21	1008095	SCREW, JACK	12
1	1001317	RETAINER, JACK SCREW	11
2	1010620-2	PIN, GUIDE	10
20	1010620-1	PIN, GUIDE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
60	1010383	INSULATOR, WRAPOST MALE	7
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
45	1006782-2	CONTACT, WRAPOST MALE MIN	5
45	1006775	INSULATOR, WRAPOST MALE MIN	4
232	1006781-2	CONTACT, WRAPOST FEMALE MIN	3
232	1006774	INSULATOR, WRAPOST FEMALE MIN	2
1	1008179	FRAME	1

LIST OF MATERIALS

1007159		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.02 ANGLES ±1° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS DWG. NO. CONTRACT	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
NEXT ASSY	USED ON	MATERIAL	DRAWN [illegible] DATE 9-6-63 CHECKED APPROVAL [illegible] 10-8-63 APPROVAL	FRAME ASSEMBLY TRAY 9	
APPLICATION		HEAT TREATMENT FINAL FINISH	NASA APPROVAL [illegible] 10-8-63 MIT APPROVAL [illegible]	CODE IDENT NO.	SIZE E NASA DRAWING NO. 1007149 SCALE 1/1 WT SHEET 1 OF 2

MASTER

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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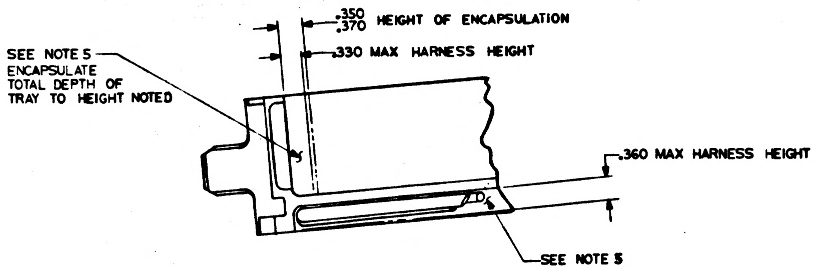
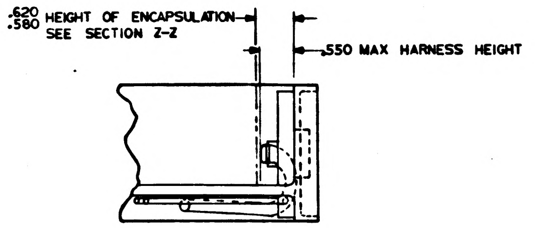
G	REVISED PER TDRR 05546	30 JAN 69	2-4


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5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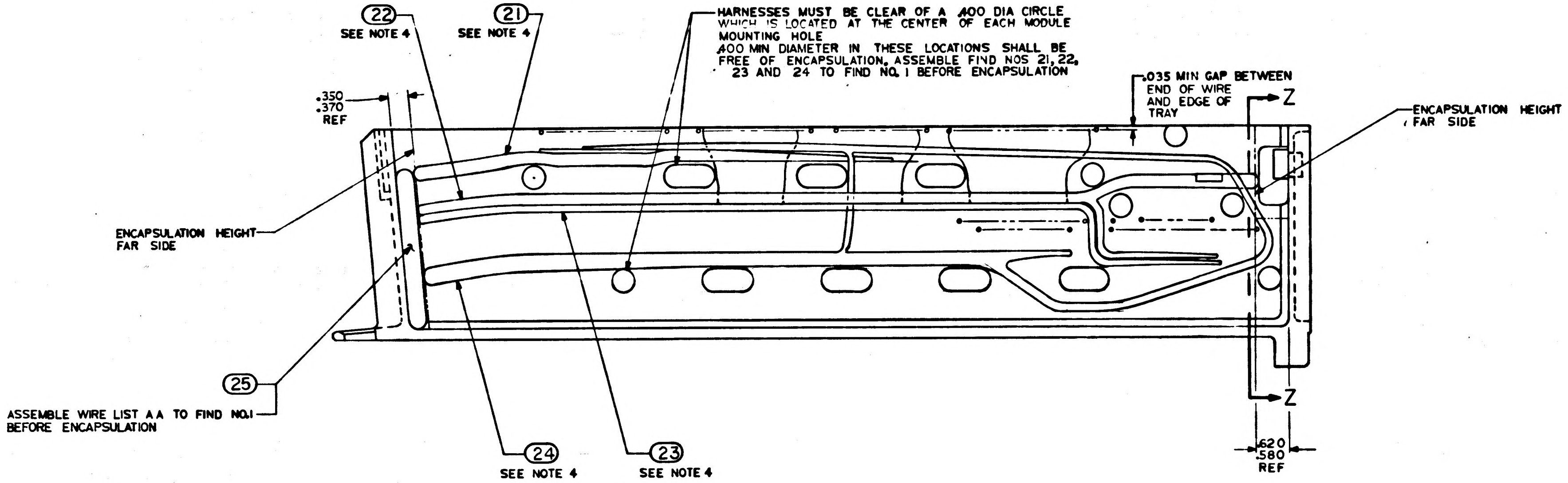
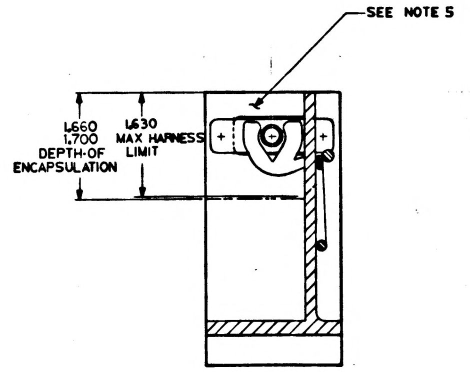
.580 HEIGHT OF ENCAPSULATION
SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT


22
SEE NOTE 4
21
SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
.350
.370
REF
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
24
SEE NOTE 4
23
SEE NOTE 4
Z
.620
.580
REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION


SEE NOTE 5
1.660
1.700
DEPTH-OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

SECTION Z-Z

REV F THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007159	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN A. Drapski DATE 11-19-63
CHECKED Joe Martin
APPROVAL D.R. Test 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007149
SCALE 1/1 WT SHEET 2 OF 2

MASTER

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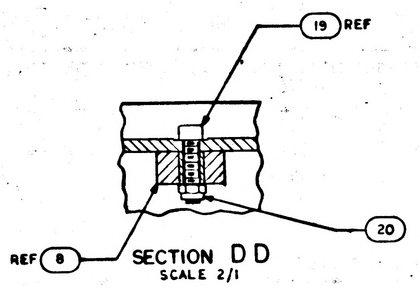
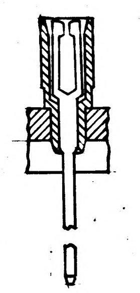
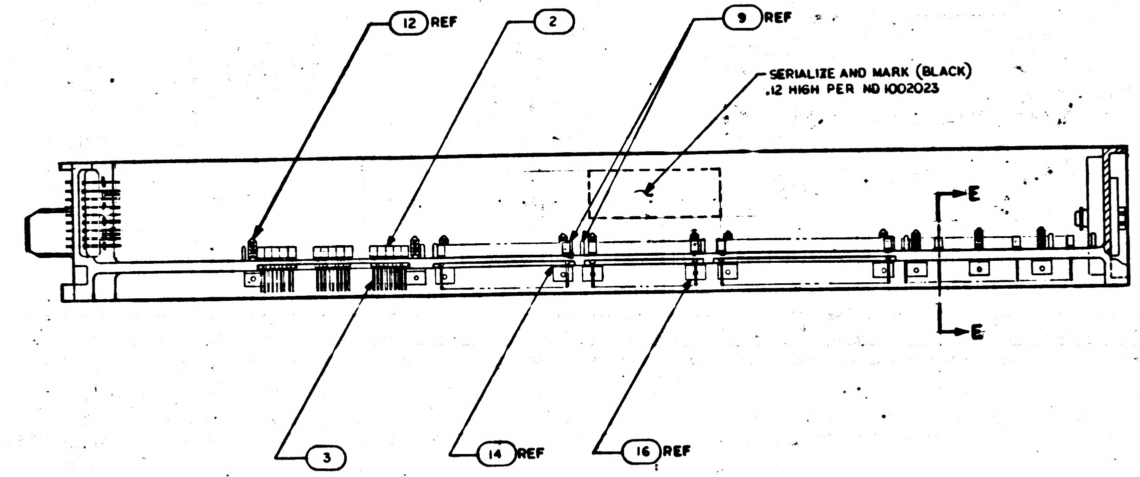
SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR 03773	10-8-63	[illegible]
F	REVISED PER TDRR 04792	[illegible]	[illegible]
G	REVISED PER TDRR 05546	[illegible]	[illegible]
H	REVISED PER. TDRR 06467	[illegible]	[illegible]

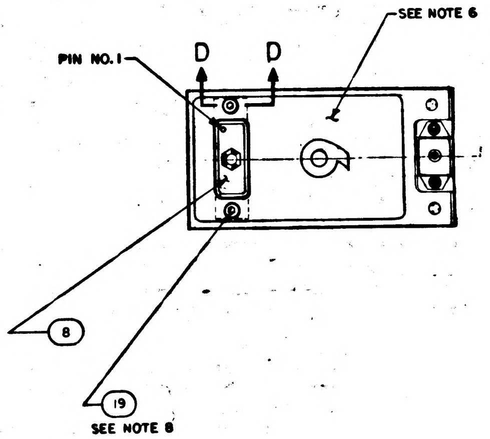


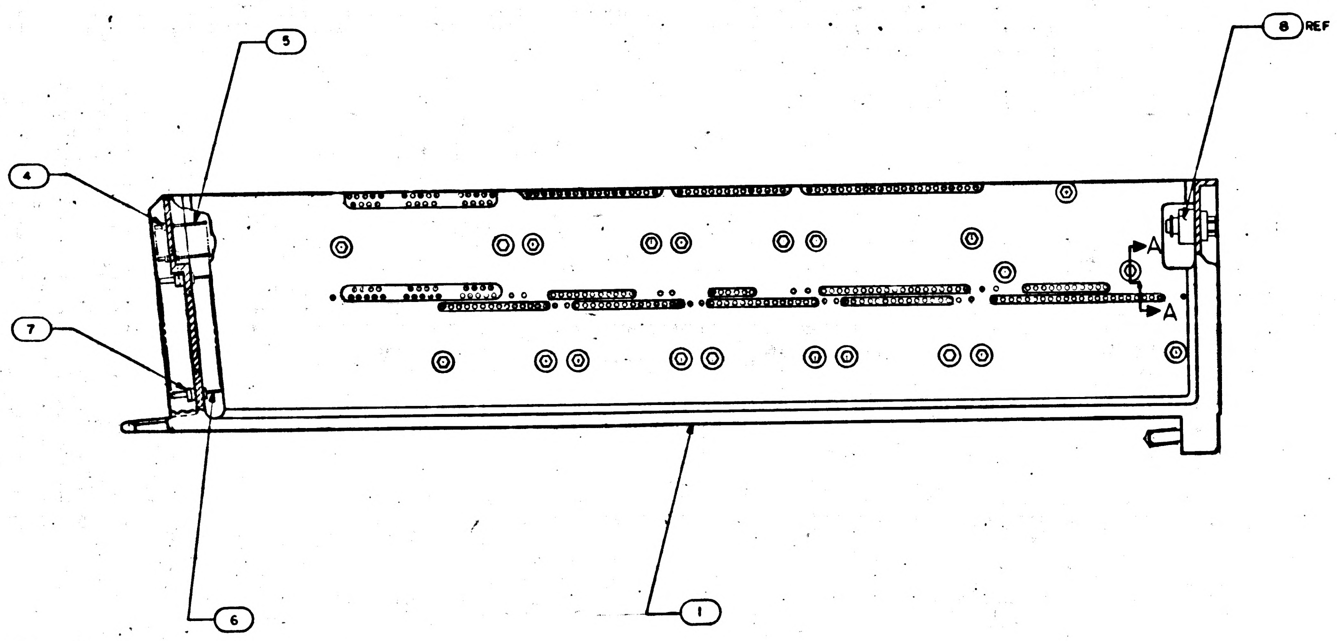
SECTION D D
SCALE 2/1

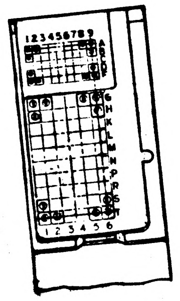


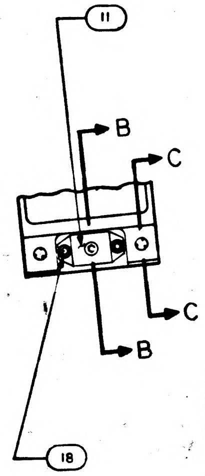
PARTIAL SECTION E-E
232 PLACES







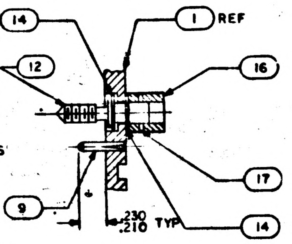




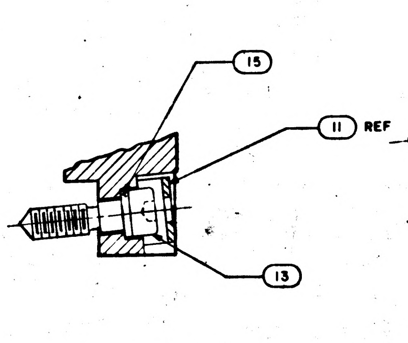
REV F REPLACES REV E

NOTES:

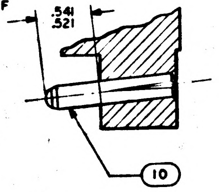
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NOS 21,22,23,24 AND 25 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO. 18 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS. 18 & 19 TO FIND NO. 1 TO BE 5.0/5.5 IN LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 10020C5. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
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1	1015763	WIRING HARNESS D	24
1	1015762	WIRING HARNESS C	23
1	1015761	WIRING HARNESS B	22
1	1015760	WIRING HARNESS A	21
2	MS 21045 C 04	NUT, SELF LOCKING HEX	20
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	19
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	18
21	1008145	SPRING, SPIRAL	17
21	1004207	DRIVE CYLINDER	16
1	1008099-2	WASHER	15
42	1004206	WASHER THRUST	14
1	1008098	SCREW, SOCKET HEAD	13
21	1006095	SCREW, JACK	12
1	1001317	RETAINER, JACK SCREW	11
2	1010620-2	PIN, GUIDE	10
20	1010620-1	PIN, GUIDE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
60	1010383	INSULATOR, WRAPOST MALE	7
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
45	1006782-2	CONTACT, WRAPOST MALE MIN	5
45	1006775	INSULATOR, WRAPOST MALE MIN	4
232	1006781-2	CONTACT, WRAPOST FEMALE MIN	3
232	1006774	INSULATOR, WRAPOST FEMALE MIN	2
1	1008109	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007159	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN DATE 9-6-63
CHECKED
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

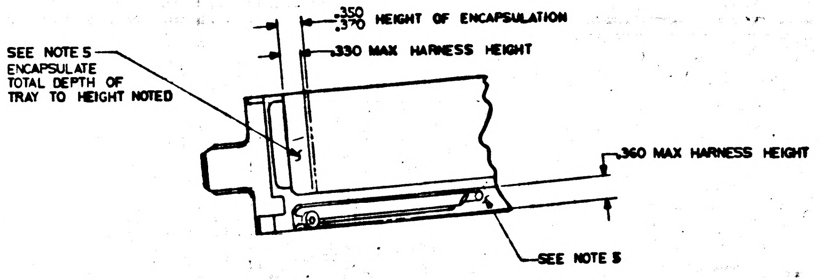
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007149
SCALE 1/1 WT SHEET 1 OF 2

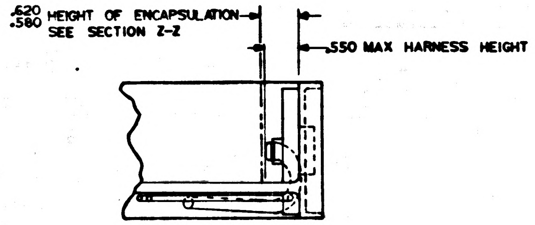
INCHES
0 1
PHOTOGRAPHIC SCALE ONLY

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
F	THIS SHEET ADDED PER TDRR 04792	[illegible]-20-68	[illegible]
G	REVISED PER TDRR 05546	[illegible]	[illegible]
H	REVISED PER TDRR 06467	9/1[illegible]	[illegible]


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5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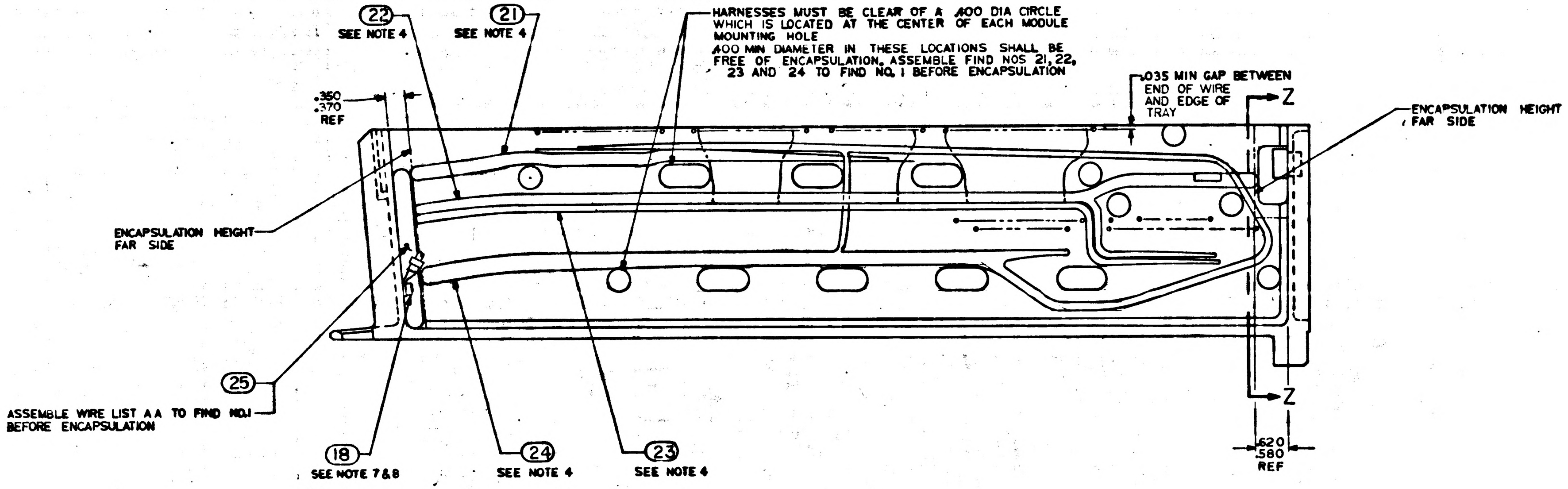
.580 HEIGHT OF ENCAPSULATION
SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT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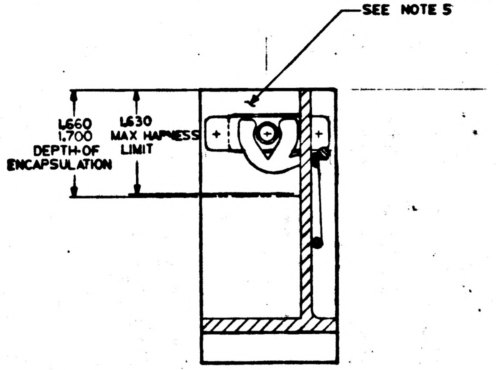
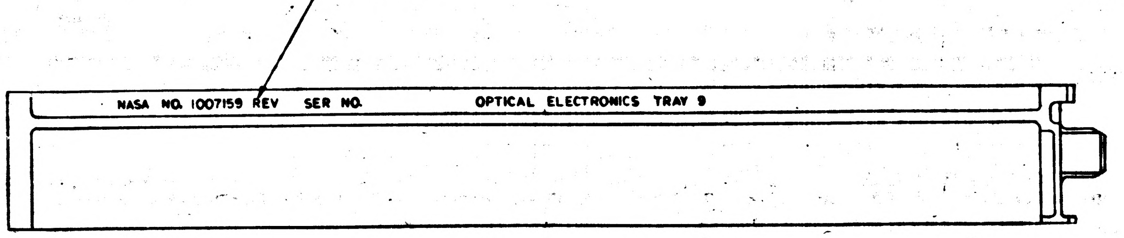
SEE NOTE 4
21
SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
.350
.370
REF
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
18
SEE NOTE 7 & 8
24
SEE NOTE 4
23
SEE NOTE 4
Z
.620
.580
REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.660
1.700
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007159 REV SER NO. OPTICAL ELECTRONICS TRAY 9

MARKING VIEW AFTER ENCAPSULATION

REV F THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007159	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO.
CONTRACT
DRAWN A. Bugaski DATE 11-15-68
CHECKED
APPROVAL [illegible] 11-20-68
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

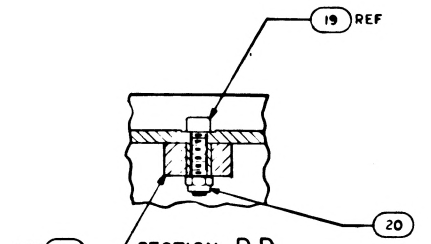
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007149
SCALE 1/1
WT
SHEET 2 OF 2

1007149

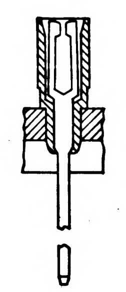
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

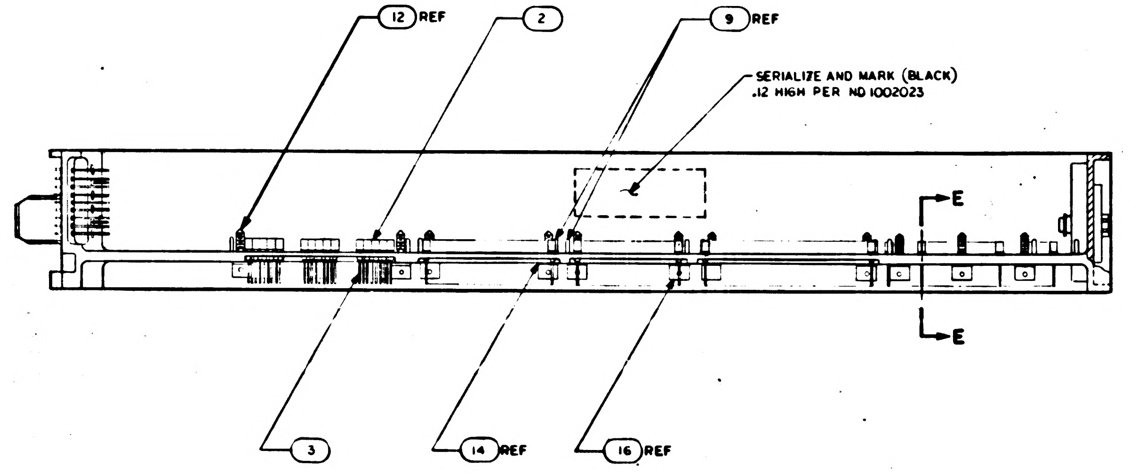
SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR 03773	1-5-63	WC
F	REVISED PER TDRR 04792	11-20-63	DM JW
G	REVISED PER TDRR 05546	30 JAN 64	ERK WR
H	REVISED PER. TDRR 06467	3/11/64	WR
J	REVISED PER TDRR 07138	31 MAR 64	SWP PEK

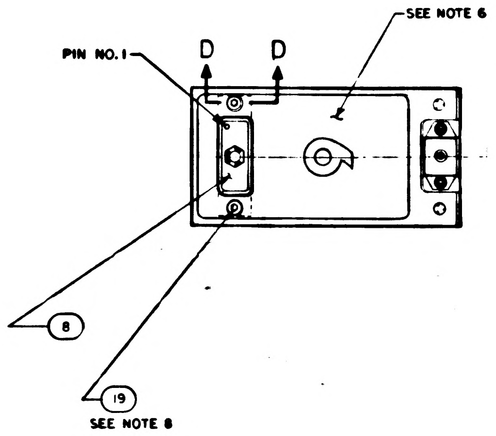


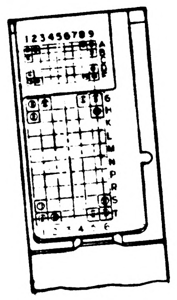
SECTION D D
SCALE 2/1

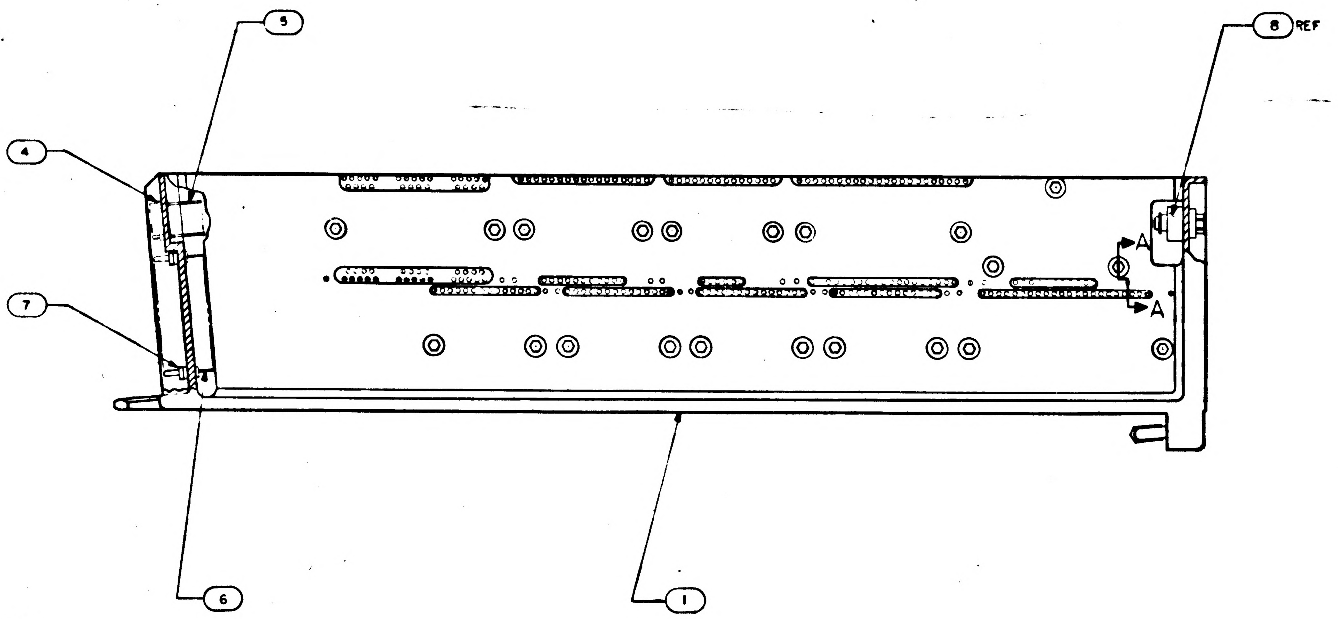


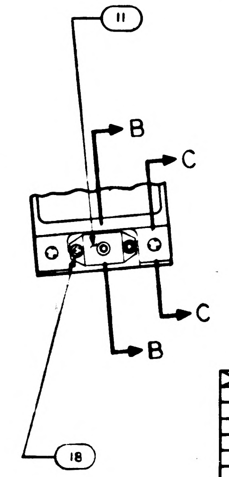
PARTIAL SECTION E-E
232 PLACES









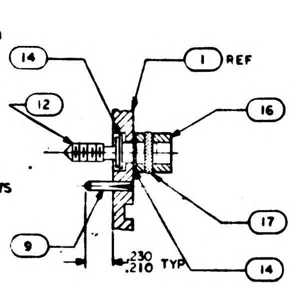


REV F REPLACES REV E

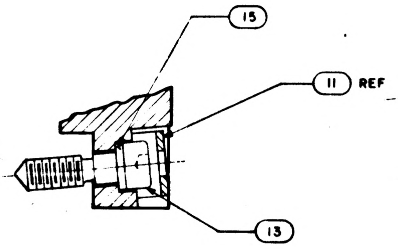
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
⨯	1010099	WIRING DIAGRAM	REF
1	1015759	WIRE LIST AA	25
1	1015763	WIRING HARNESS D	24
1	1015762	WIRING HARNESS C	23
1	1015761	WIRING HARNESS B	22
1	1015760	WIRING HARNESS A	21
2	MS 21045 C 04	NUT, SELF LOCKING HEX	20
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	19
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	18
21	MS 171433	PIN, SPRING	17
21	1004207	DRIVE CYLINDER	16
1	1008099-2	WASHER	15
42	1004206	WASHER THRUST	14
1	1008098	SCREW, SOCKET HEAD	13
21	1008095	SCREW, JACK	12
1	1001317	RETAINER, JACK SCREW	11
2	1010620-2	PIN, GUIDE	K
20	1010620-1	PIN, GUIDE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
60	1010363	INSULATOR, WRAPOST MALE	7
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
45	1006782-2	CONTACT, WRAPOST MALE MIN	5
45	1006775	INSULATOR, WRAPOST MALE MIN	4
232	1006781-2	CONTACT, WRAPOST FEMALE MIN	3
232	1006774	INSULATOR, WRAPOST FEMALE MIN	2
1	1008109	FRAME	1

LIST OF MATERIALS

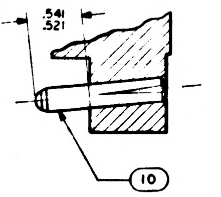
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NOS 21,22,23,24 AND 25 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM.) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO. 18 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS. 18 & 19 TO FIND NO. 1 TO BE 5.0/5.5 IN LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

1007159	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

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INSTRUMENTATION LAB
Cambridge Mass
Contract NAS 9-497
DRAWN Gary Bell DATE 9-6-63
CHECKED
APPROVAL B. R. Test 10-8-63
APPROVAL
NASA APPROVAL W. J. Rh 10-8-63
MIT APPROVAL WKupb 8 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007149
SCALE 1/1
WT
SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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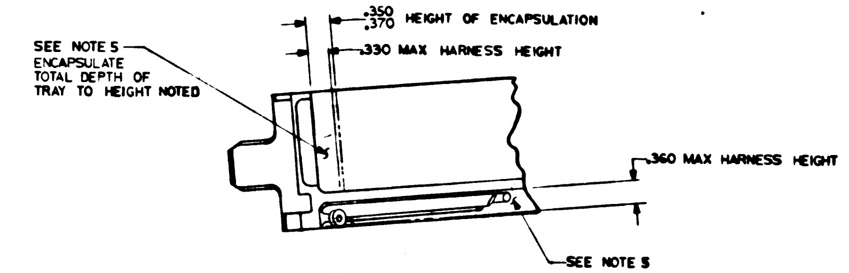
H	REVISED PER TDRR 06467	4/15/69	
J	REVISED PER TDRR 07138		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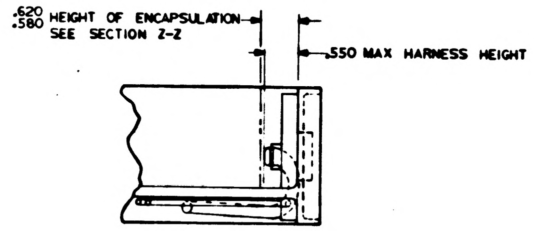
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE
TOTAL DEPTH OF
TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5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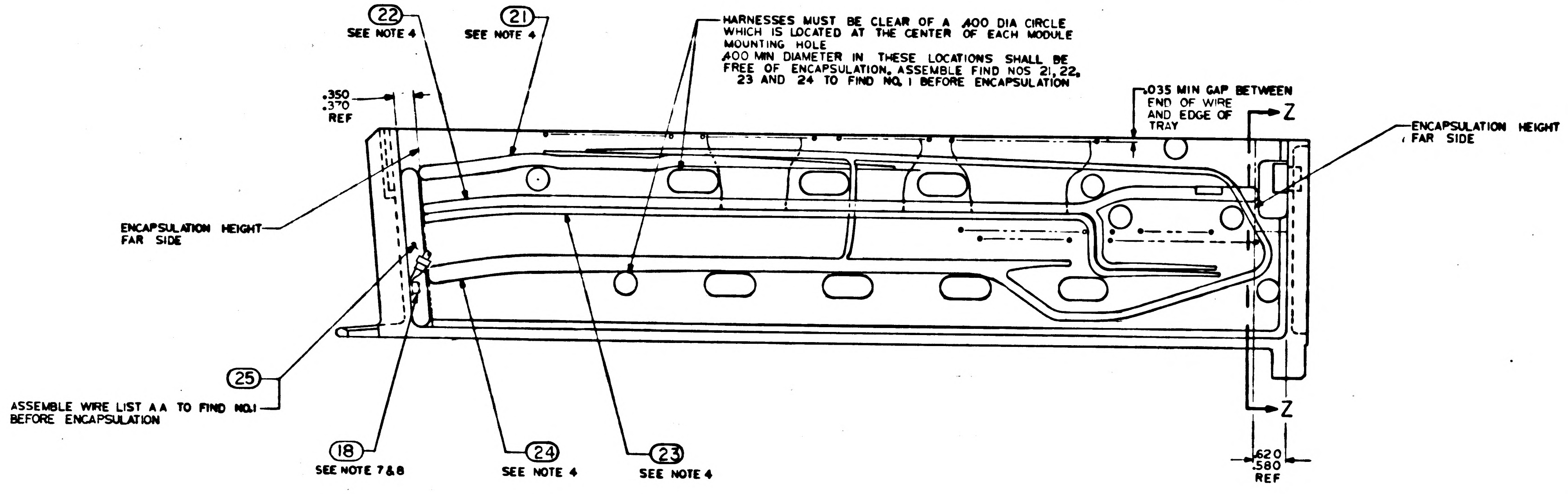
.580 HEIGHT OF ENCAPSULATION
SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT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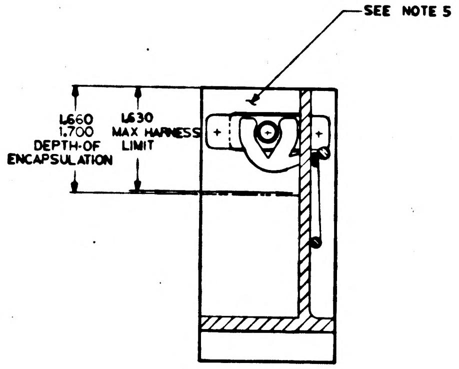
SEE NOTE 4
21
SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
.350
.370
REF
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
18
SEE NOTE 7&8
24
SEE NOTE 4
23
SEE NOTE 4
Z
.620
.580
REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9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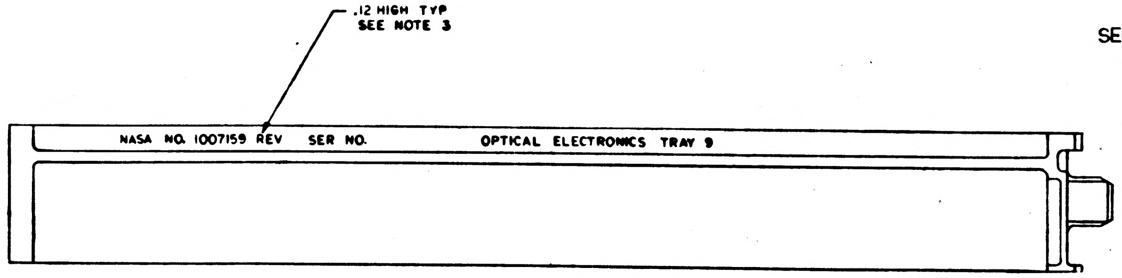
1.700
DEPTH OF
ENCAPSULATION
1.630
MAX HARNESS
LIMIT

SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007159 REV SER NO. OPTICAL ELECTRONICS TRAY 9

MARKING VIEW AFTER ENCAPSULATION

REV F THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007159	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
Contract NAS 9-497
DRAWN DATE
CHECKED
APPROVAL 11-21-68
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007149
SCALE 1/1
WT
SHEET 2 OF 2

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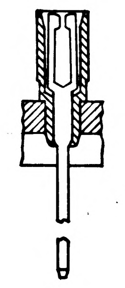
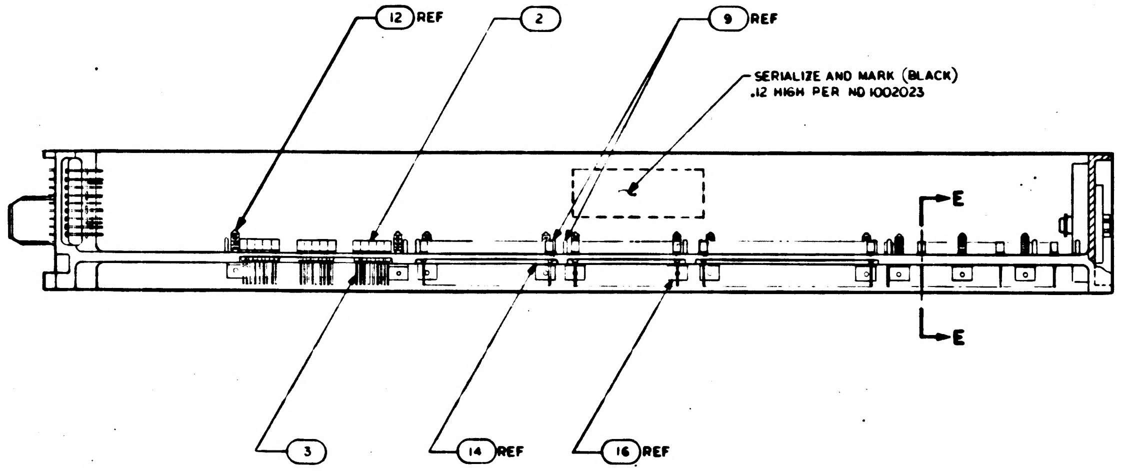
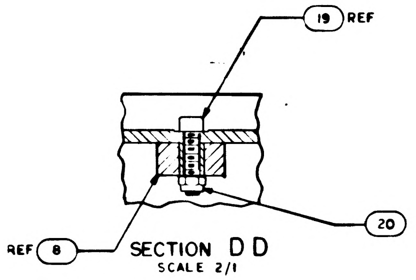
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR C3773	10-5-63	WC
F	REVISED PER TDRR 04792	[illegible]	[illegible]
G	REVISED PER TDRR 05546	30 Jan 64	[illegible]
H	REVISED PER TDRR 06467	[illegible]	WR
J	REVISED PER TDRR 07138	31 MAR 64	[illegible]
K	REVISED PER TDRR 11051	29 JUL 64	JJ



PARTIAL SECTION E-E
232 PLACES





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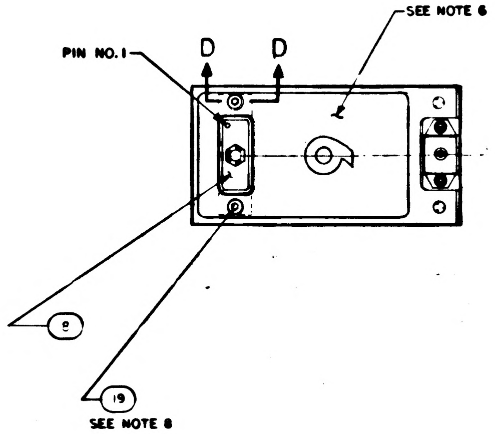
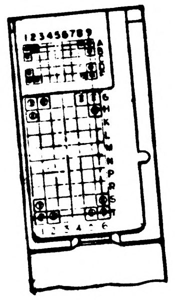
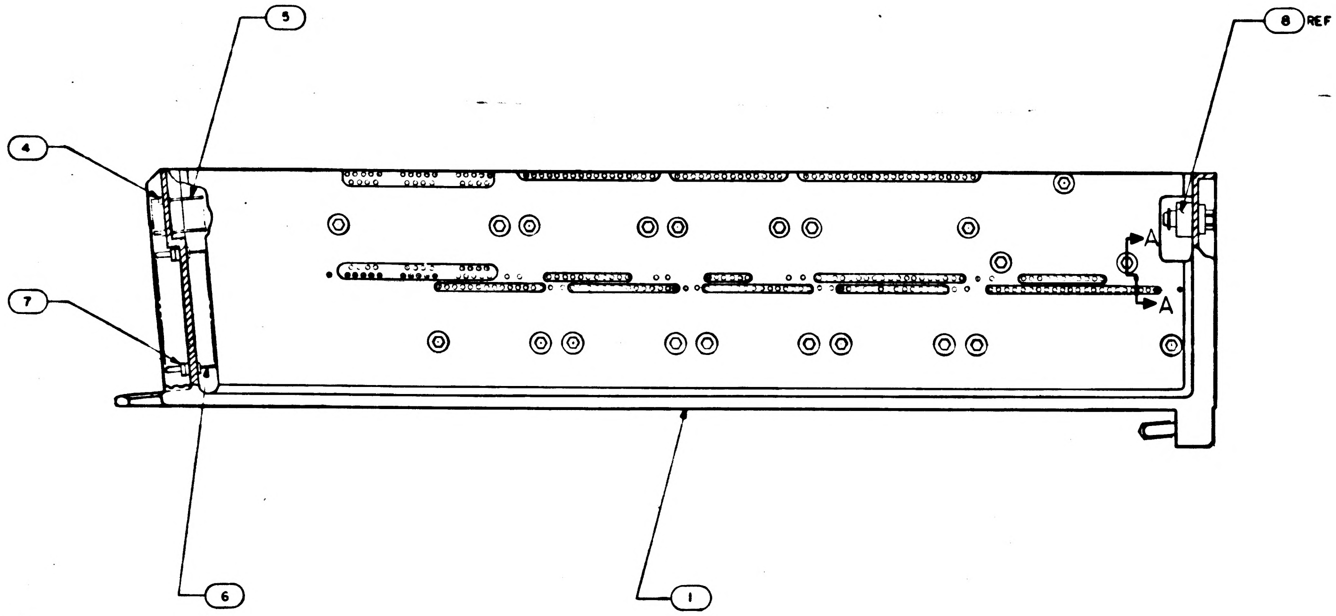
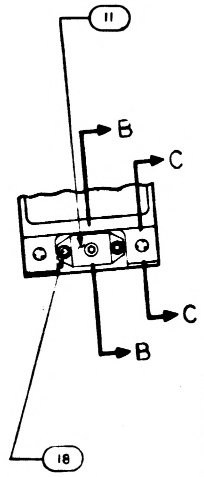
SCALE 2/1









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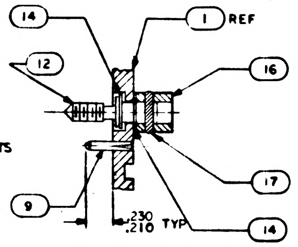
1	1015763	WIRING HARNESS D	24
1	1015762	WIRING HARNESS C	23
1	1015761	WIRING HARNESS B	22
1	1015760	WIRING HARNESS A	21
2	MS 21045 C 04	NUT, SELF LOCKING HEX	20
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	19
(J) 3	MS 16995-10	SCREW, CAP, SOCKET HEAD	18
21	MS 171433	PIN, SPRING	17
21	1004207	DRIVE CYLINDER	16
1	1008099-2	WASHER	15
42	1004206	WASHER THRUST	14
1	1008098	SCREW, SOCKET HEAD	13
21	1008095	SCREW, JACK	12
1	1001317	RETAINER, JACK SCREW	11
2	1010620-2	PIN, GUIDE	10
20	1010620-1	PIN, GUIDE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
(J) 60	1010383-1	INSULATOR, WRAPOST MALE	7
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
45	1006782-2	CONTACT, WRAPOST MALE MIN	5
45	1006775	INSULATOR, WRAPOST MALE MIN	4
232	1006781-2	CONTACT, WRAPOST FEMALE MIN	3
232	1006774	INSULATOR, WRAPOST FEMALE MIN	2
1	1008109	FRAME	1

LIST OF MATERIALS

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NOS 21,22,23,24 AND 25 TO FIND NO.1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO.18 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS. 18 & 19 TO FIND NO.1 TO BE 5.0/5.5 IN LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS



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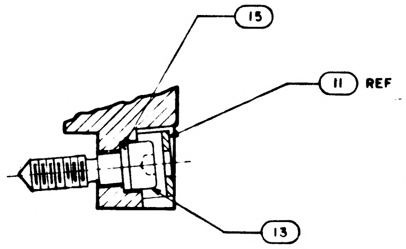
SCALE 2/1



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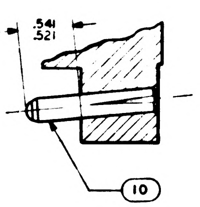
SCALE 2/1



SECTION C-C
SCALE 2/1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.02 ANGLES ±1°	M I T INSTRUMENTATION LAB CAMBRIDGE, MASS Contract NAS 9-497
DO NOT SCALE THIS DRAWING	DRAWN Gary [illegible] DATE 9-6-63
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	APPROVAL [illegible] 10-8-63
	APPROVAL
HEAT TREATMENT	NASA APPROVAL [illegible] 10-8-63
FINAL FINISH	MIT APPROVAL [illegible] 10-8-63

NEXT ASSY	USED ON
1007159	

APPLICATION

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

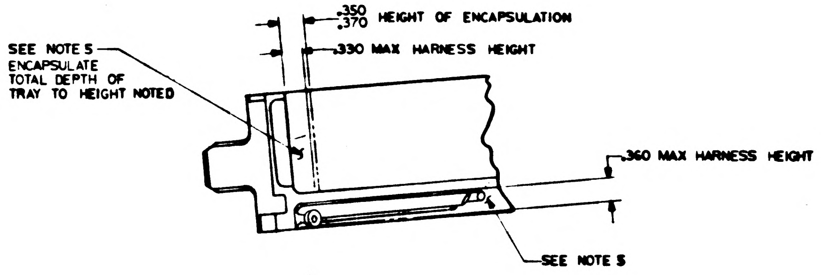
FRAME ASSEMBLY
TRAY 9

CODE IDENT NO.	SIZE	NASA DRAWING NO.
	E	1007149
SCALE 1/1	WT	SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
F	THIS SHEET ADDED PER TDRR 04792	[illegible]	
G	REVISED PER TDRR 05546	[illegible]	
H	REVISED PER TDRR 06467	4/16/[illegible]	
J	REVISED PER TDRR 07138	[illegible] 64	
K	REVISED PER TDRR 11051	JUL 64	JJJ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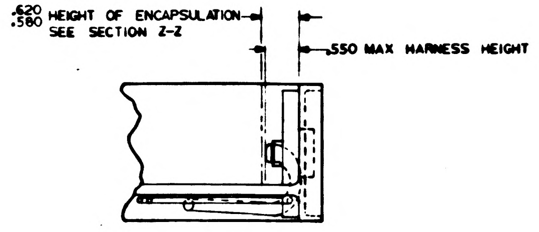
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE
TOTAL DEPTH OF
TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5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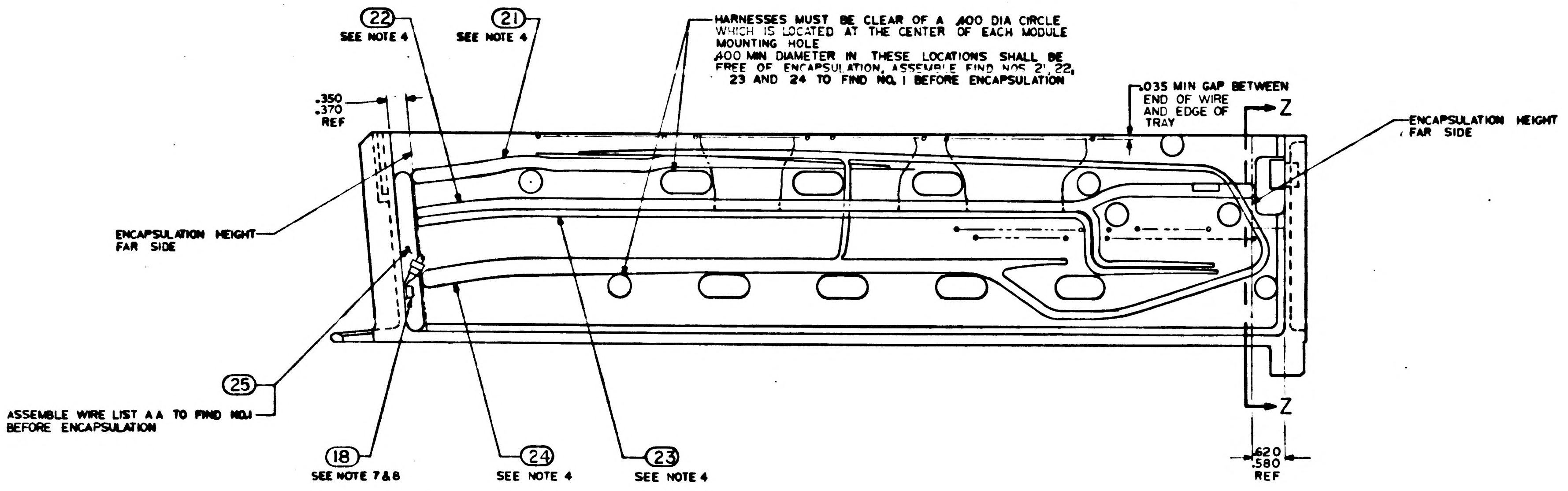
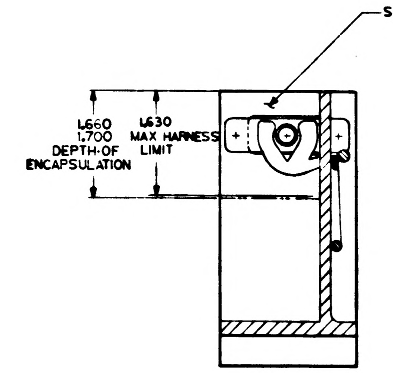
.580 HEIGHT OF ENCAPSULATION
SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT


22
SEE NOTE 4
21
SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.350
.370
REF
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
18
SEE NOTE 7&8
24
SEE NOTE 4
23
SEE NOTE 4
Z
.620
.580
REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
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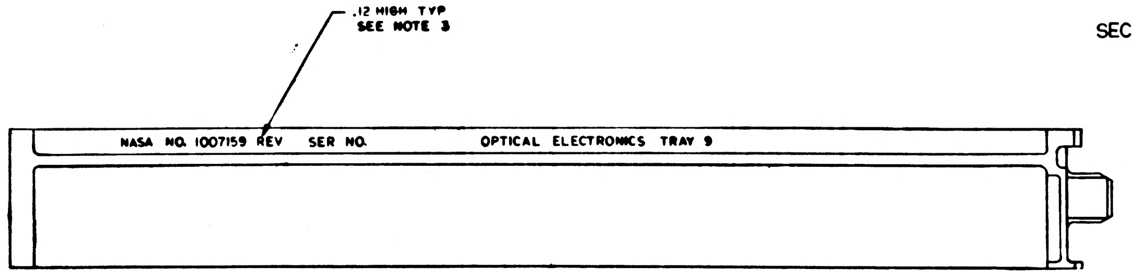
1.700
DEPTH OF
ENCAPSULATION
1.630
MAX HARNESS
LIMIT

SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007159 REV SER NO. OPTICAL ELECTRONICS TRAY 9

MARKING VIEW AFTER ENCAPSULATION

REV F THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007159	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
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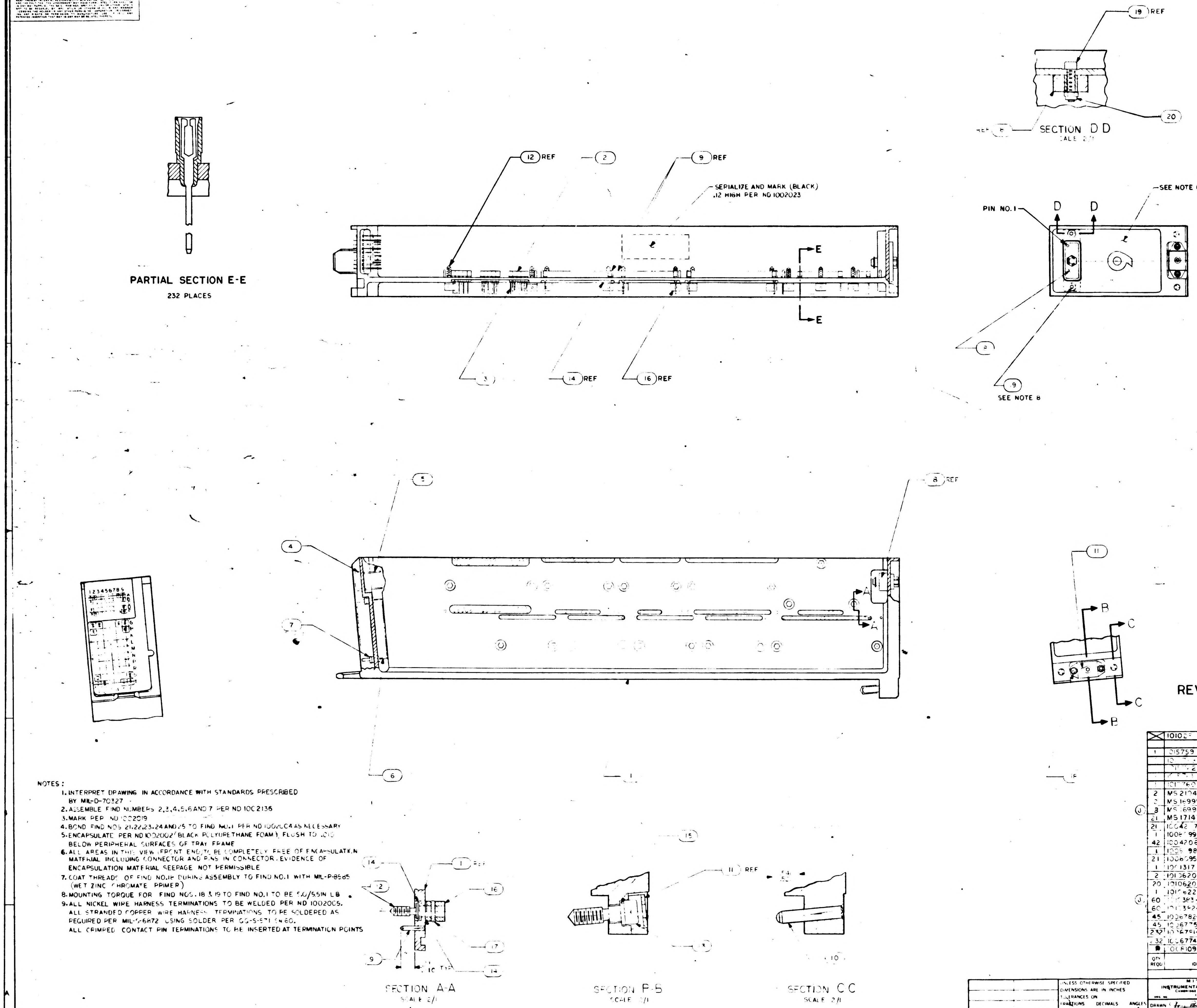
INSTRUMENTATION LAB
Cambridge, Mass
Contract NAS 9-497
DRAWN DATE 11-19-63
CHECKED
APPROVAL 11-21-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007149
SCALE 1/1
WT
SHEET 2 OF 2

SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR 03723		
F	REVISED PER TDRR 04792		
G	REVISED PER TDRR 05546		
H	REVISED PER TDRR 06467		
J	REVISED PER TDRR 07138	31 MAR 64	
K	REVISED PER TDRR 11051	23 JUL 64	
L	REVISED PER TDRR 14323	23 NOV 64	



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NOS 21,22,23,24 AND 25 TO FIND NO.1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO.18 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS. 18 & 19 TO FIND NO.1 TO BE 5.0/5.5 IN LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS

REV F REPLACES REV E

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	101028	WIRING DIAGRAM	REF
1	1015759	WIRE LIST AA	25
	10[illegible]	WIRING HARNESS D	24
	[illegible]2	WIRING HARNESS C	23
	[illegible]	WIRING HARNESS B	22
1	1017760	WIRING HARNESS A	21
2	MS 21045 C 04	NUT, SELF LOCKING HEX	20
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	19
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	18
21	MS 171433	PIN, SPRING	17
21	1004207	DRIVE CYLINDER	16
1	1006[illegible]99-2	WASHER	15
42	1004206	WASHER THRUST	14
1	100[illegible]98	SCREW, SOCKET HEAD	13
21	1006095	SCREW, JACK	12
1	1001317	RETAINER, JACK SCREW	11
2	1010620-2	PIN, GUIDE	10
20	1010620-1	PIN, GUIDE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
60	1010383-1	INSULATOR, WRAPOST MALE	7
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
45	1006782-2	CONTACT, WRAPOST MALE MIN	5
45	1006775	INSULATOR, WRAPOST MALE MIN	4
232	1006791-2	CONTACT, WRAPOST FEMALE MIN	3
232	1006774	INSULATOR, WRAPOST FEMALE MIN	2
●	1008109	FRAME	1

LIST OF MATERIALS

1007159	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
.02 ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

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INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS 9-497
DRAWN DATE 2-6-63
CHECKED
APPROVAL 2-8-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

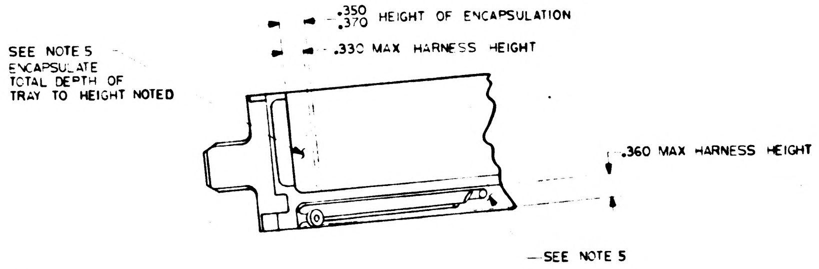
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

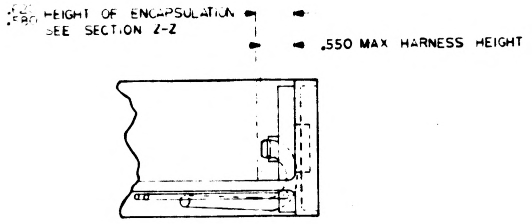
FRAME ASSEMBLY
TRAY 9

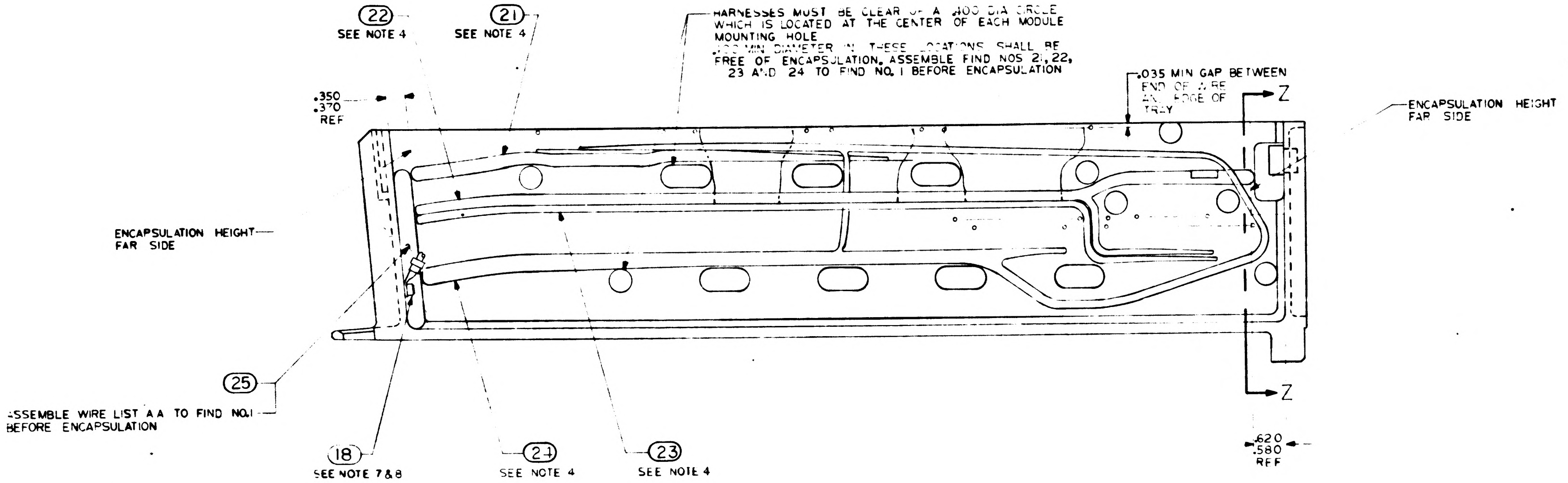
CODE IDENT NO
SIZE E
NASA DRAWING NO 1007149
SCALE 1/1
WT
SHEET 1 OF 2

1007149 L

SYM	DESCRIPTION	DATE	APPR
F	THIS SHEET ADDED PER TDRR 02792	11 20 63	RAL
G	REVISED PER TDRR 05546		
H	REVISED PER TDRR 06[illegible]7		WR
J	REVISED PER TDRR 07138	31 MAR 64	PBR
K	REVISED PER TDRR 11051	29 JUL 64	JJJ
L	REVISED PER TDRR 14323	23-NOV-64	

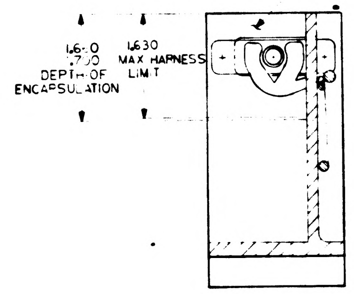

.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5


.580 HEIGHT OF ENCAPSULATION
SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT

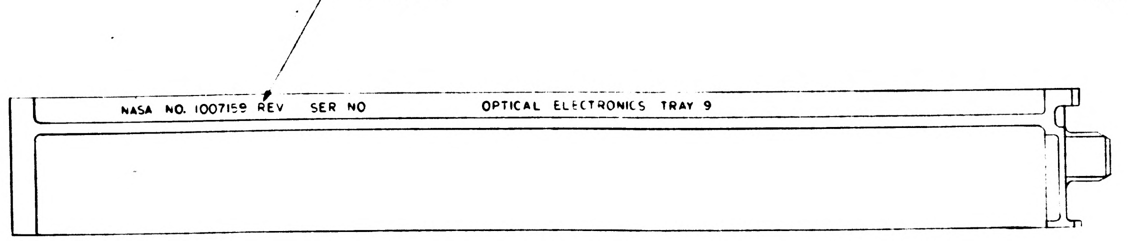

22
SEE NOTE 4
21
SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
.350
.370
REF
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
18
SEE NOTE 7 & 8
24
SEE NOTE 4
23
SEE NOTE 4
Z
.620
.580
REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9

SEE NOTE 5


1.640
1.700
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007159 REV SER NO
OPTICAL ELECTRONICS TRAY 9

MARKING VIEW AFTER ENCAPSULATION

REV F THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007159	

APPLICATION

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DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
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CAMBRIDGE MASS
Contract NAS 9-497
DRAWN DATE 1-1963
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007149
SCALE 1/1
WT
SHEET 2 OF 2

1007149 L

1007149

REVISIONS T0212 C1580				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
1008109	Frame, Tray 9	1
1006774	Insulator, Wrapost, Female Miniature	240
1006781-2	Contact, Wrapost, Female Miniature	240
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
• ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1

- NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

NEXT ASSY	USED ON
1007159	

APPLICATION

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TOLERANCES ON
FRACTIONS DECIMALS ANGLES

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CONTRACT
NAS 9-153

		DATE
APPROVED	D.B. Test	6-14-63
CHECKED		
DRAWN		

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
	14 June

FRAME ASSEMBLY,
TRAY 9

SCALE	UNIT WT.	CODE IDENT.

MIT
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LABORATORY
CAMBRIDGE, MASS.

DWG. NO.

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

NASA DRAWING NO.
1007149

SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

APOLLO G&N Specification
PS-1007149
30 April 1964
Class A Release
TDRR 08054

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 9

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 9

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 9 for use in APOLLO Guidance and Navigation Equipment.

30 Apr 64
MIT/IL DATE

4/30/64
NASA/MSC APPROVAL DATE

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 9

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 9, Drawing 1007149, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATION

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007149	Final Test Method for Frame Assembly Tray 9

DRAWINGS

APOLLO G&N

1007149	Frame Assembly Tray 9
1015760	Wiring Harness A Tray 9 (For Reference Only)
1015761	Wiring Harness B
1015762	Wiring Harness C
1015763	Wiring Harness D
1015759	Wire List A-A

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007150

REVISIONS TDRR 02339

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 02874	8-28-63	J.J.M.

PART NO.	DESCRIPTION	REQD.
1008110	Frame, Tray 10	1
1006774	Insulator, Wrapost, Female Miniature	232
1006781-2	Contact, Wrapost, Female Miniature	232
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	10
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	16
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	32
1008099-2	Washer (Special)	1
		16
		16
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1008145	Pin, Spring	16
1004207	Drive Cylinder	16

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
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NAS 9-153

		DATE
APPROVED		7-31-63
CHECKED	J.J.M.	
DRAWN	J.J.M.	

APPROVED FOR MSC
Jack Barnard

MIT/IL APPROVAL	DATE
W Kupfer	31 July 63

FRAME ASSEMBLY
TRAY 10

SCALE	UNIT WT.	CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.

DWG. NO.

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

NASA DRAWING NO.
1007150

SHEET 1 OF 1

MASTER

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FOR

FRAME ASSEMBLY TRAY 10

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT,	NASA
8-18-64	A	11,689	1,2	WR	WJR

This specification consists of page i to iii and 1 to 5 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 10

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 10 for use in APOLLO Guidance and Navigation Equipment.

29 April 64
MIT/IL DATE

4/29/64

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PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 10

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 10, Drawing 1007150, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007150	Final Test Method for Frame Assembly Tray 10

DRAWINGS

APOLLO G&N

1007150	Frame Assembly Tray 10

APOLLO G&N Specification
PS-1007150
29 April 1964
Class A Release
TDRR 09051

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 10

Record of Revisions

Ⓜ

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
[illegible]		[illegible]	[illegible]	WR	WJR

This specification consists of page i to iii and 1 to 3 inclusive.

APOLLO G&N Specification
PS-1007150
29 April 1964

PROCUREMENT SPECIFICATION
FOR
FRAME ASSEMBLY TRAY 10

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 10 for use in APOLLO Guidance and Navigation Equipment.

29 April 64
MIT/IL DATE

4/29/64
NASA/MSC APPROVAL DATE

PREPARED BY	TITLE	DATE
John Walisewicz	Eng Spec Writer	12 Feb '64
AC Spark Plug		
EXAMINED BY	TITLE	DATE
K P Osberg	Proj Engr	13 Mar 64
AC Spark Plug		
APPROVED BY	TITLE	DATE
John Green	Engr	29 April '64
MIT/IL		
APPROVED BY	TITLE	DATE
MIT/IL		
APPROVED BY	TITLE	DATE
MIT/IL		

APOLLO G&N Specification
PS1007150 A

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 10

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 10, Drawing 1007150, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007150	Final Test Method for Frame Assembly Tray 10

DRAWINGS

APOLLO G&N

1007150	Frame Assembly Tray 10

3. REQUIREMENTS

3.1 GENERAL SPECIFICATIONS. Unless otherwise specified, all of the requirements of Specification ND-1002210 shall apply as requirements of this specification.

3.2 DESCRIPTION. The tray is to be used in the Power and Servo Assembly as a mounting frame and as an interconnection for the modules used in the Power Diodes and Signal Conditioning Electronics Assembly.

3.3 FUNCTIONAL REQUIREMENTS

3.3.1 Insulation Resistance Test. The insulation resistance test shall be conducted from each individual connector pin, with the exception of G4 of connector 45A10-P1, to the frame assembly. The resistance from each connector pin to the assembly frame shall be equal to or greater than 100 megohms.

3.3.2 Continuity and DC Resistance and Shorting. The continuity and dc resistance and shorts test shall be as specified in JDC 09824 of FTM1007150.

3.4 PERFORMANCE AND PRODUCT CHARACTERISTICS

3.4.1 Service Life

3.4.1.1 Operating Life. The assembly shall meet performance specifications for at least 2000 hours of operation, excluding the supplier's test time of the completed unit.

3.4.1.2 Shelf Life. The assembly shall be packaged as specified in MIL-P-116, Method 2, and shall have a shelf life of at least 5 years, without operation, at ambient room temperature after final acceptance at the supplier's facility.

3.4.2 Reliability. Design objectives require maximum reliability of the assembly during its period of useful life. Every effort shall be made to design and produce units capable of meeting a maximum failure rate of 0.2 failures per million hours.

4. QUALITY ASSURANCE PROVISIONS

4.1 GENERAL SPECIFICATION. Unless otherwise specified herein, all the quality assurance provisions of Specification ND-1002210 shall form a part of this specification.

4.2 NASA ACCEPTANCE INSPECTION. The NASA acceptance inspection shall be in accordance with Specification FTM-1007150.

5. PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND-1002210.

6. NOTES

Notice: When APOLLO G&N drawings, specifications, or other data are used for any purpose other than in connection with a definitely related NASA procurement operation, NASA thereby incurs no responsibility nor any obligation whatsoever, and the fact that NASA may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication of otherwise as in any manner licensing the holder or any other person or corporation or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

JW:efo

1007150

REVISIONS TDRR 02339

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 02874	8-28-63	J.J.M.
	B	REVISED PER TDRR 03000	9-12-63	WK.

PART NO.	DESCRIPTION	REQD.
1008110	Frame, Tray 10	1
1006774	Insulator, Wrapost, Female Miniature	232
1006781-2	Contact, Wrapost, Female Miniature	232
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	10
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	16
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206-	Washer, Thrust	32
1008099-2	Washer (Special)	1
		16
		16
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1008145	Pin, Spring	16
1004207	Drive Cylinder	16
1007093	Assembly, Buffer Resistor Module	1

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

NEXT ASSY	USED ON
1007160	

APPLICATION

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DO NOT SCALE THIS DRAWING

MATERIAL:

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CONTRACT
NAS 9-153

		DATE
APPROVED		7-31-63
CHECKED	J.J.M.	
DRAWN	J.J.M.	

APPROVED FOR MSC

MIT/IL APPROVAL — DATE 31 July 63

FRAME ASSEMBLY
TRAY 10

SCALE	UNIT WT.	CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.

DWG. NO.

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

NASA DRAWING NO.
1007150

SHEET 1 OF 1

INCHES
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[illegible]

APOLLO G&N Specification
~~PS1007150-B~~
29 April 1964
Class A Release
TDRR 08051

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 10

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ [illegible]		[illegible]	[illegible]	WR	WJR
2/9/65	B	16250	1 RA/nv	WK	WJR

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION
FOR
FRAME ASSEMBLY TRAY 10

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the Frame Assembly Tray 10, hereafter called the assembly.

1.2 CLASSIFICATION. The requirements for Part Numbers 1007150, 1021220-011 and 1007450-011 shall be designated as Type I.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-P-116	Preservation, Methods of

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007150	Final Test Method for Frame Assembly Tray 10

DRAWINGS

APOLLO G&N

1007150	Frame Assembly Tray 10
1007450	Frame Assembly Tray 10
1021220	Frame Assembly Tray 10

1007150

REVISIONS TDRR 02339

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 02874	8-28-63	J.J.M.
	B	REVISED PER TDRR 03000	9-12-63	WK.
	C	SUPERSEDED PER TDRR 03773		RPL WK

PART NO.	DESCRIPTION	REQD.
1008110	Frame, Tray 10	1
1006774	Insulator, Wrapost, Female Miniature	232
1006781-2	Contact, Wrapost, Female Miniature	232
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
1010622-1	Connector Receptacle	1
1010620-1	Pin, Guide	10
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	16
1008098	Screw, Socket Head, Externally Relieved Body	1
1004206	Washer, Thrust	32
1008099-2	Washer (Special)	1
		16
		16
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2
1008145	Pin, Spring	16
1004207	Drive Cylinder	16
1007093	Assembly, Buffer Resistor Module	1

REV C REPLACED BY REV D

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
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NAS 9-153

		DATE
APPROVED		7-31-63
CHECKED	J.J.M.	
DRAWN	J.J.M.	

APPROVED FOR MSC
Jack Barnes

MIT/IL APPROVAL	DATE
W Kupfer	31 July 63

FRAME ASSEMBLY
TRAY 10

SCALE	UNIT WT.	CODE IDENT.

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CAMBRIDGE, MASS.

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SHEET 1 OF 1

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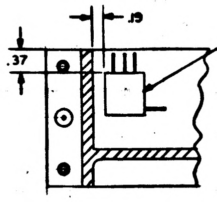
E	REVISED PER TDRR 03793		WK



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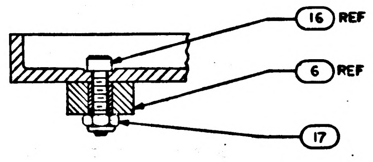

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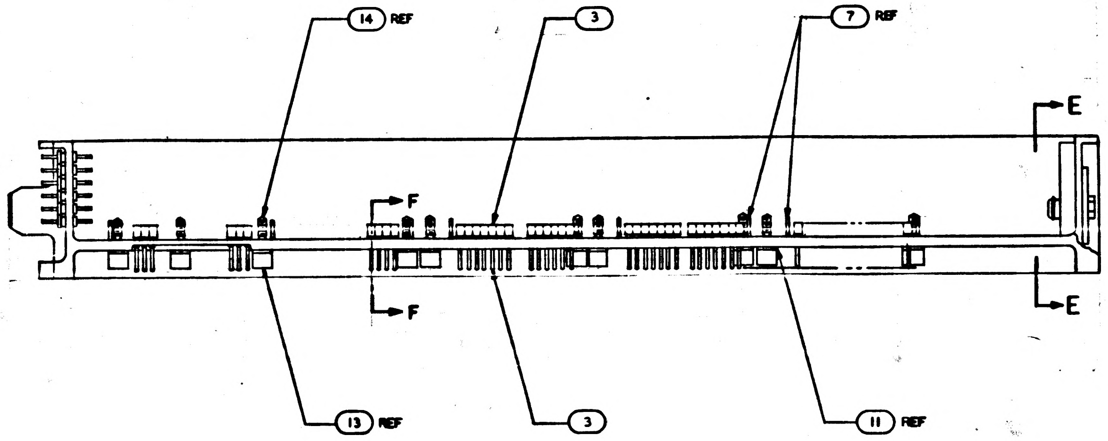

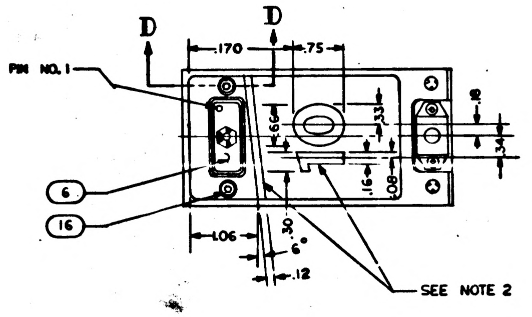

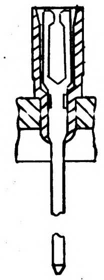

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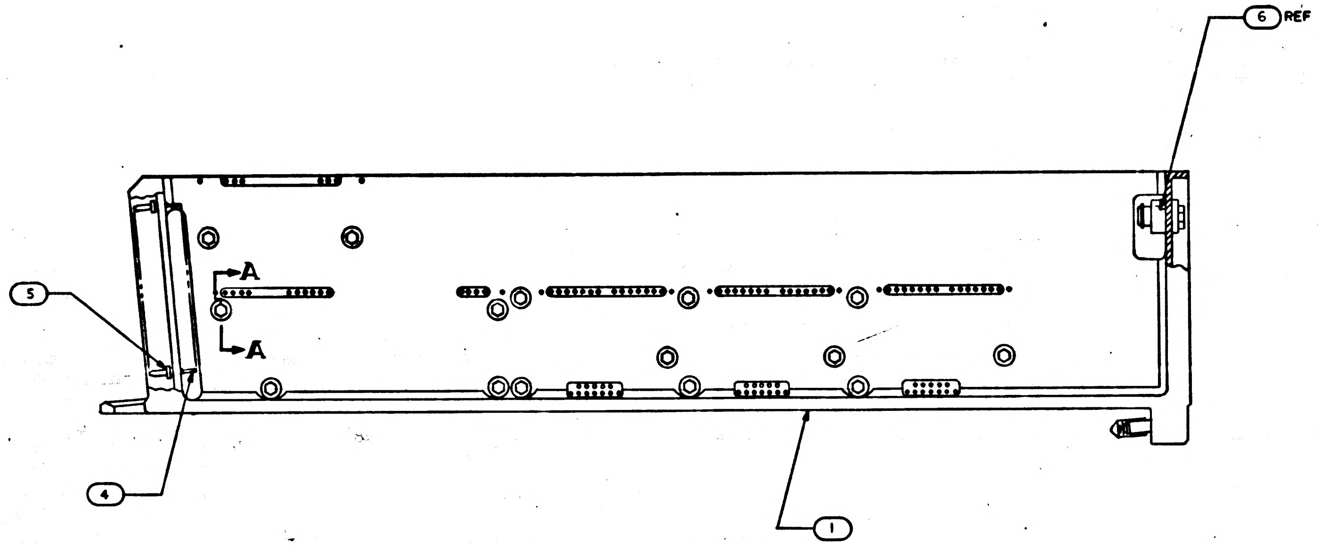
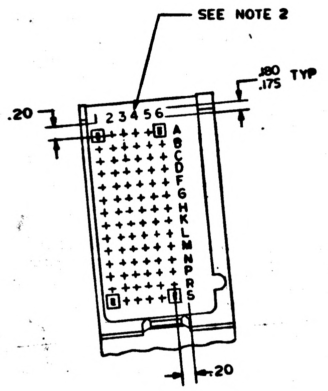
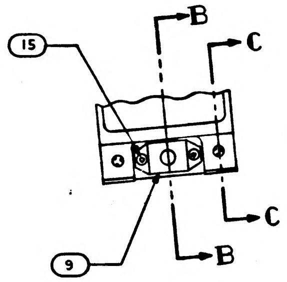
98 PLACES







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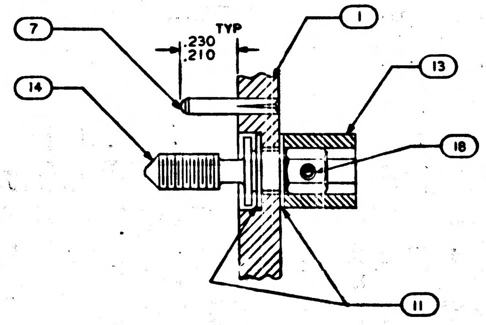

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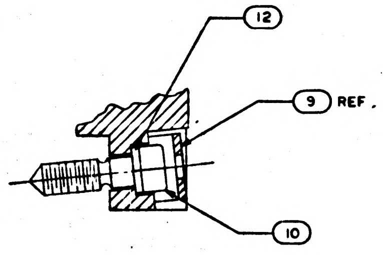

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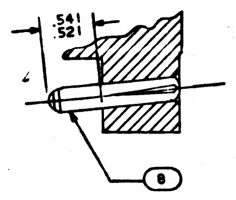

SECTION C-C
SCALE 2/1

NOTES:-
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND 1002019 WHITE
3. BOND FIND NO.19 TO FIND NO 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND NASA DWG 1010686
4. ASSEMBLE FIND NUMBERS 2, 3, 4 AND 5 PER ND 1002136

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
╳	1010100	WIRING DIAGRAM	REF
1	1007093	BUFFER RESISTORS MODULE ASSY	19
15	1008145	SPRING, SPIRAL	18
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	17
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	16
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	15
15	1008095	SCREW, JACK	14
15	1004207	DRIVE CYLINDER	13
1	1008099-2	WASHER	12
30	1004206	WASHER THRUST	11
1	1008098	SCREW, SOCKET HEAD	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
10	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR RECEPTACLE	6
84	1010383	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
98	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
98	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008110	FRAME	1

LIST OF MATERIALS

1007160	
NEXT ASSY	USED ON
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APPROVAL D. R. Hoag 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL

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HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007150
SCALE 1/1
WT
SHEET 1 OF 1

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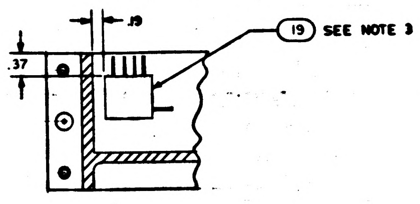
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03773	10-8-63	
E	REVISED PER TDRR 03793	10-11-63	WK
F	REVISED PER TDRR 04104	10/23/63	WK



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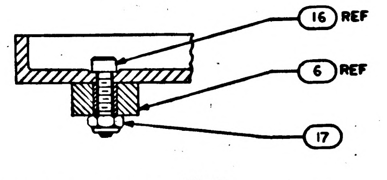

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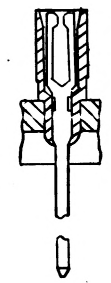

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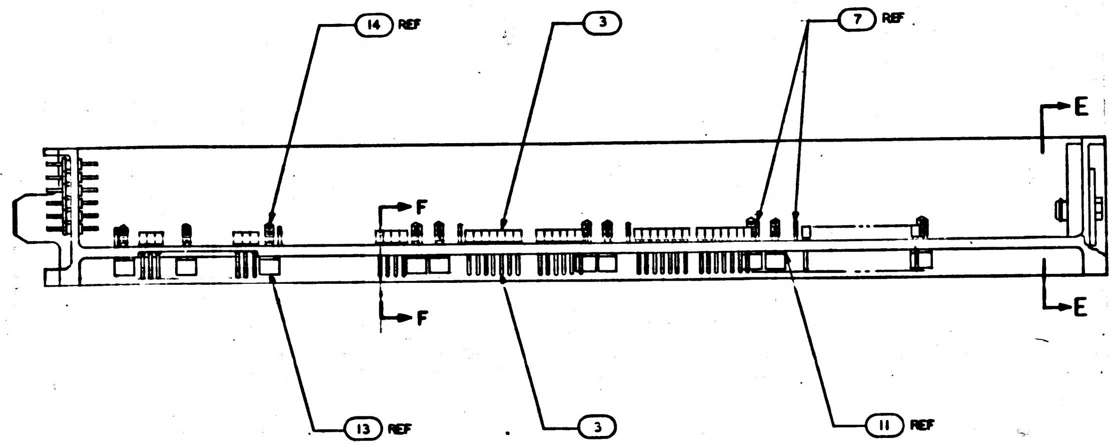

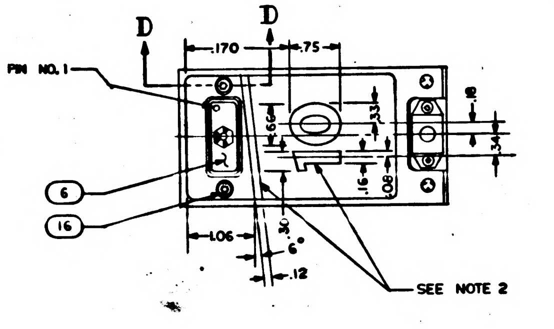

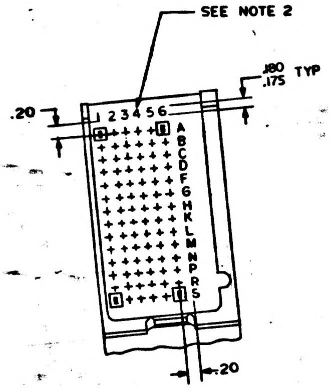

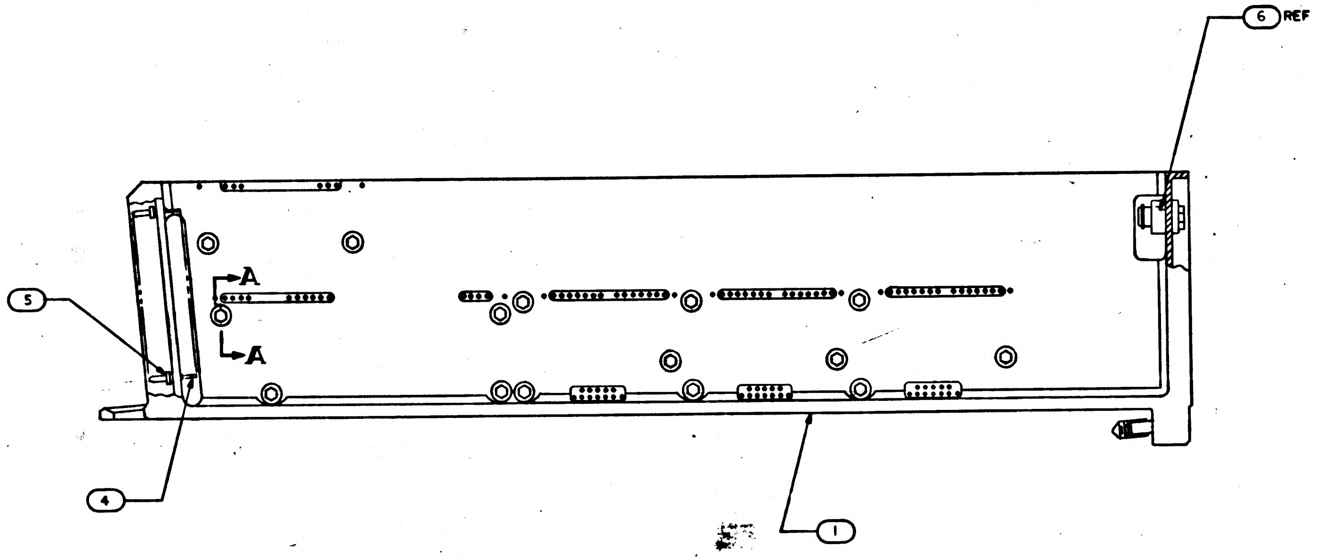

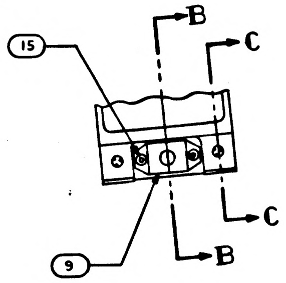

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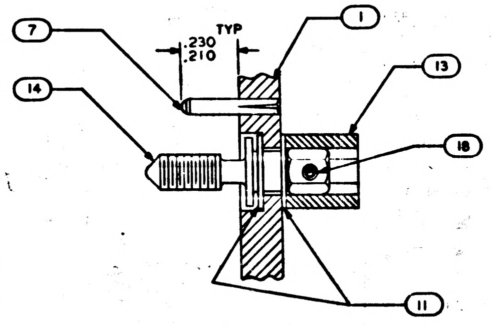
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
98	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
98	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008110	FRAME	1

LIST OF MATERIALS



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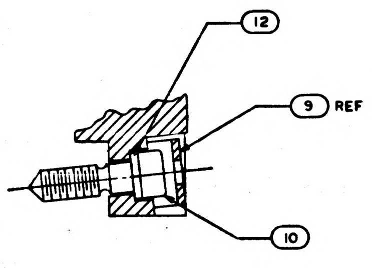

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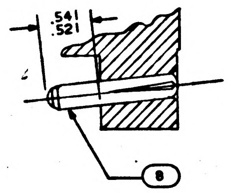

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NOTES:-
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4. ASSEMBLE FIND NUMBERS 2, 3, 4 AND 5 PER ND 1002136

MASTER

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APPLICATION

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APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL 10/8/63

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HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007150
SCALE 1/1 WT SHEET 1 OF 1

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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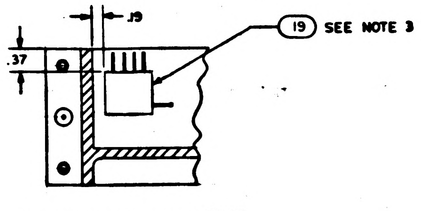

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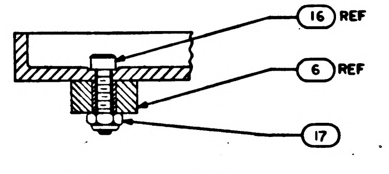

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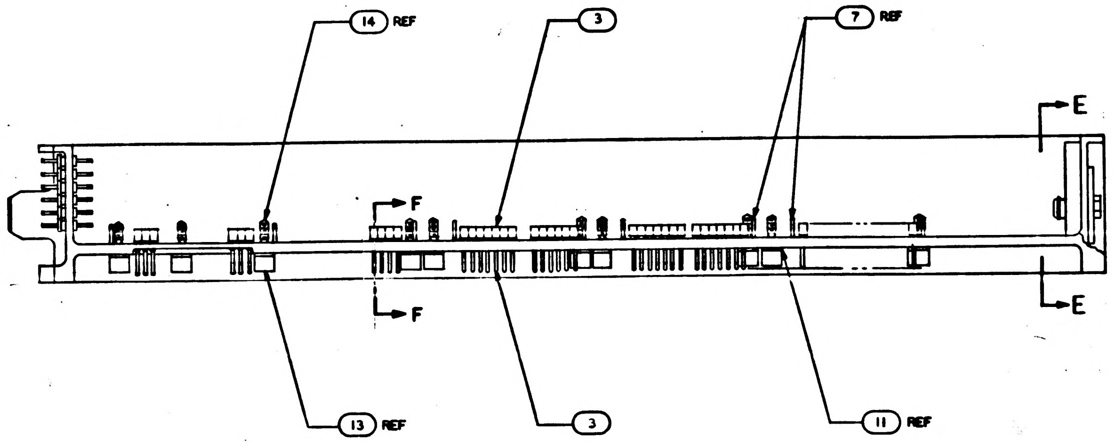

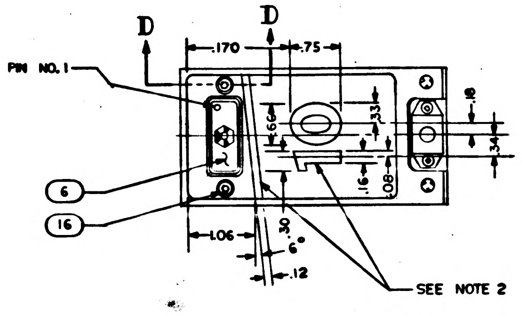

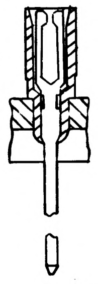

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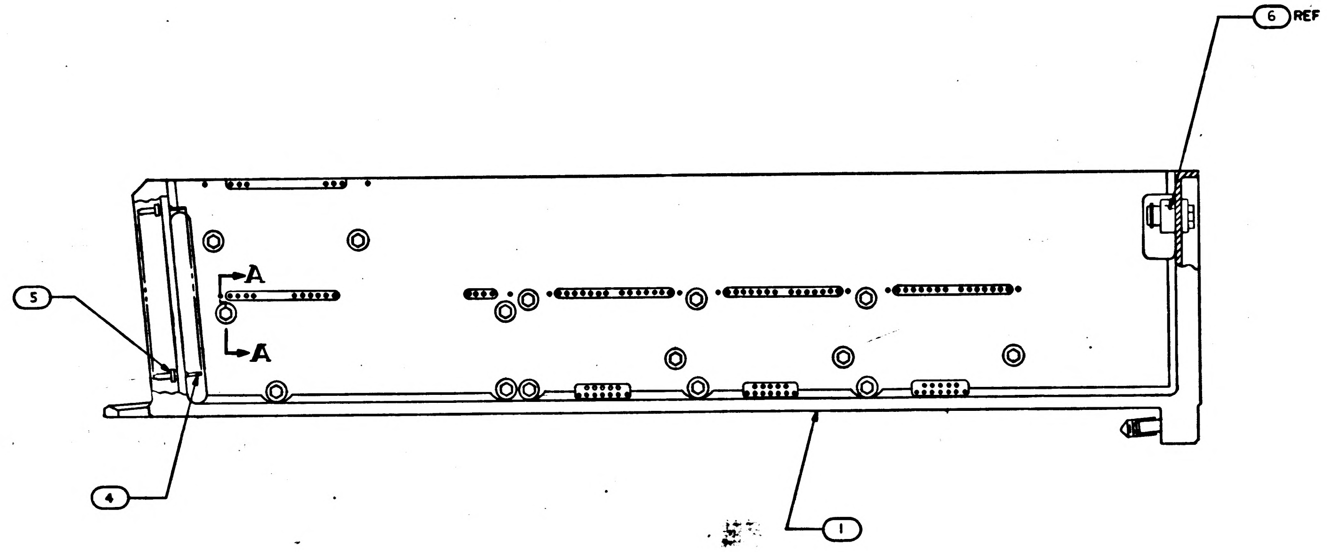
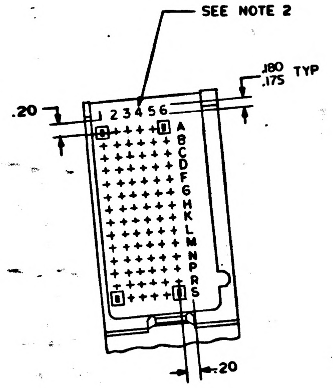
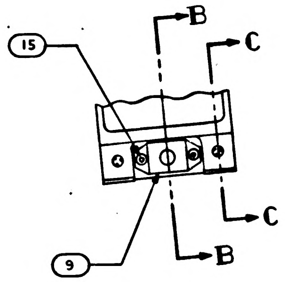
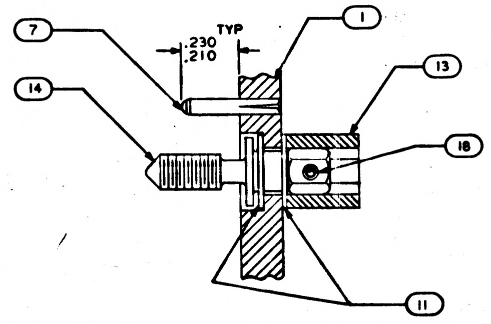
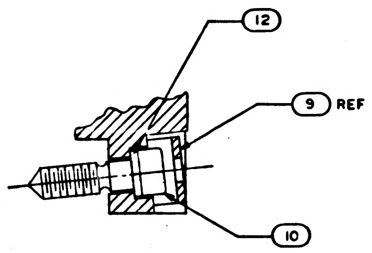




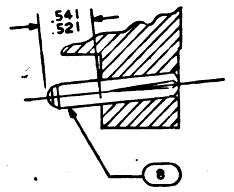




SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:-
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND 1002019 WHITE
3. BOND FIND NO.19 TO FIND NO 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND NASA DWG 1010686
4. ASSEMBLE FIND NUMBERS 2, 3, 4 AND 5 PER ND 1002136
5. BOND FIND NO. 20 21 AND 22 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME

MASTER

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010100	WIRING DIAGRAM	REF
1	1015771	WIRE LIST A-A	22
1	1015770	WIRING HARNESS B	21
1	1015769	WIRING HARNESS A	20
1	1007093	BUFFER RESISTORS MODULE ASSY	19
15	1008145	SPRING, SPIRAL	18
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	17
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	16
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	15
15	1008095	SCREW, JACK	14
15	1004207	DRIVE CYLINDER	13
1	1008099-2	WASHER	12
30	1004206	WASHER THRUST	11
1	1008098	SCREW, SOCKET HEAD	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
10	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR RECEPTACLE	6
84	1010383	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
98	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
98	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008110	FRAME	1

LIST OF MATERIALS

1007150 G

NEXT ASSY	USED ON
1007160	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN DATE 9/30/63
CHECKED
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007150
SCALE 1/1 WT SHEET 1 OF 2

INCHES
PHOTOGRAPHIC SCALE ONLY

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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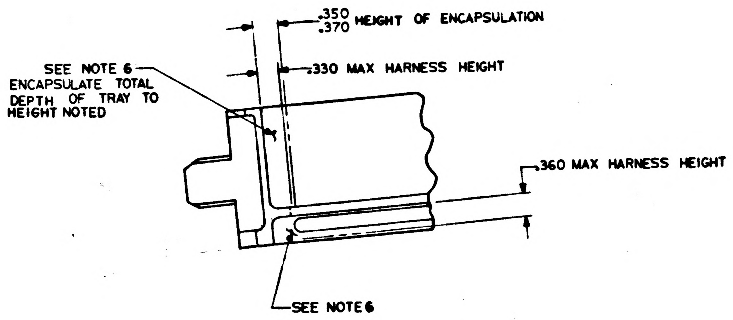
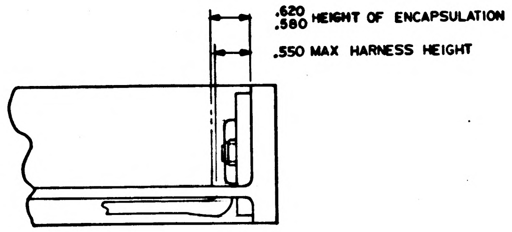
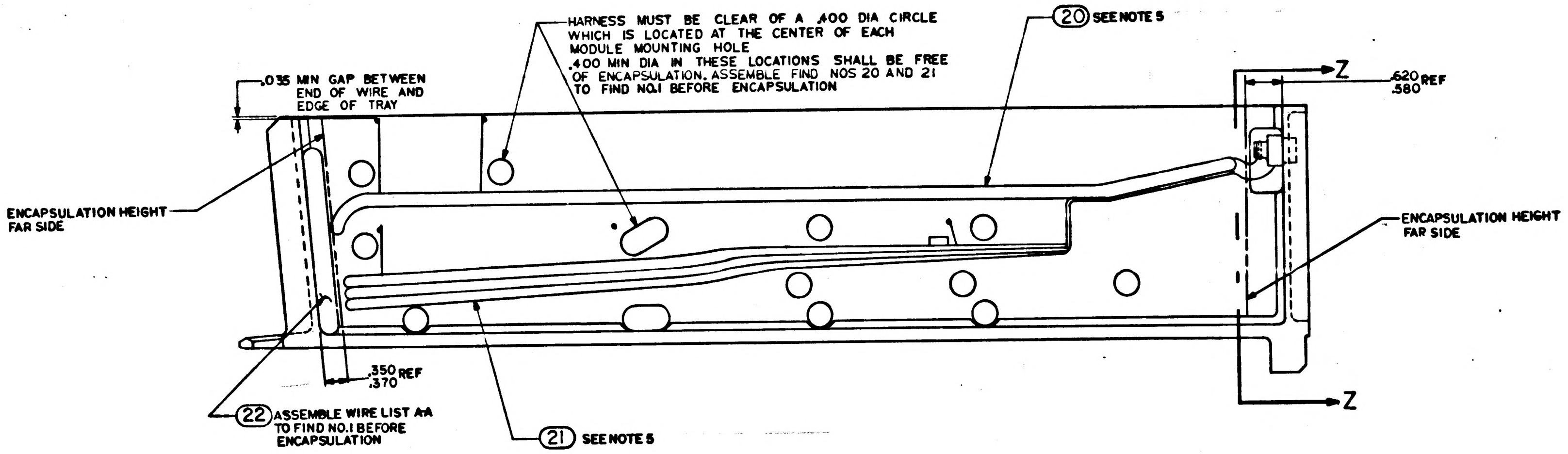
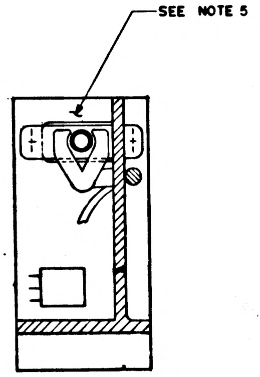

.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
20 SEE NOTE 5
Z
.620
.580 REF
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350
.370 REF
22 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ENCAPSULATION
21 SEE NOTE 5
Z

ALL VIEWS SHOWN WITHOUT ENCAPSULATION



SECTION Z-Z

REV G THIS SHEET ADDED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007160	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 18 Nov 63
APPROVAL [illegible] 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL D Hoag 11/26/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

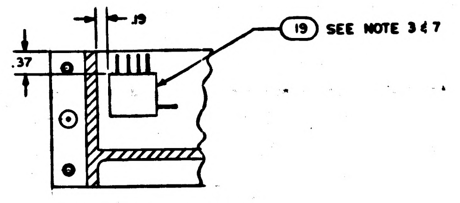
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007150
SCALE 1/1
WT
SHEET 2 OF 2

1007150 G

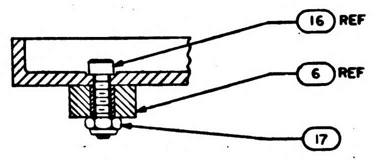
INCHES
PHOTOGRAPHIC SCALE ONLY

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

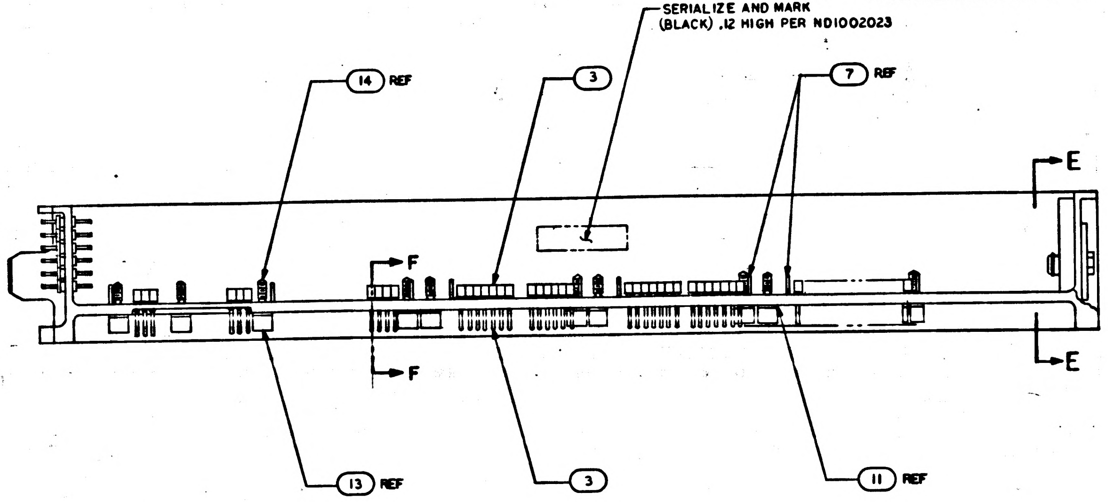
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03773	[illegible]	[illegible]
E	REVISED PER TDRR 03793	10-10-63	WK
F	REVISED PER TDRR 04104	[illegible]	WK
G	REVISED PER TDRR 04793	11-20-63	DW
H	REVISED PER TDRR 2674	[illegible]	WK

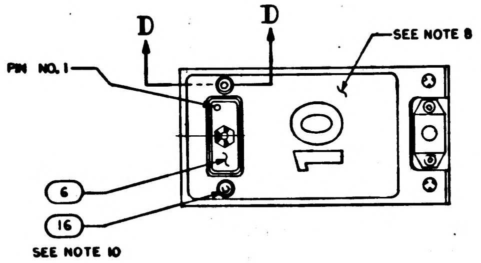


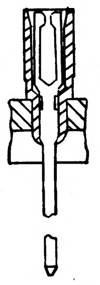
PARTIAL SECTION E-E



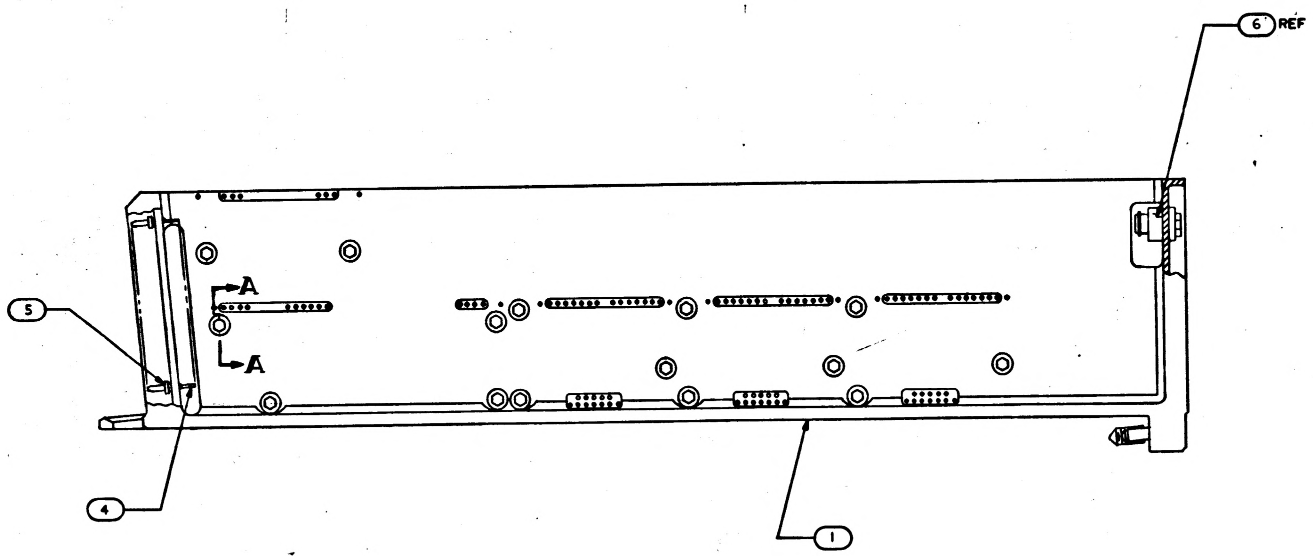
PARTIAL SECTION D-D
SCALE 2/1

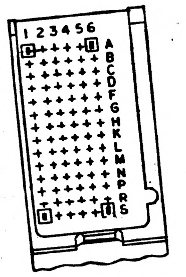


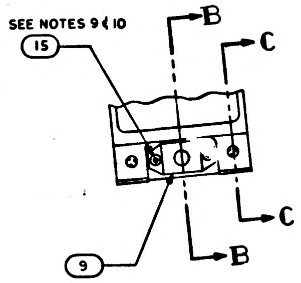




PARTIAL SECTION F-F
98 PLACES





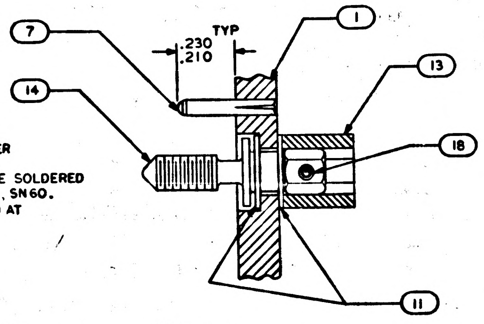


REV D REPLACES REV C

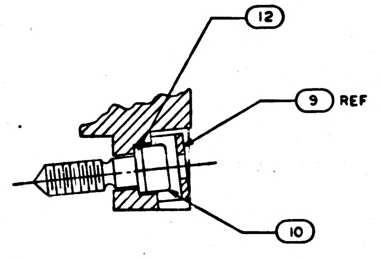
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK PER ND1002019 WHITE
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND DWG 1010686
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136
5. BOND FIND NO. 20,21 AND 22 TO FIND NO. 1 PER ND1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO 15 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 15 AND 16 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005.
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60.
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

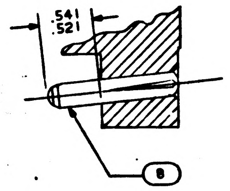
TERMINATION CHART	
FROM	TO
45A10E8	45A10J1-24
45A10E9	45A10J1-17
45A10E10	45A10J1-32
45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28



SECTION AA
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010100	WIRING DIAGRAM	REF
1	1015771	WIRE LIST A-A	22
1	1015770	WIRING HARNESS B	21
1	1015769	WIRING HARNESS A	20
1	1007093	BUFFER RESISTORS MODULE ASSY	19
15	1008145	SPRING, SPIRAL	18
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	17
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	16
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	15
15	1008095	SCREW, JACK	14
15	1004207	DRIVE CYLINDER	13
1	1008099-2	WASHER	12
30	1004206	WASHER THRUST	11
1	1008098	SCREW, SOCKET HEAD	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
10	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
98	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
98	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008110	FRAME	1

LIST OF MATERIALS

1007150 H

NEXT ASSY	USED ON
1007160	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN Bonaguiga DATE 9/30/63
CHECKED [illegible] [illegible]
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible] 10-8-63
MIT APPROVAL [illegible] 10/8/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007150
SCALE 1/1 WT SHEET 1 OF 2

MASTER

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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H	REVISED PER TDRR 06474	3-6-64	WK

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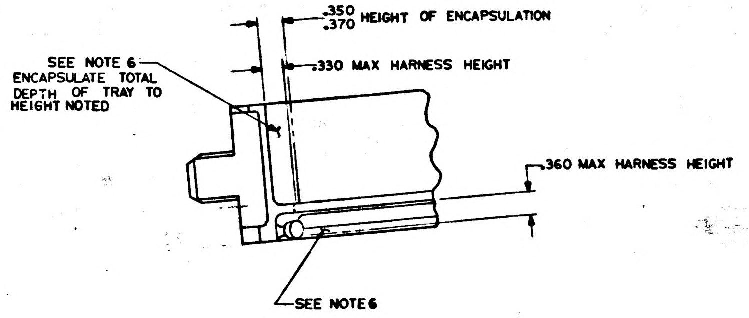
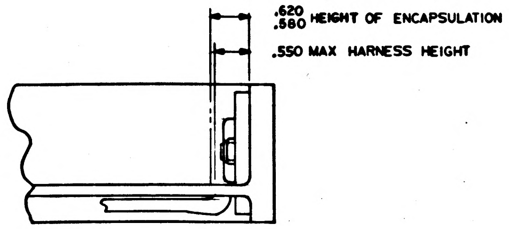

.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6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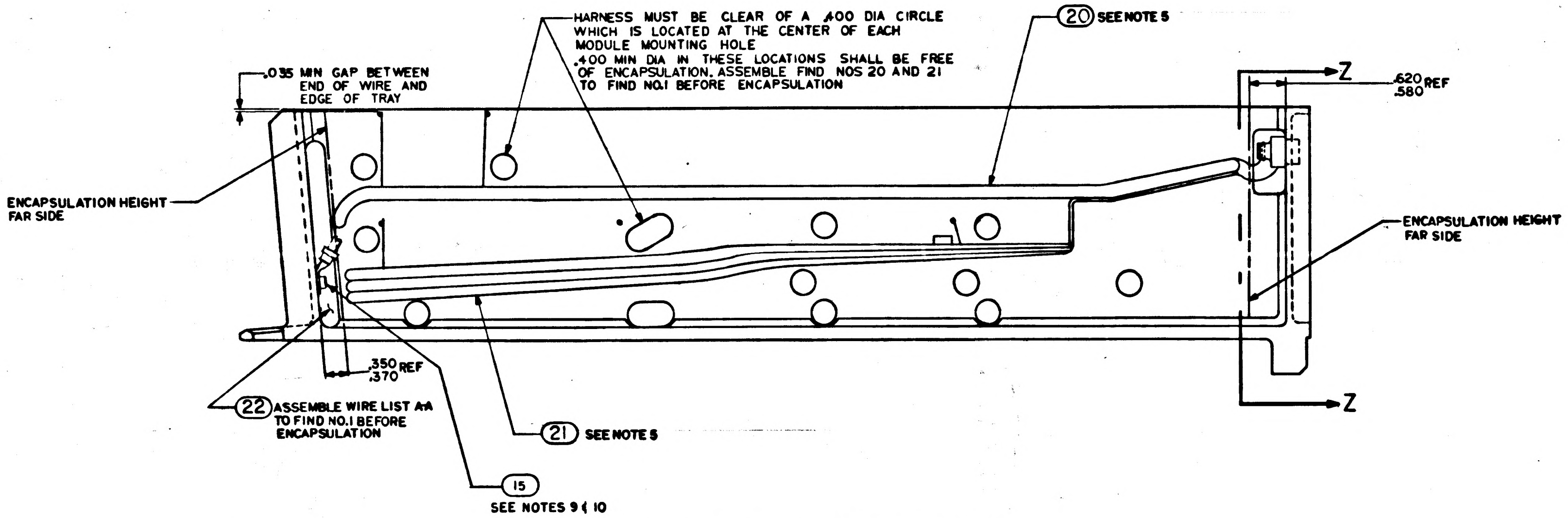
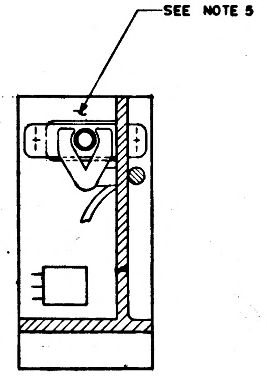
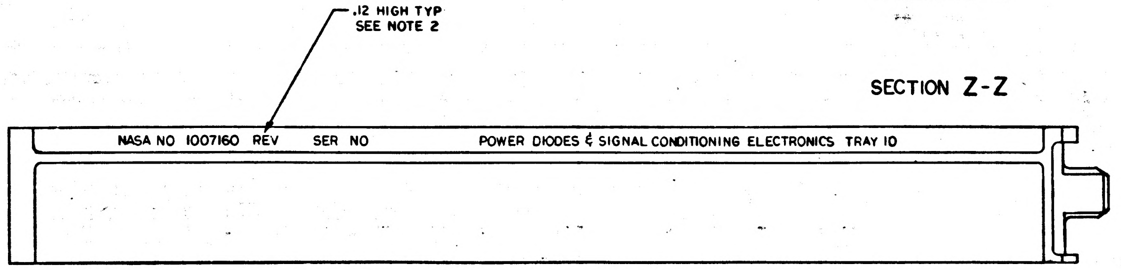
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
20 SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350
.370 REF
Z
22 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ENCAPSULATION
21 SEE NOTE 5
15
SEE NOTES 9 & 10

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z


.12 HIGH TYP
SEE NOTE 2
NASA NO 1007160 REV SER NO POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10

MARKING VIEW AFTER ENCAPSULATION

MASTER

REV G THIS SHEET ADDED

1007150 H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007160	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — DECIMALS — ANGLES
–//– ± ± –//–
DO NOT SCALE THIS DRAWING
MATERIAL –//–
HEAT TREATMENT –//–
FINAL FINISH –//–

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN DATE
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

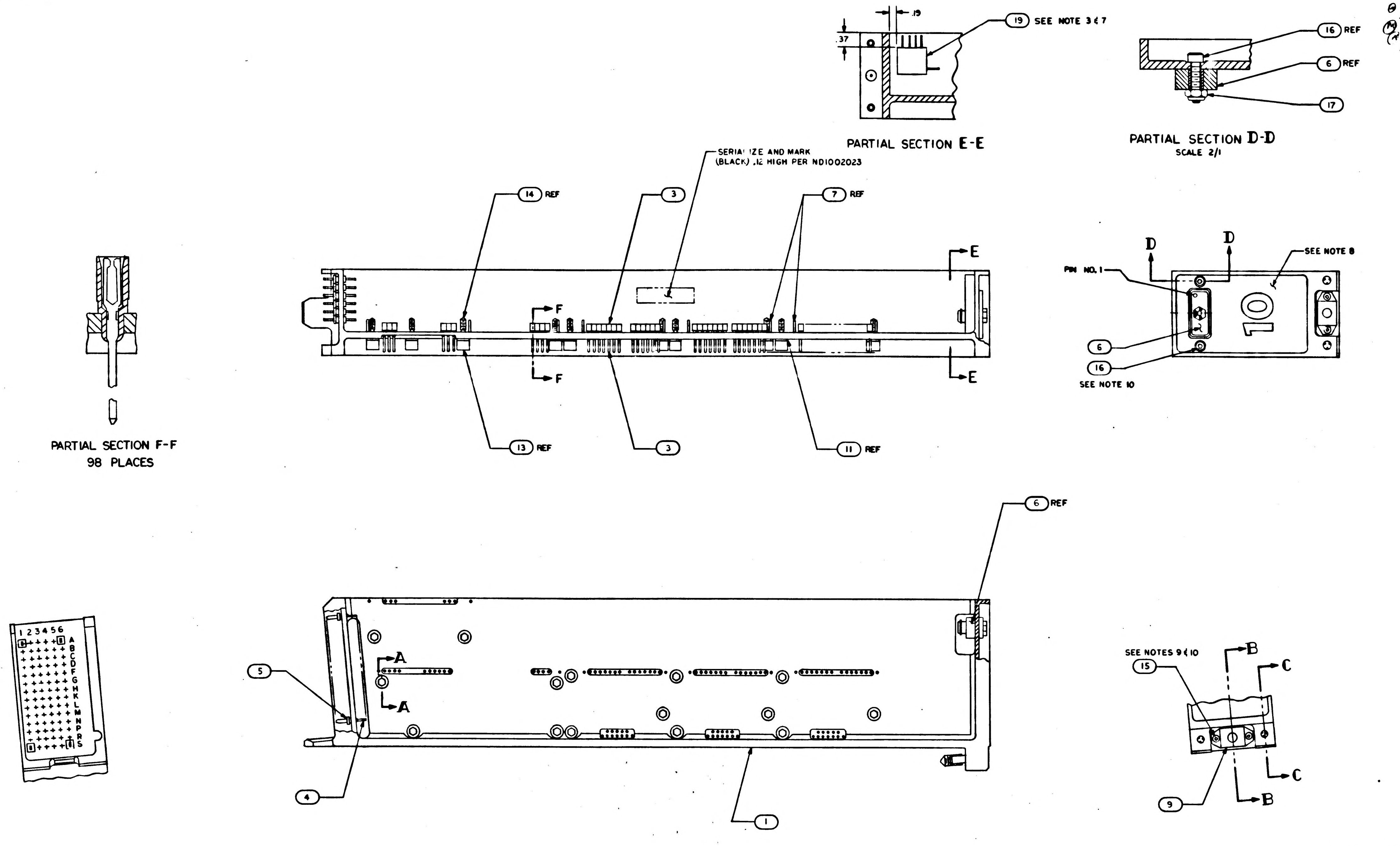
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007150
SCALE 1/1
WT
SHEET 2 OF 2

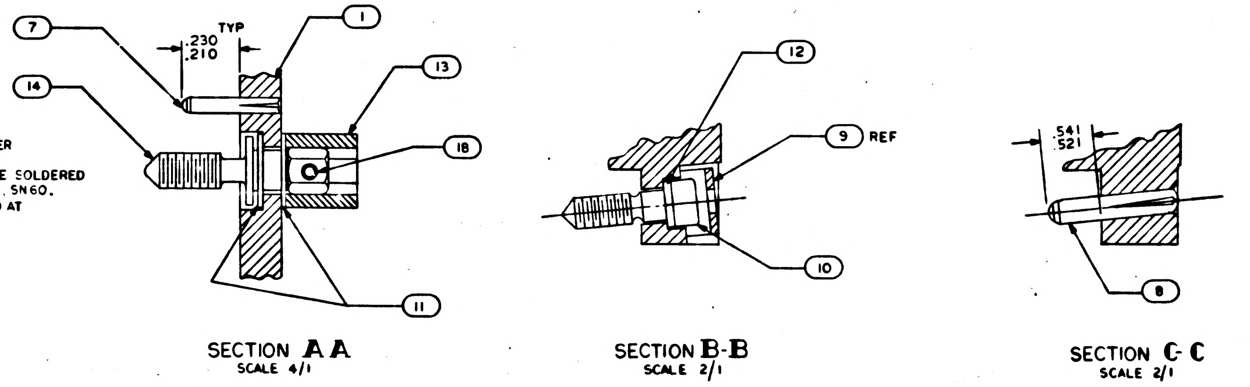
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03773	[illegible]	[illegible]
E	REVISED PER TDRR 03793	10-10-63	W.C.
F	REVISED PER TDRR 04104	10/23/63	[illegible]
G	REVISED PER TDRR 04793	11-20-63	[illegible]
H	REVISED PER TDRR A 74	[illegible]	W.C.
J	REVISED PER TDRR 07138	6 APR 64	[illegible]



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND DWG 1010686
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136
5. BOND FIND NO. 20,21 AND 22 TO FIND NO. 1 PER ND1002004 AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO 15 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 15 AND 16 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005.
    ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60.
    ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.



TERMINATION CHART	
FROM	TO
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45A10E9	45A10J1-17
45A10E10	45A10J1-32
45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010100	WIRING DIAGRAM	REF
1	1015771	WIRE LIST A-A	22
1	1015770	WIRING HARNESS B	21
1	1015769	WIRING HARNESS A	20
1	1007093	BUFFER RESISTORS MODULE ASSY	19
15	MS 171433	PIN, SPRING	18
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	17
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	16
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	15
15	1008095	SCREW, JACK	14
15	1004207	DRIVE CYLINDER	13
1	1008099-2	WASHER	12
30	1004206	WASHER THRUST	11
1	1008098	SCREW, SOCKET HEAD	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
10	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
98	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
98	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008110	FRAME	1

LIST OF MATERIALS

J	H
SHEET 1	SHEET 2

REVISION STATUS OF SHEETS

1007160	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT NAS9-4?7
DRAWN Banguage DATE 9/30/63
CHECKED [illegible] 7-2-63
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible] 10-8-63
MIT APPROVAL [illegible] 10/8/63

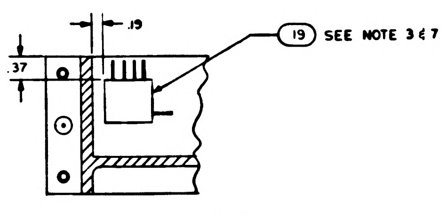
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

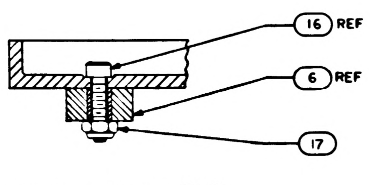
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007150
SCALE 1/1
WT
SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

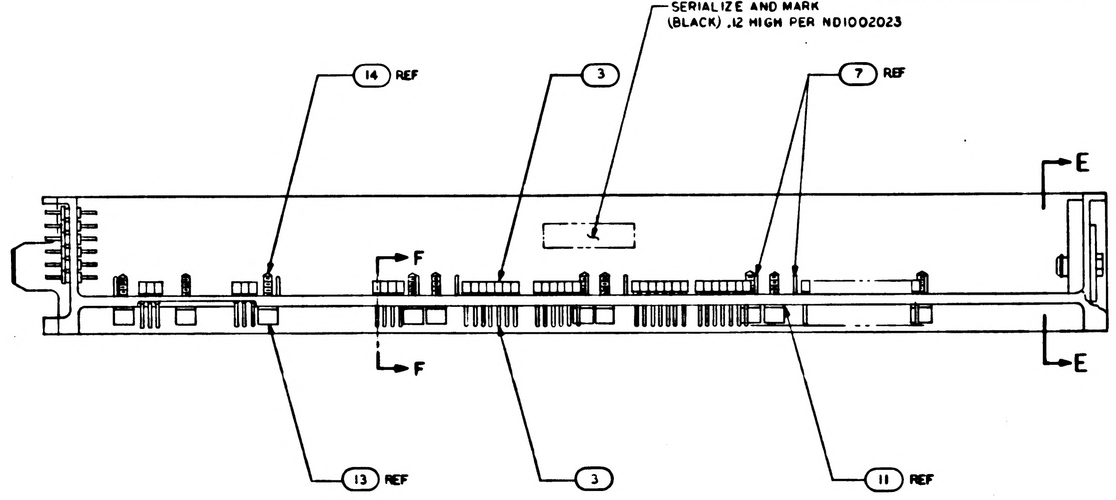
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03773		
E	REVISED PER TDRR 03793	10-10-63	WK
F	REVISED PER TDRR 04104	10/23/63	WK
G	REVISED PER TDRR 04793	11-20-63	
H	REVISED PER TDRR		WK
J	REVISED PER TDRR 07138	6 APR 64	
K	REVISED PER TDRR 08145	14 MAY 64	JB

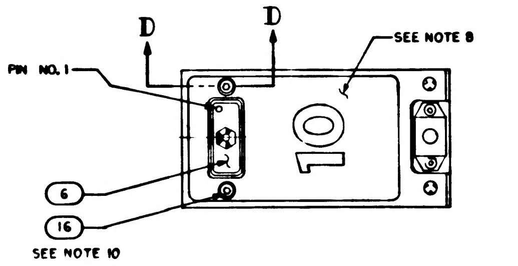


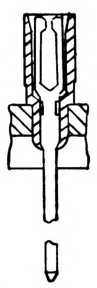
PARTIAL SECTION E-E



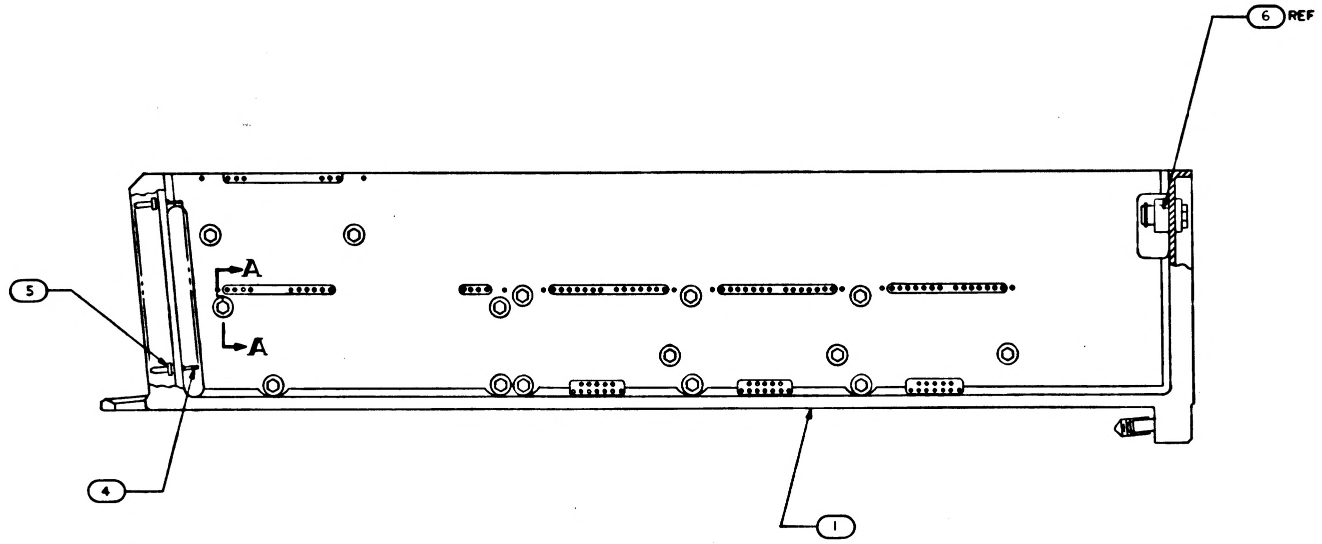
PARTIAL SECTION D-D
SCALE 2/1

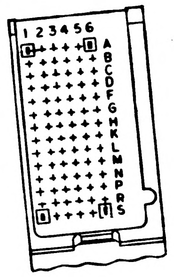


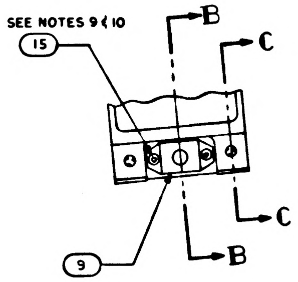




PARTIAL SECTION F-F
98 PLACES







NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND DWG 1010686
4. ASSEMBLE FIND NUMBERS 2, 3, 4 AND 5 PER ND1002136
5. BOND FIND NO. 20, 21 AND 22 TO FIND NO. 1 PER ND1002004 AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO 15 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 15 AND 16 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005.
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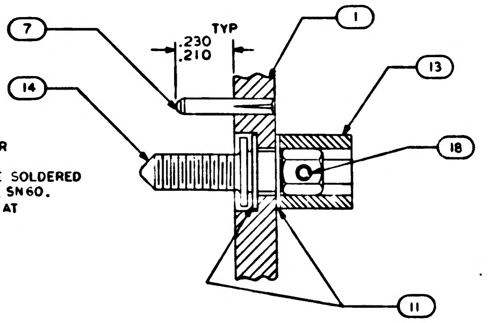
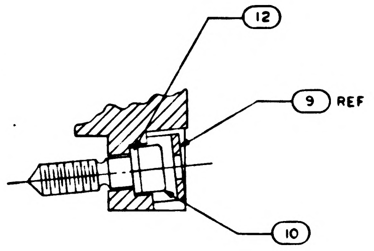
12. PROCURE PER PS 1007150.

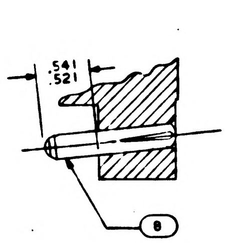
TERMINATION CHART	
FROM	TO
45A10E8	45A10J1-24
45A10E9	45A10J1-17
45A10E10	45A10J1-32
45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28



SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010100	WIRING DIAGRAM	REF
1	1015771	WIRE LIST A-A	22
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2	MS 21045 C 04	NUT, SELF-LOCKING HEX	17
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	16
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	15
15	1008172	SCREW, JACK	14
15	1004207	DRIVE CYLINDER	13
1	1008099-2	WASHER	12
30	1004206	WASHER THRUST	11
1	1008098	SCREW, SOCKET HEAD	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
10	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
98	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
98	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008110	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007160	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS9-497
DRAWN Bonanno DATE 9/30/63
CHECKED
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

CODE IDENT NO
SIZE E
NASA DRAWING NO. 1007150
SCALE 1/1
WT
SHEET 1 OF 2

1007150 K

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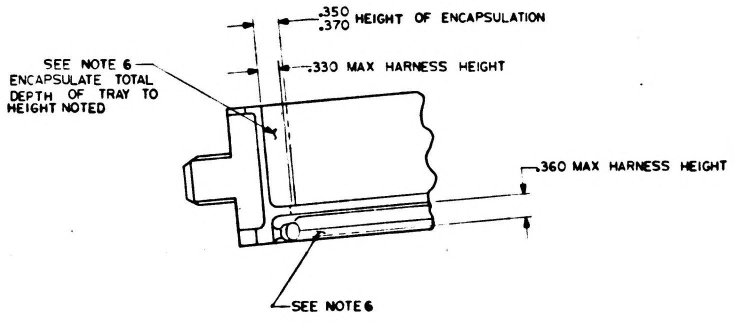
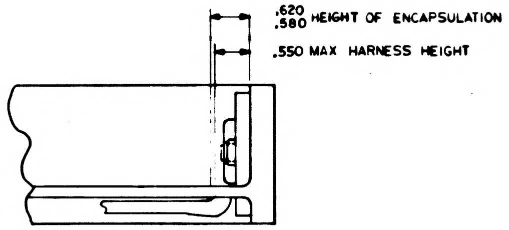
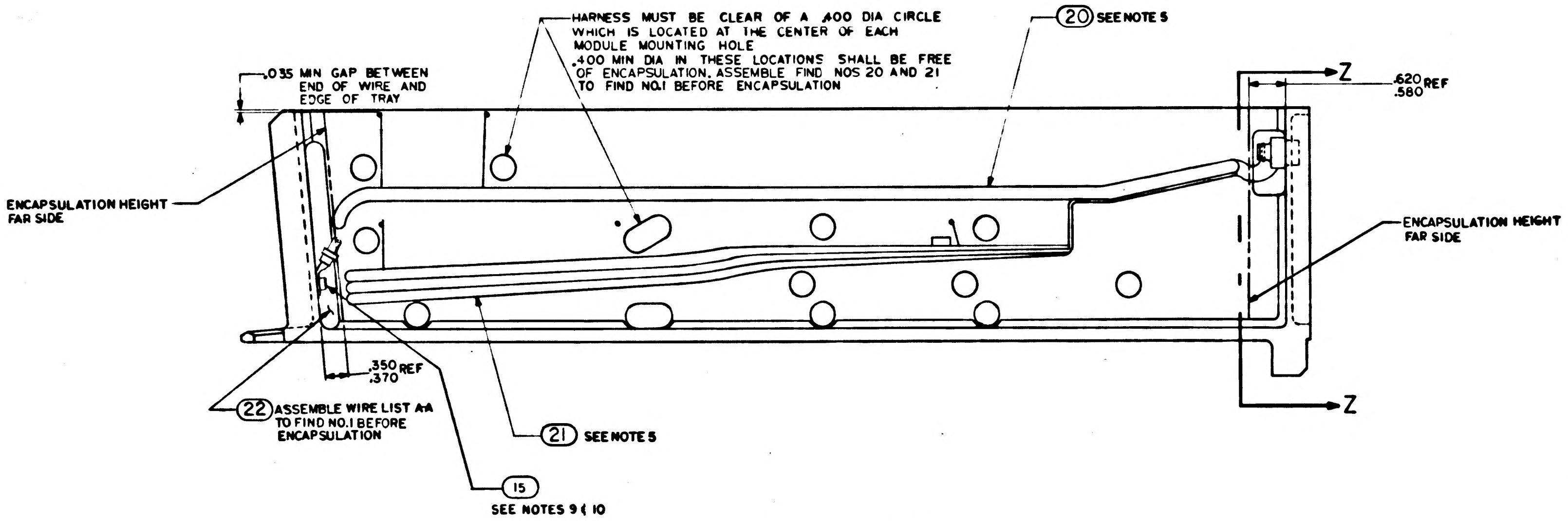
REVISIONS

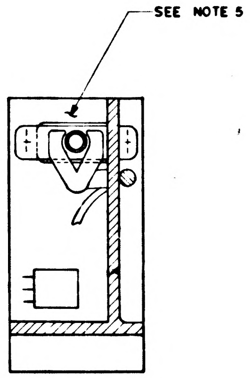
SYM	DESCRIPTION	DATE	APPROVAL
G	THIS SHEET ADDED PER TDRR 04793	11 20 63	
H	REVISED PER TDRR 06474	[illegible]	WK
K	REVISED PER TDRR 08145	15 MAY 64	


.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6

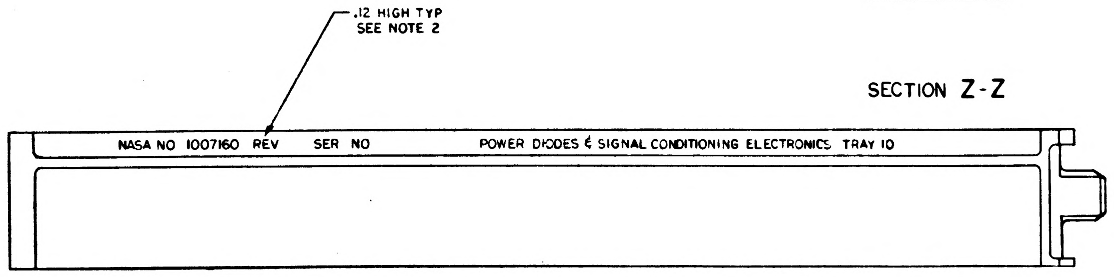

.620 .580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
(20) SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350 .370 REF
(22) ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
(21) SEE NOTE 5
Z
(15) SEE NOTES 9 & 10

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z


.12 HIGH TYP SEE NOTE 2
NASA NO 1007160 REV SER NO POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10

MARKING VIEW AFTER ENCAPSULATION

REV G THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007160	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — DECIMALS — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT NAS 9-4065
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 12 [illegible] 63
APPROVAL [illegible] 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

CODE IDENT NO. | SIZE E | NASA DRAWING NO. 1007150
SCALE 1/1 | WT | SHEET 2 OF 2

1007150 K

NOTICE [illegible]

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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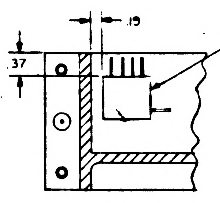
E	REVISED PER TDRR 03793	[illegible]	WK
C	REVISED PER TDRR 04104	[illegible]	WK
G	REVISED PER TDRR 04773	[illegible]	[illegible]
H	REVISED PER TDRR [illegible]	[illegible]	WK
J	REVISED PER TDRR 07138	6 APR 64	[illegible]
K	REVISED PER TDRR 08145	14 MAY 64	JB
L	REVISED PER TDRR 14323	27 NOV 64	[illegible]



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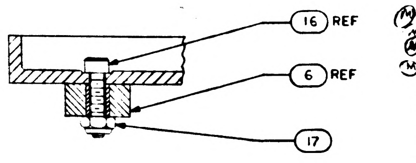
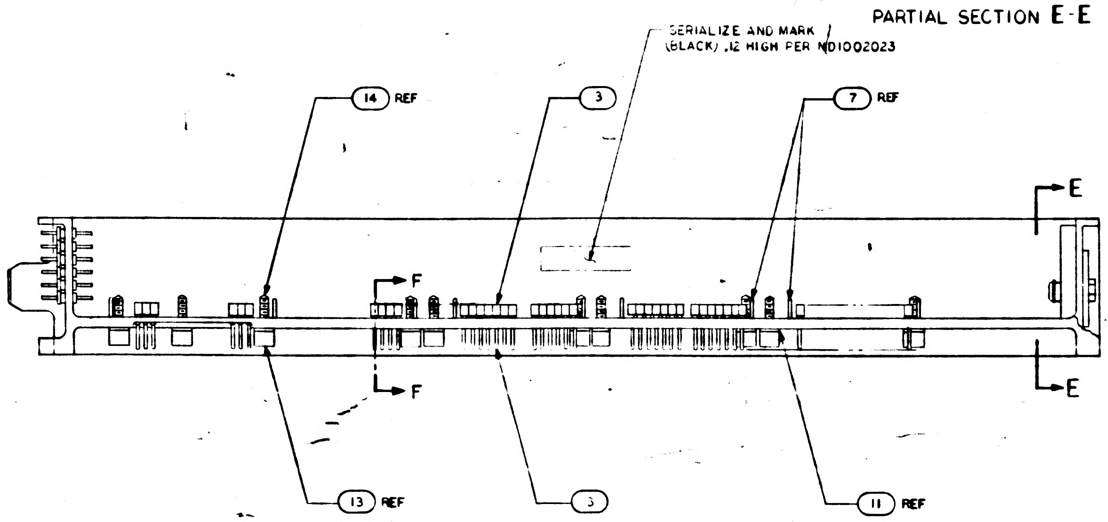
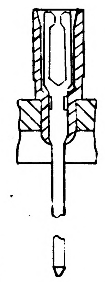
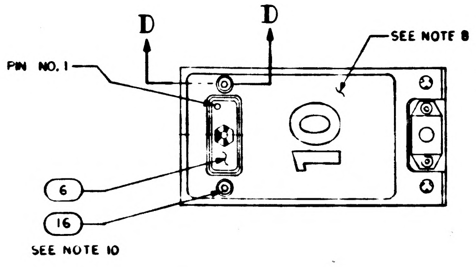


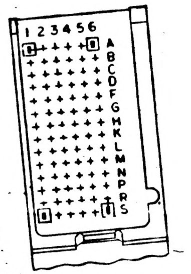
PARTIAL SECTION D-D
SCALE 2/1

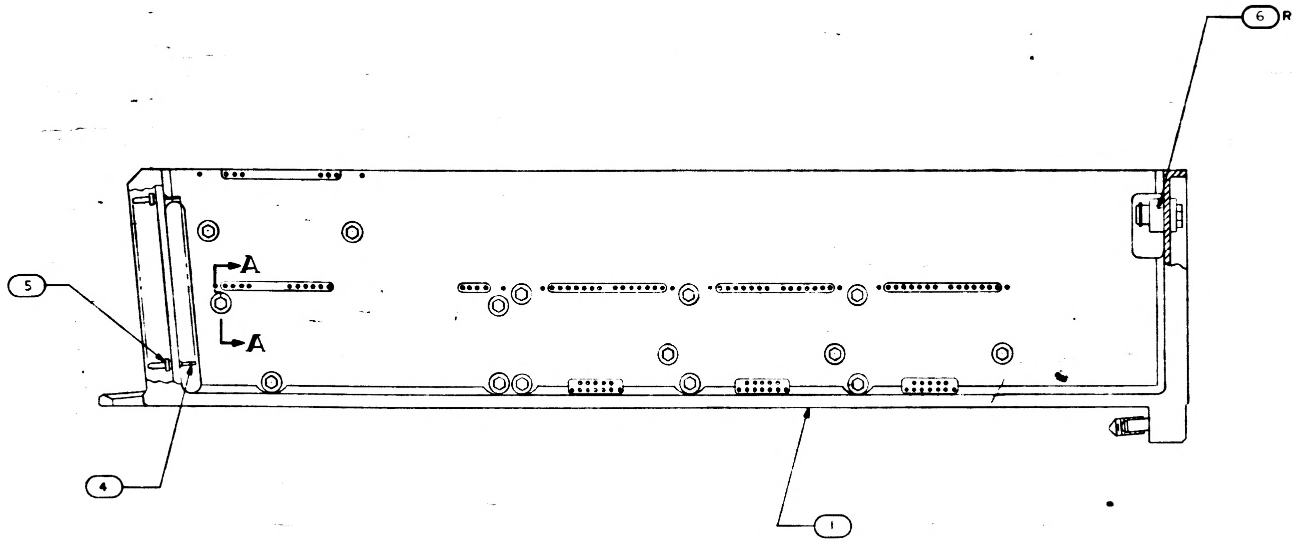


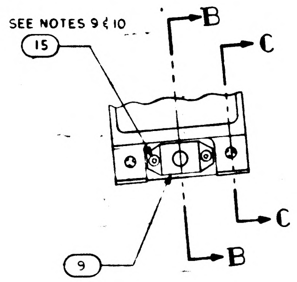


PARTIAL SECTION F-F
98 PLACES









NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE
3. BOND FIND NO. 19 TO FIND NO.1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND DWG 1010686
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45A10E12	45A10J1-10
45A10E13	45A10J1-11
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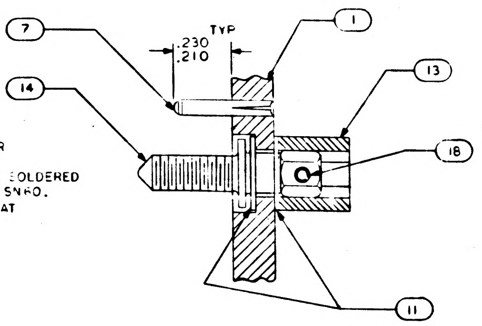
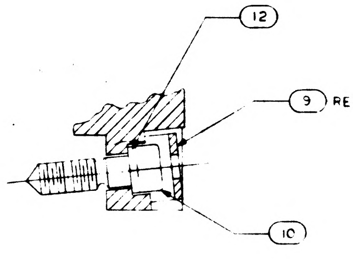
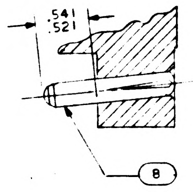
45A10E17	45A10J1-28



SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010232	WIRING DIAGRAM	REF
1	1015771	WIRE LIST A-A	22
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15	1008172	SCREW, JACK	14
15	1004207	DRIVE CYLINDER	13
1	1008099-2	WASHER	12
30	1004206	WASHER THRUST	11
1	1008098	SCREW, SOCKET HEAD	10
1	1001317	RETAINER, JACK SCREW	9
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10	1010620-4	PIN, GUIDE	7
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1	1008110	FRAME	1

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1007160	
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TOLERANCES ON
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MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS9-497
DRAWN S Conanega DATE 9/30/63
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APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

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HOUSTON, TEXAS

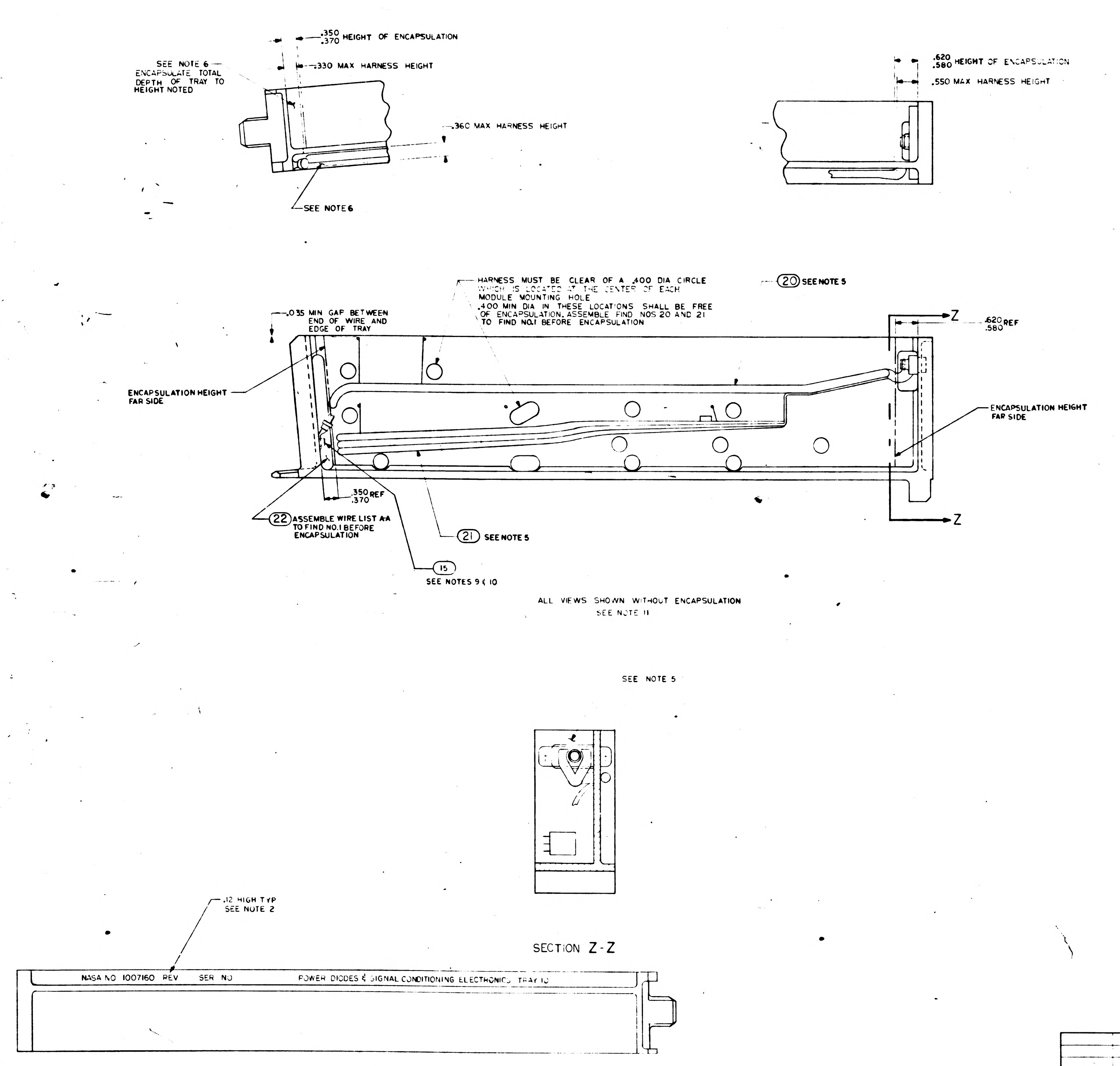
FRAME ASSEMBLY
TRAY 10

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007150
SCALE 1/1
WT
SHEET 1 OF 2

1007150 L

NOTICE — [illegible]

SYM	DESCRIPTION	DATE	APPROVAL
6	THIS SHEET ADDED PER TDRR 04793	11 20 63	
H	REVISED PER TDRR 7674		wK
K	REVISED PER TDRR 08145	15 MAY 64	
L	REVISED PER TDRR 14323	23-110V-64	



.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6 — ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6
.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
20 SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350
.370 REF
22 ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
21 SEE NOTE 5
15 SEE NOTES 9 & 10
Z
SEE NOTE 5
.12 HIGH TYP SEE NOTE 2
NASA NO 1007160 REV SER NO POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11

SECTION Z-Z

MARKING VIEW AFTER ENCAPSULATION

REV G THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007160	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ±— DECIMALS ANGLES ±—
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS 9-437
DRAWN DATE
CHECKED 11-20-63
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

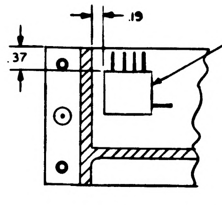
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10.

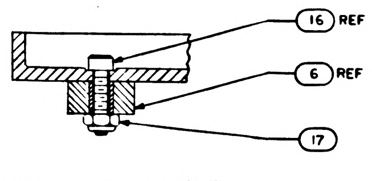
CODE IDENT NO
SIZE E
NASA DRAWING NO 1007150
SCALE 1/1
WT
SHEET 2 OF 2

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

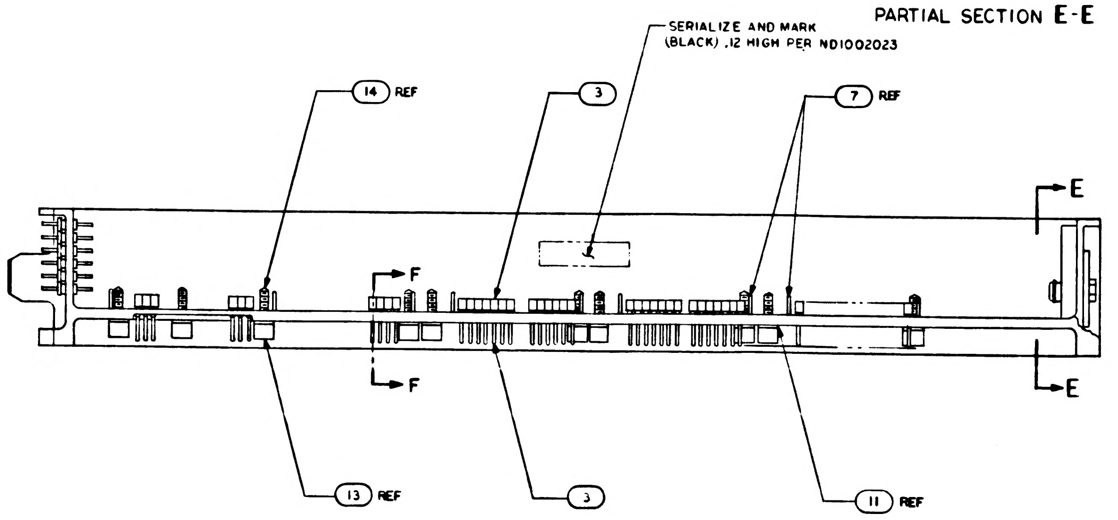
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03793		
E	REVISED PER TDRR 03793	10-10-63	
F	REVISED PER TDRR 04124	10/23/63	
G	REVISED PER TDRR 04793	11-20-63	
H	REVISED PER TDRR		
J	REVISED PER TDRR 07138	6 APR 64	
K	REVISED PER TDRR 08145	14 MAY 64	
L	REVISED PER TDRR 14323	23 NOV 64	
M	REVISED PER TDRR 14324	25 Nov 64	

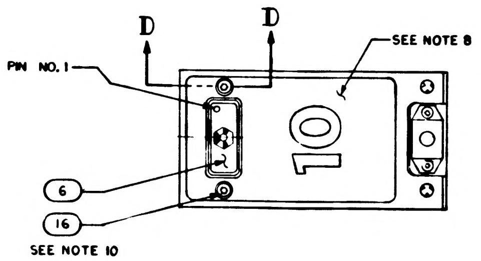


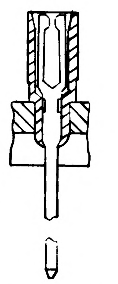
PARTIAL SECTION E-E



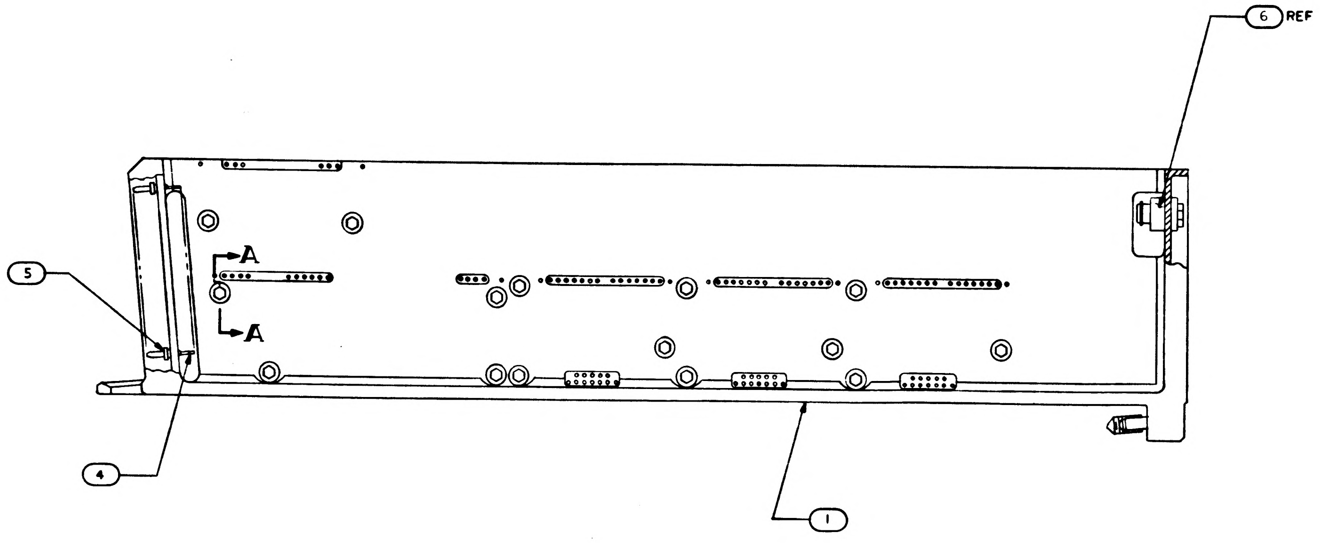
PARTIAL SECTION D-D
SCALE 2/1

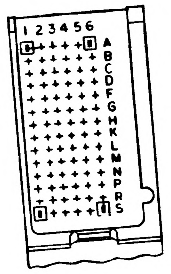


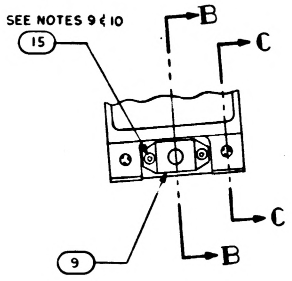




PARTIAL SECTION F-F
98 PLACES



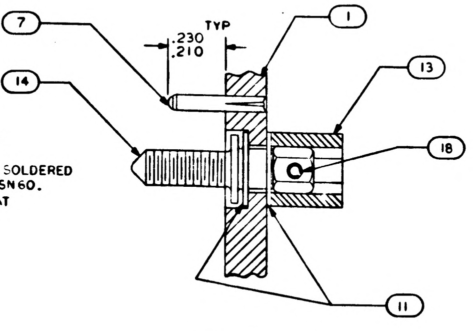




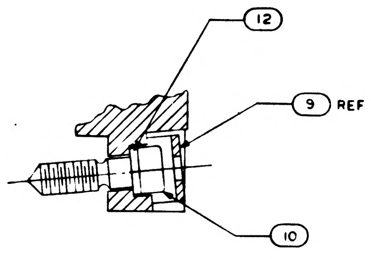
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 WHITE
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND DWG 1010686
4. ASSEMBLE FIND NUMBERS 2, 3, 4 AND 5 PER ND1002136
5. BOND FIND NO. 20, 21 AND 22 TO FIND NO. 1 PER ND1002004 AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO 15 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 15 AND 16 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005.
    ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN60.
    ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007150.

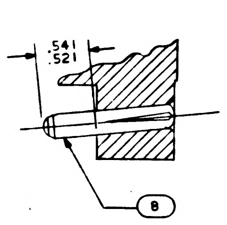
TERMINATION CHART	
FROM	TO
45A10E8	45A10J1-24
45A10E9	45A10J1-17
45A10E10	45A10J1-32
45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28



SECTION A A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1008457	WIRING DIAGRAM	REF
1	1015771	WIRE LIST A-A	22
1	1015770	WIRING HARNESS B	21
1	1015769	WIRING HARNESS A	20
1	1007093	BUFFER RESISTORS MODULE ASSY	19
15	MS 171433	PIN, SPRING	18
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	17
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	16
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	15
15	1008172	SCREW, JACK	14
15	1004207	DRIVE CYLINDER	13
1	1008099-2	WASHER	12
30	1004206	WASHER THRUST	11
1	1008098	SCREW, SOCKET HEAD	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
10	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
98	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
98	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008110	FRAME	1

LIST OF MATERIALS

1007150

1007160	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± .02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS9-437
DRAWN S. Bonanno DATE 9/30/63
CHECKED 10/7/63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL 10/8/63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

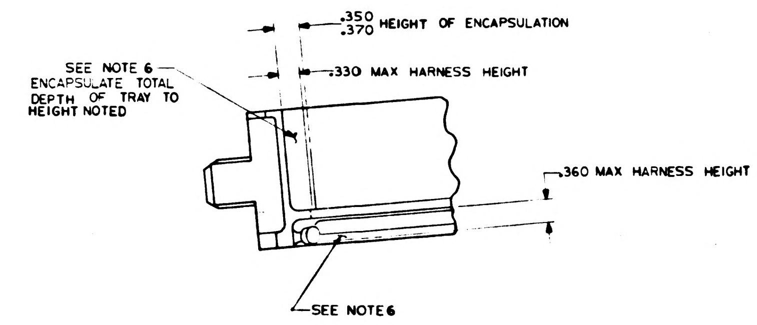
FRAME ASSEMBLY
TRAY 10

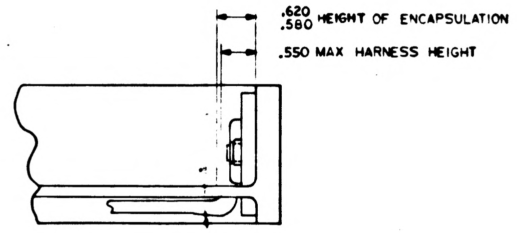
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007150
SCALE 1/1
WT
SHEET 1 OF 2

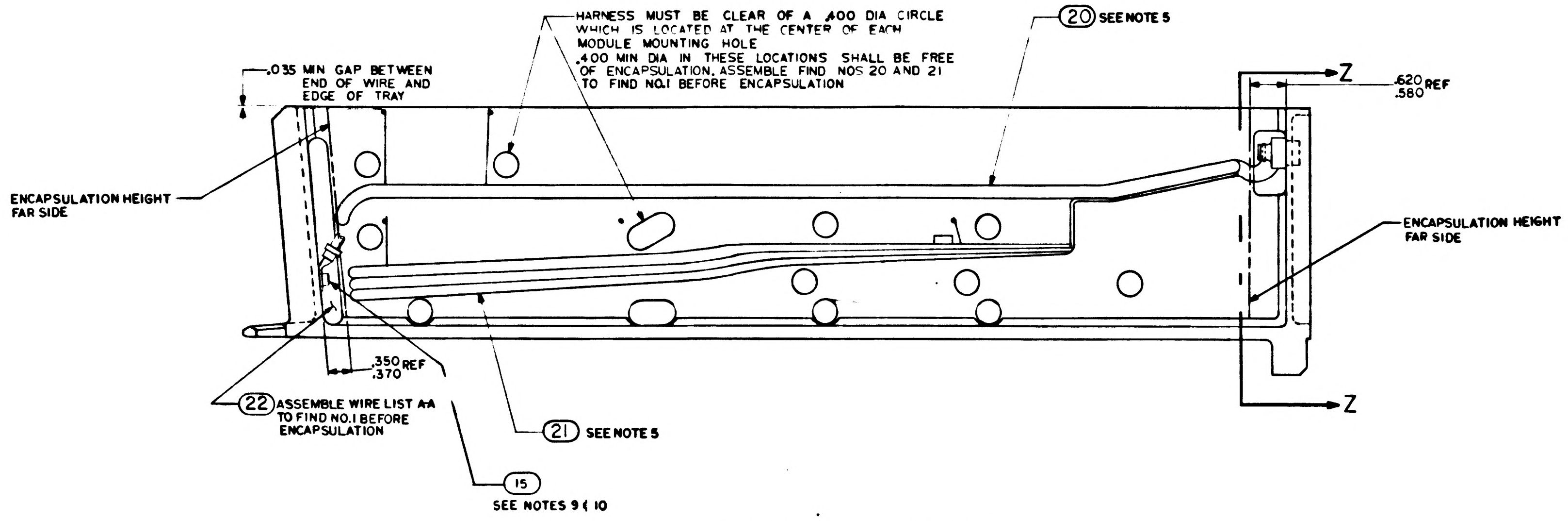
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

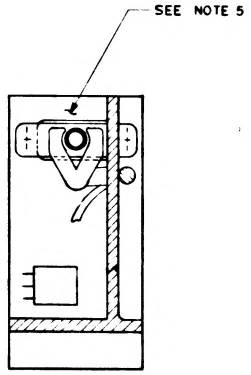
SYM	DESCRIPTION	DATE	APPROVAL
6	THIS SHEET ADDED PER TDRR 04793	11 20 63	
H	REVISED PER TDRR		
K	REVISED PER TDRR 08145	15 MAY 64	
L	REVISED PER TDRR 14323	23-NOV-64	
M	REVISED PER TDRR 14324	23 Nov 64	RJJ


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6 — ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6

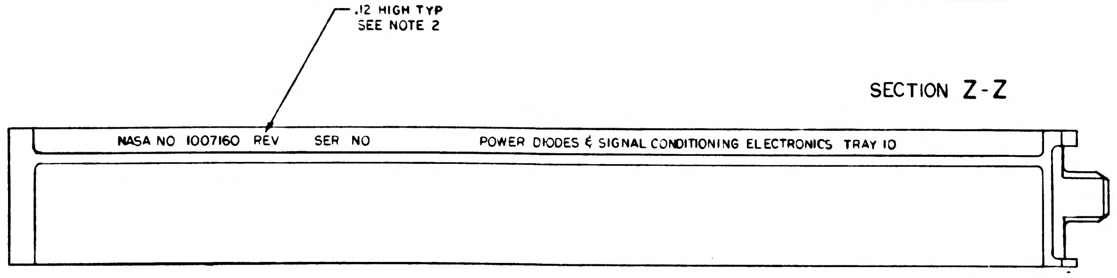

.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
20 SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
Z
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350
.370 REF
22 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ENCAPSULATION
21 SEE NOTE 5
15
SEE NOTES 9 & 10

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z


.12 HIGH TYP
SEE NOTE 2
NASA NO 1007160 REV SER NO POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10

MARKING VIEW AFTER ENCAPSULATION

REV G THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007160	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — DECIMALS — ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT NAS 9-4??
DRAWN [illegible] DATE 11-19-63
CHECKED [illegible] 11-20-63
APPROVAL [illegible] 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL [illegible] 11/20/63

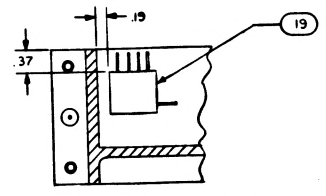
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

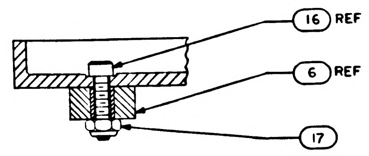
CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007150
SCALE 1/1
WT
SHEET 2 OF 2

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

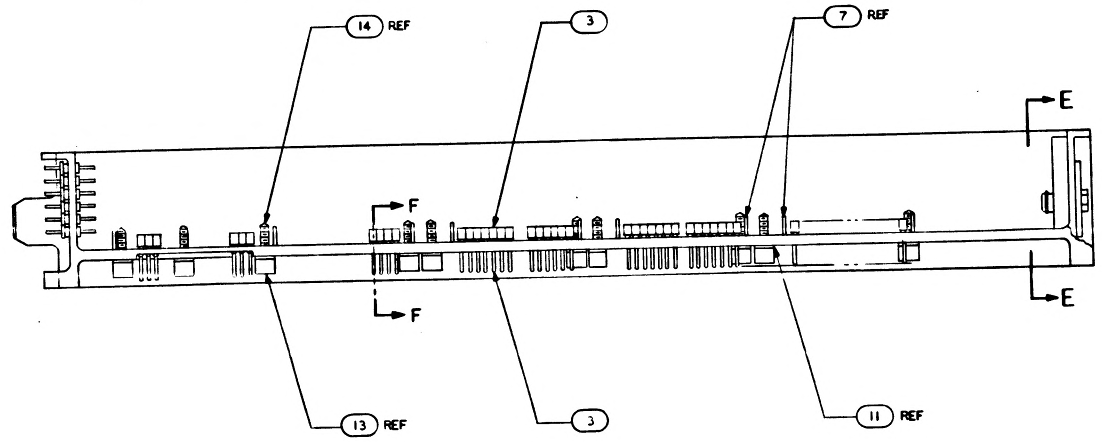
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03773	[illegible]	[illegible]
E	REVISED PER TDRR 03793	10-10-63	WK
F	REVISED PER TDRR 04104	10/23/63	[illegible]
G	REVISED PER TDRR 04793	11-20-63	[illegible]
H	REVISED PER TDRR [illegible]	[illegible]	[illegible]
J	REVISED PER TDRR 07138	6 APR 64	[illegible]
K	REVISED PER TDRR 08145	14 MAY 64	JB
L	REVISED PER TDRR 14323	23 NOV 64	[illegible]
M	REVISED PER TDRR 14324	25 Nov 64	RJ
N	REVISED PER TDRR 14580	7 DEC 64	[illegible]

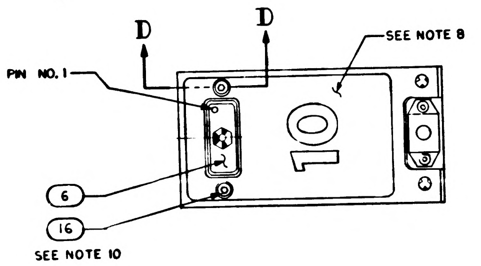


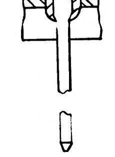
PARTIAL SECTION E-E



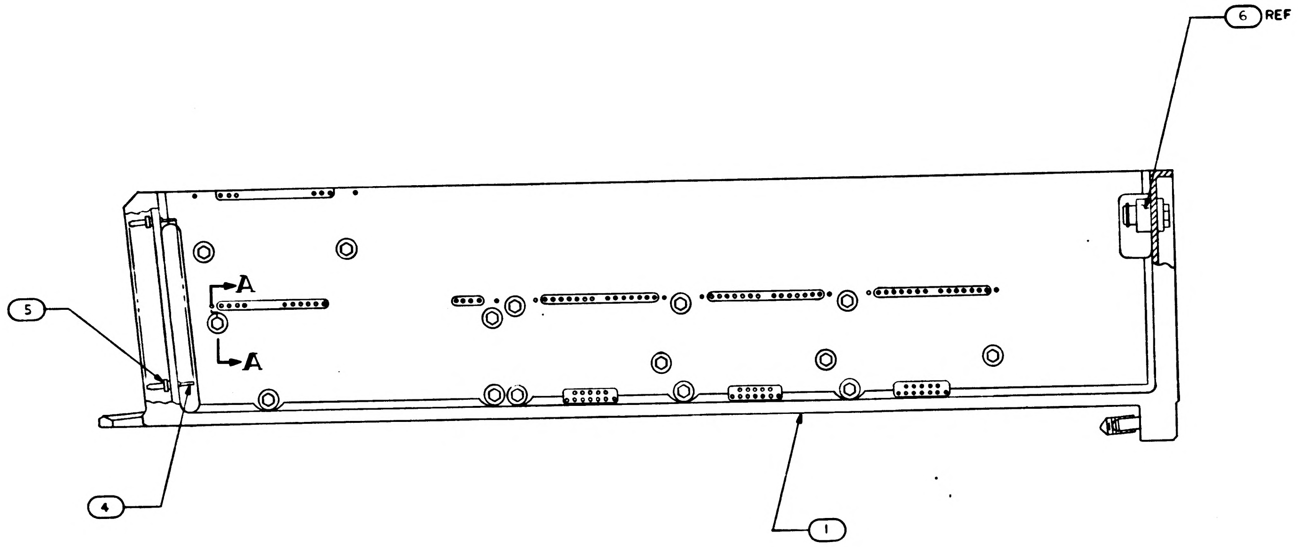
PARTIAL SECTION D-D
SCALE 2/1

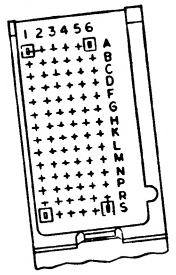


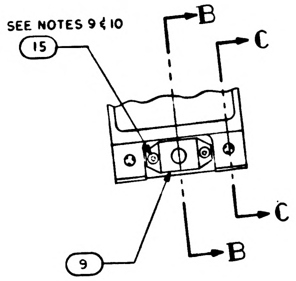




PARTIAL SECTION F-F
98 PLACES

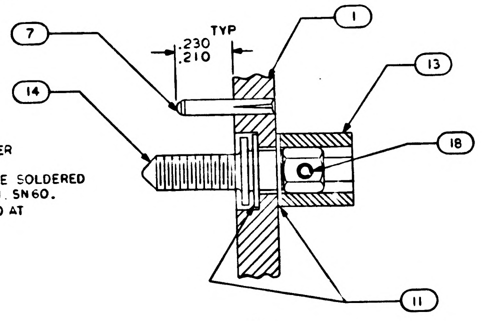




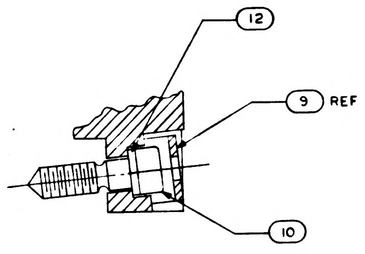


NOTES:

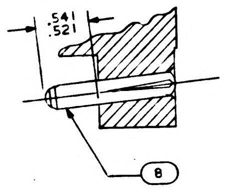
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK .140/.100 HIGH BLACK CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND DWG 1010686
4. ASSEMBLE FIND NUMBERS 2, 3, 4 AND 5 PER ND1002136
5. BOND FIND NO. 20, 21 AND 22 TO FIND NO. 1 PER ND1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO 15 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 15 AND 16 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005.
    ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60.
    ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007150.



SECTION A A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A10E8	45A10J1-24
45A10E9	45A10J1-17
45A10E10	45A10J1-32
45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1008457	WIRING DIAGRAM	REF
1	1015771	WIRE LIST A-A	22
1	1015770	WIRING HARNESS B	21
1	1015769	WIRING HARNESS A	20
1	1007093	BUFFER RESISTORS MODULE ASSY	19
15	MS 171433	PIN, SPRING	18
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	17
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	16
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	15
15	1008172	SCREW, JACK	14
15	1004207	DRIVE CYLINDER	13
1	1008099-2	WASHER	12
30	1004206	WASHER THRUST	11
1	1008098	SCREW, SOCKET HEAD	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
10	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
98	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
98	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008110	FRAME	1

LIST OF MATERIALS

1007160	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT NAS9-497
DRAWN S. Bonanno DATE 9/30/63
CHECKED [illegible]
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

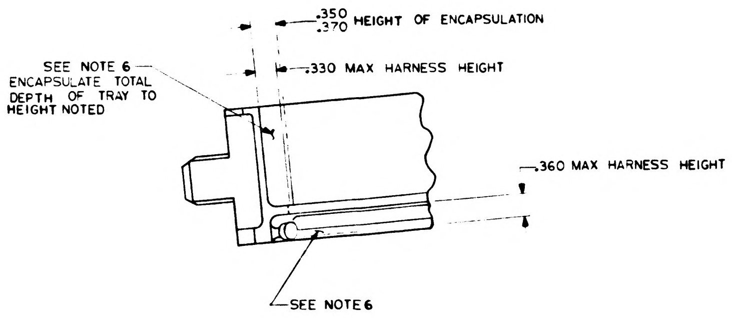
FRAME ASSEMBLY
TRAY 10

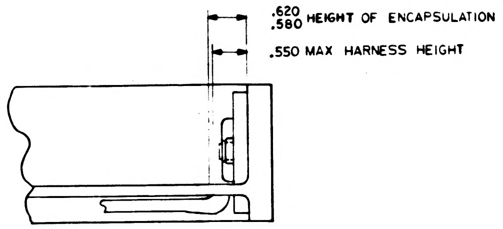
CODE IDENT NO
SIZE E
NASA DRAWING NO 1007150
SCALE 1/1
WT
SHEET 1 OF 2

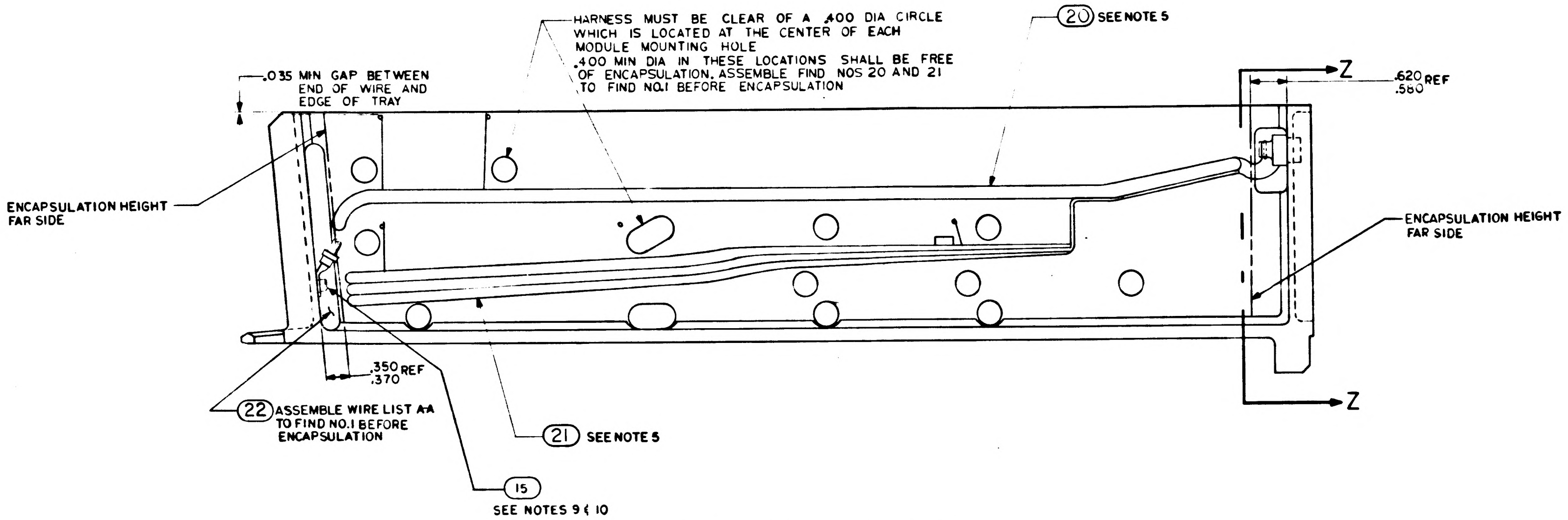
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

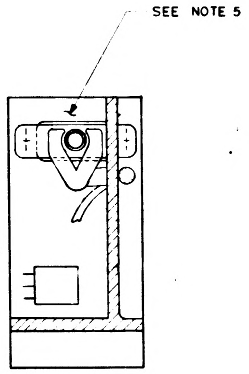
SYM	DESCRIPTION	DATE	APPROVAL
G	THIS SHEET ADDED PER TDRR 04773	11 20 63	JPL
H	REVISED PER TDRR		
K	REVISED PER TDRR 08145	15 MAY 64	JB
L	REVISED PER TDRR 14323	23-NOV-64	
M	REVISED PER TDRR 14324	29 Nov 64	RJJ
N	REVISED PER TDRR 1458	7 DEC 64	


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6

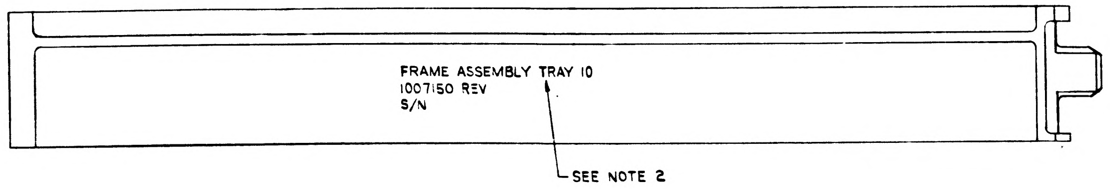

.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
(20) SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350
.370 REF
(22) ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
(21) SEE NOTE 5
(15)
SEE NOTES 9 & 10
Z

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z


FRAME ASSEMBLY TRAY 10
1007150 REV
S/N
SEE NOTE 2

MARKING VIEW AFTER ENCAPSULATION

REV G THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007160	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — DECIMALS ANGLES —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT NAS 9-4

DRAWN DATE
CHECKED
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

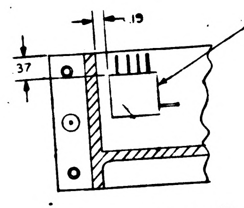
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

CODE IDENT NO SIZE E NASA DRAWING NO 1007150
SCALE 1/1 WT SHEET 2 OF

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03773	7-8-63	[illegible]
E	REVISED PER TDRR 03793	10-10-63	[illegible]
C	REVISED PER TDRR 04104	10/23/63	[illegible]
G	REVISED PER TDRR 04773	11-20-63	[illegible]
H	REVISED PER TDRR A74	[illegible]	[illegible]
J	REVISED PER TDRR 07138	6 APR 64	[illegible]
K	REVISED PER TDRR 08145	14 MAY 64	[illegible]
L	REVISED PER TDRR 14323	23 NOV 64	[illegible]
M	REVISED PER TDRR 14324	25 Nov 64	RJJ
N	REVISED PER TDRR 14580	7 DEC 64	[illegible]
P	REVISED PER TDRR 20118	21 JUN 65	[illegible]



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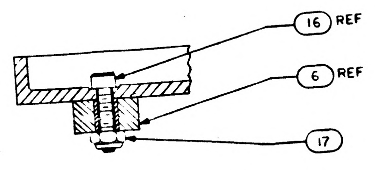

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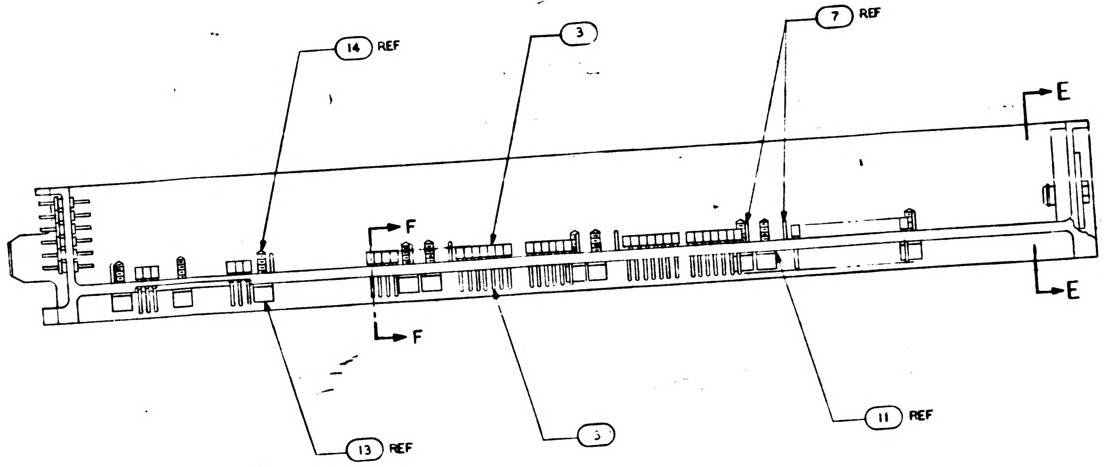
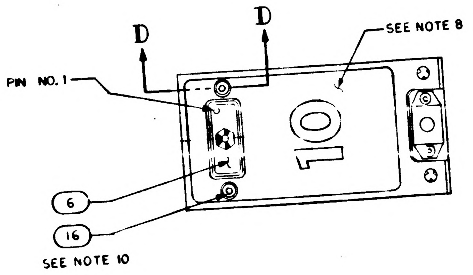
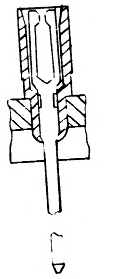
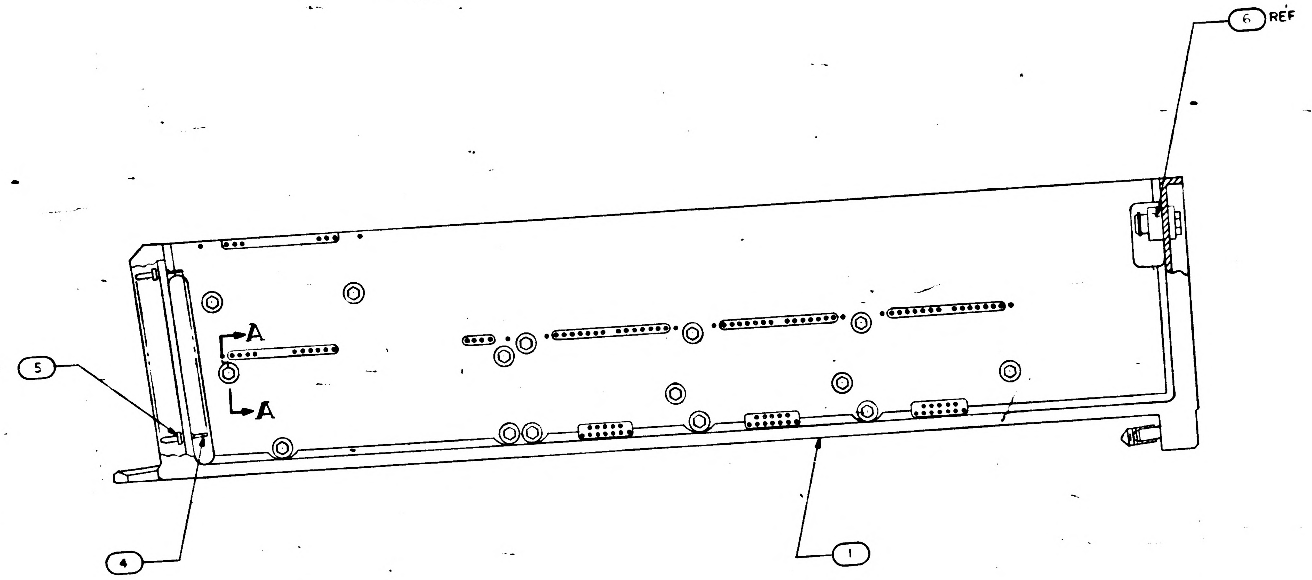
SCALE 2/1

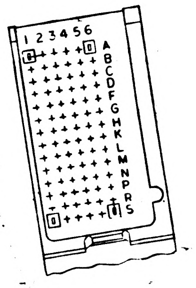


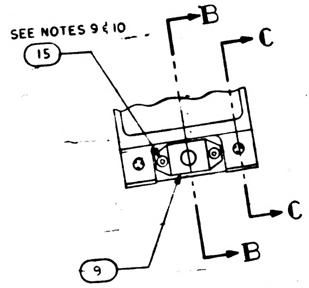




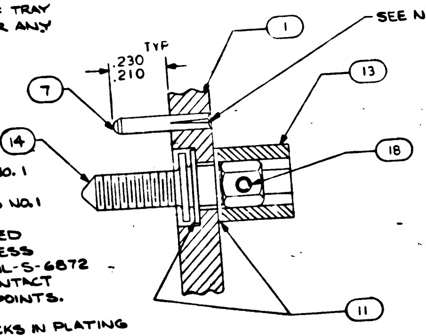
PARTIAL SECTION F-F
98 PLACES



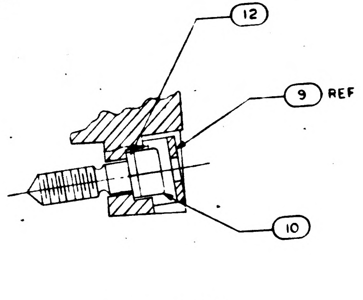




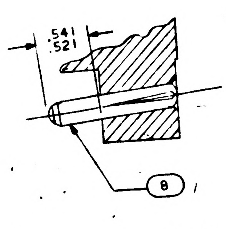
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK .140/.100 HIGH BLACK CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND DWG 1010686
4. ASSEMBLE FIND NUMBERS 2, 3, 4 AND 5 PER ND1002136
5. BOND FIND NO. 20, 21 AND 22 TO FIND NO. 1 PER ND1002004 AS NECESSARY
6. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .186 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO. 15 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
10. MOUNTING TORQUE FOR FIND NUMBERS 15 AND 16 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007150.
13. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
14. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND 1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND 1002004 TYPE I.



SECTION A A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
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45A10E9	45A10J1-17
45A10E10	45A10J1-32
45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1008457	WIRING DIAGRAM	REF
			22
		WIRE LIST A-A	21
1	1015771	WIRING HARNESS B	20
1	1015770	WIRING HARNESS A	19
1	1015769	BUFFER RESISTORS MODULE ASSY	18
1	1007093	PIN, SPRING	17
15	MS 171433	NUT, SELF-LOCKING HEX	16
2	MS 21045 C 04	SCREW, CAP, SOCKET HEAD	15
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	14
3	MS 16995-10	SCREW, JACK	13
15	1008172	DRIVE CYLINDER	12
15	1004207	WASHER	11
1	1008099-2	WASHER THRUST	10
30	1004206	SCREW, SOCKET HEAD	9
1	1008098	RETAINER, JACK SCREW	8
1	1001317	PIN, GUIDE	7
2	1010620-5	PIN, GUIDE	6
10	MS16556-604	CONNECTOR RECEPTACLE	5
1	1010622-1	INSULATOR, WRAPOST, MALE	4
84	1010383-1	CONTACT, BLADE EDGE CONNECTOR	3
84	1010382-1	CONTACT, WRAPOST, FEMALE MIN	2
98	1006781-2	INSULATOR, WRAPOST, FEMALE MIN	1
98	1006774	FRAME	
1	1008110		

LIST OF MATERIALS

1007160	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — DECIMALS ±.02 — ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT NAS 9-497
DWG NO
DRAWN S. Bonasuga DATE 9/30/63
CHECKED [illegible] 10-7-63
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible] 10-8-63
MIT APPROVAL [illegible] 10-8-63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY TRAY 10

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 1007150
SCALE 1/1
WT
SHEET 1 OF 2

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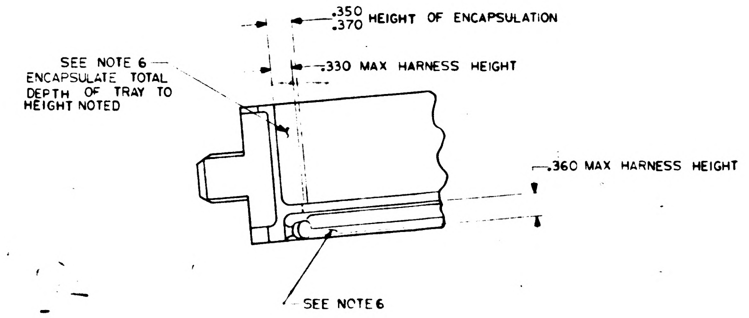
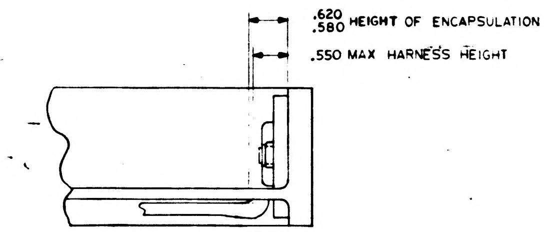
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
(M) 6	THIS SHEET ADDED PER TDRR 04743	11-20-63	
(G) H	REVISED PER TDRR 06414	4-4-64	
(M) K	REVISED PER TDRR 08145	15 MAY 64	
L	REVISED PER TDRR 14323	23-NOV-64	
(M) M	REVISED PER TDRR 14324	25 Nov 64	RJJ
(M) N	REVISED PER TDRR 14580	7 DEC 64	JJJ
P	REVISED PER TDRR 20118	21 JUN 65	



.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6



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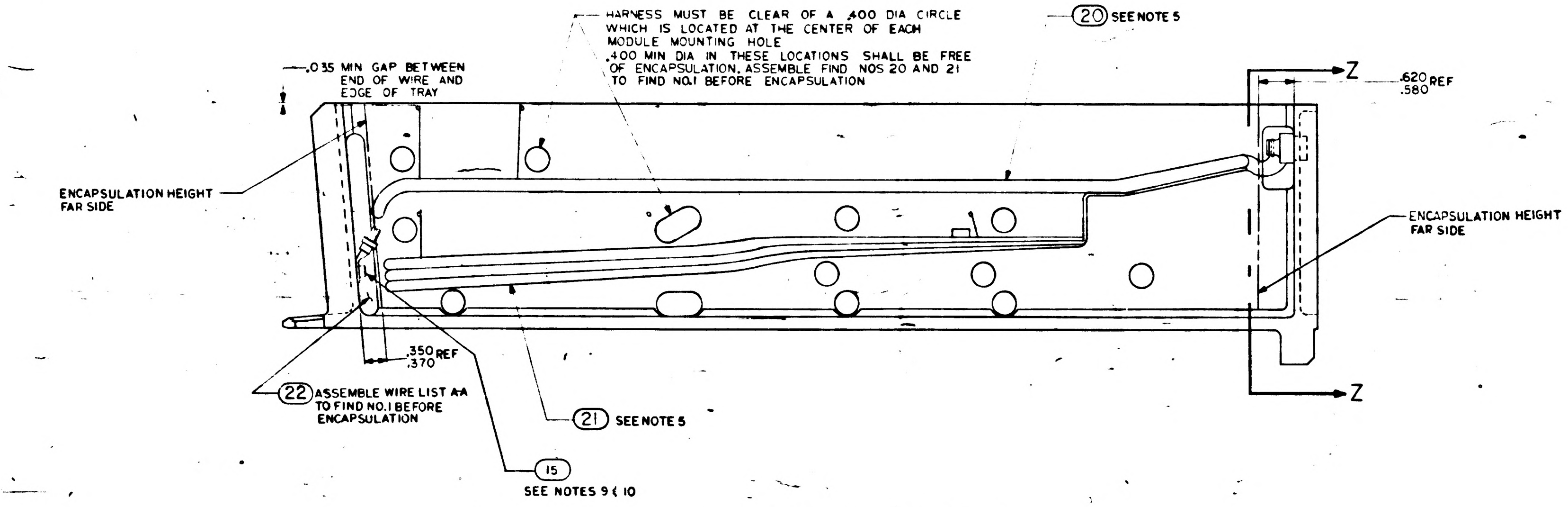
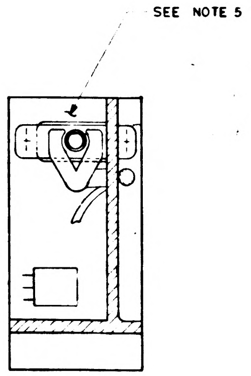
.550 MAX HARNESS HEIGHT

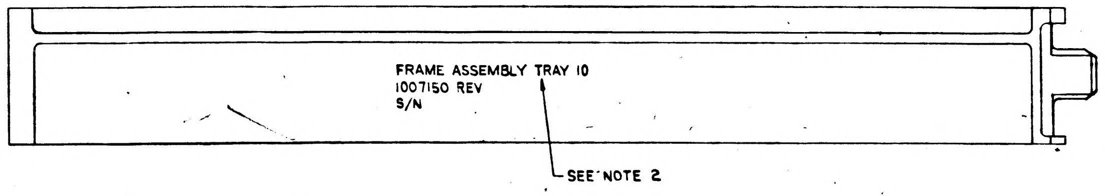


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
(20) SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350 .370 REF
Z
(22) ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
(21) SEE NOTE 5
(15) SEE NOTES 9 & 10

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z



FRAME ASSEMBLY TRAY 10
1007150 REV
S/N
SEE NOTE 2

MARKING VIEW AFTER ENCAPSULATION

REV G THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007160	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — DECIMALS — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
CONTRACT NAS 9-4?7

DRAWN — DATE 11-?-63
CHECKED — 18 Nov 63
APPROVAL — 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

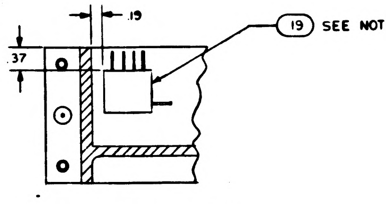
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 1007150
SCALE 1/1
WT
SHEET 2 OF 2

1007150 P

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO



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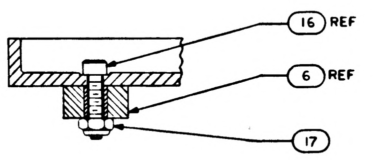
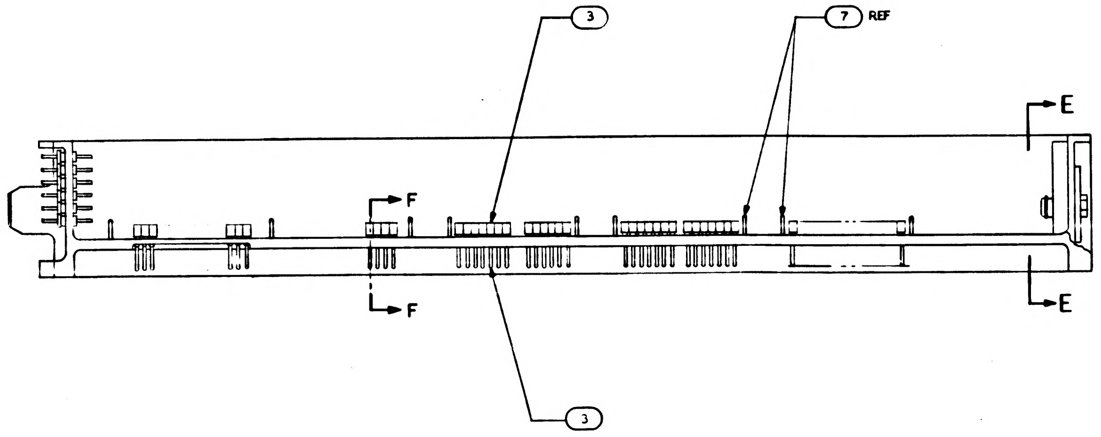
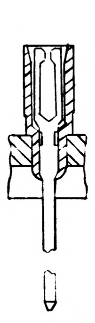
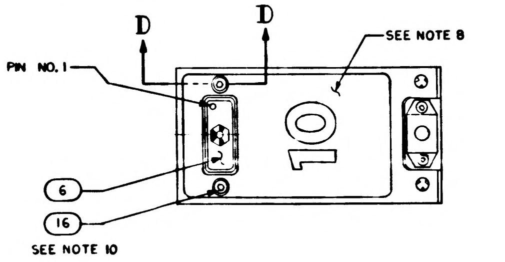


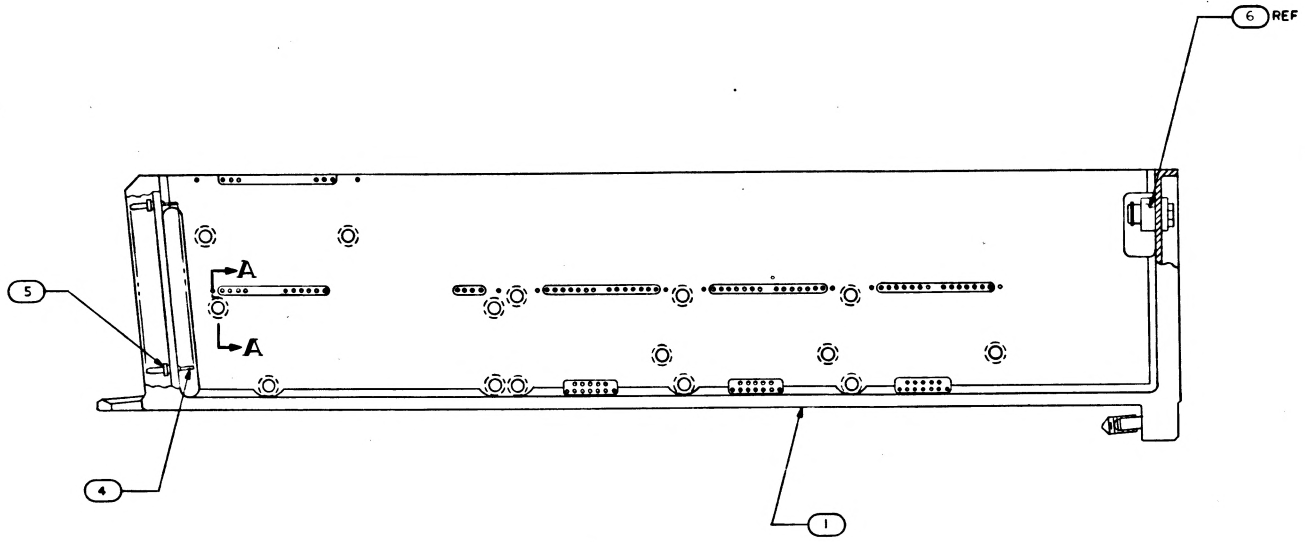
PARTIAL SECTION D-D
SCALE 2/1

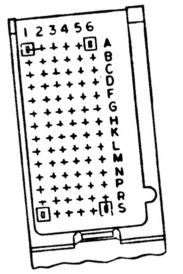


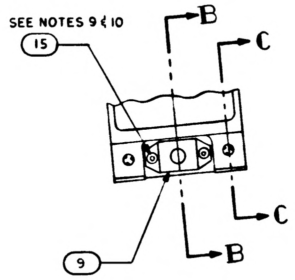


PARTIAL SECTION F-F
98 PLACES



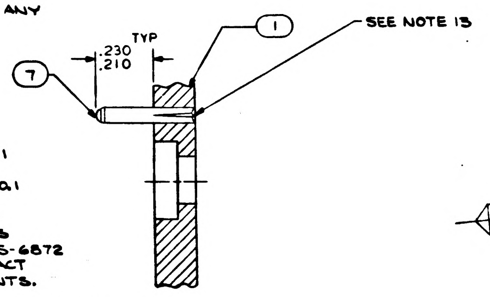




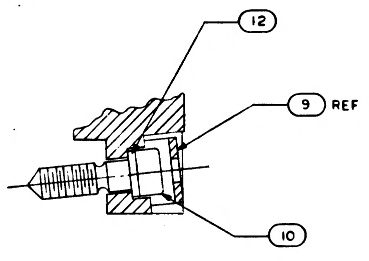


NOTES:

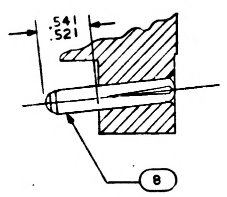
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK .140/.100 HIGH BLACK CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND DWG 1010686
4. ASSEMBLE FIND NUMBERS 2, 3, 4 AND 5 PER ND1002136
5. BOND FIND NO. 20, 21 AND 22 TO FIND NO. 1 PER ND1002004 AS NECESSARY
6. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO. 15 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
10. MOUNTING TORQUE FOR FIND NUMBERS 15 AND 16 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007150.
13. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
14. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND 1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND 1002004 TYPE I.



SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A10E8	45A10J1-24
45A10E9	45A10J1-17
45A10E10	45A10J1-32
45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
╳	1008457	WIRING DIAGRAM	REF
1	1015771	WIRE LIST A-A	22
1	1015770	WIRING HARNESS B	21
1	1015769	WIRING HARNESS A	20
1	1007093	BUFFER RESISTORS MODULE ASSY	19
~~15~~	~~MS 171455~~	~~PIN, SPRING~~	~~18~~
2	MS 21045 C 04	NUT, SELF-LOCKING HEX	17
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	16
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	15
~~15~~	~~1008172~~	~~SCREW, JACK~~	~~14~~
~~15~~	~~1004207~~	~~DRIVE CYLINDER~~	~~13~~
1	1008099-2	WASHER	12
~~30~~	~~1004206~~	~~WASHER THRUST~~	~~11~~
1	1008098	SCREW, SOCKET HEAD	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
10	MS16556-604	PIN, GUIDE	7
1	1010622-1	CONNECTOR RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
98	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
98	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008110	FRAME	1

LIST OF MATERIALS

REVISIONS				
	SYM	DESCRIPTION	DATE	APPROVAL
	D	REVISED PER TDRR 03773	[illegible]	[illegible]
Ⓜ	E	REVISED PER TDRR 03793	10-10-63	JJm WK
Ⓜ	F	REVISED PER TDRR 04104	10/23/63	C.W
Ⓜ	G	REVISED PER TDRR 04793	11-20-63	[illegible]
N	H	REVISED PER TDRR [illegible]	[illegible]	[illegible]
Ⓜ	J	REVISED PER TDRR 07138	6 APR 64	[illegible]
Ⓜ	K	REVISED PER TDRR 08145	14 MAY 64	JB
	L	REVISED PER TDRR 14323	23 NOV 64	[illegible]
Ⓜ	M	REVISED PER TDRR 14324	25 Nov 64	[illegible]
Ⓜ	N	REVISED PER TDRR 14580	7 DEC 64	JJ
	P	REVISED PER TDRR 20118	2 JUN 65	[illegible]
	R	REVISED PER TDRR 20119	23 JUN 65	MCK

NEXT ASSY	USED ON
1007160	

APPLICATION

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DRAWN S Bonanugo DATE 9/30/63
CHECKED [illegible] 10-2-63
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible] 10-8-63
MIT APPROVAL [illegible] 10-8-63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY TRAY 10

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 1007150
SCALE 1/1
WT
SHEET 1 OF 2

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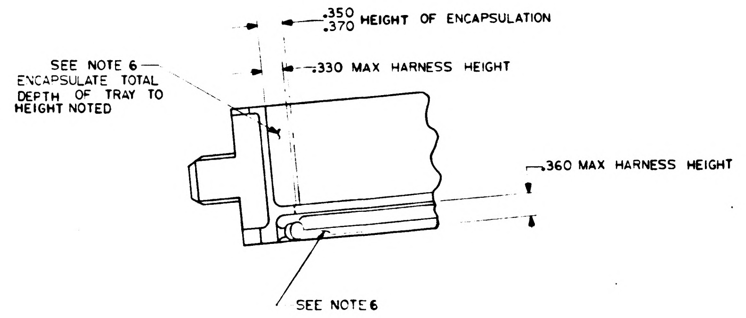
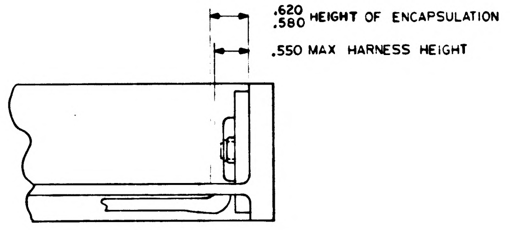
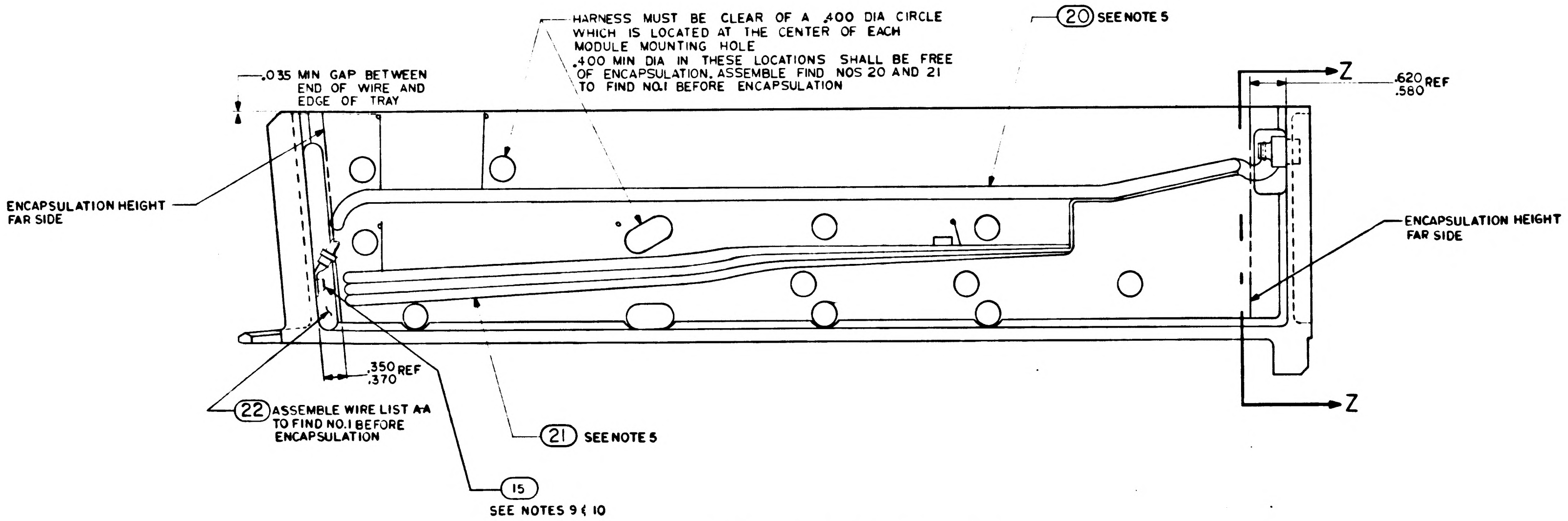
REVISIONS

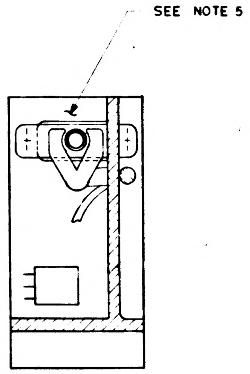
SYM	DESCRIPTION	DATE	APPROVAL
6	THIS SHEET ADDED PER TDRR 04773	11-20-63	PPK
H	REVISED PER TDRR 6474	[illegible]	[illegible]
K	REVISED PER TDRR 08145	15 MAY 64	
L	REVISED PER TDRR 14323	23-NOV-64	
M	REVISED PER TDRR 14324	29 Nov 64	RJ
N	REVISED PER TDRR 14580	7 DEC 64	JJ
P	REVISED PER TDRR 20118	21 JUN 65	
R	REVISION STATUS CHANGED	23 JUN 65	MCR


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6

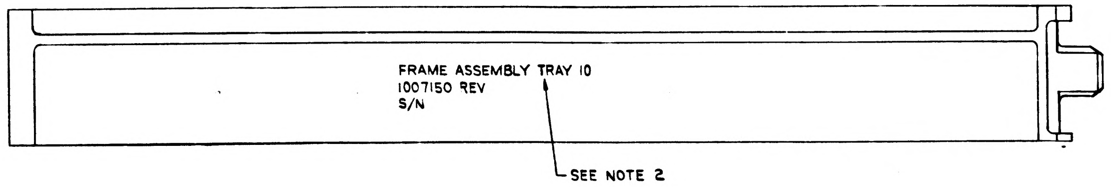

.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
20 SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350
.370 REF
22 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ENCAPSULATION
21 SEE NOTE 5
15
SEE NOTES 9 & 10
Z

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z


FRAME ASSEMBLY TRAY 10
1007150 REV
S/N
SEE NOTE 2

MARKING VIEW AFTER ENCAPSULATION

REV G THIS SHEET ADDED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

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1007160	

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CHECKED 18 Nov 63
APPROVAL 11-20-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

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HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007150
SCALE 1/1
WT
SHEET 2 OF 2

1007150

REVISIONS IDCR 02339

ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
1008110	Frame, Tray 10	1
1006774	Insulator, Wrapost, Female Miniature	232
1006781-2	Contact, Wrapost, Female Miniature	232
1010382-1	Contact, Blade Edge Connector	84
1010383	Insulator, Wrapost, Male	84
* ME 414-0111-0002	Connector Assembly, Electrical, Sub-Miniature, 38 No. 22 Contacts, Female-Receptacle	1
1010620-1	Pin, Guide	10
1010620-2	Pin, Guide	2
1001317	Retainer, Jack Screw	1
1008095	Screw, Jack	16
1008098	Screw, Socket Head, Externally Relieved Body	1
1008099-1	Washer (Special)	16
1008099-2	Washer (Special)	1
1008092	Washer (Special)	16
MS 16624-15	Ring, Retaining	16
MS 16995-10	Screw, Cap, Socket Head	2
MS 16995-11	Screw, Cap, Socket Head	2
MS 21045 C 04	Nut, Self-Locking Hex	2

* NAA SPEC CONTROL DRAWING. NASA PART NO. NOT ASSIGNED, YET.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

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1007160	

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		DATE
APPROVED		7 31-63
CHECKED	J.S.M.	
DRAWN	J.J.M.	

APPROVED FOR MSC

MIT/IL APPROVAL	DATE
W Kupfer	31 July 63

FRAME ASSEMBLY
TRAY 10

SCALE
UNIT WT.
CODE IDENT.

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NASA DRAWING NO.
1007150

SHEET 1 OF 1

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APOLLO G&N Specification
PS-1007150
29 April 1964
Class A Release
TDRR 08051

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 10

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page i to iii and 1 to 3 inclusive.

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 10

The purpose of this document is to establish the requirements for the procurement of the Frame Assembly Tray 10 for use in APOLLO Guidance and Navigation Equipment.

29 April 64
MIT/IL DATE

4/29/64
NASA/MSC APPROVAL DATE

PROCUREMENT SPECIFICATION

FOR

FRAME ASSEMBLY TRAY 10

1. SCOPE

1.1 **PURPOSE.** This specification establishes the requirements for the procurement of the Frame Assembly Tray 10, Drawing 1007150, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 **EFFECTIVE ISSUES.** The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM-1007150	Final Test Method for Frame Assembly Tray 10

DRAWINGS

APOLLO G&N

1007150	Frame Assembly Tray 10
1015769	Wiring Harness A ray 10 (For Reference Only)
1015770	Wiring Harness B
1015771	Wire List A-A

INCHES
0 1 2
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1007151 (M)

REVISIONS TDRR 01267				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01580	6-14-63	D.T.

PART NO.	DESCRIPTION	REQD.
1007040	Gimbal Servo Amplifier Module Assembly	3
1007041	Gimbal Coarse Align Amplifier Module Assembly	3
1007042	Power Supply, -28VDC Module Assembly	1
1007043	Auto-Amplitude Controller and Multivibrator (3200 CPS) Module Assembly	1
1007044	Amplifier, 1% (3200 CPS) Module Assembly	1
1007045	Temperature Controller Power Supply (3200 CPS, 20V) Module Assembly	1
1007141	Frame Assembly, Tray 1	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

1007100	
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		DATE
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DRAWN		

APPROVED FOR MSC
5/15/63

MIT/IL APPROVAL	DATE
15	63

GIMBAL SERVO
ELECTRONICS ASSEMBLY,
TRAY 1

SCALE	UNIT WT.	CODE IDENT.

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1007151

SHEET 1 OF 1

INCHES
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REVISIONS TDRR 01269

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01580	6-14-63	O.T.
	B	SUPERSEDED PER TDRR 03774	10-8-63	WIC

PART NO.	DESCRIPTION	REQD.
1007040	Gimbal Servo Amplifier Module Assembly	3
1007041	Gimbal Coarse Align Amplifier Module Assembly	3
1007042	Power Supply, -28VDC Module Assembly	1
1007043	Auto-Amplitude Controller and Multivibrator (3200 CPS) Module Assembly	1
1007044	Amplifier, 1S (3200 CPS) Module Assembly	1
1007045	Temperature Controller Power Supply (3200 CPS, 20V) Module Assembly	1
1007141	Frame Assembly, Tray 1	1

REV B REPLACED BY REV C

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

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NAS 9-153

		DATE
APPROVED		5-15-63
CHECKED		
DRAWN		

APPROVED FOR MSC
5/15/63

MIT/IL APPROVAL	DATE
15 May	63

GIMBAL SERVO
ELECTRONICS ASSEMBLY,
TRAY 1

SCALE
UNIT WT.
CODE IDENT.

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SHEET 1 OF 1

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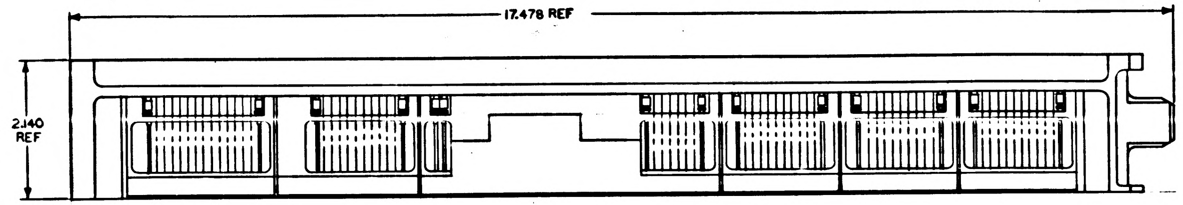
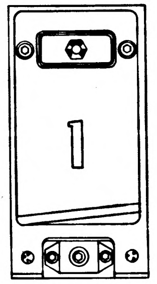
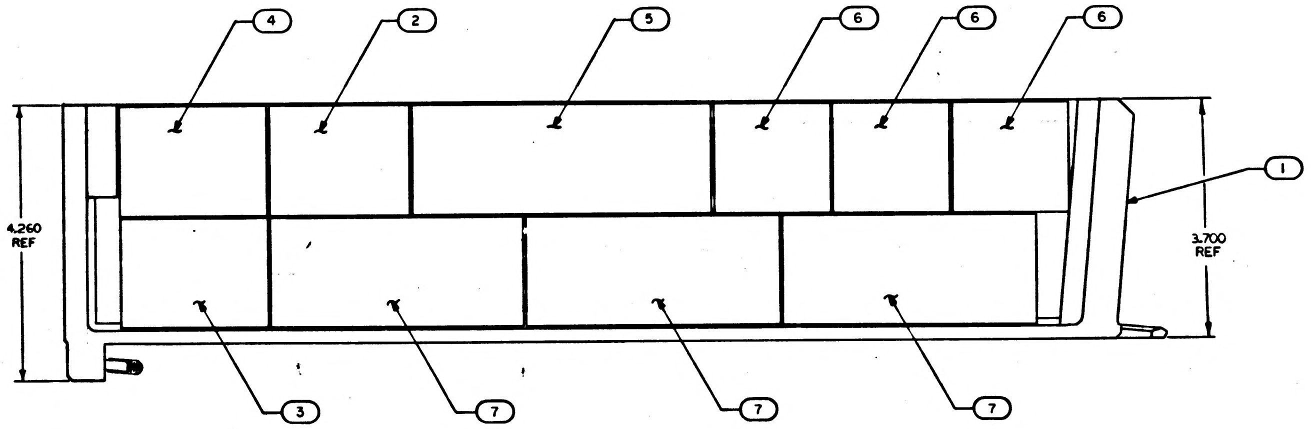
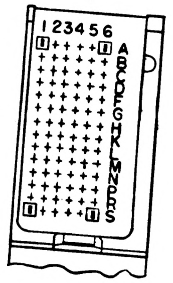
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
C	REVISED PER TDRR 03774	10-4-67	









NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REV C REPLACES REV B

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
3	1007040	GIMBAL SERVO AMPL	7
3	1007041	GIMBAL COARSE ALIGN AMPL	6
1	1007042	POWER SUPPLY-28VDC	5
1	1007043	AAC FILTER & MVB (3200 CPS)	4
1	1007044	AMPL 1% 3200 CPS	3
1	1007045	TEMP CONT PWR SUP 3200 CPS, 20V	2
1	1007141	FRAME ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON

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DRAWN P. Raney DATE 2-8-65
CHECKED R. King, Jerry Booth
APPROVAL D. W. Hoag 10-8-62
APPROVAL

NASA APPROVAL W. J. Rhine 10-8-67
MIT APPROVAL

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GIMBAL SERVO
ELECTRONICS ASSEMBLY,
TRAY 1

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007151
SCALE 1/1 WT SHEET 1 OF 1

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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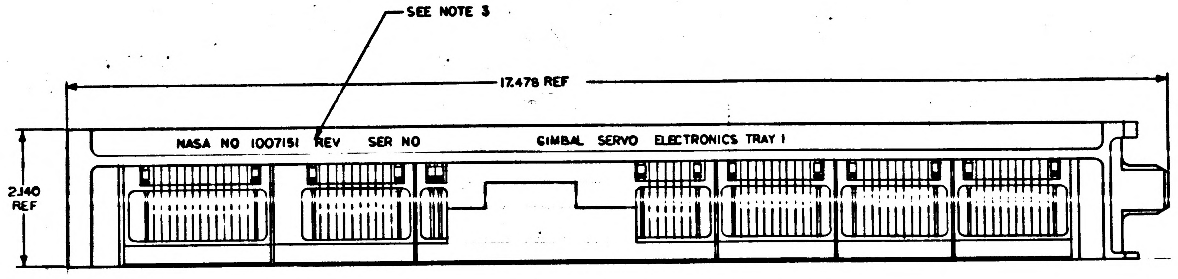
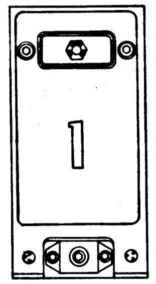
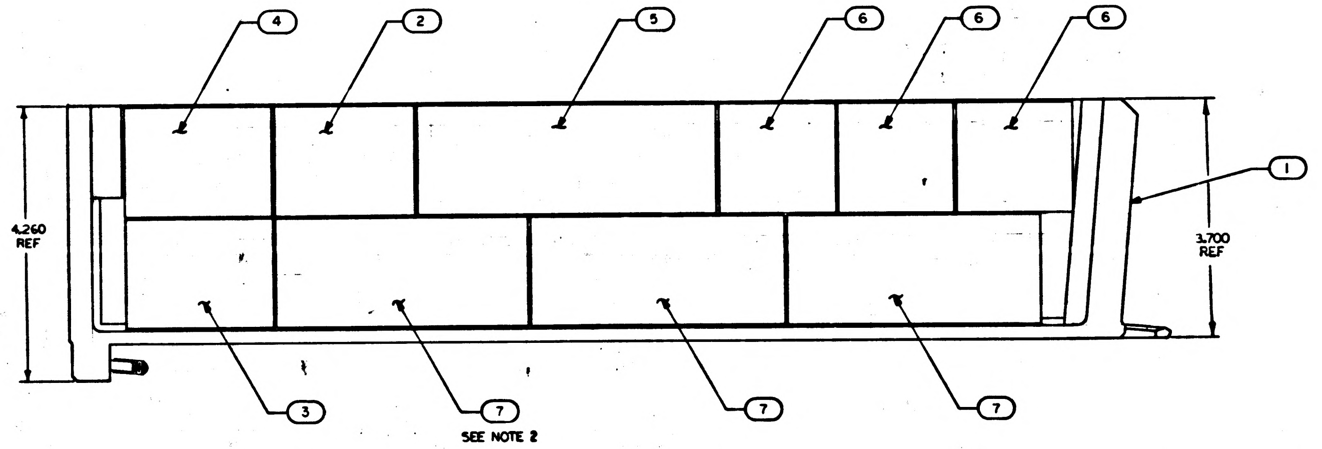
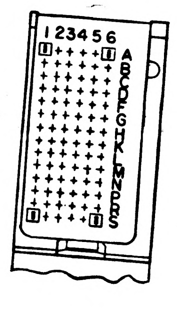
D	REVISED PER TDRR 06896	64	









NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO'S 2,3,4,5,6 AND 7 TO FIND NO. 1 TO BE 13/17 IN LB
3. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND1002023

REV C REPLACES REV B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
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3	1007041	GIMBAL COARSE ALIGN AMPL	6
1	1007042	POWER SUPPLY-28VDC	5
1	1007043	AAC FILTER & MVB (3200 CPS)	4
1	1007044	AMPL 1% 3200 CPS	3
1	1007045	TEMP CONT PWR SUP 3200 CPS, 20V	2
1	1007141	FRAME ASSEMBLY	1

LIST OF MATERIALS

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1007100	

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GIMBAL SERVO
ELECTRONICS ASSEMBLY,
TRAY 1

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007151
SCALE 1/1 WT SHEET 1 OF 1

MASTER

1007151 D

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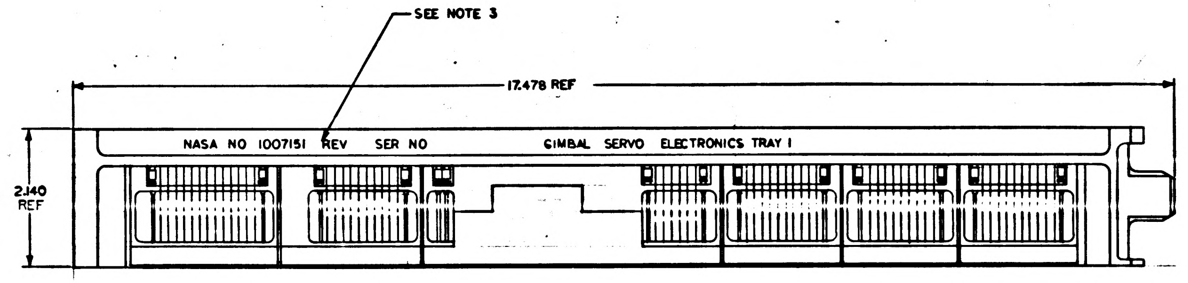
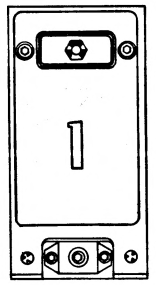
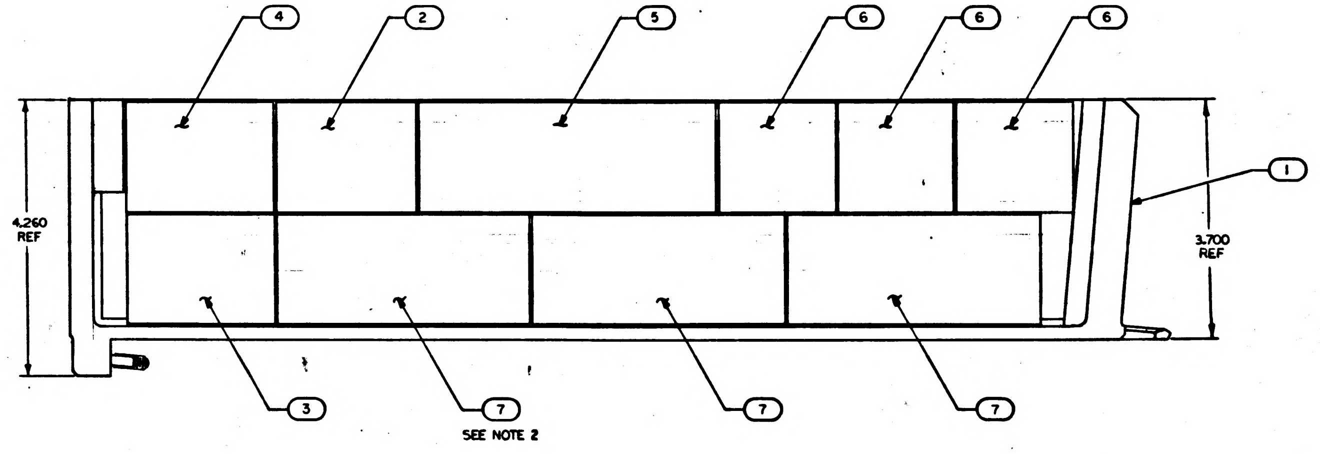
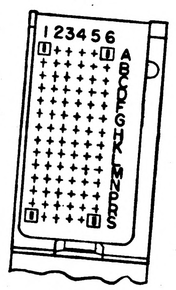
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
C	REVISED PER TDRR 03774	10-8-67	
D	REVISED PER TDRR 06796	[illegible]	
E	REVISED PER . TDRR 07552	[illegible]	









NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO'S 2,3,4,5,6 AND 7 TO FIND NO. 1 TO BE 13/17 IN LB
3. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND1002023

REV C REPLACES REV B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
3	1007040	GIMBAL SERVO AMPL	7
3	1007041	GIMBAL COARSE ALIGN AMPL	6
1	1007042	POWER SUPPLY-28VDC	5
1	1007043	AAC FILTER & MVB (3200 CPS)	4
1	1007044	AMPL 1% 3200 CPS	3
1	1007045	TEMP CONT PWR SUP 3200 CPS,20V	2
1	1007141	FRAME ASSEMBLY	1

LIST OF MATERIALS

MASTER

1007170	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
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MATERIAL
HEAT TREATMENT
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DRAWN DATE 2-2-65
CHECKED
APPROVAL 10-8-62
APPROVAL
NASA APPROVAL 10-1-67
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

GIMBAL SERVO ELECTRONICS ASSEMBLY, TRAY 1

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007151
SCALE 1/1 WT SHEET 1 OF 1

1007151 E

INCHES
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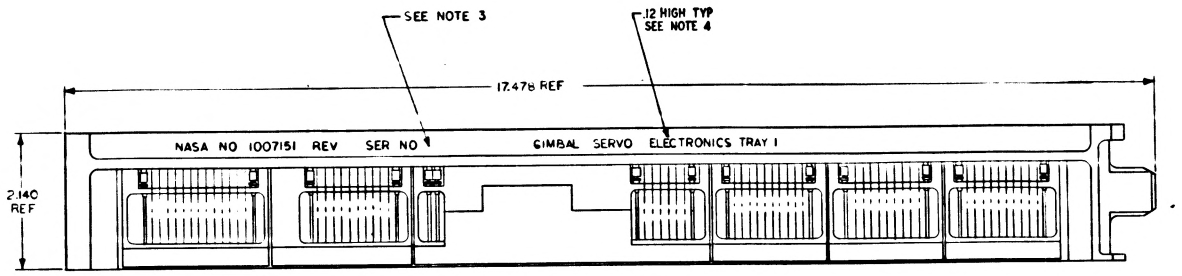
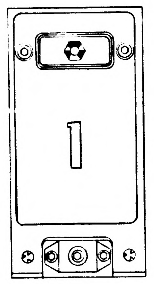
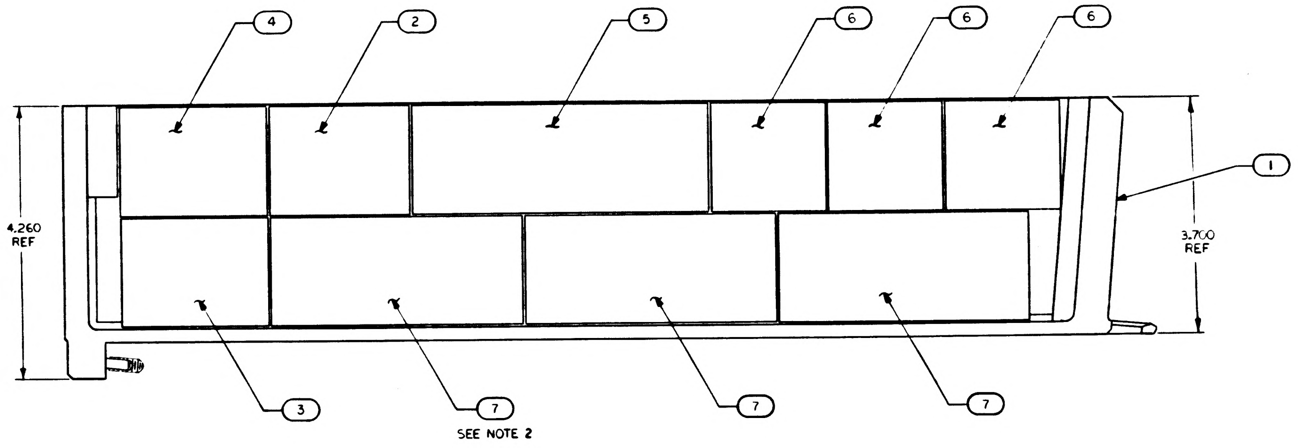
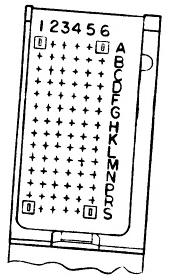
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
C	REVISED PER TDRR 03774		
D	REVISED PER TDRR 04976	64	
E	REVISED PER TDRR 07552		
F	REVISED PER TDRR 14582	8 DEC 64	









NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO'S 2,3,4,5,6 AND 7 TO FIND NO. 1 TO BE 13/17 IN LB
3. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND 1002023
4. MARK PER ND 1002019, WHITE.

REV C REPLACES REV B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
3	1007040	GIMBAL SERVO AMPL	7
3	1007041	GIMBAL COARSE ALIGN AMPL	6
1	1007042	POWER SUPPLY-28VDC	5
1	1007043	AAC FILTER & MVB (3200 CPS)	4
1	1007044	AMPL 1% 3200 CPS	3
1	1007045	TEMP CONT PWR SUP 3200 CPS, 20V	2
1	1007141	FRAME ASSEMBLY	

LIST OF MATERIALS

1007170	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
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TOLERANCES ON
FRACTIONS DECIMALS ANGLES
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MATERIAL
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APPROVAL 10-8-63
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

GIMBAL SERVO
ELECTRONICS ASSEMBLY,
TRAY 1

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007151
SCALE 1/1
WT
SHEET 1 OF 1

1007151

REVISIONS TORR 01269

ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
1007040	Gimbal Servo Amplifier Module Assembly	3
1007041	Gimbal Coarse Align Amplifier Module Assembly	3
1007042	Power Supply, -28VDC Module Assembly	1
1007043	Auto-Amplitude Controller and Multivibrator (3200 CPS) Module Assembly	1
1007044	Amplifier, 1$ (3200 CPS) Module Assembly	1
1007045	Temperature Controller Power Supply (3200 CPS, 20V) Module Assembly	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES

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MATERIAL:

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CONTRACT
NAS 9-153

		DATE
APPROVED	B. C. Tut	5-15-63
CHECKED		
DRAWN		

APPROVED FOR MSC
K Michael 5/15/63

MIT/IL APPROVAL	DATE
W Kupfer 15 May	63

GIMBAL SERVO
ELECTRONICS ASSEMBLY,
TRAY 1

SCALE	UNIT WT.	CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
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NASA DRAWING NO.
1007151

SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007152

REVISIONS TDRR 01267				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01560	6-14-63	D.T.

PART NO.	DESCRIPTION	REQD.
1007047	1% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007048	5% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007046	Auto-Amplitude Controller (800 CPS, 28V) Module Assembly	1
1007052	Power Supply (+120VDC, +12VDC) Module Assembly	1
1007050	Load Compensation Module Assembly	1
1007049	Power Supply (25.6 KC, Encoder Excit.) Module Assembly	2
1007051	Failure Indicator Module Assembly	1
1007142	Frame Assembly, Tray 2	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES

DO NOT SCALE THIS DRAWING
MATERIAL:

MIT INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED		5-15-63
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DRAWN		

APPROVED FOR MSC
5/15/63

MIT/IL APPROVAL	DATE
W Kuffer	15 May 63

POWER SUPPLY
ELECTRONICS ASSEMBLY,
TRAY 2

SCALE
UNIT WT.
CODE IDENT.

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CAMBRIDGE, MASS.

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HOUSTON TEXAS

NASA DRAWING NO.
1007152

SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007152 B

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01560	6-14-63	D.T. KEF
	B	REVISED PER TDRR 01624	6-26-63	J.J.M. WR.

REVISIONS TDRR 01267

PART NO.	DESCRIPTION	REQD.
1007047	1% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007048	5% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007046	Auto-Amplitude Controller (800 CPS, 28V) Module Assembly	1
1007052	Power Supply (+120VDC, +12VDC) Module Assembly	1
SEE NOTE	Load Compensation Module Assembly	1
1007049	Power Supply (25.6 KC, Encoder Excit.) Module Assembly	2
1007051	Failure Indicator Module Assembly	1
1007142	Frame Assembly, Tray 2	1

NOTE:

SELECT PART FROM TABLE I PER ATP

TABLE I

1007050-1
1007050-2
1007050-3
1007050-4

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

UNLESS OTHERWISE SPECIFIED

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FRACTIONS DECIMALS ANGLES

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MATERIAL:

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CONTRACT
NAS 9-153

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APPROVED FOR MSC
5/15/63

MIT/IL APPROVAL	DATE
W Kupfer	15 May 63

POWER SUPPLY
ELECTRONICS ASSEMBLY,
TRAY 2

SCALE	UNIT WT.	CODE IDENT.

MIT
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NASA DRAWING NO.
1007152

SHEET 1 OF 1

INCHES
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REVISIONS TDRR 01269

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01560	6-14-63	D.T. KEF
	B	REVISED PER TDRR 01624	6-26-63	J.J.M. WK.
	C	SUPERSEDED PER TDRR 03774	10-8-63	RPK WK

PART NO.	DESCRIPTION	REQD.
1007047	1% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007048	5% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007046	Auto-Amplitude Controller (800 CPS, 28V) Module Assembly	1
1007052	Power Supply (+120VDC, +12VDC) Module Assembly	1
SEE NOTE	Load Compensation Module Assembly	1
1007049	Power Supply (25.6 KC, Encoder Excit.) Module Assembly	2
1007051	Failure Indicator Module Assembly	1
1007142	Frame Assembly, Tray 2	1

REV C REPLACED BY REV D

NOTE:

SELECT PART FROM TABLE I PER ATP

TABLE I

1007050-1
1007050-2
1007050-3
1007050-4

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

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CONTRACT NAS 9-153
APPROVED D. G. [illegible] DATE 5-15-63
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DRAWN
APPROVED FOR MSC 5/15/63
MIT/IL APPROVAL DATE
W Kupfer 15 May 63

POWER SUPPLY
ELECTRONICS ASSEMBLY,
TRAY 2

SCALE
UNIT WT.
CODE IDENT.

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NASA DRAWING NO.
1007152

SHEET 1 OF 1

INCHES
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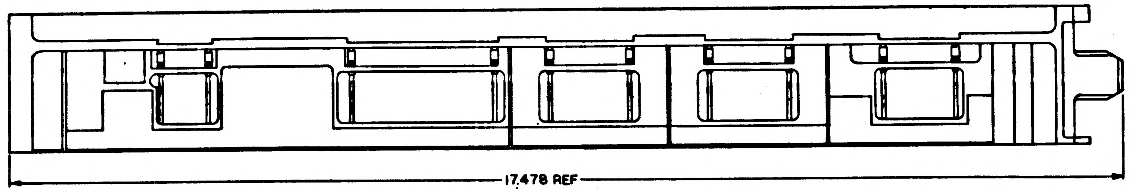
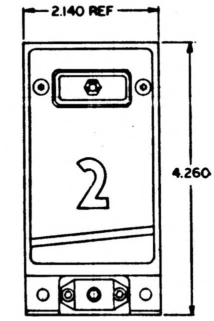
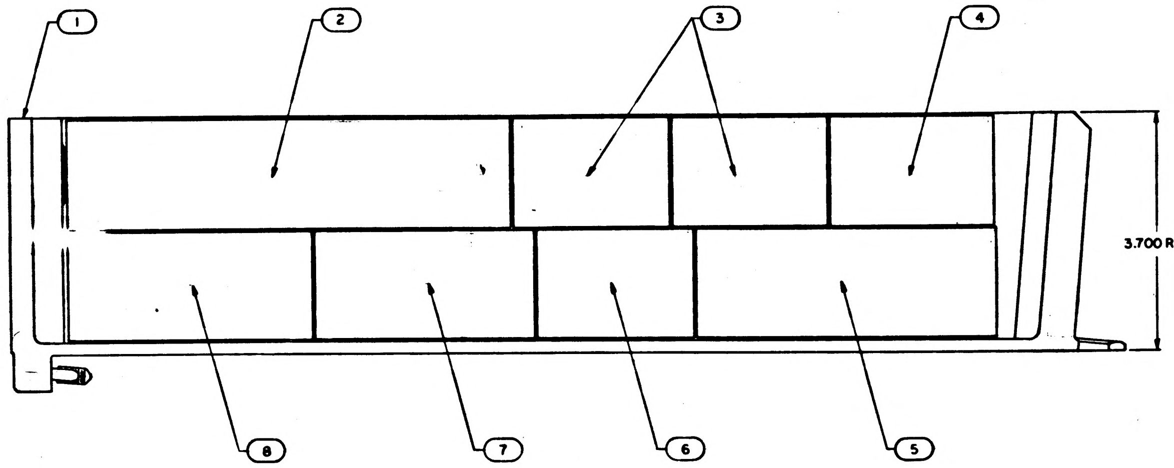
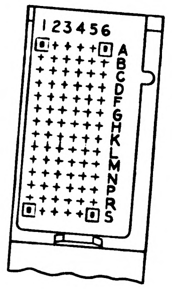
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03774	10-4-63	









NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. SELECT PART FROM TABLE I PER ATP

TABLE I

1007050-1
1007050-2
1007050-3
1007050-4

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007051	FAILURE INDICATOR	8
1	1007047	AMPLIFIER 1Z 800 CPS	7
1	1007046	ACC 800 CPS FILTER AND MULTIVIBRATOR	6
1	1007048	AMPLIFIER 5Z 800 CPS	5
1	SEE NOTE 2	IMU CDU LOAD COMPENSATION	4
2	1007049	POWER SUPPLY 25.6KC, ENCODER	3
1	1007052	PULSE TORQUING POWER SUPPLY	2
1	1007142	FRAME ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
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FRACTIONS ± — DECIMALS ± — ANGLES ± —
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DRAWN L. Krahn DATE 9/20/63
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APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-9-63
MIT APPROVAL

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POWER SUPPLY
ELECTRONICS ASSEMBLY
TRAY 2

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007152
SCALE 1:1 WT SHEET 1 OF 1

1007152 D

MASTER

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

SYM	DESCRIPTION	DATE	APPROVAL
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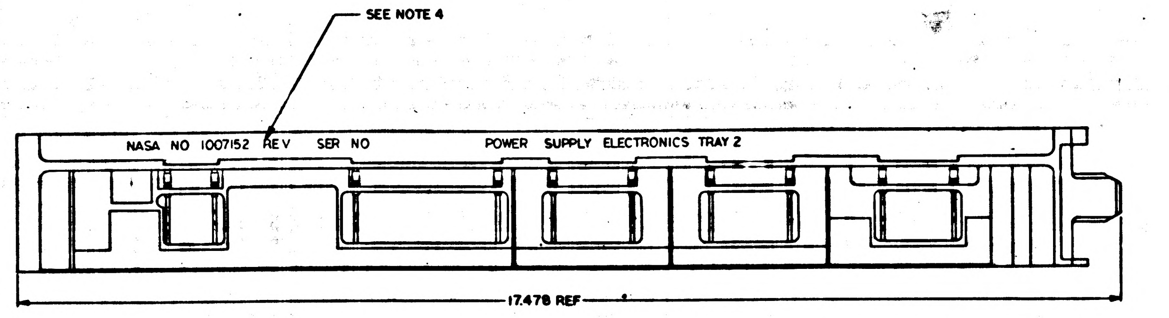
E	REVISED PER TDRR 06483	[illegible]	[illegible]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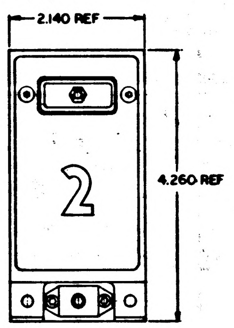
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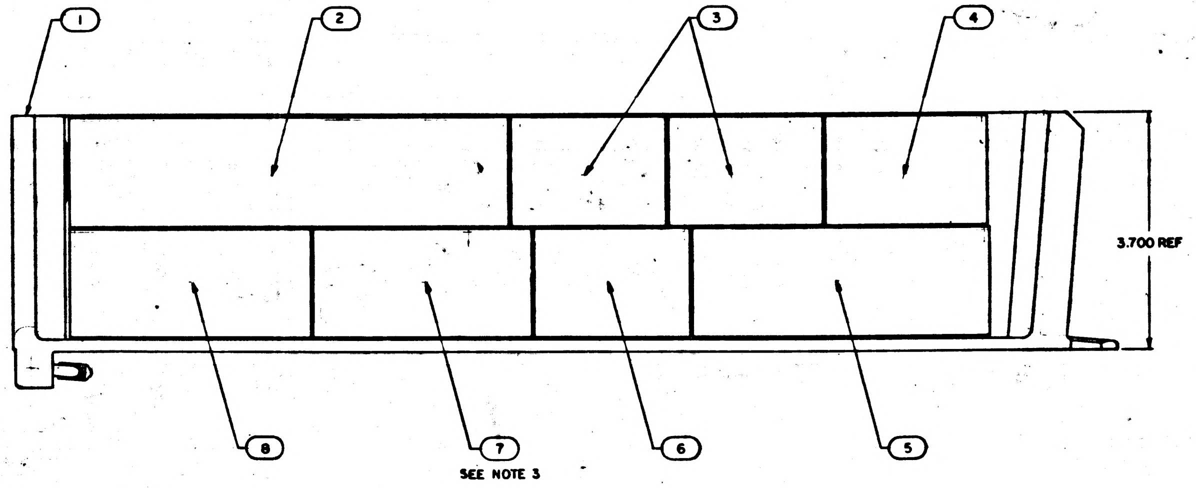
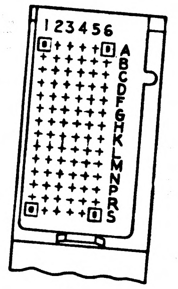
4.260 REF


1
2
3
4
3.700 REF
8
7
SEE NOTE 3
6
5


123456
A B C D E F G H K L M N P R S

NOTES:

1. INTERPRET DRAWINGS IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. SELECT PART FROM TABLE I PER ATP

TABLE I

1007050-1
1007050-2
1007050-3
1007050-4

3. MOUNTING TORQUE TO SECURE FIND NO'S 2,3,4,5,6,7 AND 8 TO FIND NO. 1 TO BE 13/17 IN LB
4. SERIALIZE AND MARK (WHITE) .14/.10 [illegible] PER ND 1002023

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007051	FAILURE INDICATOR	8
1	1007047	AMPLIFIER 1% 800 CPS	7
1	1007046	ACC 800 CPS FILTER AND MULTIVIBRATOR	6
1	1007048	AMPLIFIER 5% 800 CPS	5
1	SEE NOTE 2	IMU CDU LOAD COMPENSATION	4
2	1007049	POWER SUPPLY 25.6KC, ENCODER	3
1	1007052	PULSE TORQUING POWER SUPPLY	2
1	1007142	FRAME ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
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FRACTIONS ± — DECIMALS ± — ANGLES ± —
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DRAWN L Krahn DATE 9/20/63
CHECKED [illegible]
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL [illegible] 10-9-63
MIT APPROVAL [illegible]

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POWER SUPPLY
ELECTRONICS ASSEMBLY
TRAY 2

CODE IDENT NO. | SIZE E | NASA DRAWING NO. 1007152
SCALE 1:1 | WT | SHEET 1 OF 1

1007152 D

MASTER

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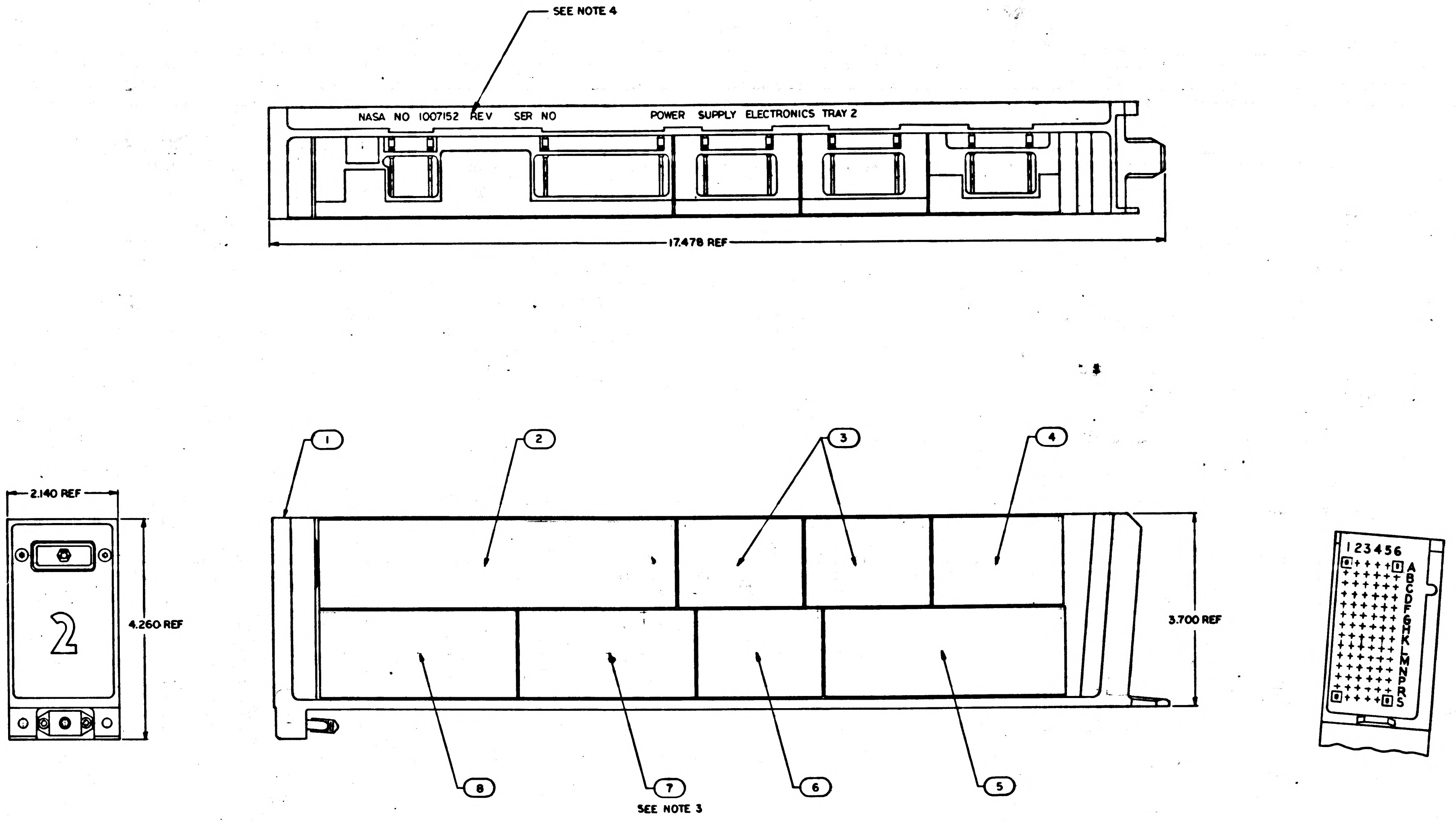
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03774	10-1-63	
E	REVISED PER TDRR 06483	64	
F	REVISED PER TDRR 07552		


SEE NOTE 4
NASA NO 1007152 REV SER NO
POWER SUPPLY ELECTRONICS TRAY 2
17.478 REF
2.140 REF
4.260 REF
2
3.700 REF
1
2
3
4
5
6
7
8
SEE NOTE 3
1 2 3 4 5 6
A B C D E F G H J K L M N P R S

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. SELECT PART FROM TABLE I PER ATP

TABLE I

1007050-1
1007050-2
1007050-3
1007050-4

3. MOUNTING TORQUE TO SECURE FIND NO'S 2,3,4,5,6,7 AND 8 TO FIND NO. 1 TO BE 13/17 IN LB
4. SERIALIZE AND MARK (WHITE) .14/.10 ~~HIGH~~ PER ND 1002023

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007051	FAILURE INDICATOR	8
1	1007047	AMPLIFIER 1% 800 CPS	7
1	1007046	ACC 800 CPS FILTER AND MULTIVIBRATOR	6
1	1007048	AMPLIFIER 5% 800 CPS	5
1	SEE NOTE 2	IMU CDU LOAD COMPENSATION	4
2	1007049	POWER SUPPLY 25.6KC, ENCODER	3
1	1007052	PULSE TORQUING POWER SUPPLY	2
1	1007142	FRAME ASSEMBLY	1

LIST OF MATERIALS

1007170	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
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FRACTIONS ± — DECIMALS ± — ANGLES ± —
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DWG. NO. CONTRACT
DRAWN L. Krahn DATE 9/20/63
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APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-9-63
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY
ELECTRONICS ASSEMBLY
TRAY 2

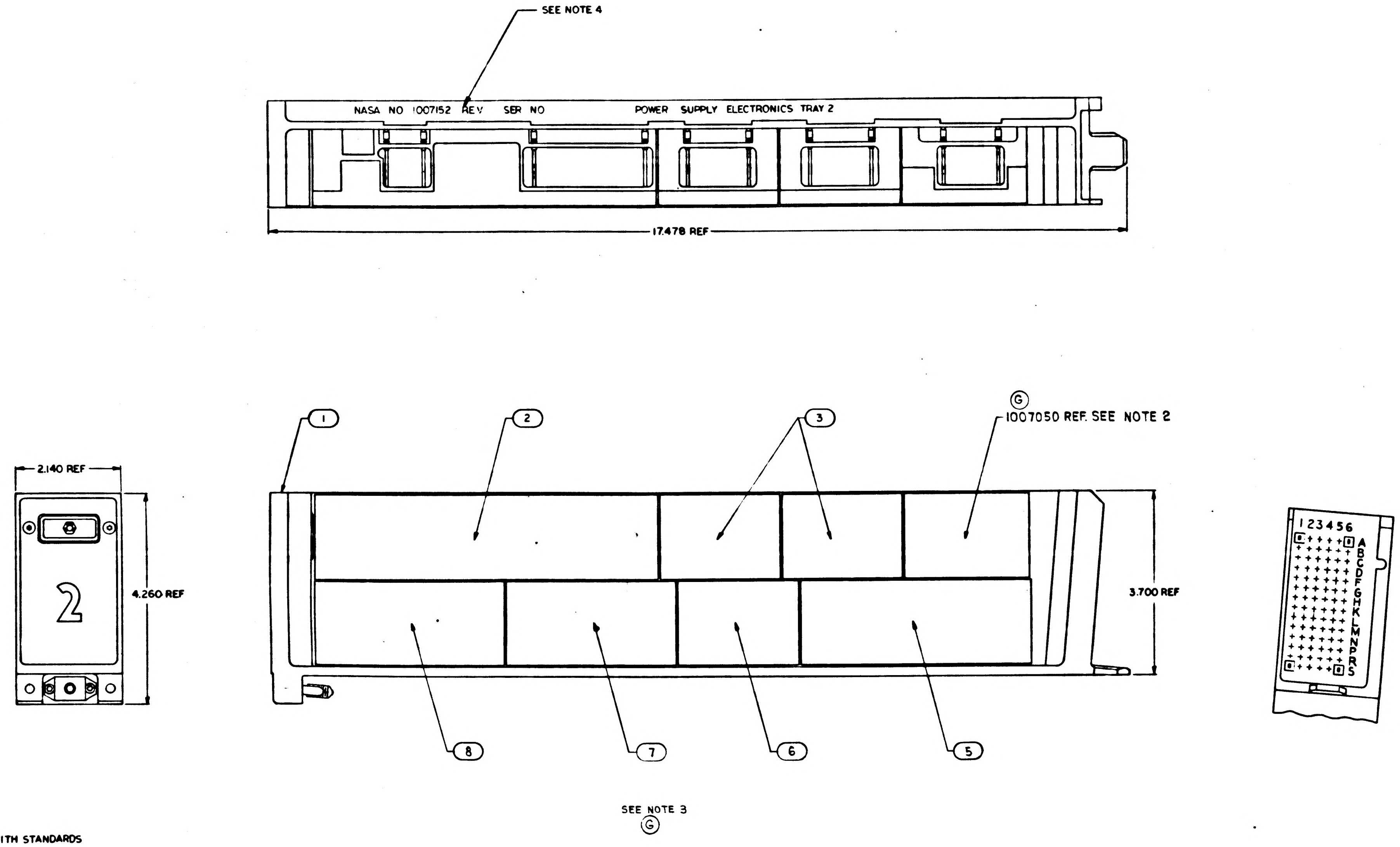
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007152
SCALE 1:1
WT
SHEET 1 OF 1

MASTER

1007152 F

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR [illegible]	[illegible]	
E	REVISED PER TDRR [illegible]	18 AUG 64	
F	REVISED PER TDRR 07552	[illegible]	
G	REVISED PER TDRR 07931	MAY 64	



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. Ⓖ REFERENCED MODULE TO BE ASSEMBLED TO FIND NO. 1 AS SHOWN. MODULE IS DEFINED AS PART OF INERTIAL MEASURING UNIT ALONG WITH THE ASSOCIATED SERIALIZED INERTIAL COMPONENTS. REF. DWG. 1000201.
3. Ⓖ MOUNTING TORQUE TO SECURE FIND NO'S 2,3,5,6,7, AND 8 TO FIND NO. 1 TO BE 13/17 IN LB. SAME TORQUE APPLIES TO REFERENCED MODULE.
4. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND 1002023

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1007051	FAILURE INDICATOR	8
1	1007047	AMPLIFIER 1% 800 CPS	7
1	1007046	ACC 800 CPS FILTER AND MULTIVIBRATOR	6
1	1007048	AMPLIFIER 5% 800 CPS	5
~~1~~	~~SEE NOTE 2~~	~~IMU CDU LOAD COMPENSATION~~	~~4~~
2	1007049	POWER SUPPLY 25.6KC, ENCODER	3
1	1007052	PULSE TORQUING POWER SUPPLY	2
1	1007142	FRAME ASSEMBLY	1

LIST OF MATERIALS

1007170	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
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APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-9-63
MIT APPROVAL

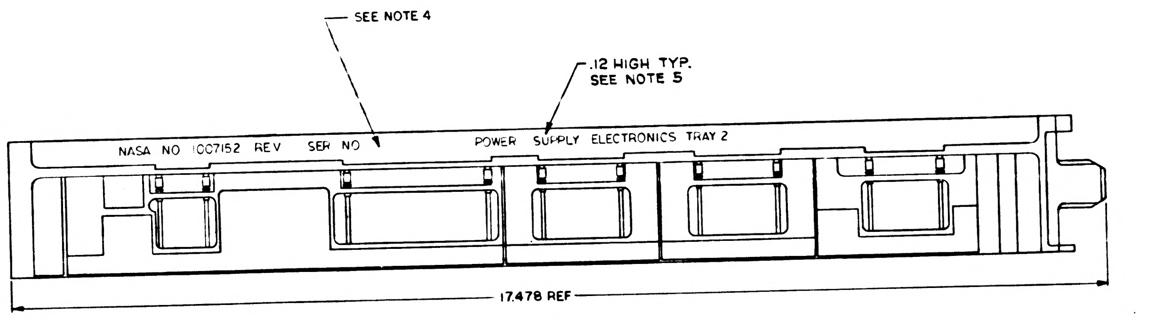
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

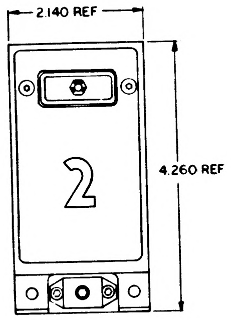
POWER SUPPLY
ELECTRONICS ASSEMBLY
TRAY 2

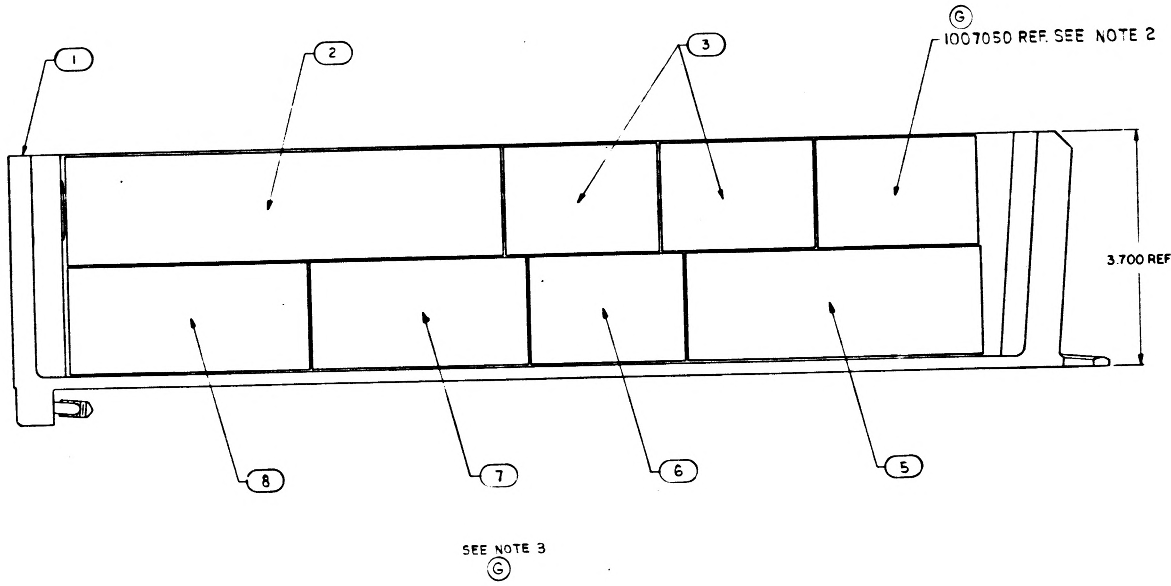
CODE IDENT NO. | SIZE E | NASA DRAWING NO. 1007152
SCALE 1:1 | WT | SHEET 1 OF 1

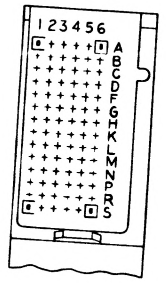
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR [illegible]	[illegible]	
F	REVISED PER TDRR [illegible]	[illegible] FEB 64	
F	REVISED PER TDRR 07552		
G	REVISED PER TDRR 07931	MAY 64	
H	REVISED PER TDRR 14581	7 DEC 64	









NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL.-D-70327.
2. (G) REFERENCED MODULE TO BE ASSEMBLED TO FIND NO. 1 AS SHOWN. MODULE IS DEFINED AS PART OF INERTIAL MEASURING UNIT ALONG WITH THE ASSOCIATED SERIALIZED INERTIAL COMPONENTS. REF. DWG. 1000201.
3. (G) MOUNTING TORQUE TO SECURE FIND NO'S 2,3,5,6,7, AND 8 TO FIND NO. 1 TO BE 13/17 IN LB. SAME TORQUE APPLIES TO REFERENCED MODULE.
4. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND 1002023
5. MARK PER ND 1002019, WHITE.

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1007051	FAILURE INDICATOR	9
1	1007047	AMPLIFIER 12,800 CPS	7
1	1007046	A C 800 CPS FILTER AND MULTIVIBRATOR	6
1	1007048	AMPLIFIER 5% 800 CPS	5
~~1~~	~~SEE NOTE 2~~	~~IMU CDU LOAD COMPENSATION~~	~~4~~
2	1007049	POWER SUPPLY 25.6 KC ENCODER	3
1	1007052	PULSE TORQUING POWER SUPPLY	2
1	1007142	FRAME ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007170	

APPLICATION

UNLESS OTHERWISE SPECIFIED
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Contract NAS 9-497
DWG NO
DRAWN L. Krahn DATE 9/20/63
CHECKED 9-26-63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-9-63
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY
ELECTRONICS ASSEMBLY
TRAY 2

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007152
SCALE 1:1
WT
SHEET 1 OF 1

1007152

REVISIONS IDRR 01267				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
1007047	1% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007048	5% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007046	Auto-Amplitude Controller (800 CPS, 28V) Module Assembly	1
1007052	Power Supply (+120VDC, +12VDC) Module Assembly	1
1007050	Load Compensation Module Assembly	1
1007049	Power Supply (25.6 KC, Encoder Excit.) Module Assembly	2
1007051	Failure Indicator Module Assembly	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

1007100	
NEXT ASSY	USED ON
APPLICATION	

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MATERIAL:

MIT
INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED		5-15-63
CHECKED		
DRAWN		

APPROVED FOR MSC
5/15/63

MIT/IL APPROVAL	DATE
WKupfer	15 May 63

POWER SUPPLY
ELECTRONICS ASSEMBLY,
TRAY 2

SCALE	UNIT WT.	CODE IDENT.

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CAMBRIDGE, MASS.

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NASA DRAWING NO.
1007152

SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007153

REVISIONS TDRR 01267

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01580	6-14-63	N.T.

PART NO.	DESCRIPTION	REQD.
1007017	A. C. Differential Amplifier Module Assembly	2
1007019	Interrogator Module Assembly	2
1007027	Binary Current Switch, Computer Output Module Assembly	2
1007007	D. C. Differential Amplifier & Precision Voltage Reference Module Assembly	3
1007009	PIPA Calibration Module Assembly	2
1007021	Pulse Torque Gyro Calibration Module Assembly	1
1007143	Frame Assembly, Tray 3	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

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FRACTIONS DECIMALS ANGLES

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MATERIAL:

MIT
INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED	D. A. Test	5-15-63
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DRAWN		

APPROVED FOR MSC 5/15/63

MIT/IL APPROVAL	DATE
W Kupfer	15 May 63

GYRO-ACCELEROMETER
ELECTRONICS ASSEMBLY,
TRAY 3

SCALE	UNIT WT.	CODE IDENT.

MIT
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CAMBRIDGE, MASS.

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HOUSTON TEXAS

NASA DRAWING NO.
1007153

SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007153

REVISIONS TDRR 01267

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01580	6-14-63	N.T.
	B	SUPERSEDED PER TDRR 03774	10-8-63	BRK WK

PART NO.	DESCRIPTION	REQD.
1007017	A. C. Differential Amplifier Module Assembly	2
1007019	Interrogator Module Assembly	2
1007027	Binary Current Switch, Computer Output Module Assembly	2
1007007	D. C. Differential Amplifier & Precision Voltage Reference Module Assembly	3
1007009	PIPA Calibration Module Assembly	2
1007021	Pulse Torque Gyro Calibration Module Assembly	1
1007143	Frame Assembly, Tray 3	1

REV B REPLACED BY REV C

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

1007100	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED

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MATERIAL:

MIT INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED		5-15-63
CHECKED		
DRAWN		

APPROVED FOR MSC
5/15/63

MIT/IL APPROVAL	DATE
W Kupfer	15 May 63

GYRO-ACCELEROMETER
ELECTRONICS ASSEMBLY,
TRAY 3

SCALE	UNIT WT.	CODE IDENT.

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CAMBRIDGE, MASS.

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NASA DRAWING NO.
1007153

SHEET 1 OF 1

INCHES
0 1 2
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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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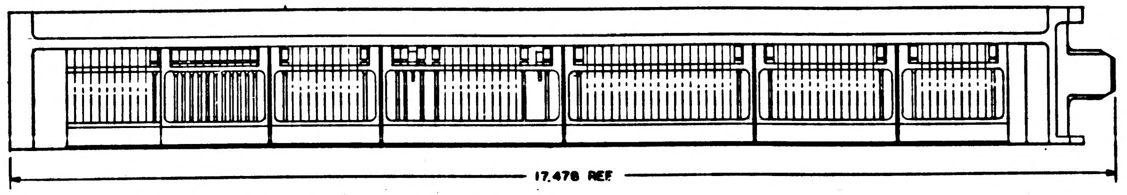

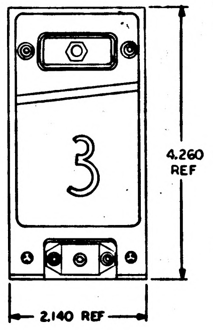

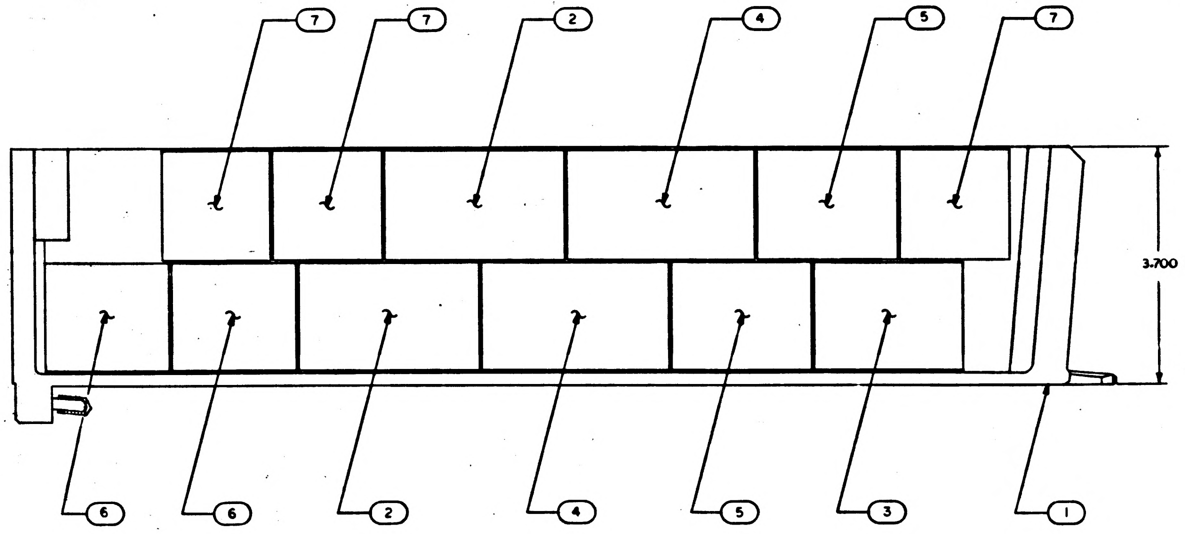

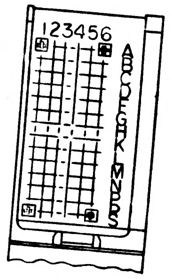

REV C REPLACES REV B

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

3	1007007	D.C. DIFF AMPLIFIER/POWER	7
2	1007009	PIPA CALIBRATION	6
2	1007017	A.C. DIFFERENTIAL AMPLIFIER	5
2	1007019	INTERROGATOR	4
1	1007021	PULSE TORQUE GYRO CALIBRATE	3
2	1007027	BINARY CURRENT SWITCH	2
1	1007143	FRAME ASSEMBLY	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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APPROVAL
NASA APPROVAL W. J. Rhine 10-8-63
MIT APPROVAL 8 Oct 63

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GYRO-ACCELEROMETER
ELECTRONICS ASSEMBLY
TRAY 3

CODE IDENT NO. | SIZE E | NASA DRAWING NO. 1007153
SCALE 1/1 | WT | SHEET 1 OF 1

MASTER

INCHES
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REVISIONS			
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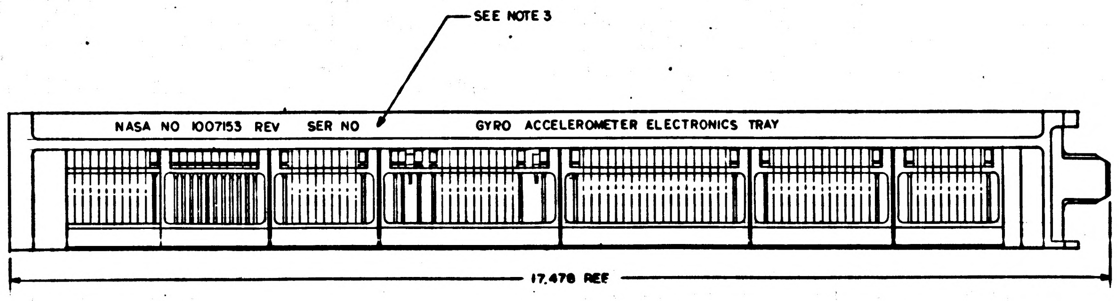
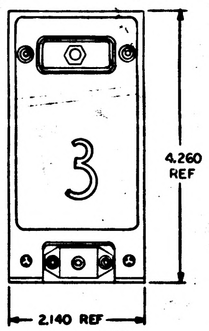
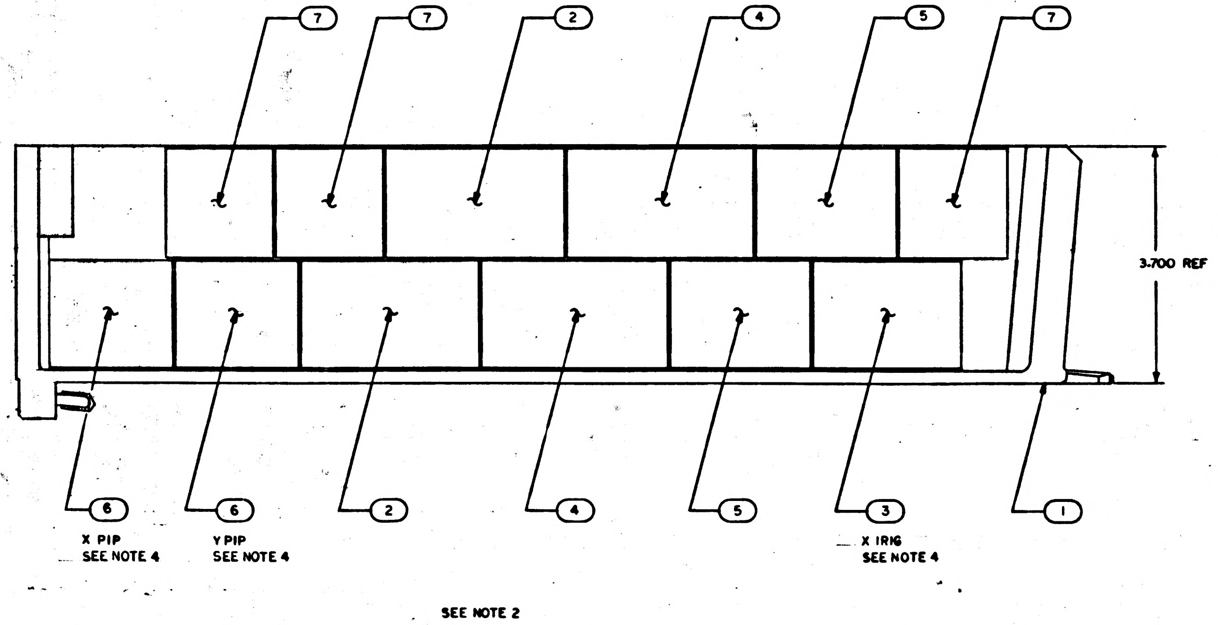
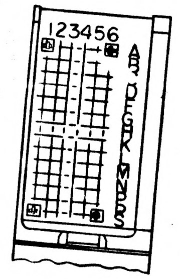
D	REVISED PER TDRR 06475		


SEE NOTE 3
NASA NO 1007153 REV SER NO
GYRO ACCELEROMETER ELECTRONICS TRAY
17.478 REF







REV C REPLACES REV B

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NOS 2,3,4,5,6 AND 7 TO FIND NO.1 TO BE 13/17 IN.LB.
3. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND 1002023
4. FIND NOS 3 AND 6 TO BE ASSEMBLED TO FIND NO.1 AS SHOWN. FIND NOS 3 AND 6 TO BE USED ONLY WITH DESIGNATED SERIALIZED INERTIAL COMPONENT.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
3	1007007	D.C. DIFF AMPLIFIER/POWER	7
2	1007009	PIPA CALIBRATION	6
2	1007017	A.C. DIFFERENTIAL AMPLIFIER	5
2	1007019	INTERROGATOR	4
1	1007021	PULSE TORQUE GYRO CALIBRATE	3
2	1007027	BINARY CURRENT SWITCH	2
1	1007143	FRAME ASSEMBLY	1

LIST OF MATERIALS

MASTER

NEXT ASSY	USED ON
1007100	

APPLICATION

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APPROVAL
NASA APPROVAL W.J. Rhine 10-8-63
MIT APPROVAL 8-28-63

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HOUSTON, TEXAS

GYRO-ACCELEROMETER
ELECTRONICS ASSEMBLY
TRAY 3

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007153
SCALE 1/1
WT
SHEET 1 OF 1

1007153 D

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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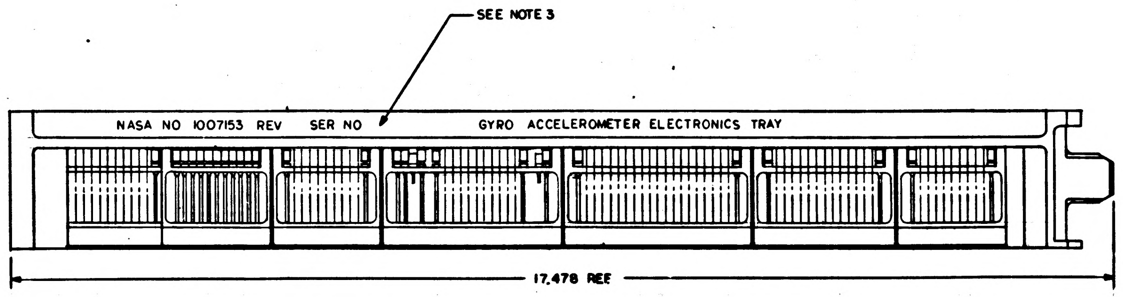
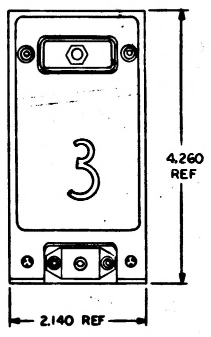
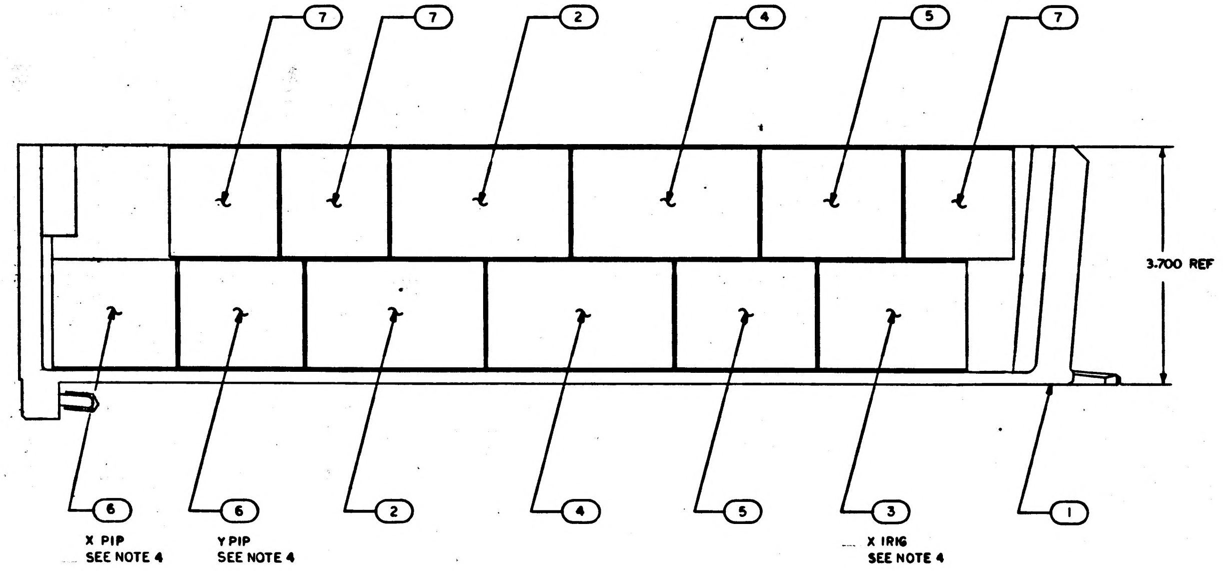
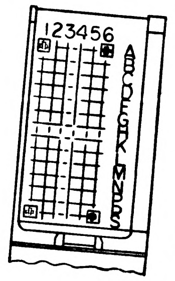
D	REVISED PER TDRR 04475	[illegible]	
E	REVISED PER TDRR 07552	9/14/64	


SEE NOTE 3
NASA NO 1007153 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY
17.478 REF





SEE NOTE 2



REV C REPLACES REV B

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NOS 2,3,4,5,6 AND 7 TO FIND NO.1 TO BE 13/17 IN.LB.
3. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND 1002023
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QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
3	1007007	D.C. DIFF AMPLIFIER/POWER	7
2	1007009	PIPA CALIBRATION	6
2	1007017	A C DIFFERENTIAL AMPLIFIER	5
2	1007019	INTERROGATOR	4
1	1007021	PULSE TORQUE GYRO CALIBRATE	3
2	1007027	BINARY CURRENT SWITCH	2
1	1007143	FRAME ASSEMBLY	1

LIST OF MATERIALS

1007170	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
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DRAWN DATE 8/15/63
CHECKED 8 Oct 63
APPROVAL 10-8-63
APPROVAL
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MIT APPROVAL 10/8/63

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GYRO-ACCELEROMETER
ELECTRONICS ASSEMBLY
TRAY 3

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007153
SCALE 1/1
WT
SHEET 1 OF 1

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1007153 E

1007153

REVISIONS TDRR 01267

ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
1007017	A. C. Differential Amplifier Module Assembly	2
1007019	Interrogator Module Assembly	2
1007027	Binary Current Switch, Computer Output Module Assembly	2
1007007	D. C. Differential Amplifier & Precision Voltage Reference Module Assembly	3
1007009	PIPA Calibration Module Assembly	2
1007021	Pulse Torque Gyro Calibration Module Assembly	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

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		DATE
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MIT/IL APPROVAL DATE
W Kupfer 15 May 63

GYRO-ACCELEROMETER
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SHEET 1 OF 1

INCHES
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1007154

REVISIONS TDRR 01267				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01580	6-14-63	D.T.

PART NO.	DESCRIPTION	REQD.
1007017	A. C. Differential Amplifier Module Assembly	1
1007019	Interrogator Module Assembly	1
1007016	Ternary Current Switch Module Assembly	3
1007007	D. C. Differential Amplifier & Precision Voltage Reference Module Assembly	3
1007009	PIPA Calibration Module Assembly	1
1007021	Pulse Torque Gyro Calibration Module Assembly	2
1007027	Binary Current Switch, Computer Output, Module Assembly	1
1007144	Frame Assembly, Tray 4	1

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

1007100	
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MIT/IL APPROVAL DATE 15 May 63

GYRO-ACCELEROMETER
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TRAY 4

SCALE	UNIT WT.	CODE IDENT.

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REVISIONS TDRR 01267

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01580	6-14-63	A.T.
	B	SUPERSEDED PER TDRR 63774	10-8-63	BOK WK

PART NO.	DESCRIPTION	REQD.
1007017	A. C. Differential Amplifier Module Assembly	1
1007019	Interrogator Module Assembly	1
1007016	Ternary Current Switch Module Assembly	3
1007007	D. C. Differential Amplifier & Precision Voltage Reference Module Assembly	3
1007009	PIPA Calibration Module Assembly	1
1007021	Pulse Torque Gyro Calibration Module Assembly	2
1007027	Binary Current Switch, Computer Output, Module Assembly	1
1007144	Frame Assembly, Tray 4	1

REV B REPLACED BY REV C

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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NEXT ASSY	USED ON
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APPROVED	D.G. Tait	5-15-63
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MIT/IL APPROVAL DATE
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GYRO-ACCELEROMETER
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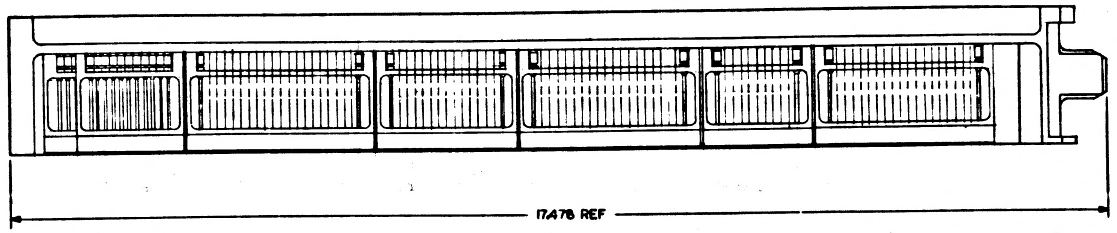
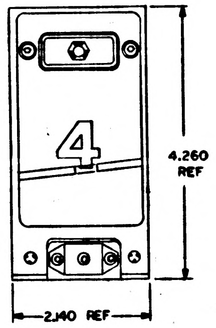
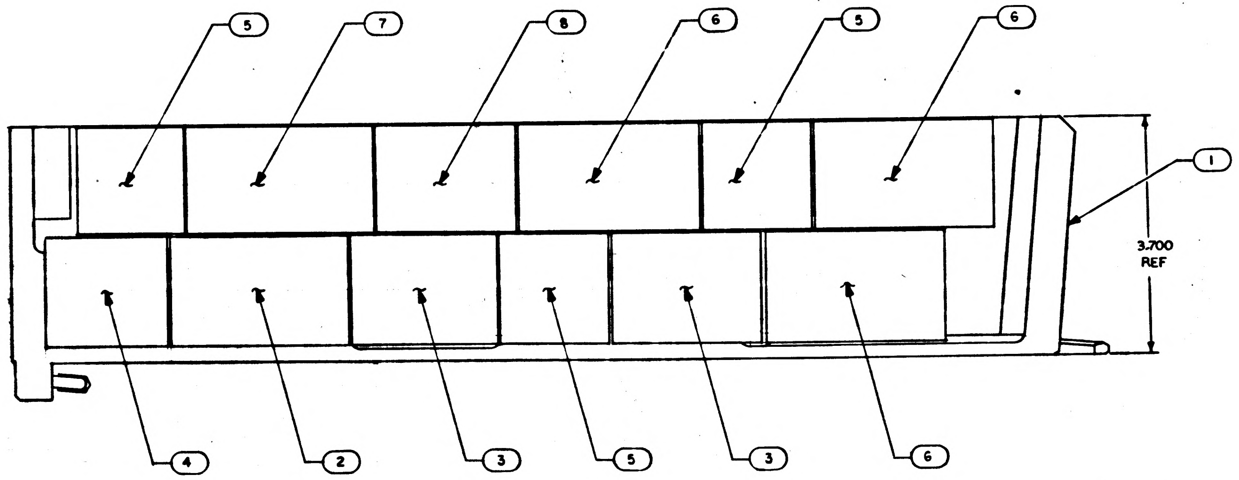
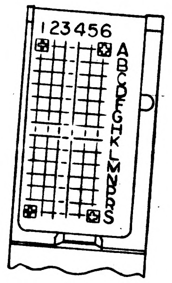
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
C	REVISED PER TDRR 13774	11-8-67	









NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REV C REPLACES REV B

LIST OF MATERIALS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007017	AC DIFF AMPL	8
1	1007019	INTERROGATOR	7
3	1007016	TERNARY CURRENT SWITCH	6
3	1007007	DC DIFF AMPL & PVR	5
1	1007009	PIPA CALIBRATION	4
2	1007021	PULSE TORQUE GYRO CALIBRATE	3
1	1007027	BINARY CURRENT SWITCH	2
1	1007144	FRAME, ASSEMBLY	1

NEXT ASSY	USED ON
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APPLICATION

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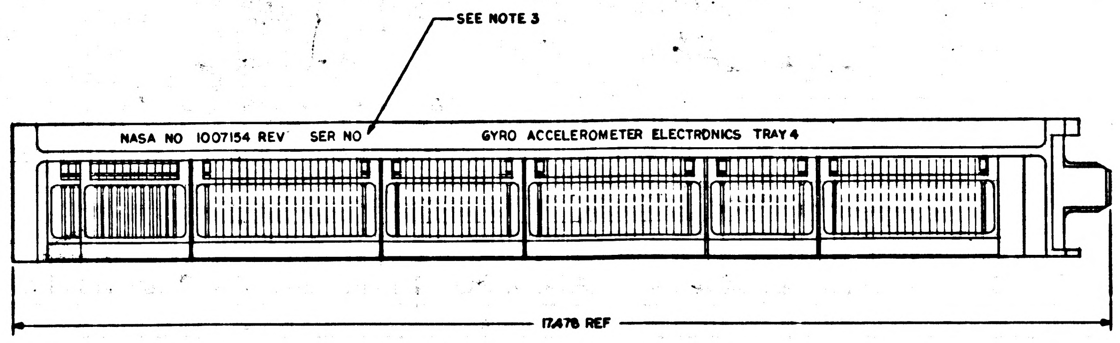
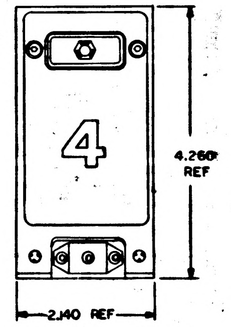
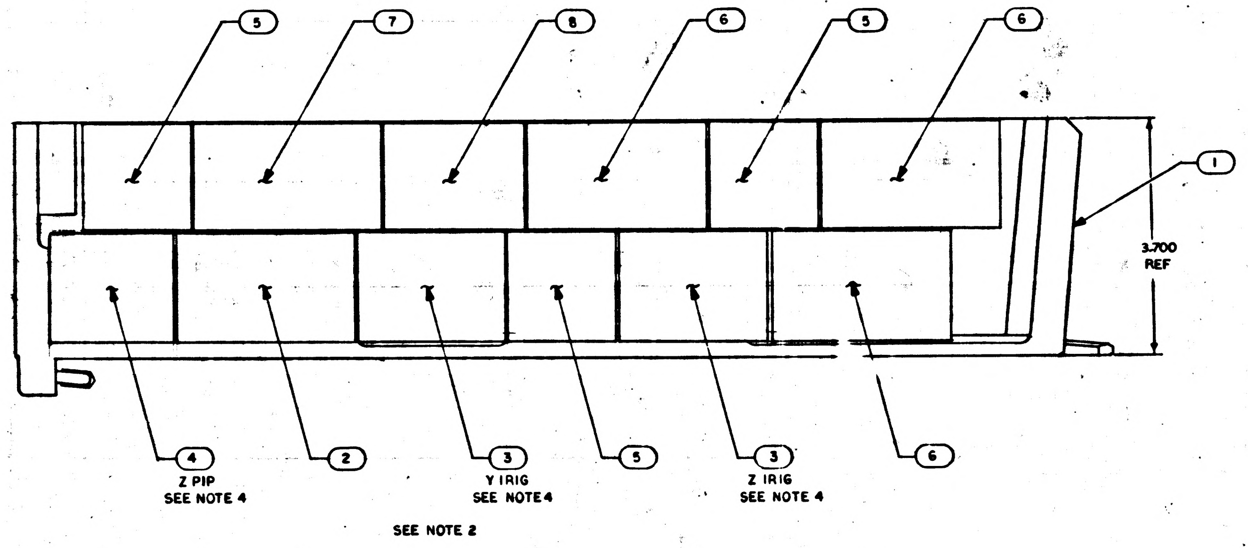
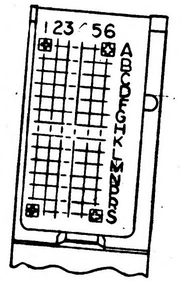
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
C	REVISED PER TDRR 13774	11-8-63	PPR
D	REVISED PER TDRR 06484	7/18/64	


SEE NOTE 3
NASA NO 1007154 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY 4
17.478 REF







NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE 2,3,4,5,6,7 AND 8 TO FIND NO 1 TO BE 13/17 IN. LB.
3. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND1002023
4. FIND NO'S. 3 AND 4 TO BE ASSEMBLED TO FIND NO. 1 AS SHOWN. FIND NO'S. 3 AND 4 TO BE USED ONLY WITH DESIGNATED SERIALIZED INERTIAL COMPONENT.

REV C REPLACES REV B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007017	AC DIFF AMPL	8
1	1007019	INTERROGATOR	7
3	1007016	TERNARY CURRENT SWITCH	6
3	1007007	DC DIFF AMPL & PVR	5
1	1007009	PIPA CALIBRATION	4
2	1007021	PULSE TORQUE GYRO CALIBRATE	3
1	1007027	BINARY CURRENT SWITCH	2
1	1007144	FRAME, ASSEMBLY	1

LIST OF MATERIALS

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APPLICATION

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TRAY 4

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007154
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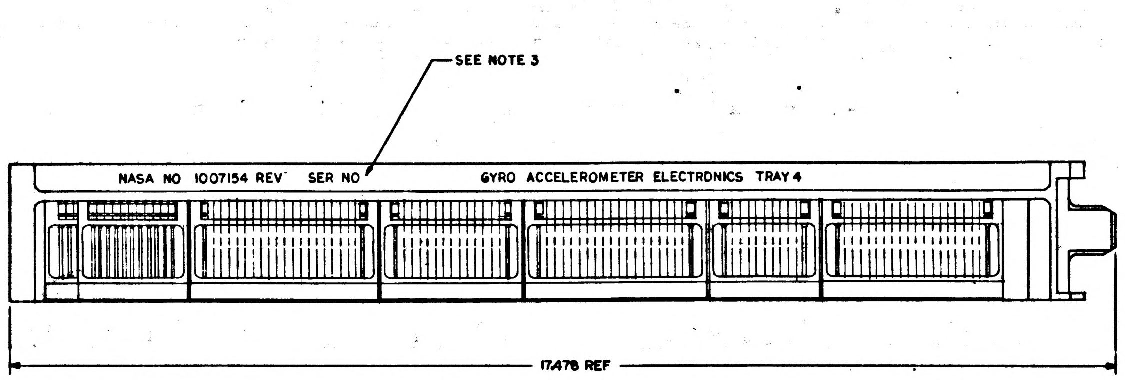
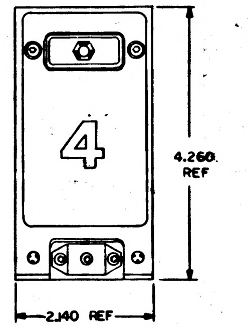
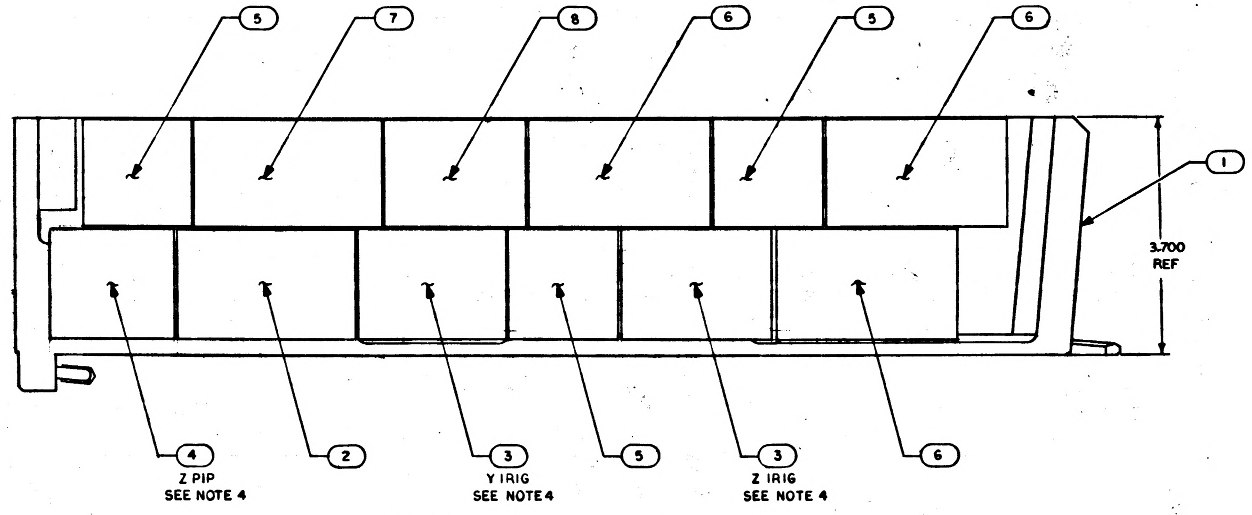
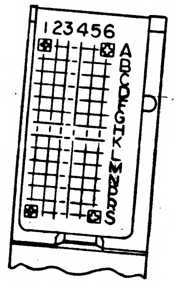
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
C	REVISED PER TDRR 13774	10-8-63	
D	REVISED PER TDRR 06484	7/18/64	WK
E	REVISED PER TDRR 07552		


SEE NOTE 3
NASA NO 1007154 REV SER NO
GYRO ACCELEROMETER ELECTRONICS TRAY 4
17.478 REF





SEE NOTE 2



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE 2,3,4,5,6,7 AND 8 TO FIND NO 1 TO BE 13/17 IN. LB.
3. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND1002023
4. FIND NOS. 3 AND 4 TO BE ASSEMBLED TO FIND NO. 1 AS SHOWN. FIND NO'S. 3 AND 4 TO BE USED ONLY WITH DESIGNATED SERIALIZED INERTIAL COMPONENT.

REV C REPLACES REV B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007017	AC DIFF AMPL	8
1	1007019	INTERROGATOR	7
3	1007016	TERNARY CURRENT SWITCH	6
3	1007007	DC DIFF AMPL & PVR	5
1	1007009	PIPA CALIBRATION	4
2	1007021	PULSE TORQUE GYRO CALIBRATE	3
1	1007027	BINARY CURRENT SWITCH	2
1	1007144	FRAME, ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007170	

APPLICATION

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GYRO-ACCELEROMETER
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1007154

REVISIONS TDRR 0.269				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
1007017	A. C. Differential Amplifier Module Assembly	1
1007019	Interrogator Module Assembly	1
1007016	Ternary Current Switch Module Assembly	3
1007007	D. C. Differential Amplifier & Precision Voltage Reference Module Assembly	3
1007009	PIPA Calibration Module Assembly	1
1007021	Pulse Torque Gyro Calibration Module Assembly	2
1007027	Binary Current Switch, Computer Output, Module Assembly	1

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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W Kupfer	15 May 63

GYRO-ACCELEROMETER
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TRAY 4

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REVISIONS TDRR 01267				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01361	5-22-63	D.T

PART NO.	DESCRIPTION	REQD.
1007057	Back-Up Mode Module Assembly	1
1007058	Forward-Backward Counter Module Assembly	1
1007055	CDU, Digital to Analog Converter Module Assembly	3
1007054	Encoder Module Assembly	3
1007061	CDU Zeroing & Lock Relays Module Assembly	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
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5/15/63

MIT/IL APPROVAL	DATE
	15 May 63

CDU & GYRO-ACCELEROMETER
ELECTRONICS ASSEMBLY
TRAY 5

SCALE	UNIT WT.	CODE IDENT.

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REVISIONS TDRR 01267

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01361	5-22-63	D.T WH
	B	REVISED PER TDRR 01580	6-14-63	D.T. FEX

PART NO.	DESCRIPTION	REQD.
1007057	Back-Up Mode Module Assembly	1
1007058	Forward-Backward Counter Module Assembly	1
1007055	CDU, Digital to Analog Converter Module Assembly	3
1007054	Encoder Module Assembly	3
1007061	CDU Zeroing & Lock Relays Module Assembly	1
1007145	Frame Assembly, Tray 5	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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B. Michael 5/15/63

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1007155

REVISIONS TDRR 01267

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01361	5-22-63	D.T.
	B	REVISED PER TDRR 01580	6-14-63	A.T.
	C	REVISED PER TDRR 02062	7-10-63	A.T.

PART NO.	DESCRIPTION	REQD.
1007057	Back-Up Mode Module Assembly	1
1007058	Forward-Backward Counter Module Assembly	1
1007055	CDU, Digital to Analog Converter Module Assembly	3
1007054	Encoder Module Assembly	3
1007061	CDU Zeroing & Lock Relays Module Assembly	1
1007145	Frame Assembly, Tray 5	1
1007084	Lamps, Back-Up Mode Electronics Module Assembly	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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CDU & GYRO-ACCELEROMETER
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TRAY 5

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REVISIONS TDRR 01267				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01361	5-22-63	D.T.
	Bb	REVISED PER TDRR 01580	6-14-63	D.T.
	C	REVISED PER TDRR 02062	7-10-63	D.T.
	D	SUPEPSEDED PER TDRR 03774	10-8-63	

PART NO.	DESCRIPTION	REQD.
1007057	Back-Up Mode Module Assembly	1
1007058	Forward-Backward Counter Module Assembly	1
1007055	CDU, Digital to Analog Converter Module Assembly	3
1007054	Encoder Module Assembly	3
1007061	CDU Zeroing & Lock Relays Module Assembly	1
1007145	Frame Assembly, Tray 5	1
1007084	Lamps, Back-Up Mode Electronics Module Assembly	1

REV D REPLACED BY REV E

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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MIT/IL APPROVAL — DATE 15 May 63

CDU & GYRO-ACCELEROMETER
ELECTRONICS ASSEMBLY
TRAY 5

SCALE	UNIT WT.	CODE IDENT.

MIT
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CAMBRIDGE, MASS.

DWG. NO.

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NASA DRAWING NO.
1007155

SHEET 1 OF 1

INCHES
0 1 2
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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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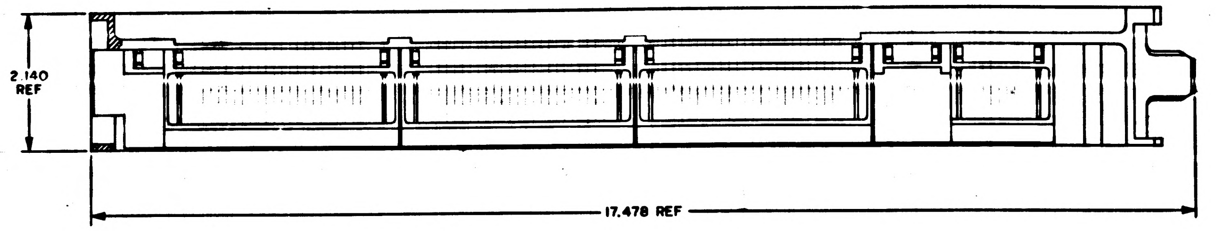

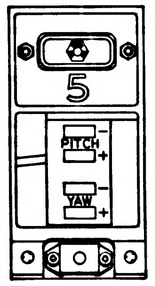

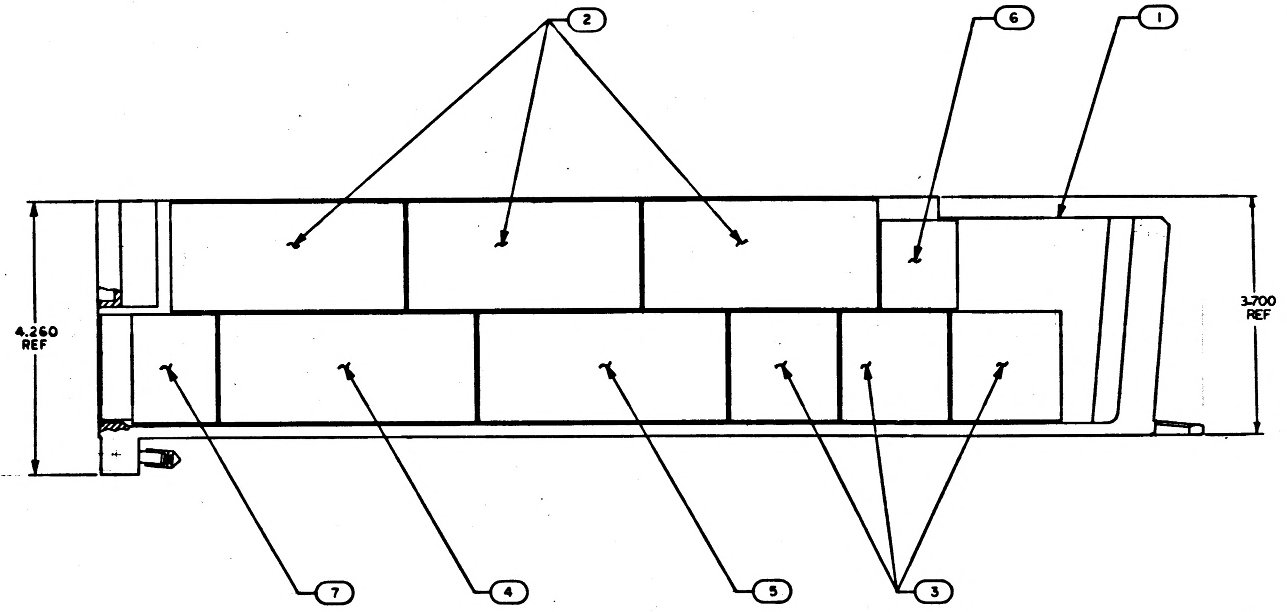

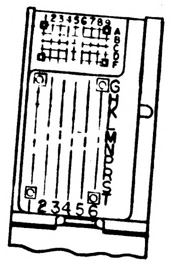

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REV E REPLACES REV D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007084	LAMPS BACK-UP MODE	7
1	1007061	CDU ZEROING & LOCK RELAYS	6
1	1007058	FWD-BACKWARD CTR & CMPTR OUTPUT	5
1	1007057	BACK-UP MODE ELECTRONICS	4
3	1007055	CDU D TO A CONVERTER	3
3	1007054	ENCODER	2
1	1007145	FRAME ASSEMBLY	1

LIST OF MATERIALS

1007100	
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CHECKED R.P. Kerr / Jimmy 8 Oct 63
APPROVAL D. Blint 10-8-63
APPROVAL
NASA APPROVAL W.J. Rhine 10-8-63
MIT APPROVAL [illegible] 10-8-63

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CDU & GYRO ACCEL ELECTRONICS ASSEMBLY
TRAY 5

CODE IDENT NO.
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SYM	DESCRIPTION	DATE	APPROVAL
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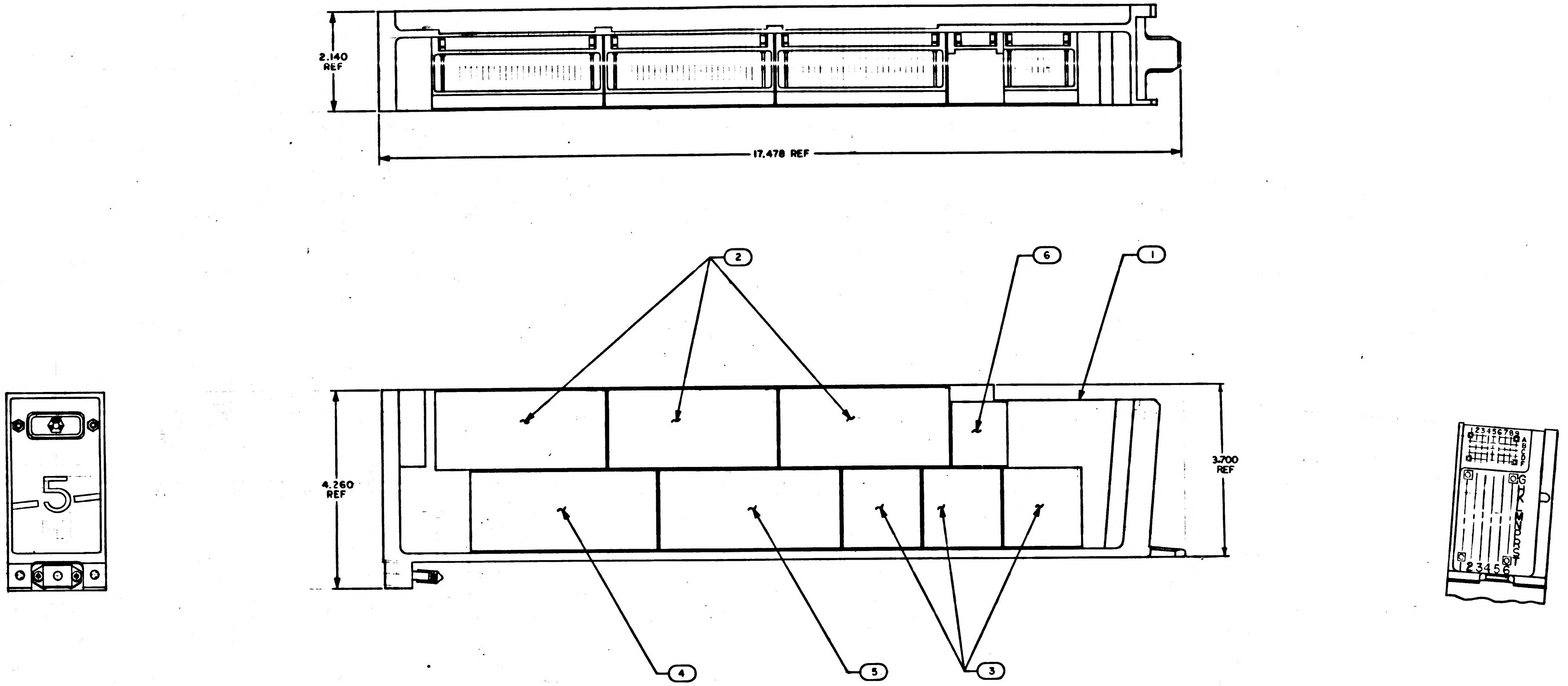
F	REVISED PER TDRR 05330	11-29-63	



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REV E REPLACES REV D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007061	CDU ZEROING & LOCK RELAYS	6
1	1007058	FWD-BACKWARD CTR & CMPTR OUTPUT	5
1	1007057	BACK-UP MODE ELECTRONICS	4
3	1007055	CDU D TO A CONVERTER	3
3	1007054	ENCODER	2
1	1007145	FRAME ASSEMBLY	1

LIST OF MATERIALS

1007100	
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CDU & GYRO ACCEL ELECTRONICS ASSEMBLY
TRAY 5

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SIZE E
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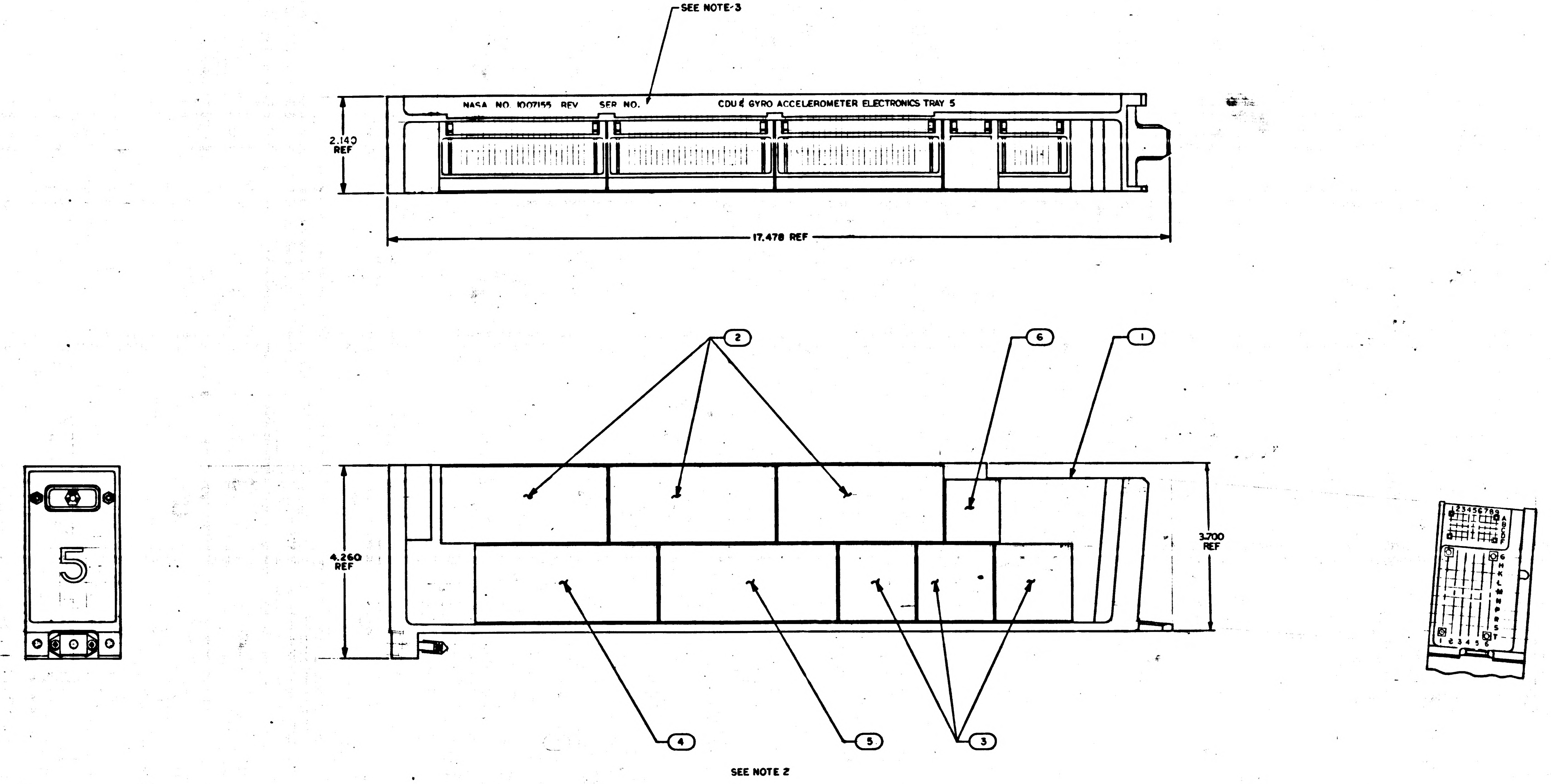
1007155 E

SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR 02774	10-4-67	
F	REVISED PER TDRR 05330	11-29-63	
G	REVISED PER TDRR 06497		



SEE NOTE-3
NASA NO. 1007155 REV SER NO.
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
2.140 REF
17.478 REF
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4.260 REF
3.700 REF
4
5
3
SEE NOTE 2

NOTES:
~~1. INTERPRET DRAWING IN~~ ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO'S. 2,3,4,5,6 AND 7 TO FIND NO.1 TO BE 13/17 IN.LB.
3. SERIALIZE AND MAKE(WHITE) .14/.10 HIGH PER ND1002023

REV E REPLACES REV D

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QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007061	CDU ZEROING & LOCK RELAYS	6
1	1007058	FWD-BACKWARD CTR & CMPTR OUTPUT	5
1	1007057	BACK-UP MODE ELECTRONICS	4
3	1007055	CDU D TO A CONVERTER	3
3	1007054	ENCODER	2
1	1007145	FRAME ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
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TRAY 5

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007155
SCALE 1:1
WT
SHEET 1 OF 1

1007155

REVISIONS TDRR 01267				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
1007057	Back-Up Mode Module Assembly	1
1007058	Forward-Backward Counter Module Assembly	1
1007055	CDU, Digital to Analog Converter Module Assembly	3
1007054	Encoder Module Assembly	3
	CDU Zeroing & Lock Relays Module Assembly	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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5/15/63

MIT/IL APPROVAL	DATE
WKay for 15 May	'63

CDU & GYRO-ACCELEROMETER
ELECTRONICS ASSEMBLY
TRAY 5

SCALE	UNIT WT.	CODE IDENT.

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SHEET 1 OF 1

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REVISIONS TDRR 01267

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01362	5/2/63	WK.

PART NO.	DESCRIPTION	REQD.
	Motor Drive Amplifier & Selector Module Assembly	3
1007047	1% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007048	5% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007046	Auto-Amplitude Controller (800 CPS, 28V) Module Assembly	1
1007064	CDU Zeroing Transformer & Relays Module Assembly	1
1007062	CDU, Resolver Loads Module Assembly	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

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CDU & POWER SUPPLY
ELECTRONICS ASSEMBLY
TRAY 6

SCALE
UNIT WT.
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REVISIONS TDRR 01267

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01362	5/21/63	WK.
	B	REVISED PER TDRR 01580	6-14-63	D.T.

PART NO.	DESCRIPTION	REQD.
	Motor Drive Amplifier & Selector Module Assembly	3
1007047	1% Power Amplifier (800 CPS,28V) Module Assembly	1
1007048	5% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007046	Auto-Amplitude Controller (800 CPS, 28V) Module Assembly	1
1007064	CDU Zeroing Transformer & Relays Module Assembly	1
1007062	CDU, Resolver Loads Module Assembly	1
1007146	Frame Assembly, Tray 6	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
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DRAWN
APPROVED FOR MSC
K Michael 5/15/63
MIT/IL APPROVAL DATE
W Kupfer 15 May 63

CDU & POWER SUPPLY
ELECTRONICS ASSEMBLY
TRAY 6

SCALE
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REVISIONS TDRR 01267

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 0362	5/2/63	WK.
	B	REVISED PER TDRR 01580	6-14-63	D.T. RPK
	C	REVISED PER TDRR 02988	9-5-63	RPK WK.

PART NO.	DESCRIPTION	REQD.
1007060	Motor Drive Amplifier & Selector Module Assembly	3
1007047	1% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007048	5% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007046	Auto-Amplitude Controller (800 CPS, 28V) Module Assembly	1
1007064	CDU Zeroing Transformer & Relays Module Assembly	1
1007062	CDU, Resolver Loads Module Assembly	1
1007146	Frame Assembly, Tray 6	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

1007100	
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F. Michael 5/15/63

MIT/IL APPROVAL	DATE
W Kupfer	15 May 63

CDU & POWER SUPPLY
ELECTRONICS ASSEMBLY
TRAY 6

SCALE	UNIT WT.	CODE IDENT.

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REVISIONS TDRR 01267

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A.	REVISED PER TDRR 0362	5/27/63	WK.
	B	REVISED PER TDRR 01580	6-14-63	D.T.
	C	REVISED PER TDRR 02988	9-5-63	RPK WK
	D	SUPERSEDED PEP TDRR 03774	10-8-63	RPK WK

PART NO.	DESCRIPTION	REQD.
1007060	Motor Drive Amplifier & Selector Module Assembly	3
1007047	1% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007048	5% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007046	Auto-Amplitude Controller (800 CPS, 28V) Module Assembly	1
1007064	CDU Zeroing Transformer & Relays Module Assembly	1
1007062	CDU, Resolver Loads Module Assembly	1
1007146	Frame Assembly, Tray 6	1

REV D REPLACED BY REV E

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

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CDU & POWER SUPPLY
ELECTRONICS ASSEMBLY
TRAY 6

SCALE	UNIT WT.	CODE IDENT.

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SYM	DESCRIPTION	DATE	APPROVAL
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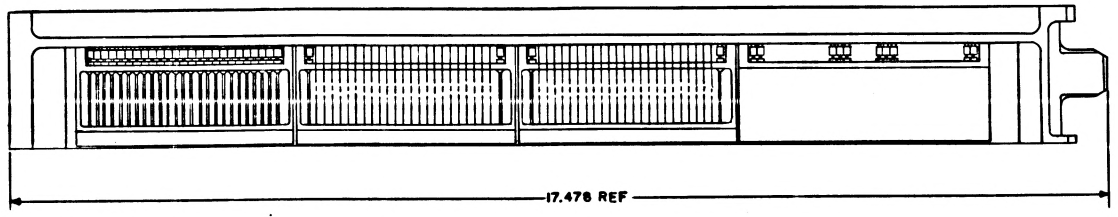

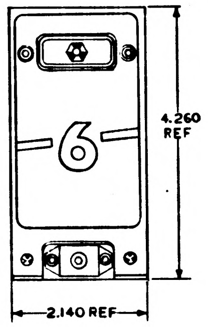

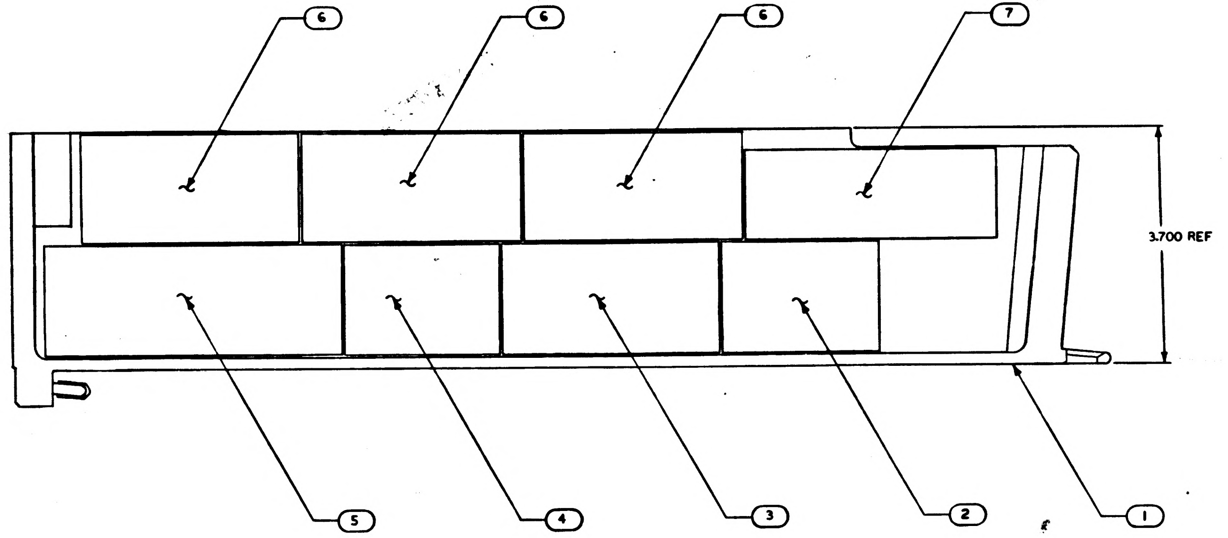

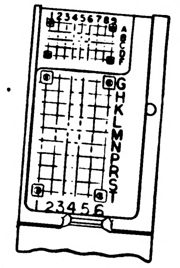

NOTES:
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QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007062	CDU RESOLVER LOADS	7
3	1007060	MOTOR DRIVE AMP & SELECTOR CIRCUIT	6
1	1007048	AMPLIFIER 5% - 800CPS	5
1	1007046	AAC FILTER & MULTIVIBRATOR 800 CPS	4
1	1007047	AMPLIFIER 1% - 800 CPS	3
1	1007064	CDU ZEROING TRANS, RELAYS	2
1	1007146	FRAME ASSEMBLY	1

LIST OF MATERIALS

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APPROVAL
NASA APPROVAL W. J. [illegible] 10-8-63
MIT APPROVAL [illegible] Oct 63

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CDU & POWER SUPPLY ASSEMBLY TRAY 6

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REVISIONS TDRR 01267				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
	Motor Drive Amplifier & Selector Module Assembly	3
1007047	1% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007048	5% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007046	Auto-Amplitude Controller (800 CPS, 28V) Module Assembly	1
	CDU Zeroing Transformer & Relays Module Assembly	1

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LIST OF PARTS AND MATERIALS

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CDU & POWER SUPPLY
ELECTRONICS ASSEMBLY
TRAY 6

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1007157

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TORR 01360	5 27 63	DT. WK

REVISIONS TDRR 01267

PART NO.	DESCRIPTION	REQD.
1007054	Encoder Module Assembly	2
1007052	Power Supply (+120 VDC, +12 VDC) Module Assembly	1
1007063	CDU, Fixed Resolution Transformation & Entry Mode Module Assembly	1
1007056	Temperature Controller	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

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F. Michael 5/15/63

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W. Kupfer	15 May 63

MISCELLANEOUS ELECTRONICS ASSEMBLY, TRAY 7

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ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01360	5-?-63	D.T.
	B	REVISED PER TDRR 01580	6-14-63	D.T.

PART NO.	DESCRIPTION	REQD.
1007054	Encoder Module Assembly	2
1007052	Power Supply (+120 VDC, +12 VDC) Module Assembly	1
1007063	CDU, Fixed Resolution Transformation & Entry Mode Module Assembly	1
1007056	Temperature Controller	1
1007147	Frame Assembly, Tray 7	1

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5/15/63

MIT/IL APPROVAL DATE
15 May 63

MISCELLANEOUS
ELECTRONICS ASSEMBLY,
TRAY 7

SCALE
UNIT WT.
CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.

DWG NO.

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

NASA DRAWING NO.
1007157

SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007157

REVISIONS TDRR 01267

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01360	[illegible]	D.T. W[illegible]
	B	REVISED PER TDRR 01580	6-14-63	D.T. [illegible]
	C	REVISED PER TDRR 01956	7-10-63	D.T. [illegible]

PART NO.	DESCRIPTION	REQD.
1007054	Encoder Module Assembly	2
1007052	Power Supply (+120 VDC, +12 VDC) Module Assembly	1
1007063	CDU, Fixed Resolution Transformation & Entry Mode Module Assembly	1
1007056	IMU Temperature Controller Module Assembly	1
1007147	Frame Assembly, Tray 7	1
1007081	IMU Temp Indicator, Alarm & Back-Up Controller Module Assembly	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

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		DATE
APPROVED	[illegible]	5-15-63
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APPROVED FOR MSC
[illegible] 5/15/63

MIT/IL APPROVAL	DATE
W Kupfer	15 May 63

MISCELLANEOUS
ELECTRONICS ASSEMBLY,
TRAY 7

SCALE	UNIT WT.	CODE IDENT.

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SHEET 1 OF 1

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1007157

REVISIONS TDRR 01267				
ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 01360	5-15-63	D.T. WK
	B	REVISED PER TDRR 01580	6-14-63	D.T.
	C	REVISED PER TDRR 01956	7-10-63	D.T.
	D	SUPERSEDED PER TDRR 03774	10-8-63	RPK

PART NO.	DESCRIPTION	REQD.
1007054	Encoder Module Assembly	2
1007052	Power Supply (+120 VDC, +12 VDC) Module Assembly	1
1007063	CDU, Fixed Resolution Transformation & Entry Mode Module Assembly	1
1007056	IMU Temperature Controller Module Assembly	1
1007147	Frame Assembly, Tray 7	1
1007081	IMU Temp Indicator, Alarm & Back-Up Controller Module Assembly	1

REV D REPLACED BY REV E

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

1007100	
NEXT ASSY	USED ON
APPLICATION	

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NAS 9-153

		DATE
APPROVED		5-15-63
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APPROVED FOR MSC 5/15/63

MIT/IL APPROVAL DATE 15 May 63

MISCELLANEOUS
ELECTRONICS ASSEMBLY,
TRAY 7

SCALE	UNIT WT.	CODE IDENT.

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SHEET 1 OF 1

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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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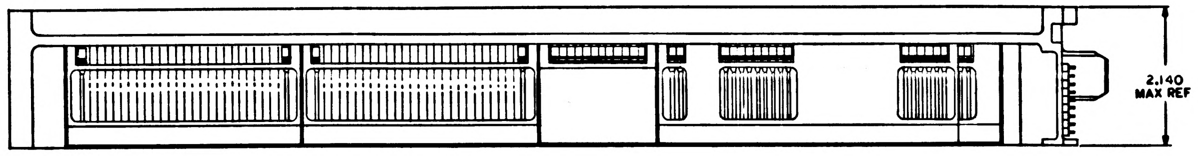

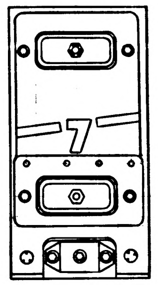

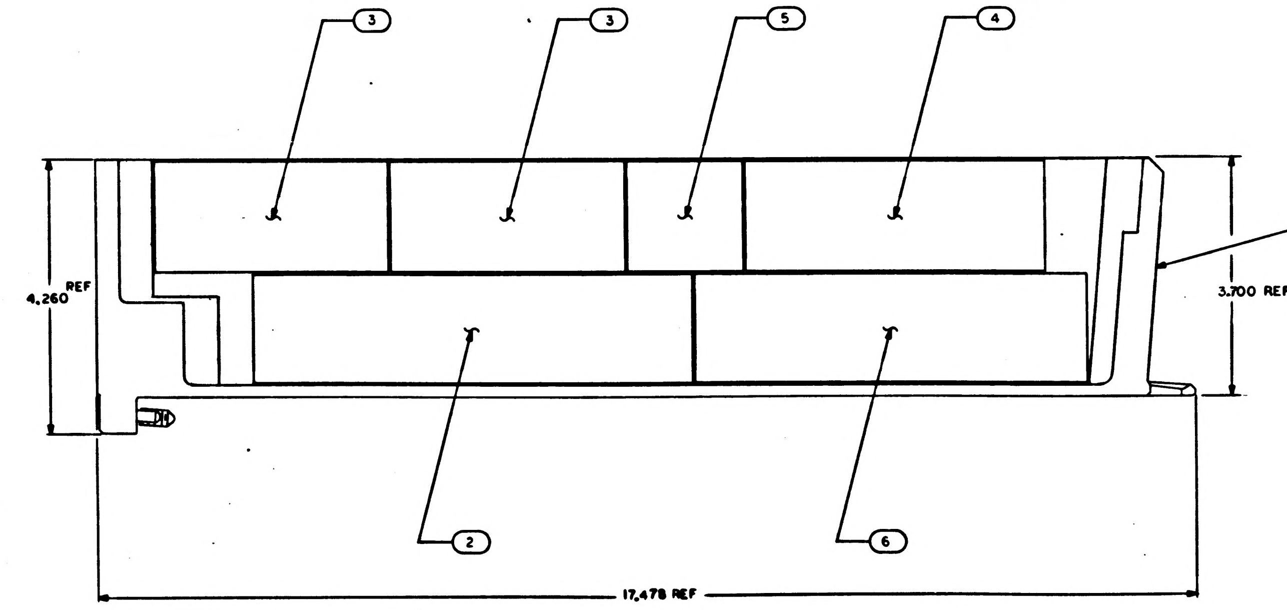

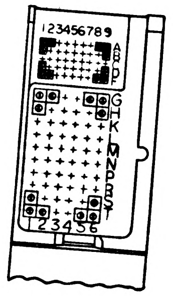

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REV E REPLACES REV D

1007157 E

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007081	IMU TEMP IND ALARM & BACK-UP CONT	6
1	1007063	CDU FIXED RESOLUTION TRANS & ENTRY	5
1	1007056	IMU TEMPERATURE CONTROLLER	4
2	1007054	ENCODER	3
1	1007052	PULSE TORQUING POWER SUPPLY	2
1	1007147	FRAME ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

UNLESS OTHERWISE SPECIFIED
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CHECKED
APPROVAL D. H. 10-8-63
APPROVAL
NASA APPROVAL W. J. 10-1-63
MIT APPROVAL 10-8-63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MISCELLANEOUS
ELECTRONICS ASSEMBLY
TRAY 7

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007157
SCALE 1/1
WT
SHEET 1 OF 1

MASTER

INCHES
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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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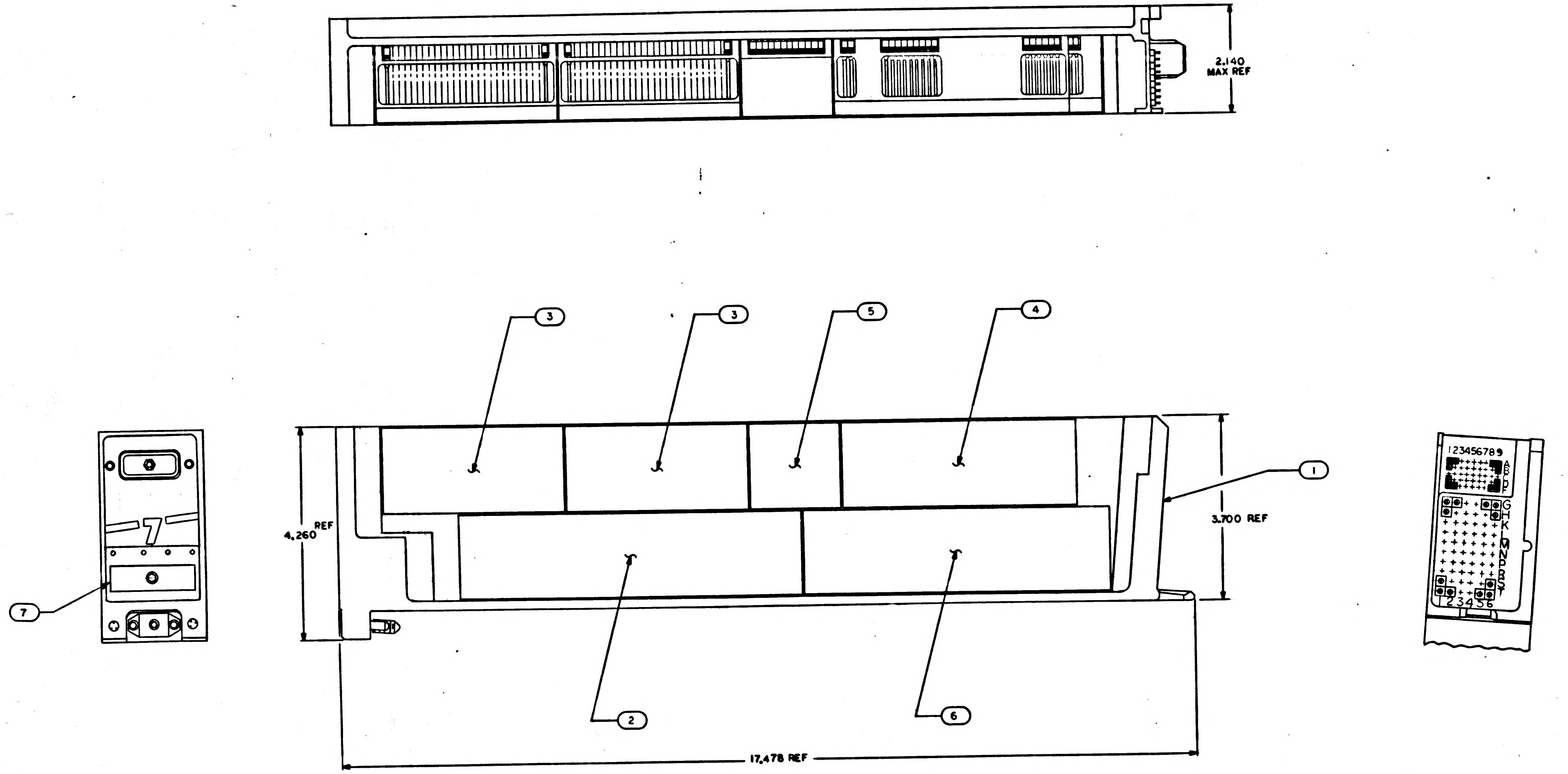
F	REVISED PER TDRR 04674		



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

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MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007114	CONNECTOR PLUG ELEC	7
1	1007081	IMU TEMP IND ALARM & BACK-UP CONT	6
1	1007063	CDU FIXED RESOLUTION TRANS & ENTRY	5
1	1007056	IMU TEMPERATURE CONTROLLER	4
2	1007054	ENCODER	3
1	1007052	PULSE TORQUING POWER SUPPLY	2
1	1007147	FRAME ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

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APPROVAL 10-8-63
APPROVAL
NASA APPROVAL W. J. Rhine 10-8-63
MIT APPROVAL

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MISCELLANEOUS
ELECTRONICS ASSEMBLY
TRAY 7

CODE IDENT NO. | SIZE E | NASA DRAWING NO. 1007157
SCALE 1/1 | WT | SHEET 1 OF 1

INCHES
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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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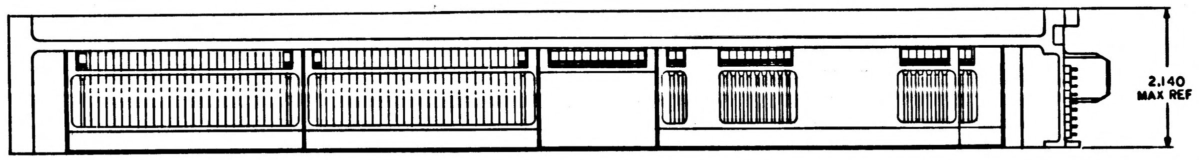
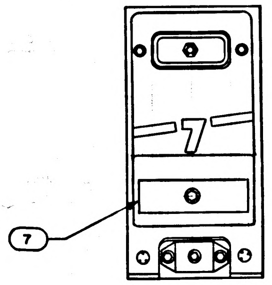
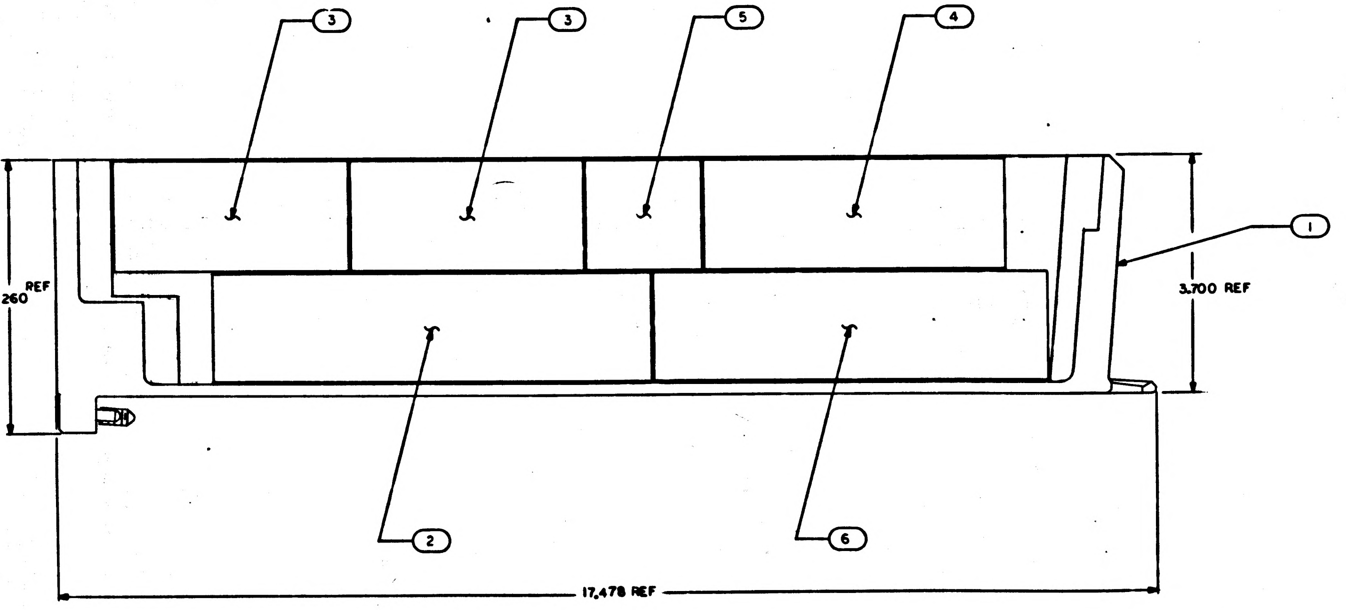
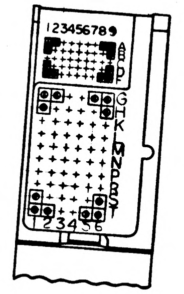
F	REVISED PER TDRR 04674	65	
G	REVISED PER TDRR 05267	12-18-63	









NOTES
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REV E REPLACES REV D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007114	CONNECTOR PLUG ELEC	7
1	1007081	IMU TEMP IND ALARM & BACK-UP CONT	6
1	1007063	CDU FIXED RESOLUTION TRANS & ENTRY	5
1	1007056	IMU TEMPERATURE CONTROLLER	4
2	1007054	ENCODER	3
1	1007052	PULSE TORQUING POWER SUPPLY	2
1	1007147	FRAME ASSEMBLY	1

LIST OF MATERIALS

1007100	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
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APPROVAL 10-8-63
APPROVAL
NASA APPROVAL W. J. [illegible] 10-1-63
MIT APPROVAL

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MISCELLANEOUS ELECTRONICS ASSEMBLY
TRAY 7

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007157
SCALE 1/1 WT SHEET 1 OF 1

1007157 G

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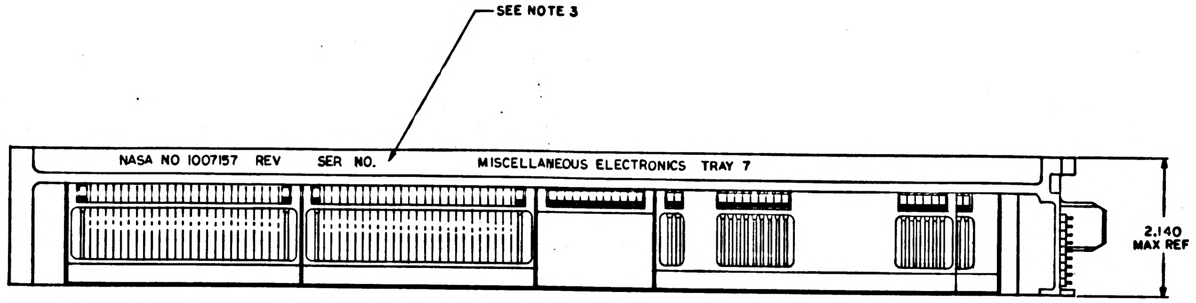
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
E	REVISED PER TDRR 03774	10-8-63	WR
F	REVISED PER TDRR 04674	11/21/63	[illegible]
G	REVISED PER TDRR 05267	12-10-63	WRC
H	REVISED PER TDRR 06185	4/8/64	WRC


SEE NOTE 3
NASA NO 1007157 REV SER NO. MISCELLANEOUS ELECTRONICS TRAY 7
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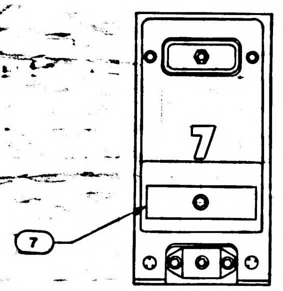
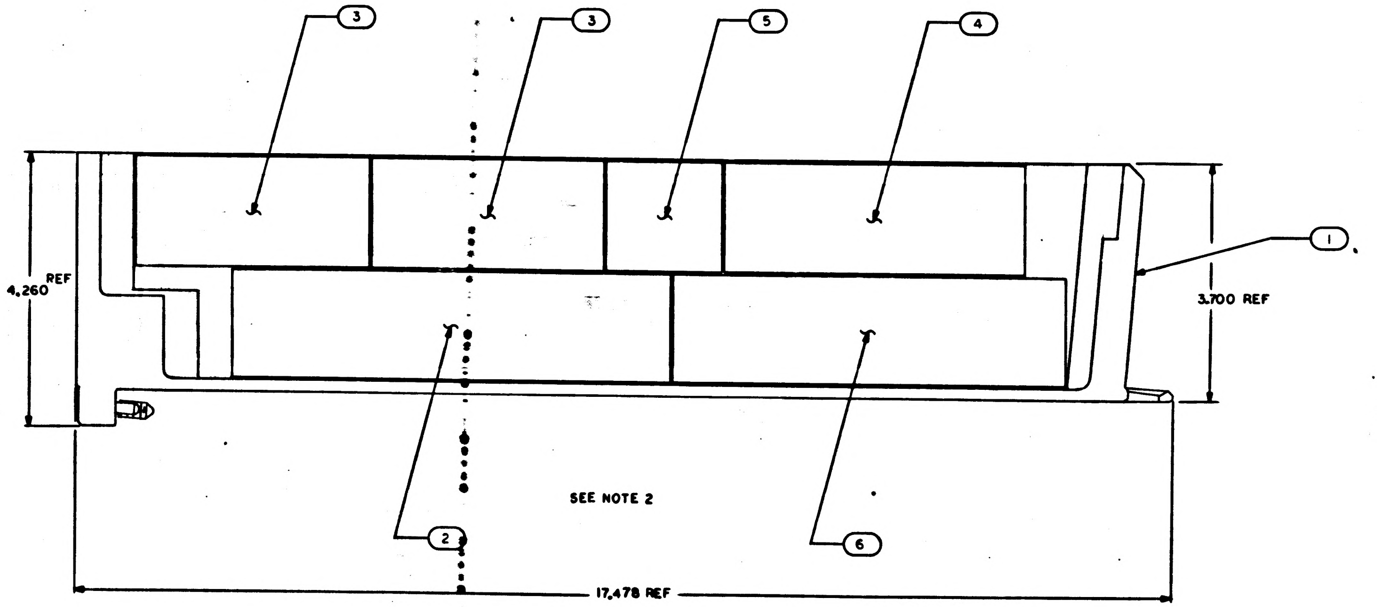
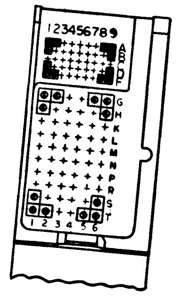
MAX REF







NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO'S. 2,3,4,5 AND 6 TO FIND NO. 1 TO BE 13/17 IN. LB.
3. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND1002023

REV E REPLACES REV D

1007157 H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007114	CONNECTOR PLUG ELEC	7
1	1007081	IMU TEMP IND ALARM & BACK-UP CONT	6
1	1007063	CDU FIXED RESOLUTION TRANS & ENTRY	5
1	1007056	IMU TEMPERATURE CONTROLLER	4
2	1007054	ENCODER	3
1	1007052	PULSE TORQUING POWER SUPPLY	2
1	1007147	FRAME ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
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APPLICATION

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CHECKED [illegible]
APPROVAL D. W. [illegible] 10-8-63
APPROVAL
NASA APPROVAL W. J. [illegible] 10-1-63
MIT APPROVAL [illegible] 10-8-63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MISCELLANEOUS
ELECTRONICS ASSEMBLY
TRAY 7

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007157
SCALE 1/1
WT
SHEET 1 OF 1

MASTER

INCHES
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1007157

REVISIONS TDRR 01267

ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
1007054	Encoder Module Assembly	2
1007052	Power Supply (+120 VDC, +12 VDC) Module Assembly	1
	CDU, Normalizing & Fixed Resolution Transformers Module Assembly	1

MASTER

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

1007100	
NEXT ASSY	USED ON

APPLICATION

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FRACTIONS DECIMALS ANGLES

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NAS 9-153

		DATE
APPROVED		5-15-63
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DRAWN		

APPROVED FOR MSC
5/15/63

MIT/IL APPROVAL	DATE
15 May 63	

MISCELLANEOUS
ELECTRONICS ASSEMBLY,
TRAY 7

SCALE	UNIT WT.	CODE IDENT.

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SHEET 1 OF 1

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1007158 A

REVISIONS TDRR 01377

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 01588	19 [illegible] 63	WC

PART NO	DESCRIPTION	REQD
1015121	MOTOR DRIVE AMPL MODULE ASSY	2
1015137	RELAY MODULE ASSY	1
1015124	COSECANT GENERATOR MODULE ASSY	1
1015123	RESOLVER DRIVE AMPL MODULE ASSY	1
1015113	MOTOR DRIVE PRE AMPL (INT) MODULE ASSY	1
1015104	2 SPEED SWITCH MODULE ASSY	1
1015136	BUFFER CIRCUIT MODULE ASSY	1
1007055	CDU D TO A CONVERTER MODULE ASSY	2
1015154	0° OPTICS TRANSFORMER MODULE ASSY	1
1007148	FRAME ASSY TRAY 8	1

1007158 A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

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APPROVAL R. L. Battalion
APPROVAL
NASA APPROVAL
MIT APPROVAL W Kupfer 29 May 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPTICAL ELECTRONIC ASSY
TRAY NO 8

CODE IDENT NO.
SIZE C
NASA DRAWING NO. 1007158
SCALE
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B 1007158

REVISIONS TDRR 01377			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 01588	19 Jun 63	
B	SUPERSEDED PER TDRR 03774	10-8-63	RPK WK

PART NO	DESCRIPTION	REQD
1015121	MOTOR DRIVE AMPL MODULE ASSY	2
1015137	RELAY MODULE ASSY	1
1015124	COSECANT GENERATOR MODULE ASSY	1
1015123	RESOLVER DRIVE AMPL MODULE ASSY	1
1015113	MOTOR DRIVE PRE AMPL (INT) MODULE ASSY	1
1015104	2 SPEED SWITCH MODULE ASSY	1
1015136	BUFFER CIRCUIT MODULE ASSY	1
1007055	CDU D TO A CONVERTER MODULE ASSY	2
1015154	0° OPTICS TRANSFORMER MODULE ASSY	1
1007148	FRAME ASSY TRAY 8	1

REV B REPLACED BY REV C

MASTER

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CONTRACT
DRAWN LEWANDOWSKI DATE 5-27-63
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL 29 May 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPTICAL ELECTRONIC ASSY
TRAY NO 8

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SIZE C
NASA DRAWING NO. 1007158
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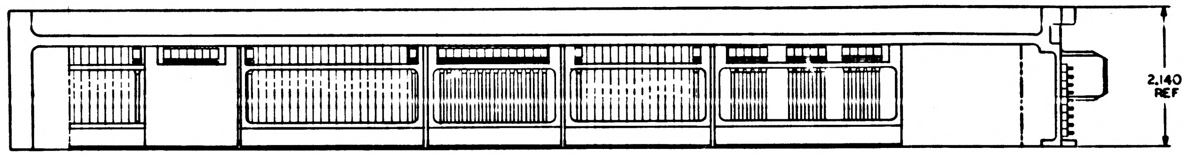
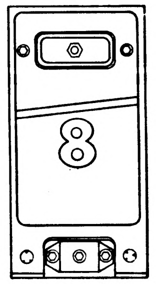
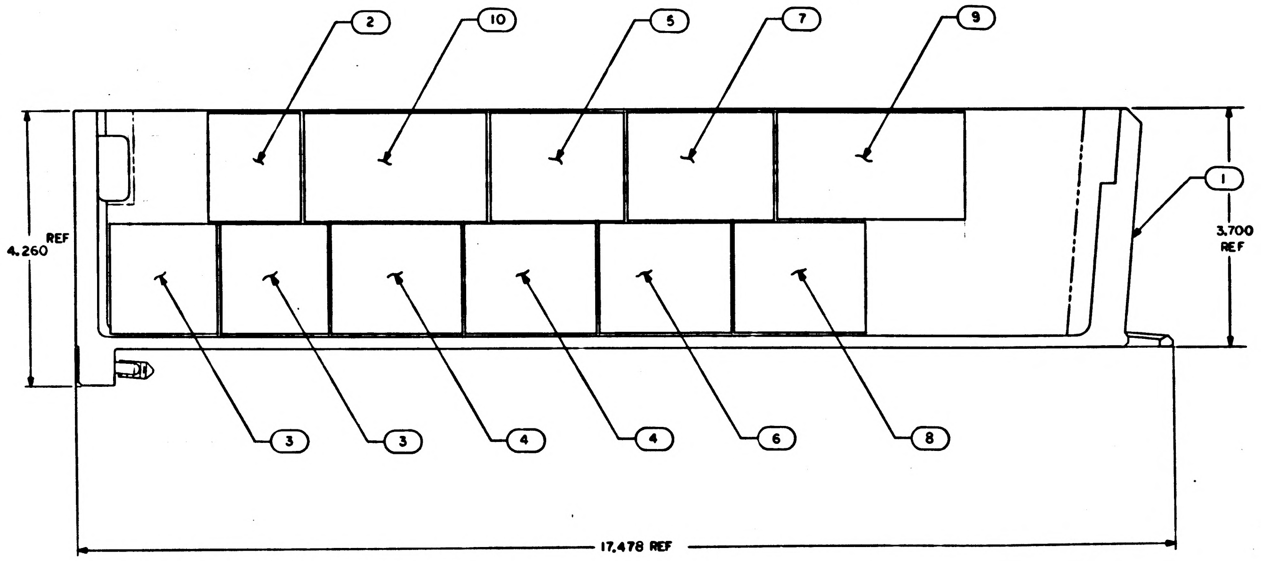
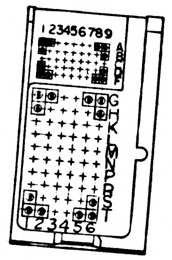
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
C	REVISED PER TDRR 03774	1-4-63	









NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REV C REPLACES REV B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1015136	BUFFER CIRCUIT	10
1	1015137	RELAY	9
1	1015123	RESOLVER DRIVE AMP	8
1	1015113	MOTOR DRIVE PREAMF	7
1	1015124	COSECANT GENERATOR	6
1	1015104	TWO-SPEED SWITCH	5
2	1015121	MOTOR DRIVE AMP	4
2	1007055	CDU D TO A CONVERTER	3
1	1015154	ZERO OPTICS	2
1	1007148	FRAME ASSY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

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DWG. NO. CONTRACT

DRAWN W. F. Troy DATE 9/3/63
CHECKED 9-20-63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL 10-7-63
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPTICAL ELECTRONIC ASSEMBLY
TRAY 8

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007158
SCALE 1/1
WT
SHEET 1 OF 1

1007158 C

MASTER

INCHES
0 1 2
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1007158

REVISIONS TDRR 01377

SYM	DESCRIPTION	DATE	APPROVAL

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

PART NO	DESCRIPTION	REQD
1015121	MOTOR DRIVE AMPL MODULE ASSY	2
1015137	RELAY MODULE ASSY	1
1015124	COSECANT GENERATOR MODULE ASSY	1
1015123	RESOLVER DRIVE AMPL MODULE ASSY	1
1015113	MOTOR DRIVE PRE AMPL (INT) MODULE ASSY	1
1015104	2 SPEED SWITCH MODULE ASSY	1
1015136	BUFFER CIRCUIT MODULE ASSY	1
1007055	CDU D TO A CONVERTER MODULE ASSY	2
1015154	0° OPTICS TRANSFORMER MODULE ASSY	1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MASTER

NEXT ASSY	USED ON
1007100	

APPLICATION

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CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL 29 May 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPTICAL ELECTRONIC ASSY
TRAY NO 8

CODE IDENT NO.
SIZE C
NASA DRAWING NO. 1007158
SCALE
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SHEET OF

1007158

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PHOTOGRAPHIC SCALE ONLY

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1007159 A

M

REVISIONS TDRR 01377

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 01588	19 Jun 63	WH

PART NO	DESCRIPTION	REQD
1015121	MOTOR DRIVE AMPL MODULE ASSY	4
1015137	RELAY MODULE ASSY	1
1015149	MOTOR DRIVE PRE AMPL (SERVO) MODULE ASSY	1
1015104	2 SPEED SWITCH MODULE ASSY	1
1015138	ISOLATION TRANSFORMER MODULE ASSY	1
1015136	BUFFER CIRCUIT MODULE ASSY	1
1015155	RESISTOR & CAPACITOR MODULE ASSY	1
1007149	FRAME ASSY TRAY 9	1

1007159 A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

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APPROVAL
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 29 May 63

MANNED SPACECRAFT CENTER
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OPTICAL ELECTRONICS ASSY
TRAY NO 9

CODE IDENT NO.
SIZE C
NASA DRAWING NO. 1007159
SCALE
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1007159 B

REVISIONS TDRR 01377

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 01588	[illegible]	WR
B	SUPERSEDED PER TDRR 03774	10-8-63	WR

PART NO	DESCRIPTION	REQD
1015121	MOTOR DRIVE AMPL MODULE ASSY	4
1015137	RELAY MODULE ASSY	1
1015149	MOTOR DRIVE PRE AMPL (SERVO) MODULE ASSY	1
1015104	2 SPEED SWITCH MODULE ASSY	1
1015138	ISOLATION TRANSFORMER MODULE ASSY	1
1015136	BUFFER CIRCUIT MODULE ASSY	1
1015155	RESISTOR & CAPACITOR MODULE ASSY	1
1007149	FRAME ASSY TRAY 9	1

REV B REPLACED BY REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MASTER

NEXT ASSY	USED ON
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APPLICATION

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CHECKED R. L. Battalion
APPROVAL R. L. Battalion
APPROVAL
NASA APPROVAL Jack Barnard
MIT APPROVAL [illegible] 29 May 63

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OPTICAL ELECTRONICS ASSY
TRAY NO 9

CODE IDENT NO. SIZE C NASA DRAWING NO. 1007159

SCALE WT SHEET OF

INCHES
0 1 2
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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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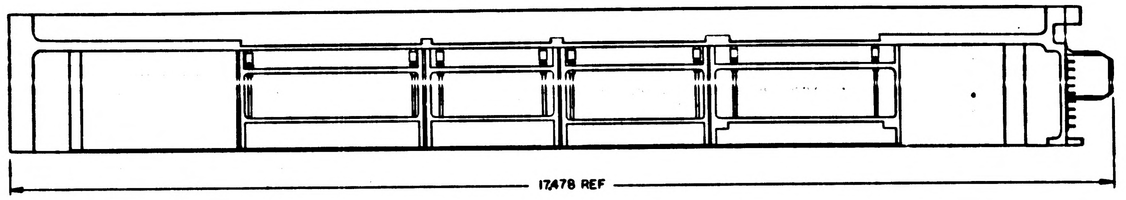

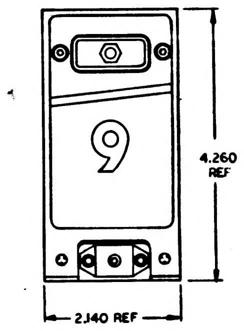

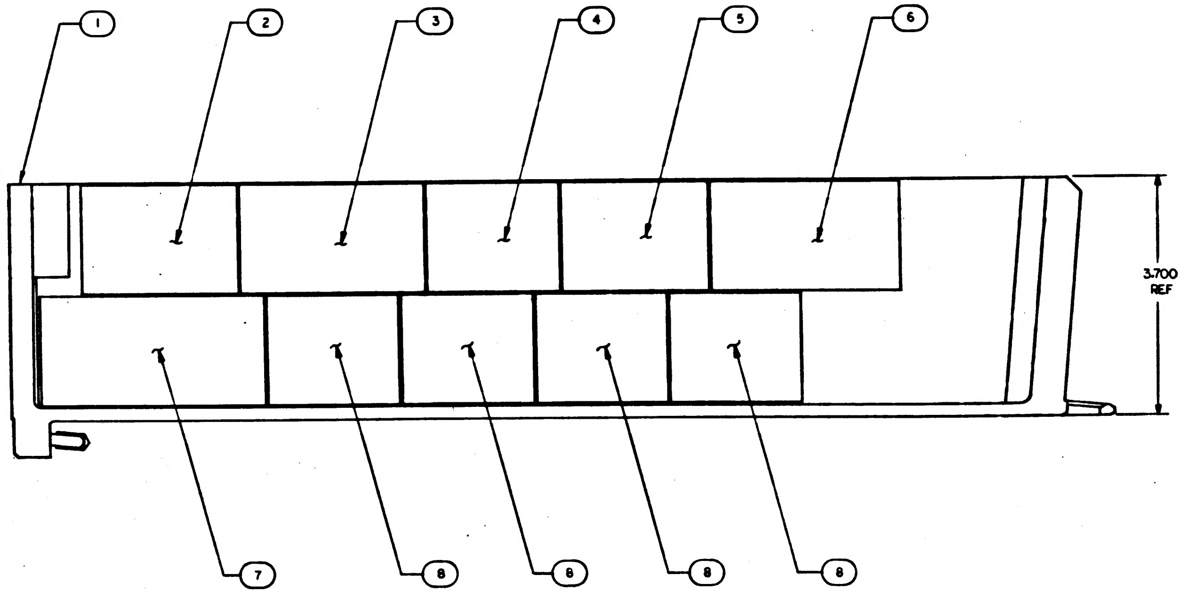

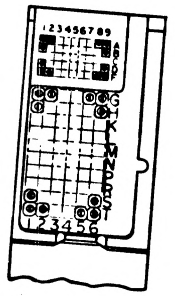

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REV C REPLACES REV B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	1015121	MOTOR DRIVE AMP	8
1	1015155	RESISTOR AND CAPACITOR	7
1	1015137	RELAY	6
1	1015149	SERVO MOTOR DRIVE PREAMP	5
1	1015104	TWO-SPEED SWITCH	4
1	1015136	BUFFER CIRCUIT	3
1	1015138	ISOLATION TRANSFORMER	2
1	1007149	FRAME ASSY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

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CHECKED 10-7-63
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL W.J. Rhine 10-7-63
MIT APPROVAL

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HOUSTON, TEXAS

OPTICAL
ELECTRONICS ASSEMBLY
TRAY 9

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007159
SCALE 1/1
WT
SHEET 1 OF 1

MASTER

1007159

REVISIONS TDRR 01377			
SYM	DESCRIPTION	DATE	APPROVAL

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PART NO	DESCRIPTION	REQD
1015121	MOTOR DRIVE AMPL MODULE ASSY	4
1015137	RELAY MODULE ASSY	1
1015149	MOTOR DRIVE PRE AMPL (SERVO) MODULE ASSY	1
1015104	2 SPEED SWITCH MODULE ASSY	1
1015138	ISOLATION TRANSFORMER MODULE ASSY	1
1015136	BUFFER CIRCUIT MODULE ASSY	1
1015155	RESISTOR & CAPACITOR MODULE ASSY	1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MASTER

NEXT ASSY	USED ON
1007100	

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APPROVAL R. L. Battalfon
APPROVAL
NASA APPROVAL Jack Barnard
MIT APPROVAL 29 May 63

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OPTICAL ELECTRONICS ASSY
TRAY NO 9

CODE IDENT NO. SIZE C NASA DRAWING NO. 1007159
SCALE WT SHEET OF

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0 1 2
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1007160

REVISIONS TDRR 02059

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 02315	7/31/63	WK

PART NO.	DESCRIPTION	NO. REQD.
1007090	DIODE & FILTER MODULE ASSEMBLY	4
1007150	FRAME ASSEMBLY, TRAY 10	1
1007048	5% 800CPS AMPLIFIER	1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

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APPROVAL 7-17-63
NASA APPROVAL 7/17/63
MIT APPROVAL W Kupfer 17 July 63

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HOUSTON, TEXAS

POWER DIODES & SIGNAL
CONDITIONING ELECTRONICS ASSEMBLY
TRAY # 10

CODE IDENT NO. | SIZE C | NASA DRAWING NO. 1007160
SCALE | WT | SHEET | OF |

INCHES
0 1 2
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1007160

REVISIONS TDRR 02059

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 02315	7/31/63	WK
B	REVISED PER TDRR 02882	8-28-63	

PART NO.	DESCRIPTION	NO. REQD.
1007090*	G & N SUBSYSTEMS SUPPLY FILTER	3
1007150	FRAME ASSEMBLY, TRAY 10	1
1007048	5% 800CPS AMPLIFIER	1
1007095*	800 CPS COMPENSATION, OPTICS	1

*MODULE DRAWINGS NOT RELEASED.

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

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CHECKED ____
APPROVAL 7-17-63
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NASA APPROVAL 7/17/63
MIT APPROVAL W Kupfer 17/jul/63

MANNED SPACECRAFT CENTER
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POWER DIODES & SIGNAL
CONDITIONING ELECTRONICS ASSEMBLY
TRAY # 10

CODE IDENT NO.
SIZE C
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1007160

REVISIONS TDRR 02059

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 02315	7/31/63	WK
B	REVISED PER TDRR 02882	8-28-63	
C	SUPERSEDED PER TDRR 03774	10-4-63	WK

PART NO.	DESCRIPTION	NO. REQD.
1007090*	G & N SUBSYSTEMS SUPPLY FILTER	3
1007150	FRAME ASSEMBLY, TRAY 10	1
1007048	5% 800CPS AMPLIFIER	1
1007095*	800 CPS COMPENSATION, OPTICS	1

*MODULE DRAWINGS NOT RELEASED.

REV C REPLACED BY REV D

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

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NEXT ASSY	USED ON
APPLICATION	

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CHECKED ____
APPROVAL 7-17-63
APPROVAL 7-17-63
NASA APPROVAL 7/17/63
MIT APPROVAL W Kupfer 17 July 63

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POWER DIODES & SIGNAL
CONDITIONING ELECTRONICS ASSEMBLY
TRAY # 10

CODE IDENT NO.
SIZE C
NASA DRAWING NO. 1007160
SCALE
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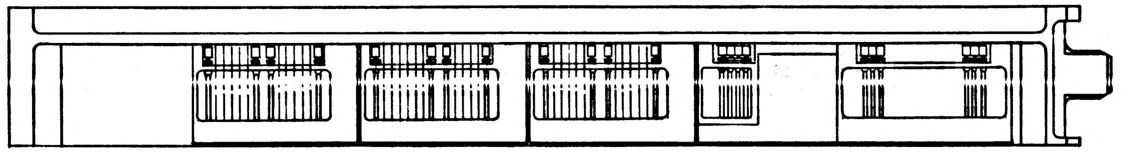
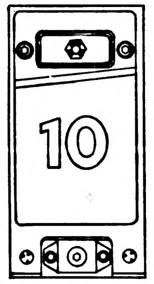
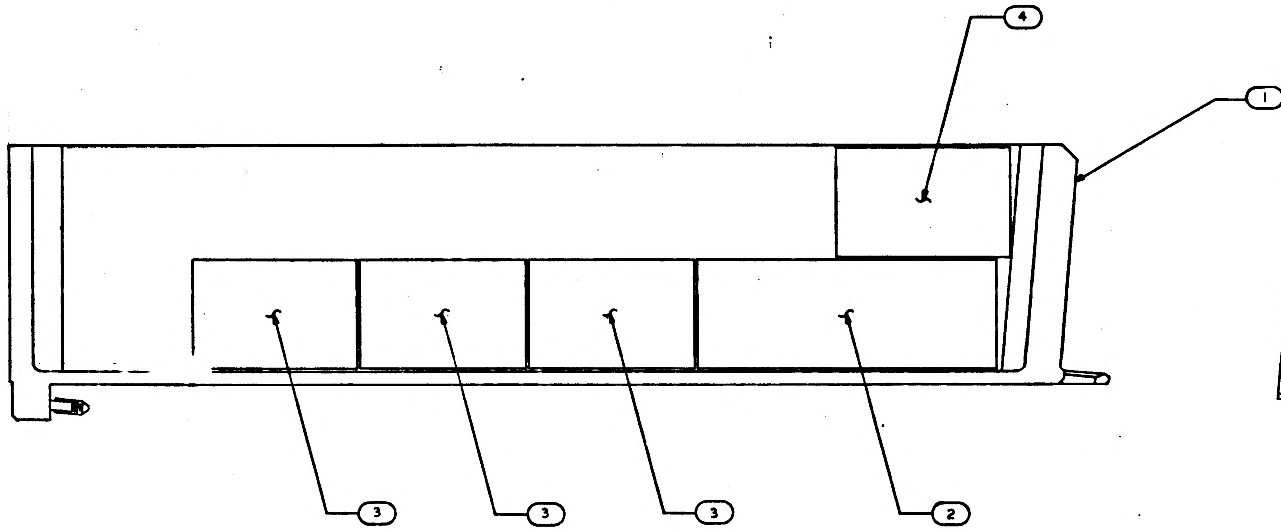
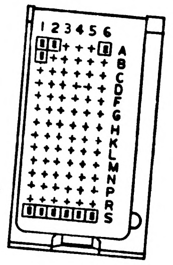
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03774	1-8-63	









REV D REPLACES REV C

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL D 70327

1007160 D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1007095	800 CPS COMPENSATION	4
3	1007090	G&N SUB-SYS SUPPLY FILTER	3
1	1007048	AMPLIFIER, 5% 800 CPS	2
1	1007150	FRAME ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

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DRAWN L. Bonanno DATE 10/1/63
CHECKED 10-2-63
APPROVAL D. R. 10-2-63
APPROVAL
NASA APPROVAL W. J. 10-8-63
MIT APPROVAL 10-8-63

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HOUSTON, TEXAS

PWR DIODES & SIGNAL COND
ELECTRONICS ASSEMBLY
TRAY 10

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007160
SCALE 1/1
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SHEET 1 OF 1

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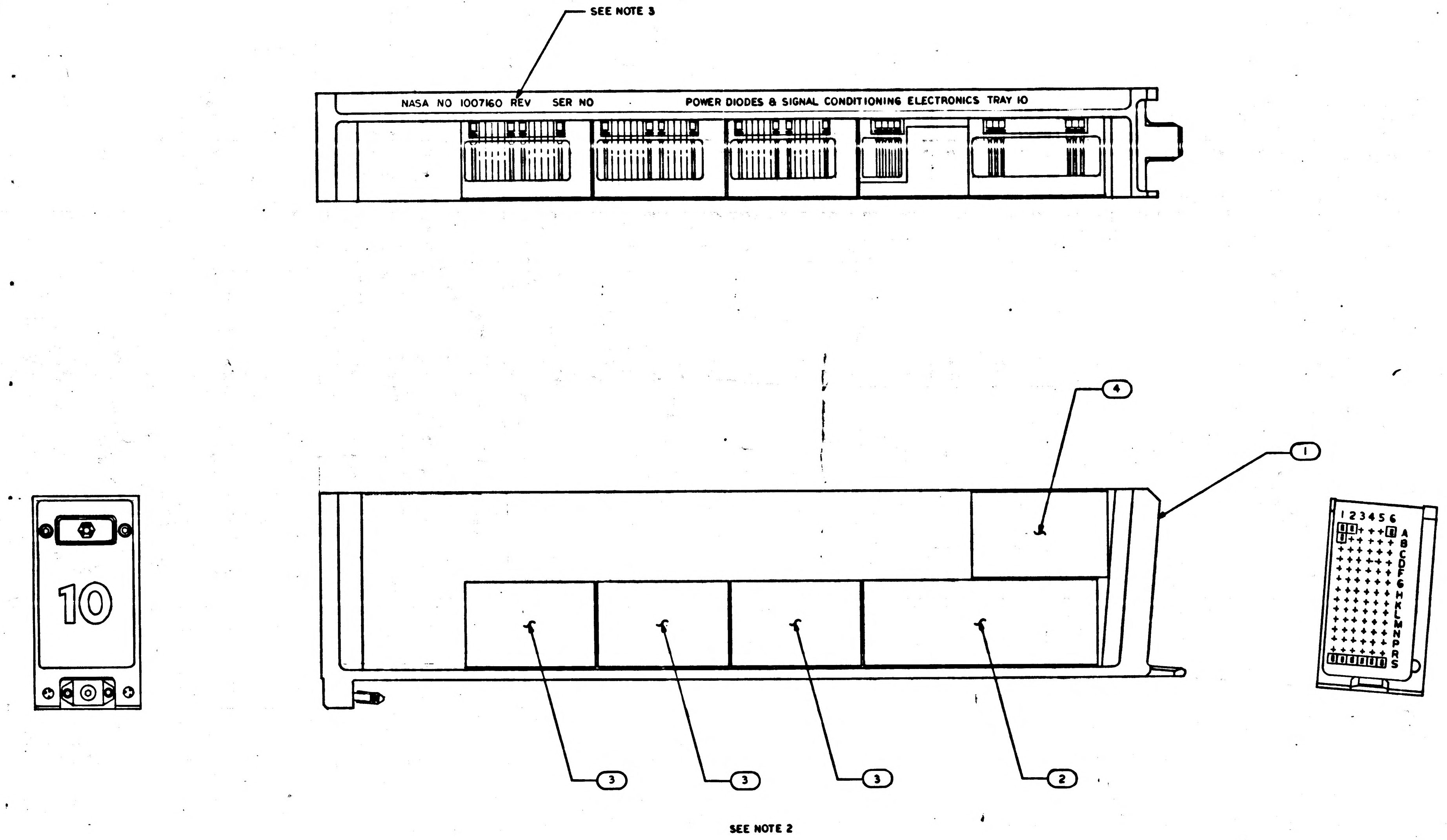
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03774	[illegible]	
E	REVISED PER TDRR 06479	[illegible]	


SEE NOTE 3
NASA NO 1007160 REV SER NO POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
10
4
1
3
3
3
2
SEE NOTE 2
1 2 3 4 5 6
A B C D E F G H J K L M N P R S

REV D REPLACES REV C

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL D 70327
2. MOUNTING TORQUE TO SECURE FIND NOS 2,3 AND 4 TO FIND NO.1 TO BE 13/17 IN. LB.
3. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND1002023

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007095	800 CPS COMPENSATION	4
3	1007090	G&N SUB-SYS SUPPLY FILTER	3
1	1007048	AMPLIFIER, 5% 800 CPS	2
1	1007150	FRAME ASSEMBLY	1

LIST OF MATERIALS

1007100	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN DATE 10/1/63
CHECKED
APPROVAL 10-2-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PWR DIODES & SIGNAL COND
ELECTRONICS ASSEMBLY
TRAY 10

CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007160
SCALE 1/1
WT
SHEET 1 OF 1

1007160 E

INCHES
PHOTOGRAPHIC SCALE ONLY

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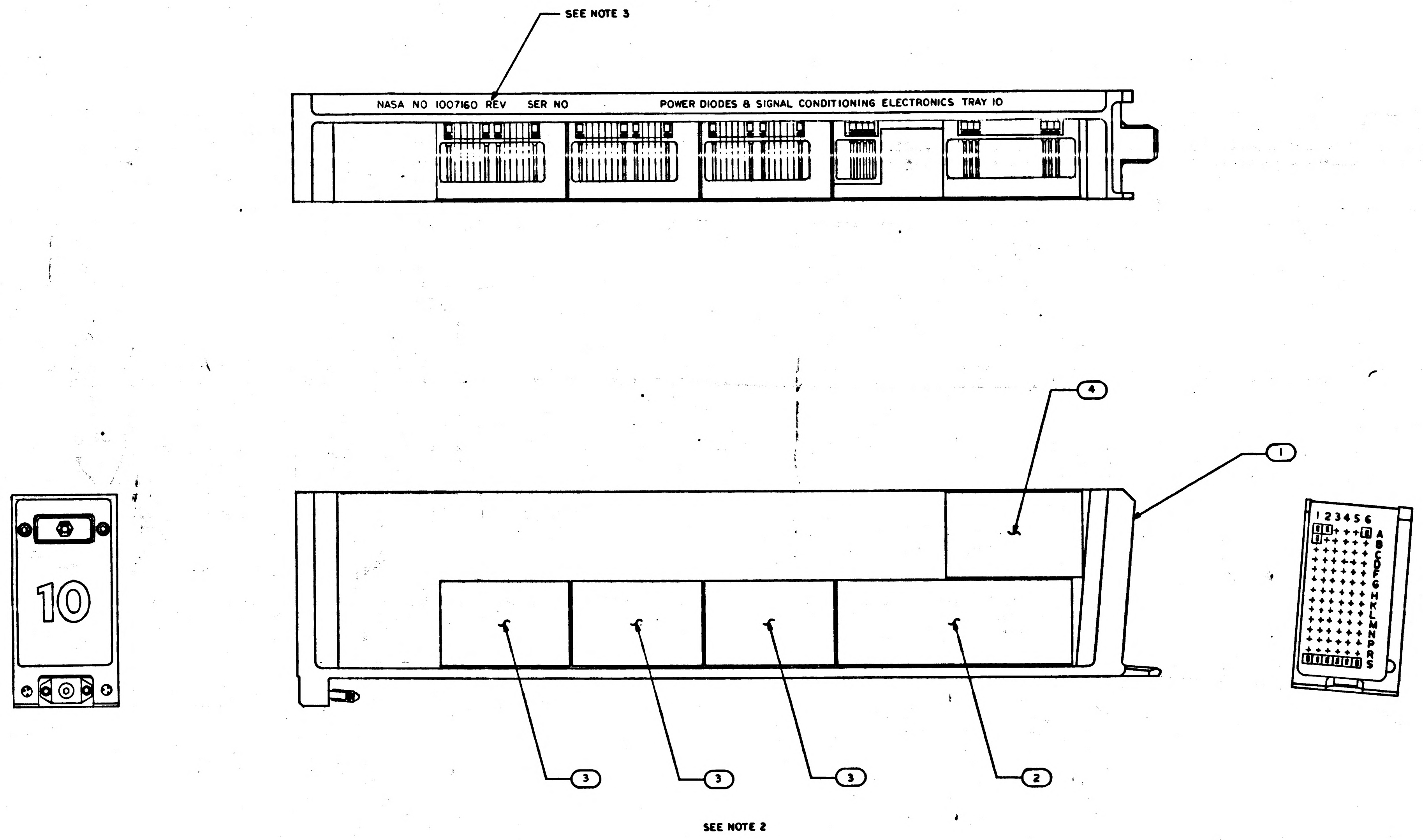
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03774	10-4-63	
E	REVISED PER TDRR 06479	[illegible]	
F	REVISED PER TDRR 07552	[illegible]	


SEE NOTE 3
NASA NO 1007160 REV SER NO
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
10
4
1
1 2 3 4 5 6
A B C D E F G H J K L M N P R S
3
3
3
2
SEE NOTE 2

REV D REPLACES REV C

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL D 70327
2. MOUNTING TORQUE TO SECURE FIND NOS 2,3 AND 4 TO FIND NO.1 TO BE 13/17 IN. LB.
3. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND1002023

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007095	800 CPS COMPENSATION	4
3	1007090	G&N SUB-SYS SUPPLY FILTER	3
1	1007048	AMPLIFIER, 5% 800 CPS	2
1	1007150	FRAME ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007170	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
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MATERIAL
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CAMBRIDGE, MASS

DRAWN DATE 10/1/63
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL 10-7-63
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PWR DIODES & SIGNAL COND ELECTRONICS ASSEMBLY TRAY 10

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007160
SCALE 1/1 WT SHEET 1 OF 1

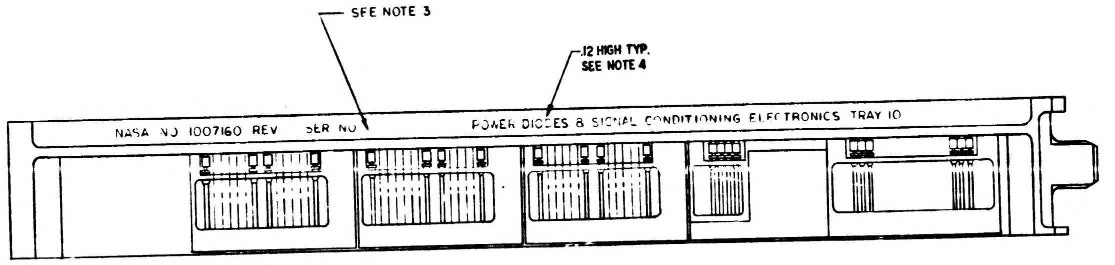
MASTER

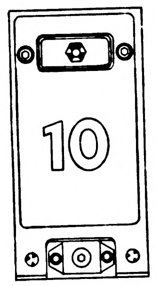
INCHES
PHOTOGRAPHIC SCALE ONLY

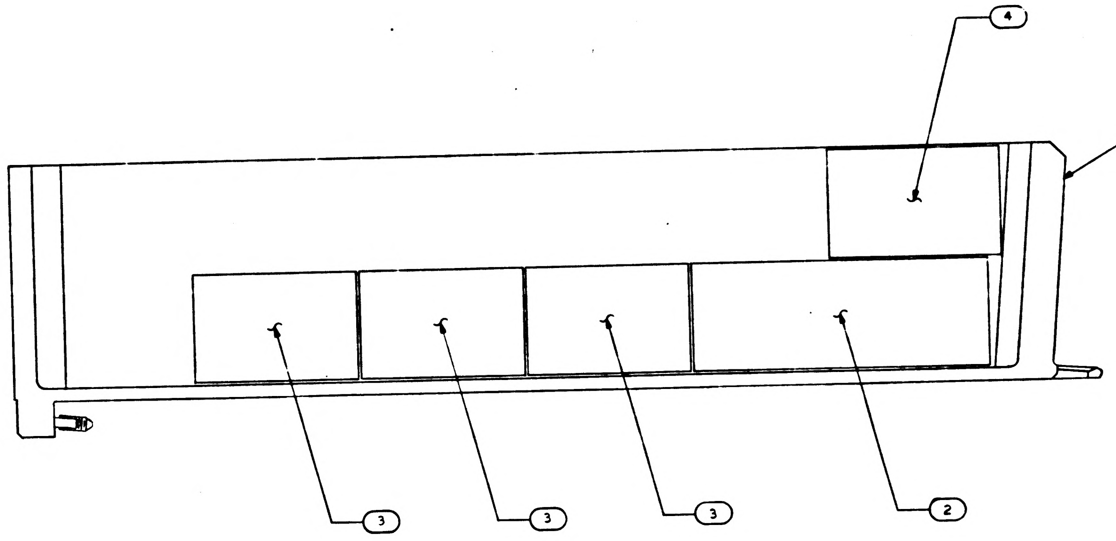
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

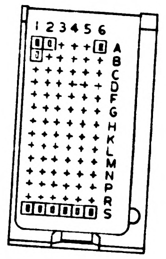
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 03774	10-8-63	
E	REVISED PER TDRR 06479	4/15/64	
F	REVISED PER TDRR 07552	7/14/64	
G	REVISED PER TDRR 14580	DEC 64	


SEE NOTE 3
.12 HIGH TYP.
SEE NOTE 4
NASA NO 1007160 REV SER NO
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10







REV D REPLACES REV C

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL D 70327
2. MOUNTING TORQUE TO SECURE FIND NOS 2,3 AND 4 TO FIND NO.1 TO BE 13/17 IN. LB.
3. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND1007023
4. MARK PER ND 1002019, WHITE.

LIST OF MATERIALS

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1007095	800 CPS COMPENSATION	4
3	1007090	G&N SUB-SYS SUPPLY FILTER	3
1	1007048	AMPLIFIER, 5% 800 CPS	2
1	1007150	FRAME ASSEMBLY	1

NEXT ASSY	USED ON
1007170	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
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MATERIAL
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INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN S Bonavugo DATE 10/1/63
CHECKED 10-1-63
APPROVAL 10-2-63
APPROVAL
NASA APPROVAL 10-8-63
MIT APPROVAL 10-4-63

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

PWR DIODES & SIGNAL COND ELECTRONICS ASSEMBLY
TRAY 10

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007160
SCALE 1/1
WT
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

1007160

REVISIONS TDRR 02059

SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	NO. REQD.
1007090	DIODE & FILTER MODULE ASSEMBLY	4
1007150	FRAME ASSEMBLY, TRAY 10	1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

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INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT

DRAWN ______ DATE ______
CHECKED ______
APPROVAL 7-17-63
APPROVAL 7-17-63
NASA APPROVAL 7/17/63
MIT APPROVAL W Kupfer 17 July 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER DIODES & SIGNAL
CONDITIONING ELECTRONICS ASSEMBLY
TRAY # 10

CODE IDENT NO.
SIZE C
NASA DRAWING NO. 1007160
SCALE
WT
SHEET 1 OF 1

MASTER

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007161 Ⓜ

REVISIONS TDRR 01876

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 02314	7/31/63	WR

PART NO.	DESCRIPTION	REQD.
1010379-5	Contact, Electrical, Female Wrapost	1088*
1010380	Insulator, Bushing, Female Wrapost	1088*
1006781-3	Contact, Wrapost, Female, Miniature	135
1006774	Insulator, Wrapost, Female, Miniature	135

* NOTE: THESE NUMBERS INCLUDE 500 CONTACTS AND 500 INSULATORS USED IN THE PSA/COMPUTER HARNESS CONNECTOR.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

1014606	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES

DO NOT SCALE THIS DRAWING
MATERIAL:

MIT INSTRUMENTATION LAB
CONTRACT NAS 9-153
DATE
APPROVED 7-2-63
CHECKED
DRAWN
APPROVED FOR MSC
7/2/63
MIT/IL APPROVAL DATE
63

PSA END CONNECTOR ASSEMBLY

SCALE
UNIT WT.
CODE IDENT.

MIT INSTRUMENTATION LABORATORY
CAMBRIDGE, MASS.
DWG. NO.
MANNED SPACECRAFT CENTER
HOUSTON TEXAS
NASA DRAWING NO.
1007161
SHEET 1 OF 1

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PHOTOGRAPHIC SCALE ONLY

1007161

REVISIONS TDRE 01876

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 02314	7/31/63	WL
	B	REVISED PER TDRR 03319	9-26-63	JW DA

PART NO.	DESCRIPTION	REQD.
1010379-5	Contact, Electrical, Female Wrapost	720
1010380	Insulator, Bushing, Female Wrapost	720
1006781-3	Contact, Wrapost, Female, Miniature	225
1006774	Insulator, Wrapost, Female, Miniature	225
1015826-296	Screw-Flat Head, Hex Socket	8
1010670-5	Stake Nut	6
MS21209-FI-20	Heli-Coil	8
NAS-1033C-06	Nut, Anchor, Right Angle, Floating	8
NAS-1033C-03	Nut, Anchor, Right Angle, Floating	4
NAS-687-3	Nut, Anchor, One-Lug, Floating	4
NAS-686-3	Nut, Anchor, Two-Tug, Floating	3
MS21209-CO-415	Heli-Coil, Screw-Lock Inserts	4
MS20470AD3-4	Rivet, Universal Head	16
MS20426AD3-5	Rivet, Countersunk Head	22

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

NEXT ASSY	USED ON
1014606	

APPLICATION

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES

DO NOT SCALE THIS DRAWING

MATERIAL:

MIT
INSTRUMENTATION LAB
CONTRACT
NAS 9-153

		DATE
APPROVED	D. Bittest	7-2-63
CHECKED		
DRAWN		

APPROVED FOR MSC W. S. Dwight 7/2/63

MIT/IL APPROVAL	DATE
W. Eggleston	2 Jul 63

PSA END CONNECTOR
ASSEMBLY

SCALE	UNIT WT.	CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.

DWG. NO.

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

NASA DRAWING NO.
1007161

SHEET 1 OF 1

INCHES
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PHOTOGRAPHIC SCALE ONLY

1007161

REVISIONS TORC 01476

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 02314	7/31/63	WR
	B	REVISED PER TDRR 03319	9-26-63	11 [illegible]
	C	SUPERSEDED PER TDRR 04106	10-15-63	21 WR

PART NO.	DESCRIPTION	REQD.
1010379-5	Contact, Electrical, Female Wrapost	720
1010380	Insulator, Bushing, Female Wrapost	720
1006781-3	Contact, Wrapost, Female, Miniature	225
1006774	Insulator, Wrapost, Female, Miniature	225
1015826-296	Screw-Flat Head, Hex Socket	8
1010670-5	Stake Nut	6
MS21209-FI-20	Heli-Coil	8
NAS-1033C-06	Nut, Anchor, Right Angle, Floating	8
NAS-1033C-03	Nut, Anchor, Right Angle, Floating	4
NAS-687-3	Nut, Anchor, One-Lug, Floating	4
NAS-686-3	Nut, Anchor, Two-Tug, Floating	3
MS21209-C0-415	Heli-Coil, Screw-Lock Inserts	4
MS20470AD3-4	Rivet, Universal Head	16
MS20426AD3-5	Rivet, Countersunk Head	22

REV C REPLACED BY REV D

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

1014606	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL:

MIT INSTRUMENTATION LAB CONTRACT NAS 9-153

		DATE
APPROVED	N. G. Tait	7-2-63
CHECKED		
DRAWN		

APPROVED FOR MSC W. S. Dwinga 7/2/63

MIT/IL APPROVAL	DATE
W. Guy for	2 July 63

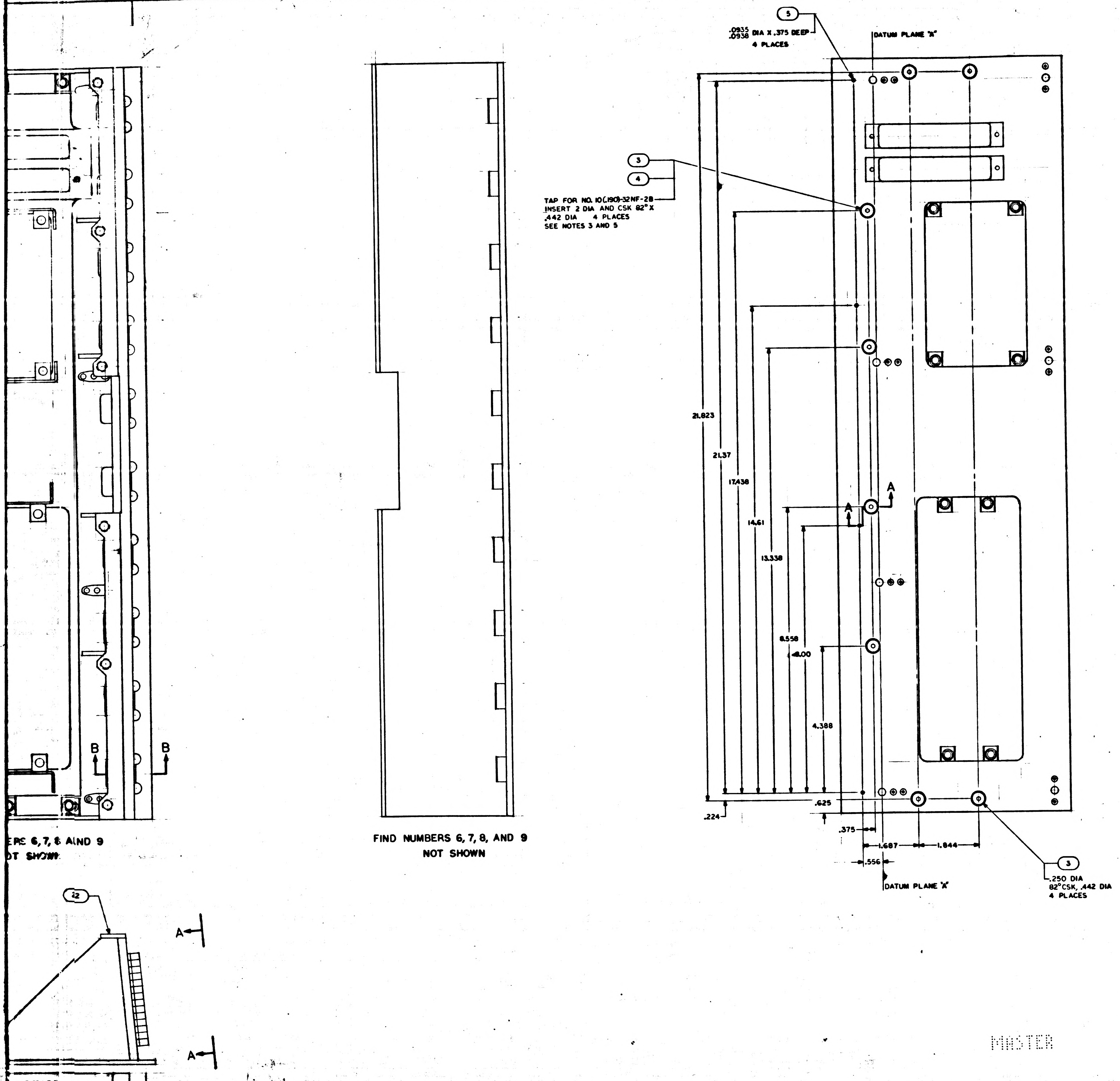
PSA END CONNECTOR ASSEMBLY

SCALE	UNIT WT.	CODE IDENT.

MIT INSTRUMENTATION LABORATORY
CAMBRIDGE, MASS.
DWG. NO.
MANNED SPACECRAFT CENTER
HOUSTON TEXAS
NASA DRAWING NO.
1007161
SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

D	1007161			
	REVISIONS 03754			
SYM	DESCRIPTION		DATE	APPROVAL
D	REVISED PER TDRR 04106		10 23 63	wk



.0935
.0938 DIA X .375 DEEP
4 PLACES
5
DATUM PLANE "A"
3
4
TAP FOR NO. 10(.190)-32NF-2B
INSERT 2 DIA AND CSK 82° X
.442 DIA 4 PLACES
SEE NOTES 3 AND 5
21.823
21.37
17.438
14.61
13.338
8.558
8.00
4.388
.625
.224
.375
1.687
1.844
.556
A
A
DATUM PLANE "A"
3
.250 DIA
82° CSK, .442 DIA
4 PLACES
FIND NUMBERS 6, 7, 8, AND 9
NOT SHOWN
ERS 6, 7, 8 AND 9
OT SHOWN
B
B
12
A
A
1007161

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
225	1006781-3	CONTACT, WRAPOST, FEMALE, MIN	9
225	1006774	INSULATOR, WRAPOST, FEMALE, MIN	8
720	1010379-5	CONTACT, ELEC, FEMALE	7
720	1010380	INSULATOR, BUSHING, FEMALE	6
4	1008153	PIN, STEP	5
4	MS21209-F1-20	INSERT, SCREW LOCKING	4
8	1015826-296	SCREW, FLAT HD, HEX SOC	3
1	1008151	FRONT PLATE	2
1	1008150	BOTTOM PLATE	1

LIST OF MATERIALS

MASTER

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —/— DECIMALS ± SEE NOTE 7 ANGLES ± 0° 15'
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG NO. CONTRACT
DRAWN J. F. Dugan DATE 28 SEP 63
CHECKED R. P. Kroger 8 OCT 63
APPROVAL D. Root 10-8-63
APPROVAL
NASA APPROVAL W. J. Rhine 10-8-63
MIT APPROVAL 9 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

END CONNECTOR ASSEMBLY
PSA

CODE IDENT NO. | SIZE J | NASA DRAWING NO. 1007161
SCALE 1/1 | WT | SHEET 1 OF 1

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INCHES
PHOTOGRAPHIC SCALE ONLY

1007161

REVISIONS TDRR 01876

ZONE	SYM	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 02314	7/31/63	WR
	B	REVISED PER TDRR 03319	9-26-63	DA
	C	SUPERSEDED PER TDRR 04106	10-15-63	WR

PART NO.	DESCRIPTION	REQD.
1010379-5	Contact, Electrical, Female Wrapost	720
1010380	Insulator, Bushing, Female Wrapost	720
1006781-3	Contact, Wrapost, Female, Miniature	225
1006774	Insulator, Wrapost, Female, Miniature	225
1015826-296	Screw-Flat Head, Hex Socket	8
1010670-5	Stake Nut	6
MS21209-FI-20	Heli-Coil	8
NAS-1033C-06	Nut, Anchor, Right Angle, Floating	8
NAS-1033C-03	Nut, Anchor, Right Angle, Floating	4
NAS-687-3	Nut, Anchor, One-Lug, Floating	4
NAS-686-3	Nut, Anchor, Two-Tug, Floating	3
MS21209-C0-415	Heli-Coil, Screw-Lock Inserts	4
MS20470AD3-4	Rivet, Universal Head	16
MS20426AD3-5	Rivet, Countersunk Head	22

REV C REPLACED BY REV D

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

NEXT ASSY	USED ON
1014606	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES

DO NOT SCALE THIS DRAWING

MATERIAL:

MIT INSTRUMENTATION LAB
CONTRACT NAS 9-153

		DATE
APPROVED	N. Bitat	7-2-63
CHECKED		
DRAWN		
APPROVED FOR MSC	W. B. Swingle	7/2/63
MIT/IL APPROVAL	W. Guffin	2 Aug 63

PSA END CONNECTOR
ASSEMBLY

SCALE	UNIT WT.	CODE IDENT.

MIT
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LABORATORY
CAMBRIDGE, MASS.

DWG. NO.

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HOUSTON TEXAS

NASA DRAWING NO.
1007161

SHEET 1 OF 1

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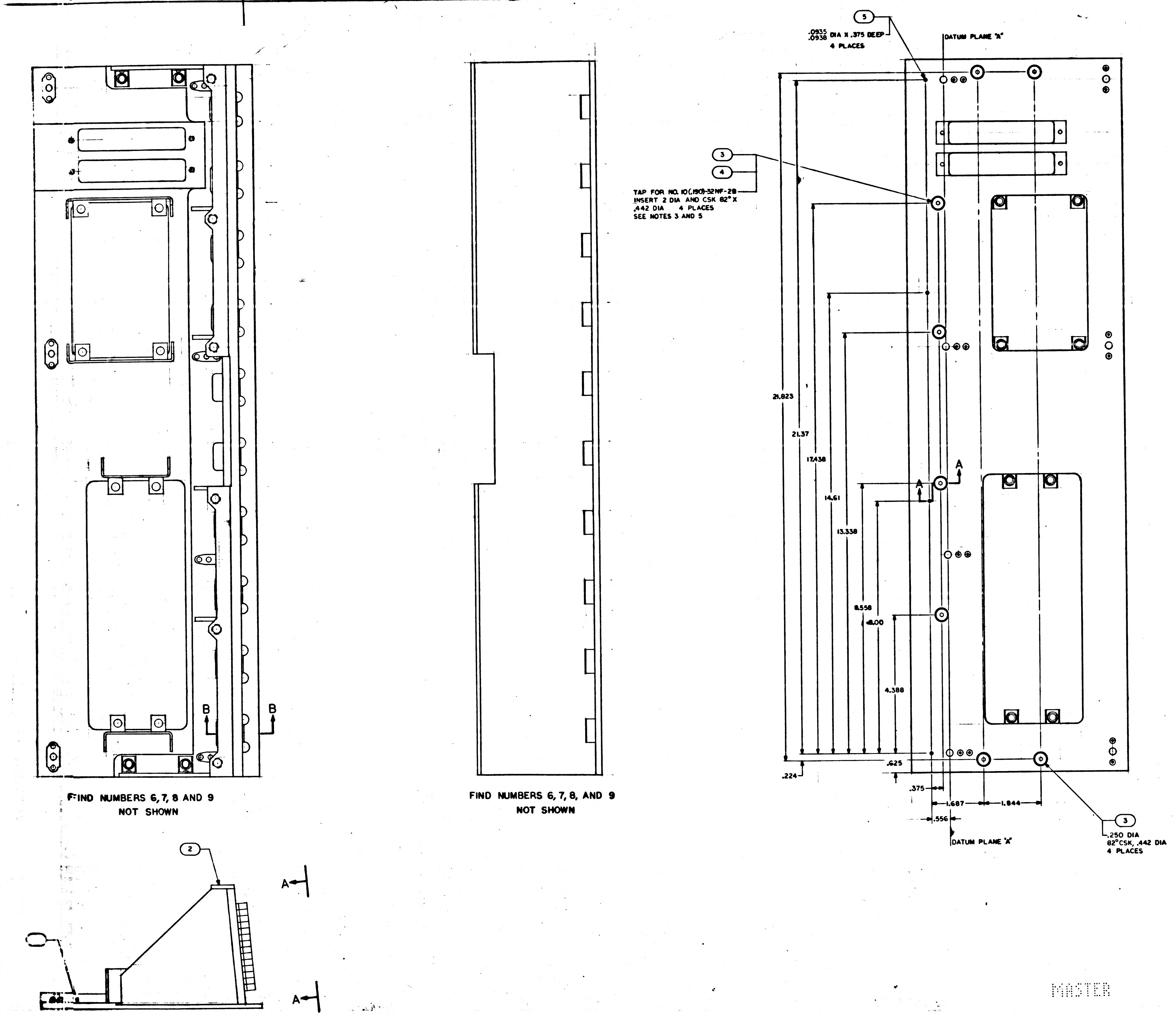
REVISIONS 03754			
SYM	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 04106	10 23 63	4R


.0935
.0938 DIA X .375 DEEP
4 PLACES
5
DATUM PLANE "A"
3
4
TAP FOR NO. 10(.190)-32NF-2B
INSERT 2 DIA AND CSK 82° X
.442 DIA 4 PLACES
SEE NOTES 3 AND 5
21.823
21.37
17.438
14.61
13.338
8.558
8.00
4.388
A
A
.625
.224
.375
1.687
1.844
.556
DATUM PLANE "A"
3
.250 DIA
82°CSK, .442 DIA
4 PLACES
B
B
FIND NUMBERS 6, 7, 8 AND 9
NOT SHOWN
FIND NUMBERS 6, 7, 8, AND 9
NOT SHOWN
2
A
A

1007161

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
225	1006781-3	CONTACT, WRAPOST, FEMALE, MIN	9
225	1006774	INSULATOR, WRAPOST, FEMALE, MIN	8
720	1010379-5	CONTACT, ELEC, FEMALE	7
720	1010380	INSULATOR, BUSHING, FEMALE	6
4	1008153	PIN, STEP	5
4	MS21209-F1-20	INSERT, SCREW LOCKING	4
8	1015826-296	SCREW, FLAT HD, HEX SOC	3
1	1008151	FRONT PLATE	2
1	1008150	BOTTOM PLATE	1

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± SEE NOTE 7 ANGLES ± 0° 15'
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

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INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN [illegible] DATE 23 Sep 63
CHECKED [illegible] 8 Oct 63
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL W. J. [illegible] 10-8-63
MIT APPROVAL [illegible] 10 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

END CONNECTOR ASSEMBLY
PSA

CODE IDENT NO. | SIZE J | NASA DRAWING NO. 1007161
SCALE 1/1 | WT | SHEET

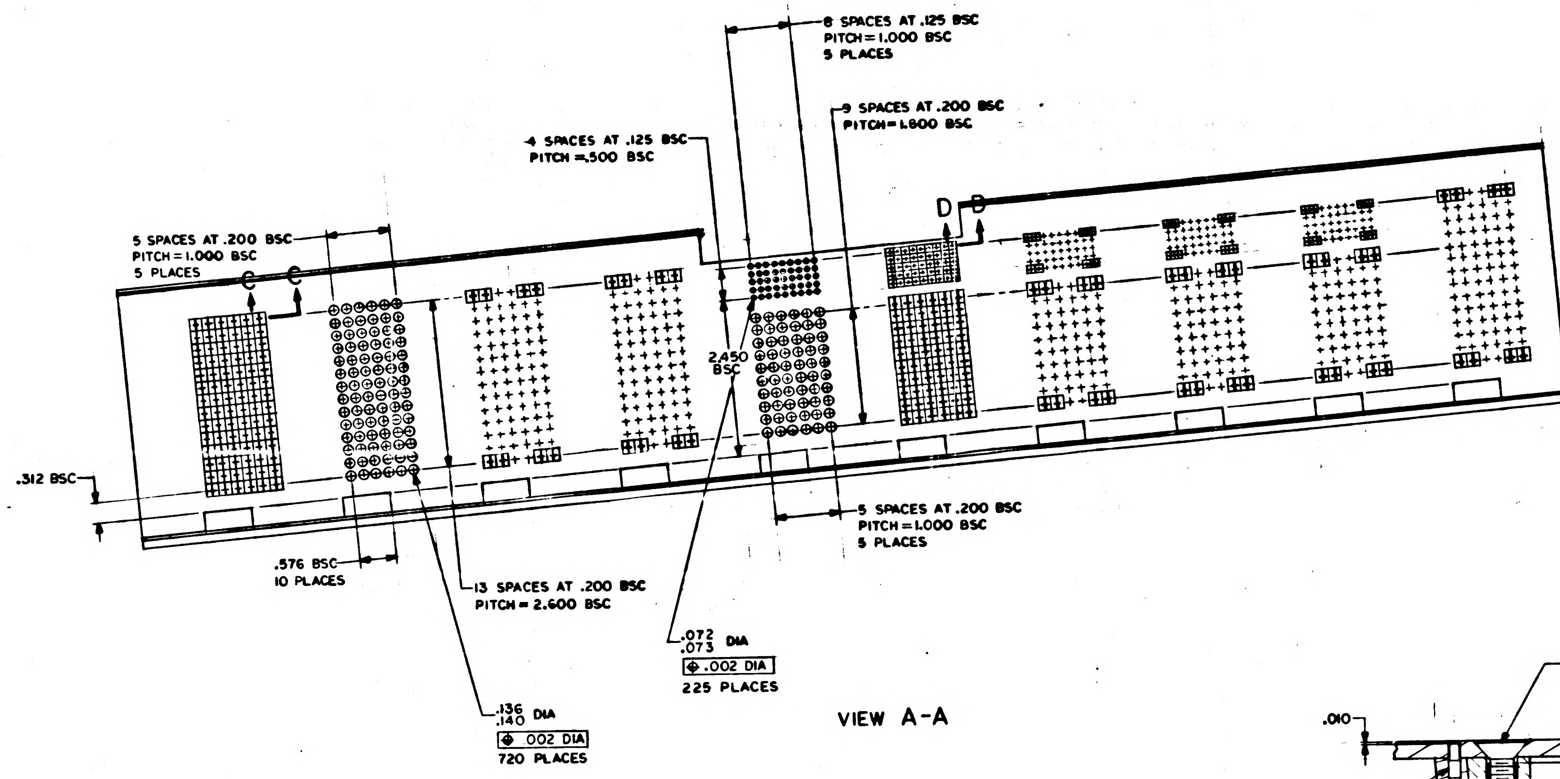
1007161

MASTER

INCHES
PHOTOGRAPHIC SCALE ONLY

E-2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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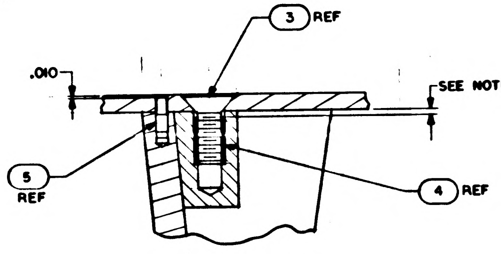
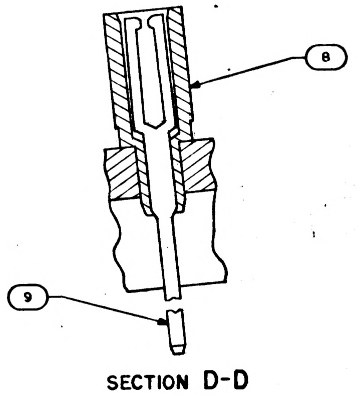
PITCH = 1.000 BSC
5 PLACES
9 SPACES AT .200 BSC
PITCH = 1.800 BSC
4 SPACES AT .125 BSC
PITCH = .500 BSC
D
D
5 SPACES AT .200 BSC
PITCH = 1.000 BSC
5 PLACES
C
C
2.450
BSC
.312 BSC
5 SPACES AT .200 BSC
PITCH = 1.000 BSC
5 PLACES
.576 BSC
10 PLACES
13 SPACES AT .200 BSC
PITCH = 2.600 BSC
.072
.073 DIA
⌖ .002 DIA
225 PLACES
.136
.140 DIA
⌖ .002 DIA
720 PLACES

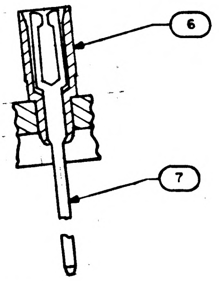
VIEW A-A


3 REF
.010
SEE NOTE 3
5
REF
4 REF

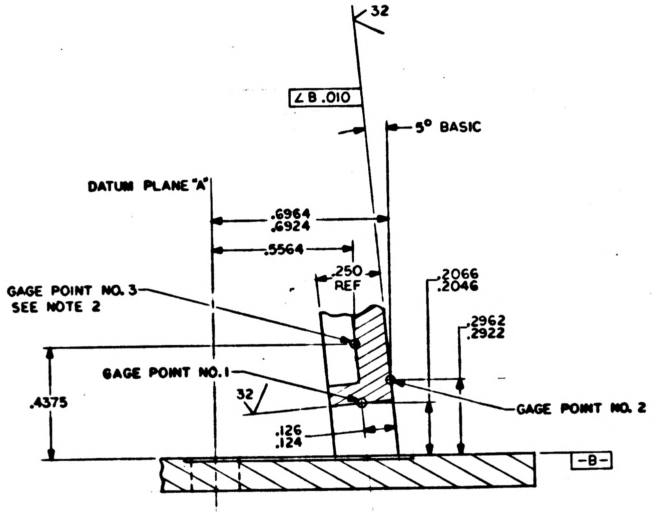
PARTIAL SECTION A-A
SCALE 2/1



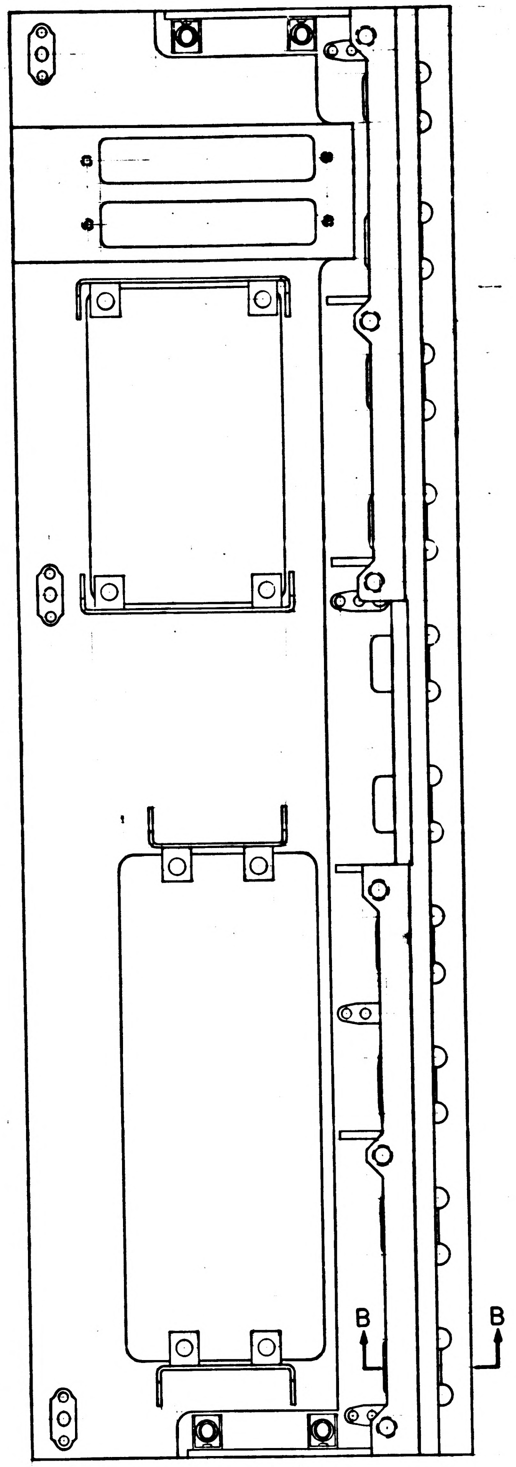
SECTION D-D
SCALE 10/1
225 PLACES



SECTION C-C
SCALE 4/1
720 PLACES


32
∠ B .010
5° BASIC
DATUM PLANE "A"
.6964
.6924
.5564
.250
REF
.2066
.2046
.2962
.2922
GAGE POINT NO. 3
SEE NOTE 2
GAGE POINT NO. 1
32
.4375
.126
.124
GAGE POINT NO. 2
-B-

PARTIAL SECTION B-B
SCALE 4/1



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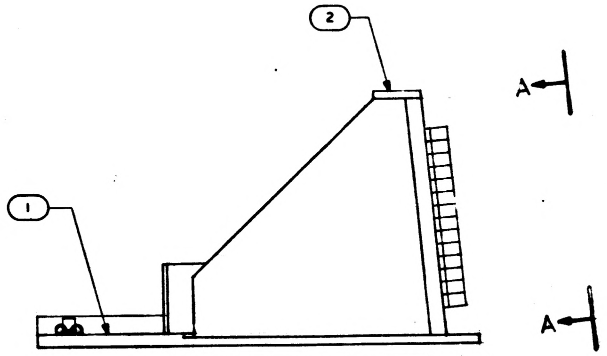
NOT SHOWN



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. GAGE POINT NO. 3 FOR INITIAL LOCATION OF FIND NO. 2 PRIOR TO FINAL MACHINING
3. INSTALL FIND NO. 4 PER MS33646. BREAK OFF DRIVING TANG
4. INSTALL FIND NOS. 6, 7, 8 AND 9 PER ND1002136
5. COAT THREADS AND FIND NO. 4 WITH MIL-P-8585 WET ZINC CHROMATE PRIMER
6. FINISH: ANODIZE MACHINED SURFACES ON FIND NO. 2 PER MIL-A-8625, TYPE II, DYED BLACK PLUG INSERT HOLES
7. TOLERANCES: 2 PLACE DECIMALS = ±.010
   3 PLACE DECIMALS = ±.005

1007161

INCHES
PHOTOGRAPHIC SCALE ONLY

E 1007161

SYM	REVISIONS 03754 DESCRIPTION	DATE	APPROVAL
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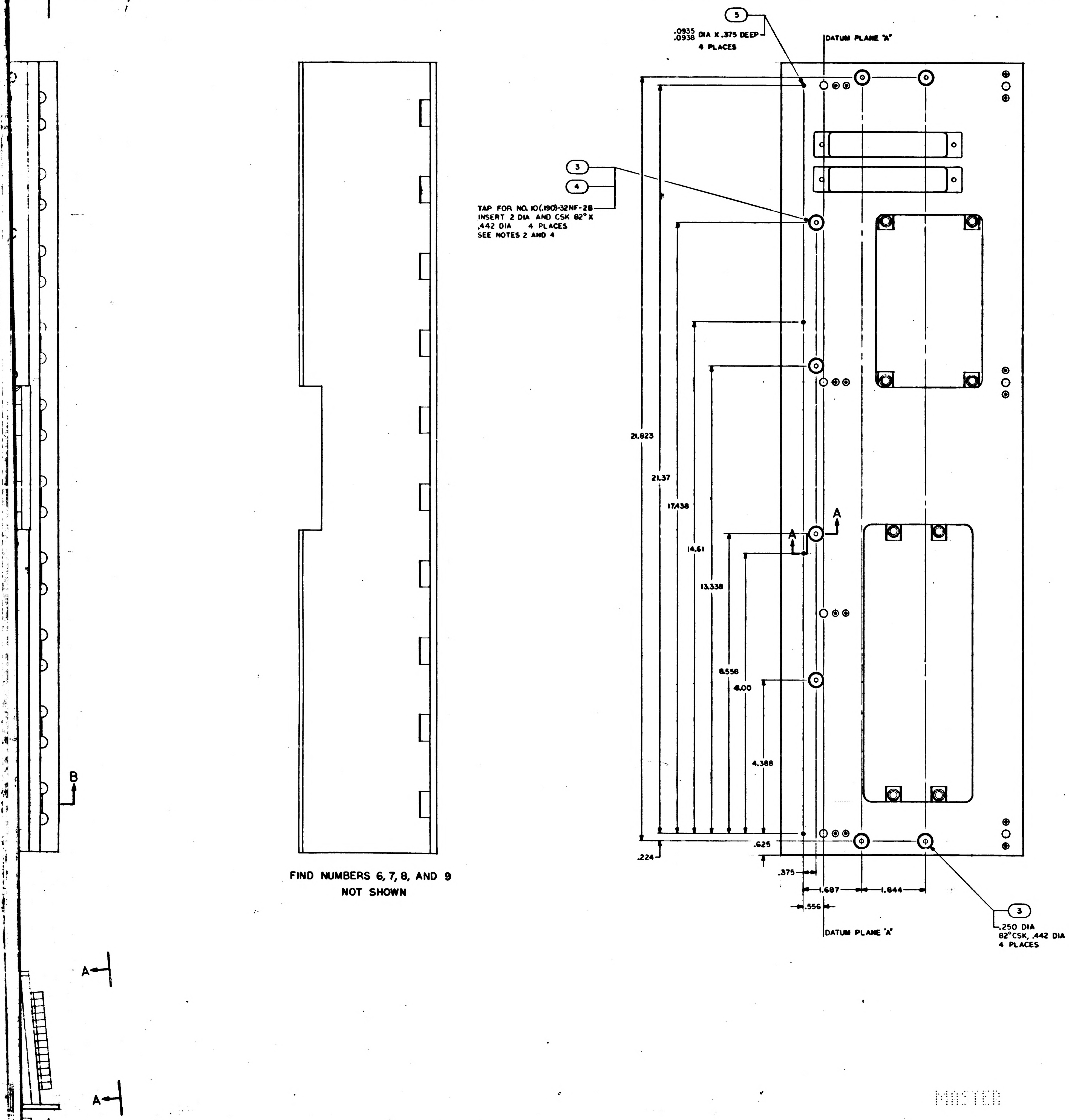
E	REVISED PER TDRR 04459		



4
3
2
5
.0935
.0938 DIA X .375 DEEP
4 PLACES
DATUM PLANE "A"
3
4
TAP FOR NO. 10(.190)-32NF-28
INSERT 2 DIA AND CSK 82° X
.442 DIA 4 PLACES
SEE NOTES 2 AND 4
21.823
21.37
17.438
14.61
13.338
8.558
8.00
4.388
A
A
.224
.625
.375
1.687
1.844
.556
DATUM PLANE "A"
3
.250 DIA
82°CSK, .442 DIA
4 PLACES
B
A
A
MASTER

FIND NUMBERS 6, 7, 8, AND 9
NOT SHOWN

REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
225	1006781-3	CONTACT, WRAPOST, FEMALE, MIN	9
225	1006774	INSULATOR, WRAPOST, FEMALE, MIN	8
720	1010379-5	CONTACT, ELEC, FEMALE	7
720	1010380	INSULATOR, BUSHING, FEMALE	6
4	1008153	PIN, STEP	5
4	MS21209-F1-20	INSERT, SCREW LOCKING	4
8	1015826-296	SCREW, FLAT HD, HEX SOC	3
1	1008151	FRONT PLATE	2
1	1008150	BOTTOM PLATE	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1014606	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —//— DECIMALS SEE NOTE 5 ANGLES ± 0° 15'
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN DATE
CHECKED
APPROVAL 10-8-63
APPROVAL
NASA APPROVAL W J 10-8-63
MIT APPROVAL Oct 3

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

END CONNECTOR ASSEMBLY
PSA

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007161
SCALE 1/1
WT
SHEET 1 OF 1

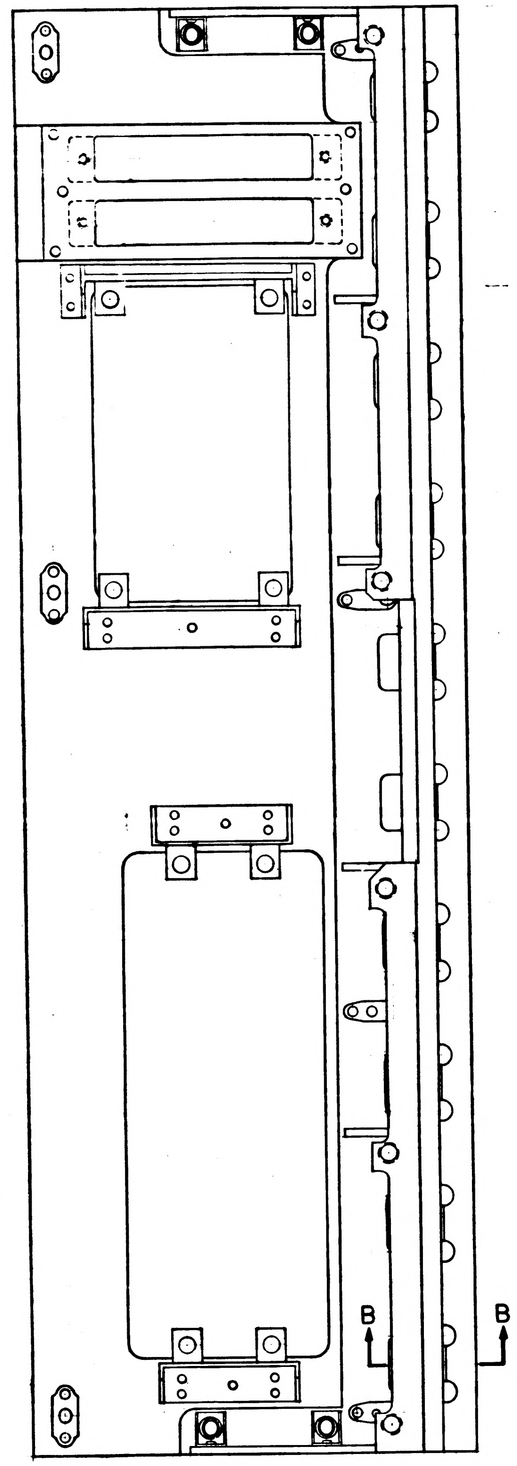
E
1007161

3H

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007161 E

D	REVISED PER TDRR		
E	REVISED PER TDRR		



FIND NUMBERS 6, 7, 8 AND 9
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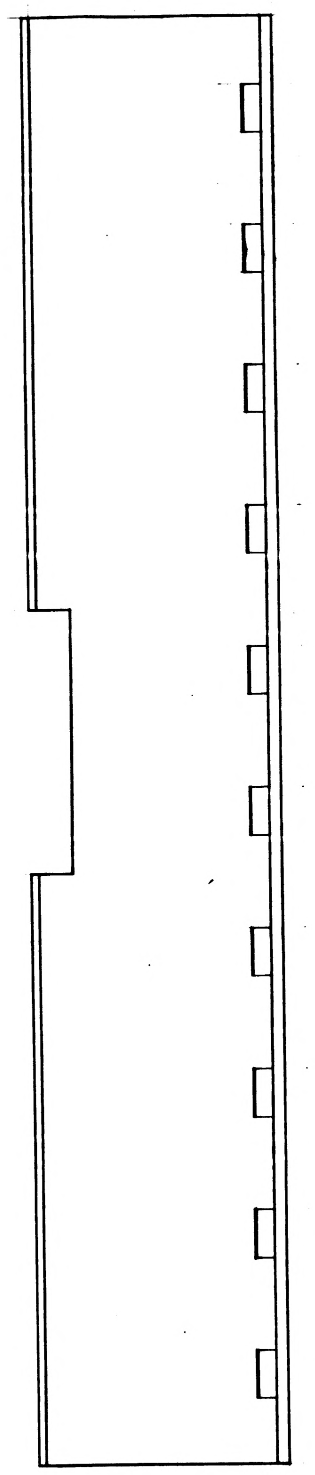

FIND NUMBERS 6, 7, 8, AND 9
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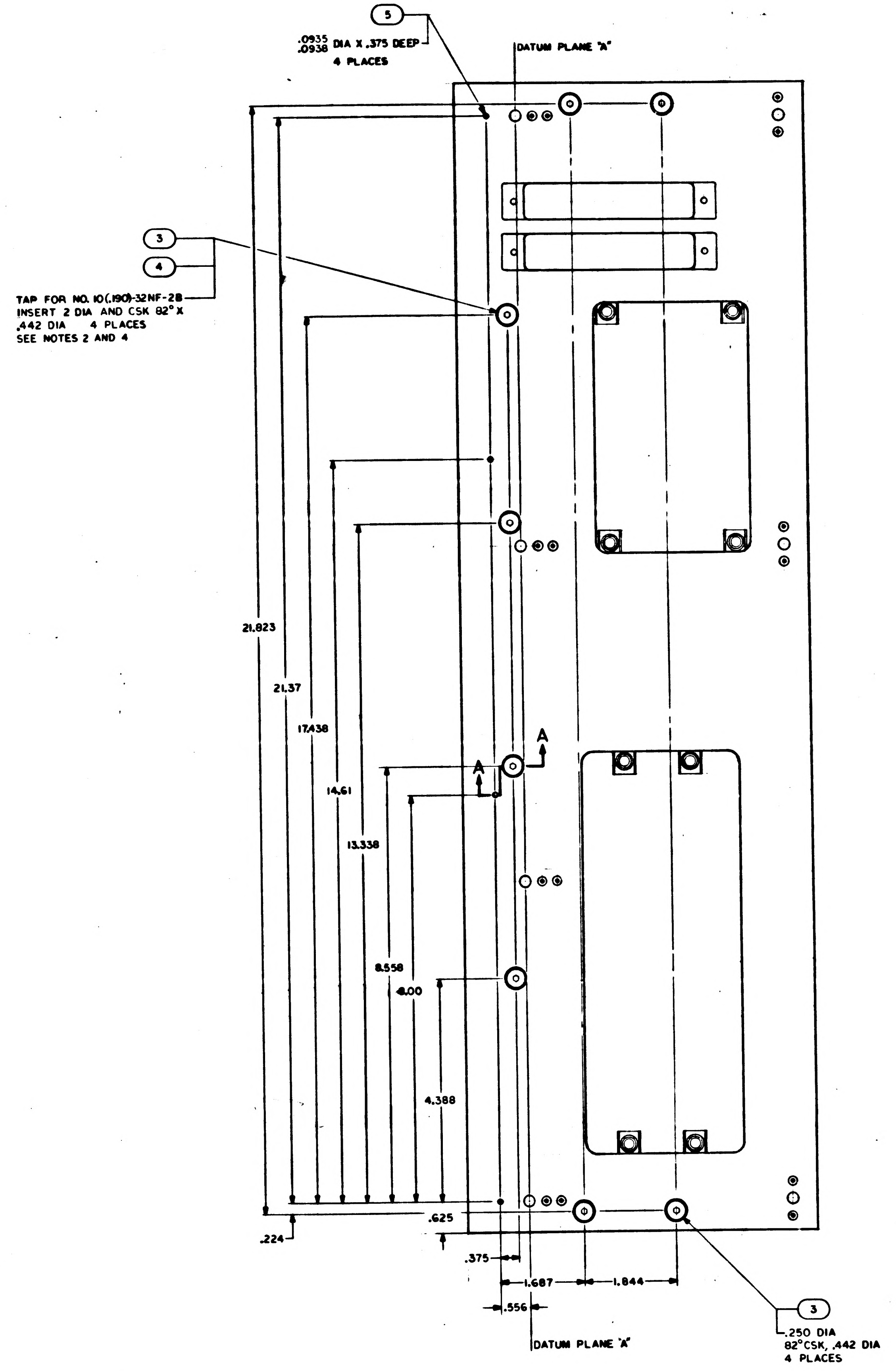
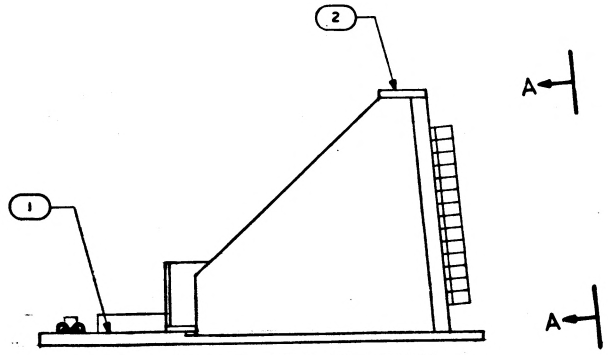

5
.0935
.0938 DIA X .375 DEEP
4 PLACES
DATUM PLANE "A"
3
4
TAP FOR NO. 10(.190)-32NF-2B
INSERT 2 DIA AND CSK 82° X
.442 DIA 4 PLACES
SEE NOTES 2 AND 4
21.823
21.37
17.438
14.61
13.338
8.558
8.00
4.388
A
A
.625
.224
.375
1.687
1.844
.556
DATUM PLANE "A"
3
.250 DIA
82°CSK, .442 DIA
4 PLACES

REV D REPLACES REV C



1007161 E

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE DESCRIPTION
225	1006781-3	CONTACT, WRAPOST, F
225	1006774	INSULATOR, WRAPOST,
720	1010379-5	CONTACT ELEC FEM
720	1010380	INSULATOR, BUSHING
4	1008153	PIN, STEP
4	MS21209-F1-20	INSERT, SCREW LOC
8	1015826-296	SCREW, FLAT HD, HE
1	1008151	FRONT PLATE
1	1008150	BOTTOM PLATE

LIST OF MATERIALS

1014606	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —/— DECIMALS SEE NOTE 5 ANGLES ± 0° 15'
DO NOT SCALE THIS DRAWING
MATERIAL —/—
HEAT TREATMENT —/—
FINAL FINISH —/—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN J. F. [illegible] DATE 25 SEPT 63
CHECKED [illegible] 8 Oct 63
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL W. J. [illegible] 10-8-63
MIT APPROVAL [illegible] 10 Oct 63

MANNED SPACECR
HOUSTON T

END CONNECTOR
PSA

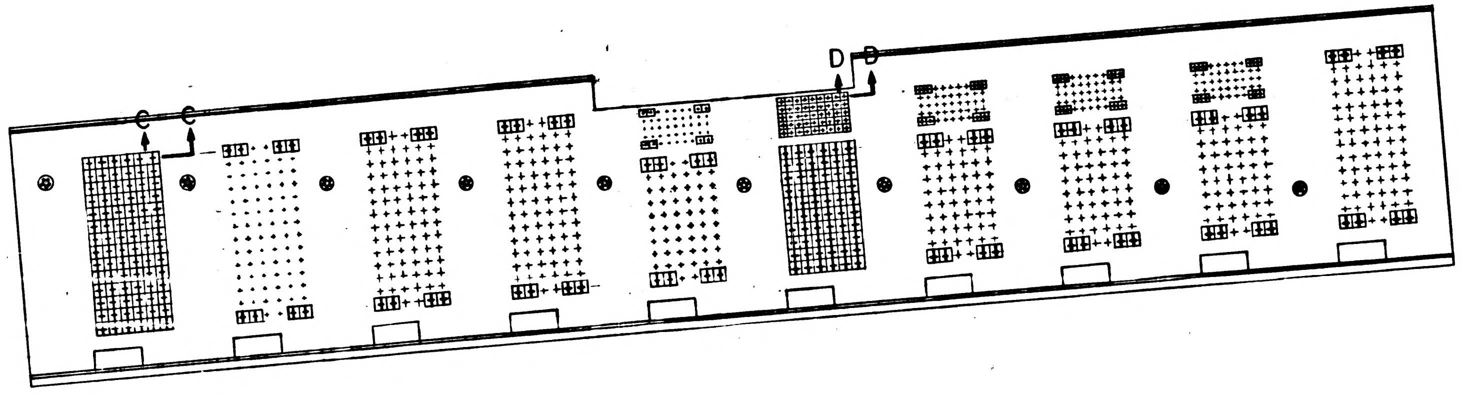
CODE IDENT NO. | SIZE J | 10
SCALE /1 | WT

MASTER

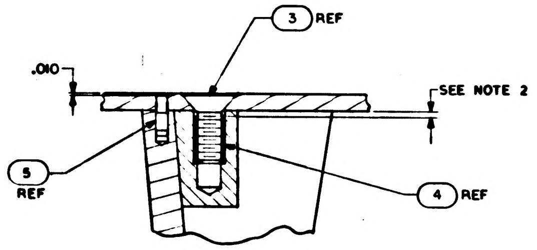
INCHES
PHOTOGRAPHIC SCALE ONLY

1007161

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

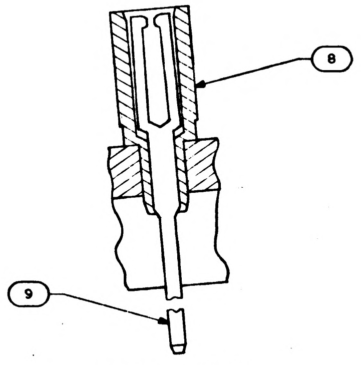


VIEW A-A

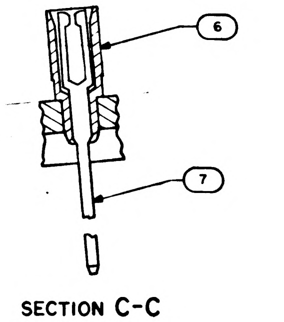


3 REF
.010
SEE NOTE 2
5 REF
4 REF

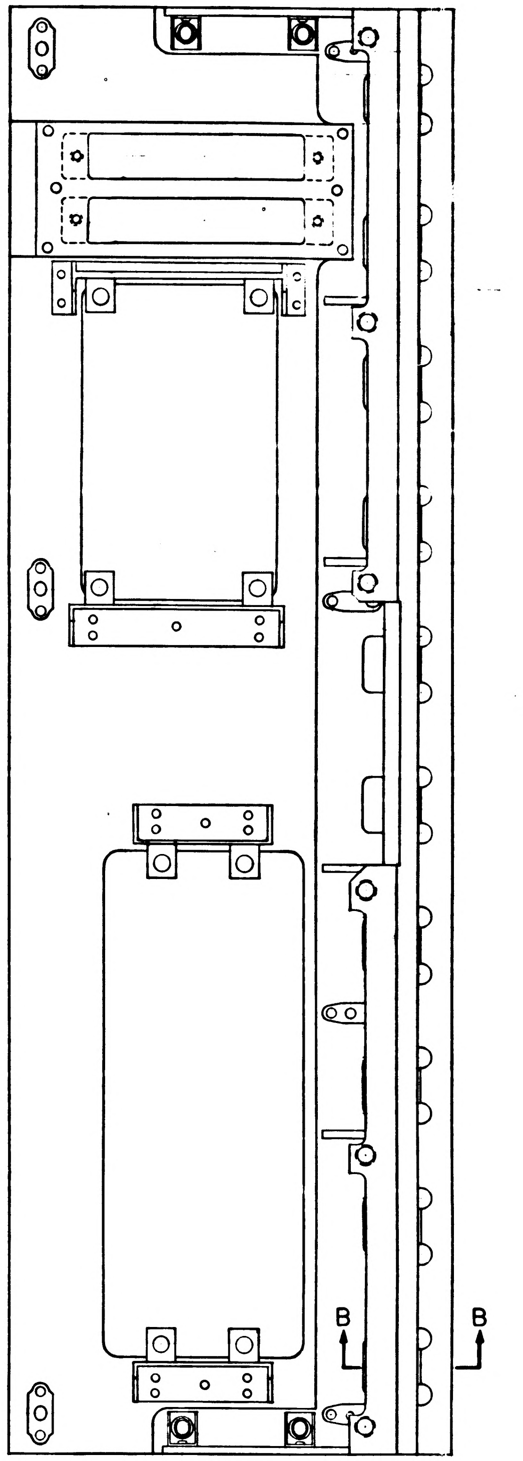
PARTIAL SECTION A-A
SCALE 2/1



SECTION D-D
SCALE 10/1
225 PLACES



SECTION C-C
SCALE 4/1
720 PLACES



FIND NUMBERS 6, 7, 8 AND 9
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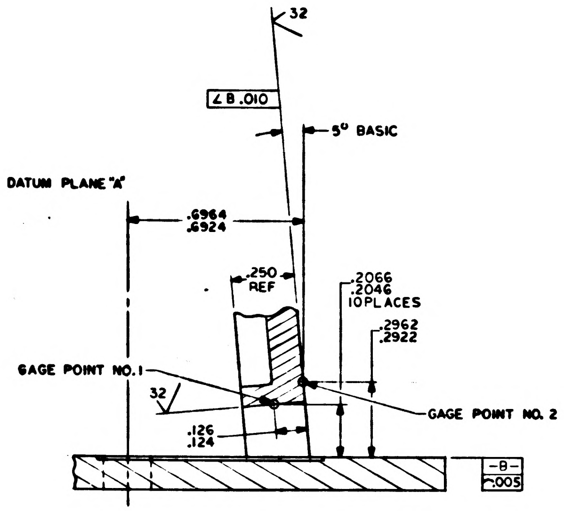
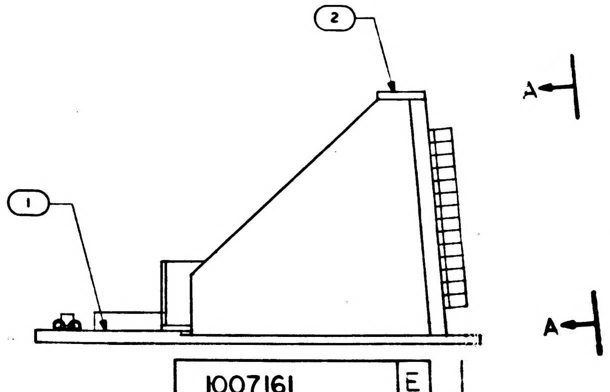


32
∠ B .010
5° BASIC
DATUM PLANE "A"
.6964
.6924
.250
REF
.2066
.2046
10 PLACES
.2962
.2922
GAGE POINT NO. 1
32
GAGE POINT NO. 2
.126
.124
-B-
⌒.005

PARTIAL SECTION B-B
SCALE 4/1

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. INSTALL FIND NO. 4 PER MS33646. BREAK OFF DRIVING TANG
3. INSTALL FIND NOS. 6, 7, 8 AND 9 PER ND1002136
4. COAT THREADS AND FIND NO. 4 WITH MIL-P-8585 WET ZINC CHROMATE PRIMER
5. TOLERANCES: 2 PLACE DECIMALS = ±.010
   3 PLACE DECIMALS = ±.005
6. MOUNTING TORQUE FOR FIND NO. 3 35/40 INCH POUND



1007161	E

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007161	G

REVISIONS 03754

SYM	DESCRIPTION	DATE	APPROVAL
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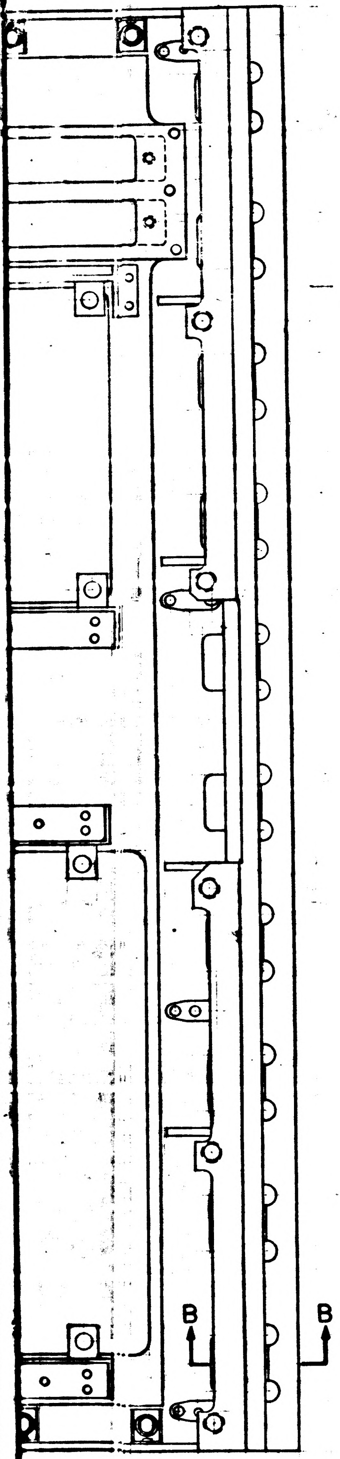
E	REVISED, PER TDRR 04459	[illegible]	[illegible]
F	REVISED PER TDRR 05273	[illegible] 63	wk
G	REVISED PER TDRR 05269	[illegible] 63	wk



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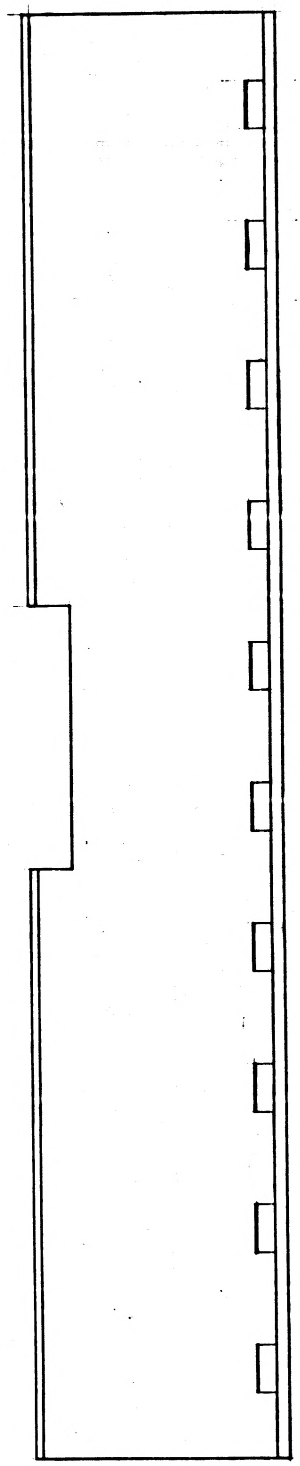
OT SHOWN



FIND NUMBERS 6, 7, 8, AND 9
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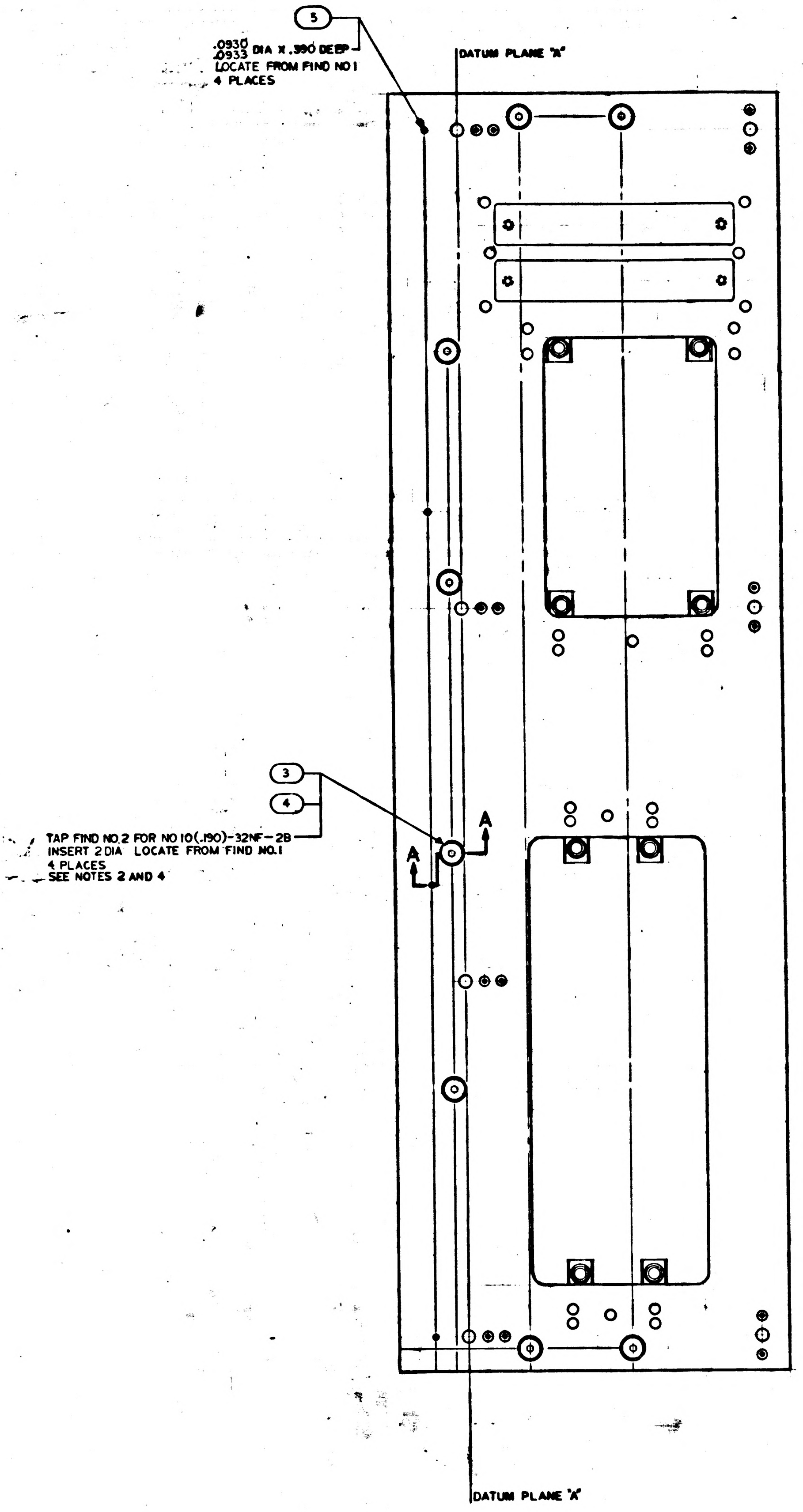
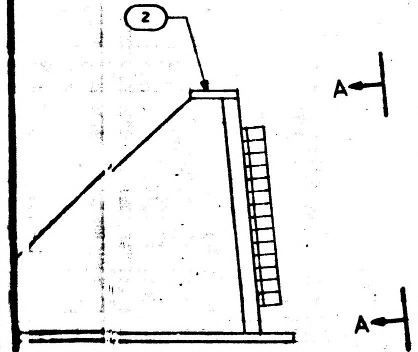

5
.0930
.0933 DIA X .390 DEEP
LOCATE FROM FIND NO 1
4 PLACES
DATUM PLANE "A"
3
4
TAP FIND NO.2 FOR NO 10(.190)-32NF-2B
INSERT 2 DIA LOCATE FROM FIND NO.1
4 PLACES
SEE NOTES 2 AND 4
A
A
DATUM PLANE "A"



REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
225	1006781-3	CONTACT, WRAPOST, FEMALE, MIN	9
225	1006774	INSULATOR, WRAPOST, FEMALE, MIN	8
720	1010379-5	CONTACT ELEC, FEMALE	7
720	1010380	INSULATOR, BUSHING, FEMALE	6
4	1008153	PIN, STEP	5
4	MS21209-F1-20	INSERT, SCREW LOCKING	4
8	1015826-296	SCREW, FLAT HD, HEX SOC	3
1	1008151	FRONT PLATE	2
1	1008150	BOTTOM PLATE	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1014606	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± SEE NOTE 5 ANGLES ± 0° 15'
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DWG NO — CONTRACT
DRAWN J. F[illegible] DATE 25 [illegible] 63
CHECKED R. P. [illegible]
APPROVAL D. R. [illegible] 10-8-63
APPROVAL
NASA APPROVAL W. J. R[illegible] 10-8-63
MIT APPROVAL [illegible] 9 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

END CONNECTOR ASSEMBLY PSA

CODE IDENT NO.	SIZE	NASA DRAWING NO.
	J	1007161

SCALE 1/1 WT SHEET 1 OF 1

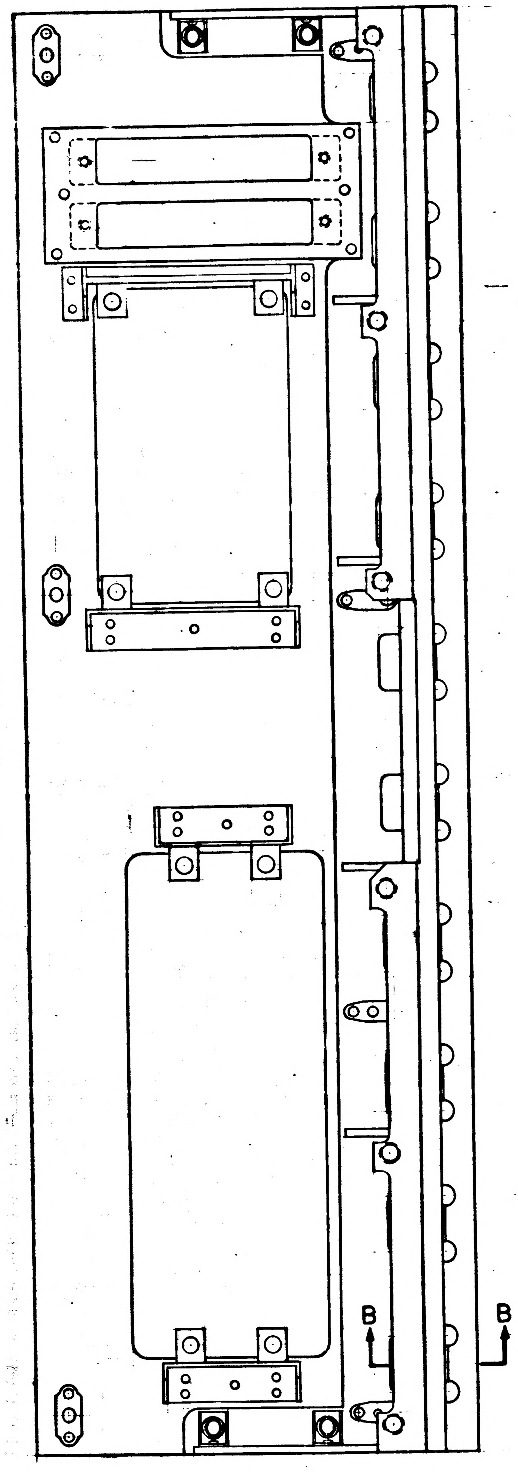
1007161 G

MASTER

3H

REV	DESCRIPTION	DATE	APPROVAL
D	REVISED PER TDRR 04106		
E	REVISED PER TDRR 04459		
F	REVISED PER TDRR 05273		
G	REVISED PER TDRR 05269		

1007161 G



FIND NUMBERS 6, 7, 8 AND 9
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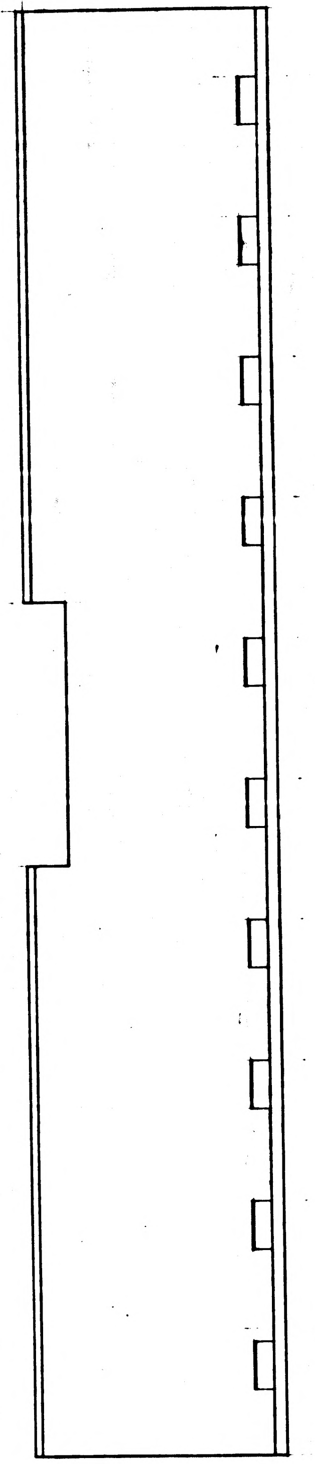

FIND NUMBERS 6, 7, 8, AND 9
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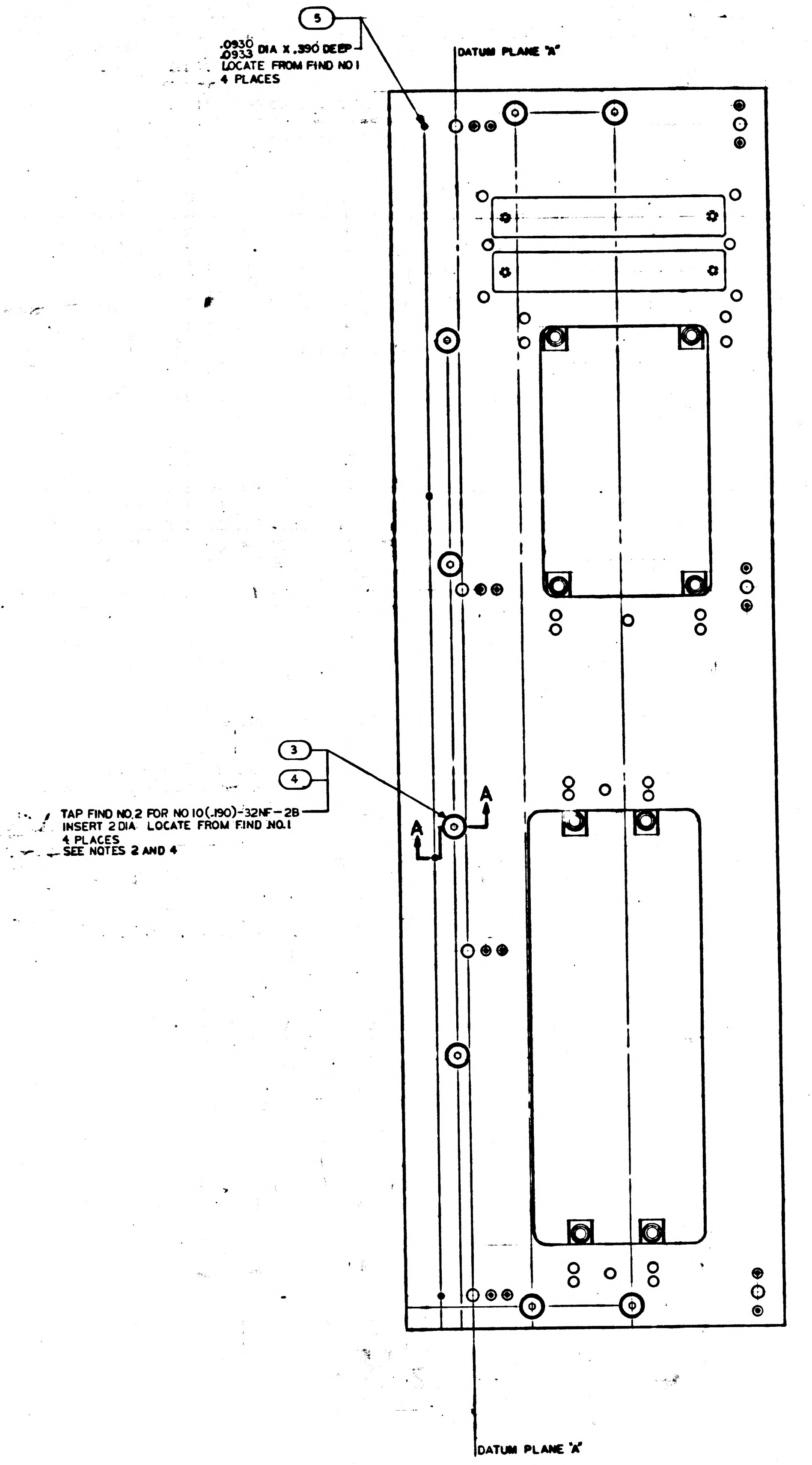
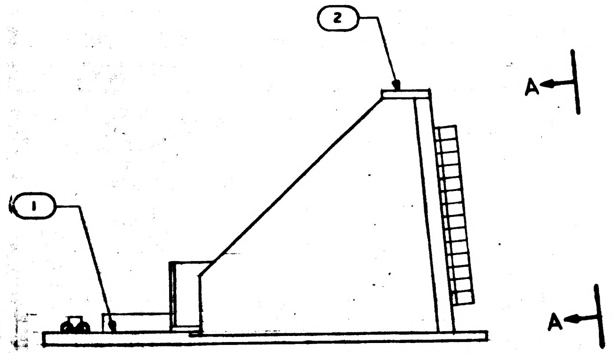

5
.0930 .0933 DIA X .390 DEEP
LOCATE FROM FIND NO 1
4 PLACES
DATUM PLANE "A"
3
4
TAP FIND NO.2 FOR NO 10(.190)-32NF-2B
INSERT 2 DIA LOCATE FROM FIND NO.1
4 PLACES
SEE NOTES 2 AND 4
A
A
DATUM PLANE "A"



REV D REPLACES REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
225	1006781-3	CONTACT, WRAPOST, FEMALE, MIN	9
225	1006774	INSULATOR, WRAPOST, FEMALE, MIN	8
720	1010379-5	CONTACT, ELEC, FEMALE	7
720	1010380	INSULATOR, BUSHING FEMALE	6
4	1008153	PIN, STEP	5
4	MS21209-F1-20	INSERT, SCREW LOCKING	4
8	1015826-296	SCREW, FLAT HD, HEX SOC	3
1	1008151	FRONT PLATE	2
1	1008150	BOTTOM PLATE	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1014606	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± SEE NOTE 5 ANGLES ± 0° 15'
DO NOT SCALE THIS DRAWING
MATERIAL ——
HEAT TREATMENT ——
FINAL FINISH ——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG NO. CONTRACT
DRAWN J. Falgano DATE 18 Sept 63
CHECKED C.C. Kuza Jung 9-24-63
APPROVAL D. B. 10-8-63
APPROVAL
NASA APPROVAL W. J. Rhine 10-8-63
MIT APPROVAL 9-10-63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

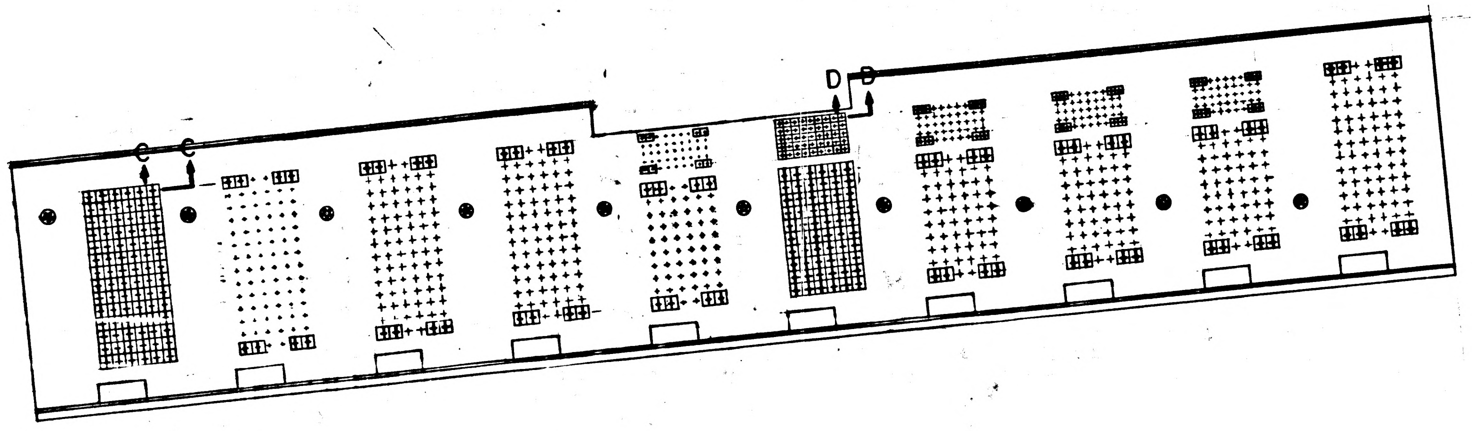
END CONNECTOR ASSEMBLY
PSA

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007161
SCALE 1/1 WT SHEET 1 OF

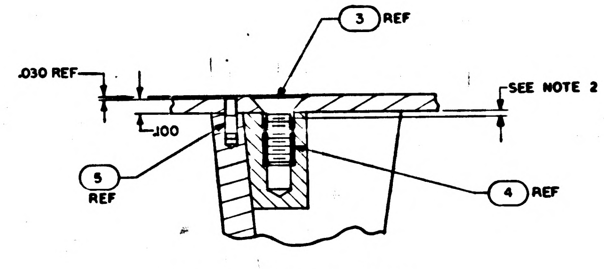
MASTER

1007161 G

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



VIEW A-A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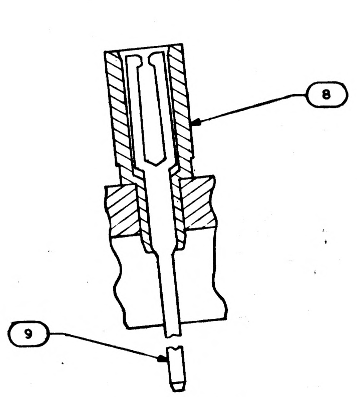
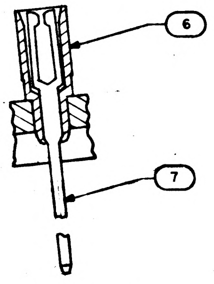
.030 REF
SEE NOTE 2
.100
5 REF
4 REF

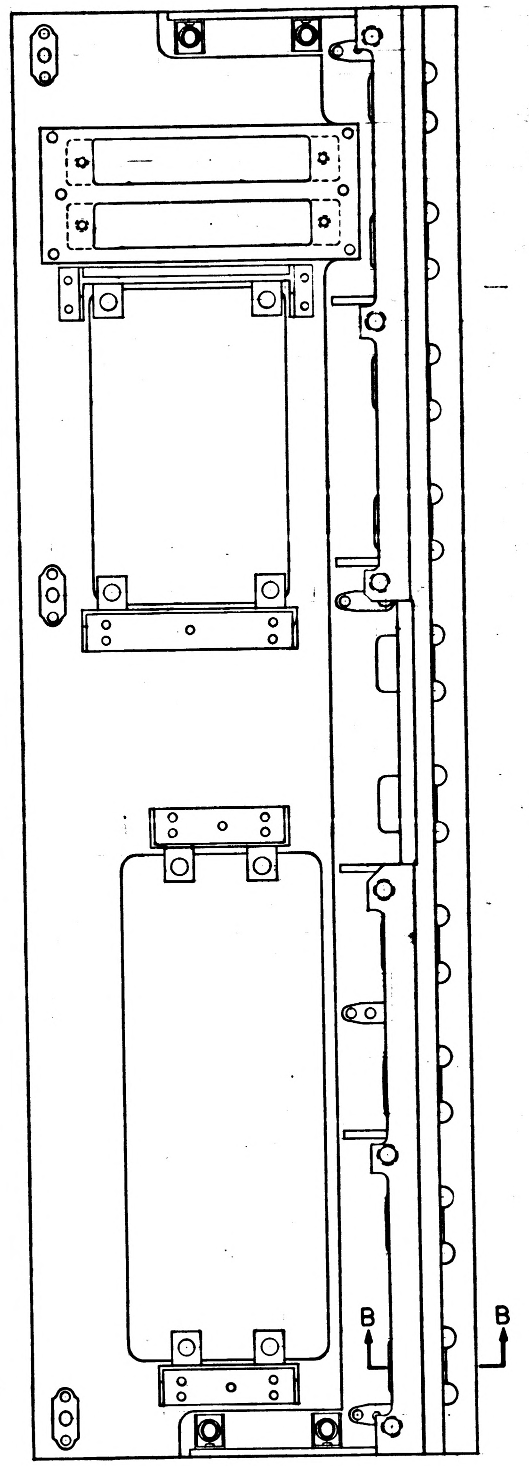
PARTIAL SECTION A-A
SCALE 2/1



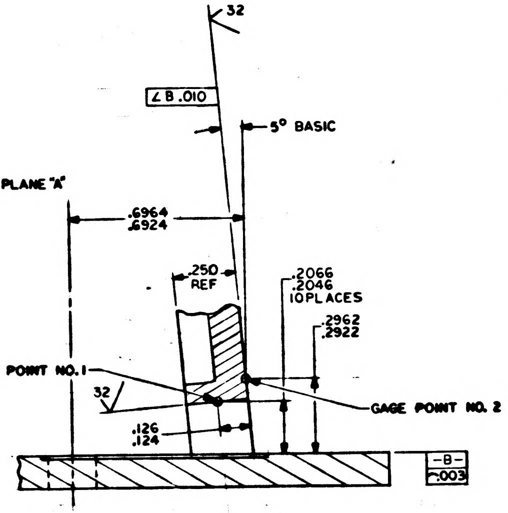
SECTION D-D
SCALE 10/1
225 PLACES



SECTION C-C
SCALE 4/1
720 PLACES



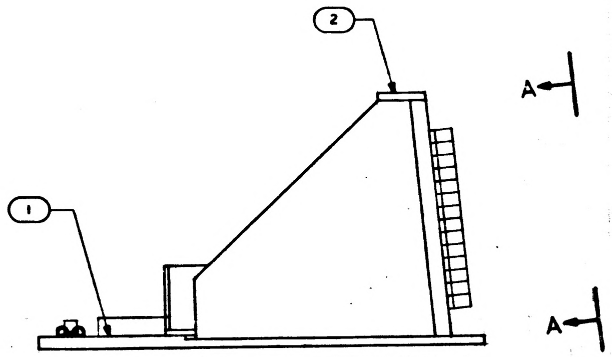
FIND NUMBERS 6, 7, 8 AND 9
NOT SHOWN


32
∠B .010
5° BASIC
DATUM PLANE "A"
.6964
.6924
.250
REF
.2066
.2046
10 PLACES
.2962
.2922
GAGE POINT NO. 1
32
GAGE POINT NO. 2
.126
.124
-B-
⌒.003

PARTIAL SECTION B-B
SCALE 4/1

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. INSTALL FIND NO. 4 PER MS33646. BREAK OFF DRIVING TANG
3. INSTALL FIND NOS. 6, 7, 8 AND 9 PER ND1002136
4. COAT THREADS AND FIND NO. 4 WITH MIL-P-8585 WET ZINC CHROMATE PRIMER
5. TOLERANCES: 2 PLACE DECIMALS = ±.010
   3 PLACE DECIMALS = ±.005
6. MOUNTING TORQUE FOR FIND NO. 3 35/40 INCH POUND
7. AFTER ASSEMBLY AND PINNING OF FIND NUMBERS 1 AND 2, REIDENTIFY THE 1008150 BOTTOM PLATE AS 1007161-1 AND THE 1008151 FRONT PLATE AS 1007161-2. SERIALIZE THESE PARTS PER ND1002023



1007161	G

INCHES
PHOTOGRAPHIC SCALE ONLY

H	1007161

REVISION 03759

SYM	DESCRIPTION	DATE	APPROVAL
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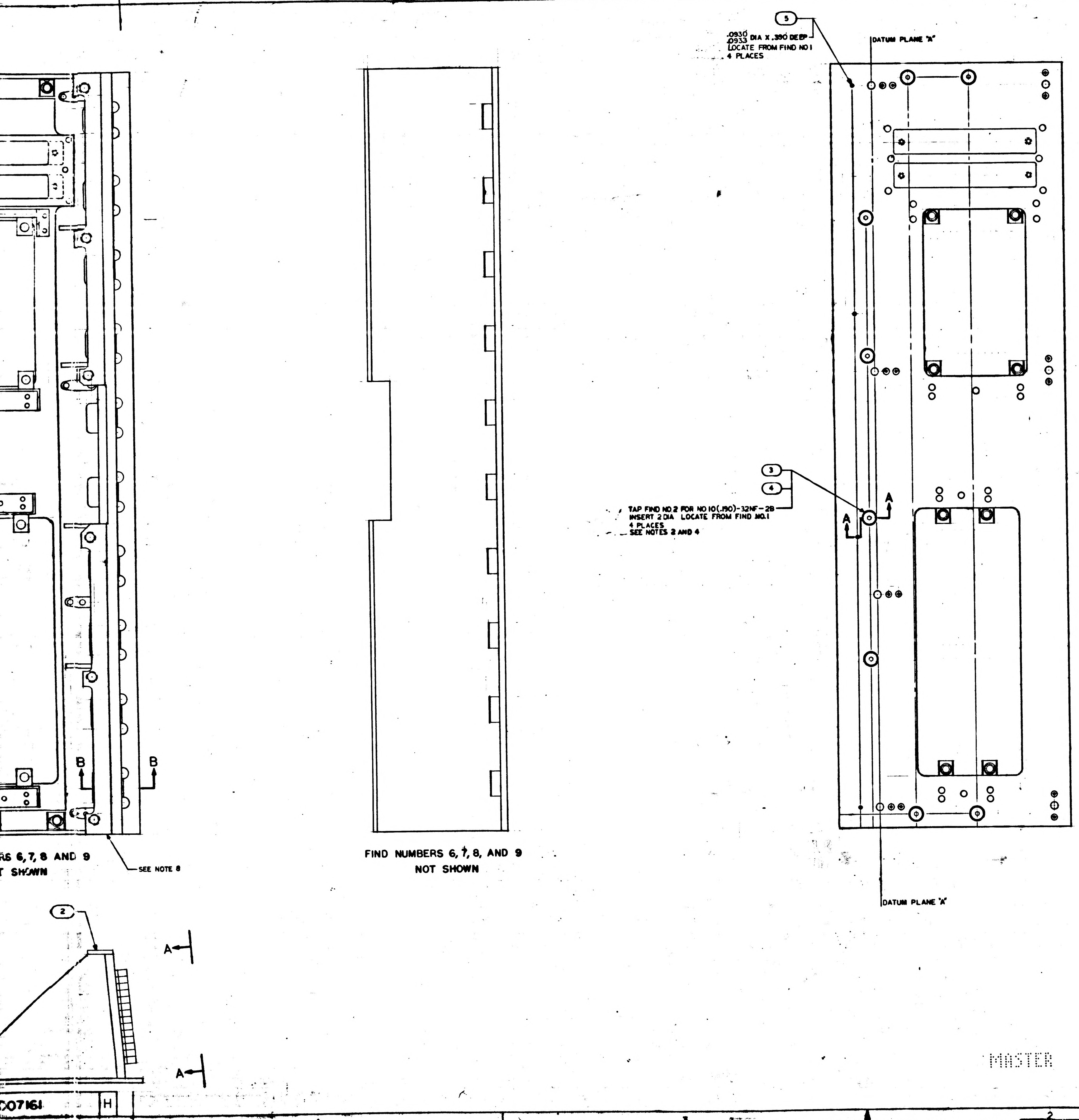
E	REVISED PER TDRR 04459	[illegible]	[illegible]
F	REVISED PER TDRR 05273	[illegible]	WK
G	REVISED PER TDRR 05269	[illegible]	WK
H	REVISED PER TDRR 06803	[illegible]	WK


5
.0930
.0933 DIA X .390 DEEP
LOCATE FROM FIND NO 1
4 PLACES
DATUM PLANE "A"
3
4
TAP FIND NO.2 FOR NO 10(.190)-32NF-2B
INSERT 2 DIA LOCATE FROM FIND NO.1
4 PLACES
SEE NOTES 2 AND 4
A
A
DATUM PLANE "A"
B
B
RS 6, 7, 8 AND 9
T SHOWN
SEE NOTE 8
FIND NUMBERS 6, 7, 8, AND 9
NOT SHOWN
2
A
A
C07161
H

REV D REPLACES REV C

MASTER

1007161

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
225	1006781-3	CONTACT, WRAPOST, FEMALE, MIN	9
225	1006774	INSULATOR, WRAPOST, FEMALE, MIN	8
720	1010379-5	CONTACT, ELEC, FEMALE	7
720	1010380	INSULATOR, BUSHING, FEMALE	6
4	1008153	PIN, STEP	5
4	MS21209-F1-20	INSERT, SCREW LOCKING	4
8	1010731 -296	SCREW, FLAT HD, HEX SOC	3
1	1008151	FRONT PLATE	2
1	1008150	BOTTOM PLATE	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1014606	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS ± SEE NOTE 5
ANGLES ± 0° 15'
DO NOT SCALE THIS DRAWING

MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG NO
CONTRACT

DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible] 10-8-63
APPROVAL
NASA APPROVAL W J [illegible] 10-8-63
MIT APPROVAL [illegible]

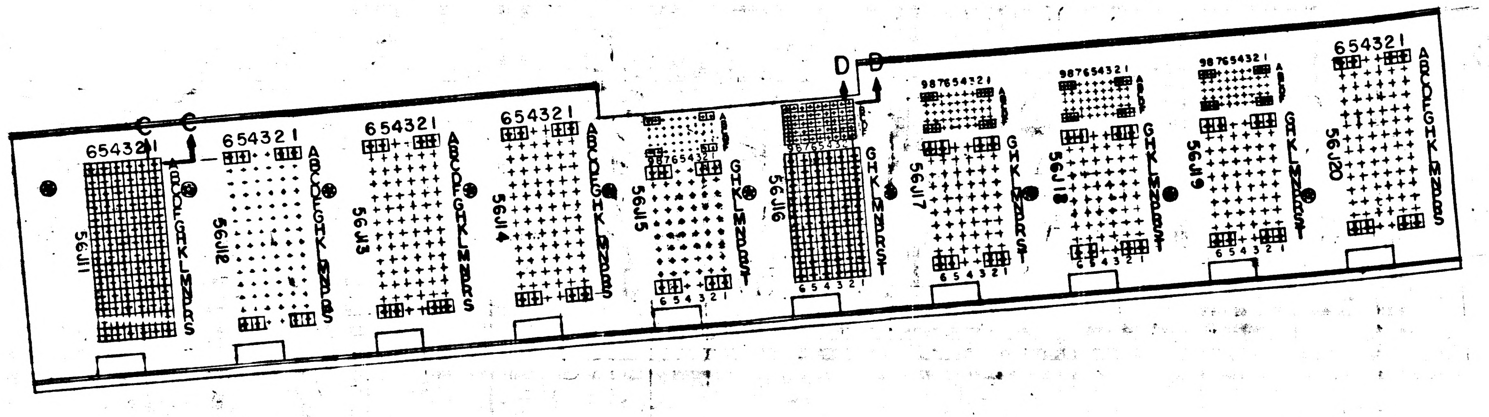
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

END CONNECTOR ASSEMBLY
PSA

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007161
SCALE 1/1
WT
SHEET OF 1

3H

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


C C
D D
654321
ABCDEFGHKLMNPRS
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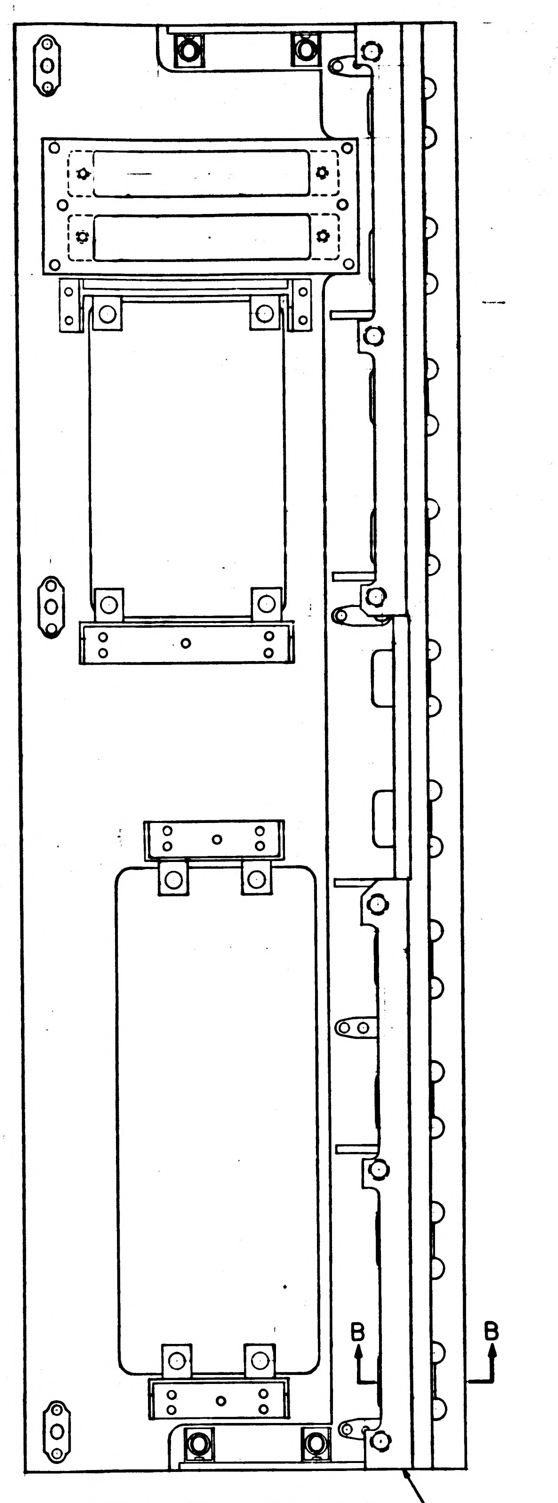
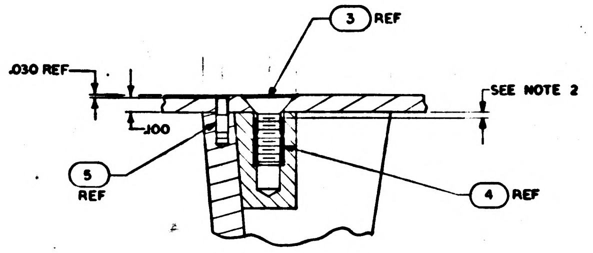
56J20
987654321

VIEW A-A


B
B
SEE NOTE 8

FIND NUMBERS 6, 7, 8 AND 9 NOT SHOWN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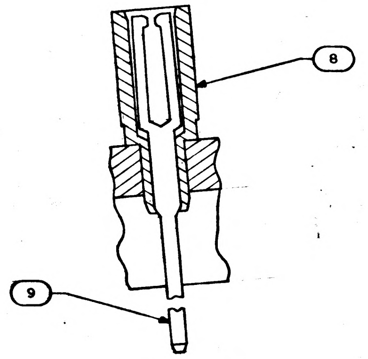
.030 REF
SEE NOTE 2
.100
5 REF
4 REF

PARTIAL SECTION A-A

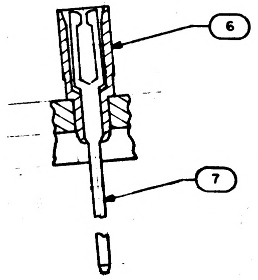
SCALE 2/1



SECTION D-D

SCALE 10/1

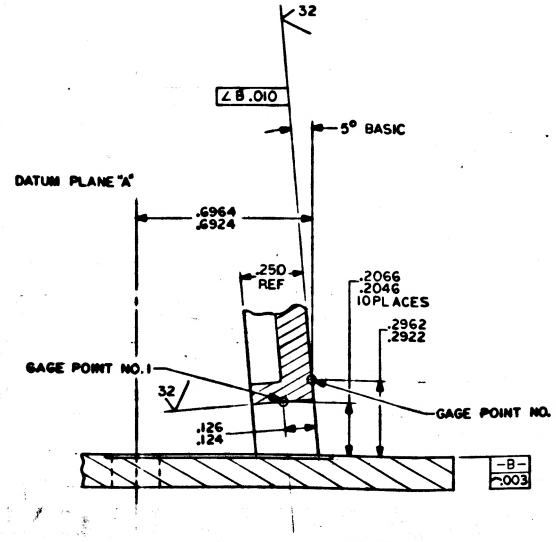
225 PLACES



SECTION C-C

SCALE 4/1

720 PLACES

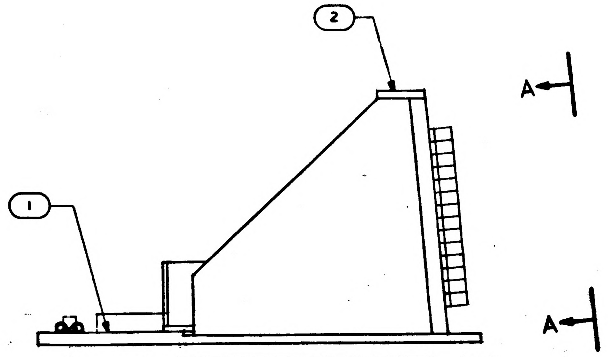

32
∠ B .010
5° BASIC
DATUM PLANE "A"
.6964
.6924
.250
REF
.2066
.2046
10PLACES
.2962
.2922
GAGE POINT NO. 1
GAGE POINT NO. 2
32
.126
.124
-B-
⌒.003

PARTIAL SECTION B-B

SCALE 4/1

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. INSTALL FIND NO. 4 PER MS33646. BREAK OFF DRIVING TANG
3. INSTALL FIND NOS. 6, 7, 8 AND 9 PER ND1002136
4. COAT THREADS AND FIND NO. 4 WITH MIL-P-8585 WET ZINC CHROMATE PRIMER
5. TOLERANCES: 2 PLACE DECIMALS = ±.010
   3 PLACE DECIMALS = ±.005
6. MOUNTING TORQUE FOR FIND NO. 3 35/40 INCH POUND
7. AFTER ASSEMBLY AND PINNING OF FIND NUMBERS 1 AND 2, REIDENTIFY THE 1008150 BOTTOM PLATE AS 1007161-1 AND THE 1008151 FRONT PLATE AS 1007161-2. SERIALIZE THESE PARTS PER ND1002023
8. ALIGNMENT BETWEEN FIND NOS 1 AND 2 TO BE FLUSH TO .010 MISALIGNMENT



1007161 H

INCHES

PHOTOGRAPHIC SCALE ONLY

J	1007161

REVISIONS 03754

SYM	DESCRIPTION	DATE	APPROVAL
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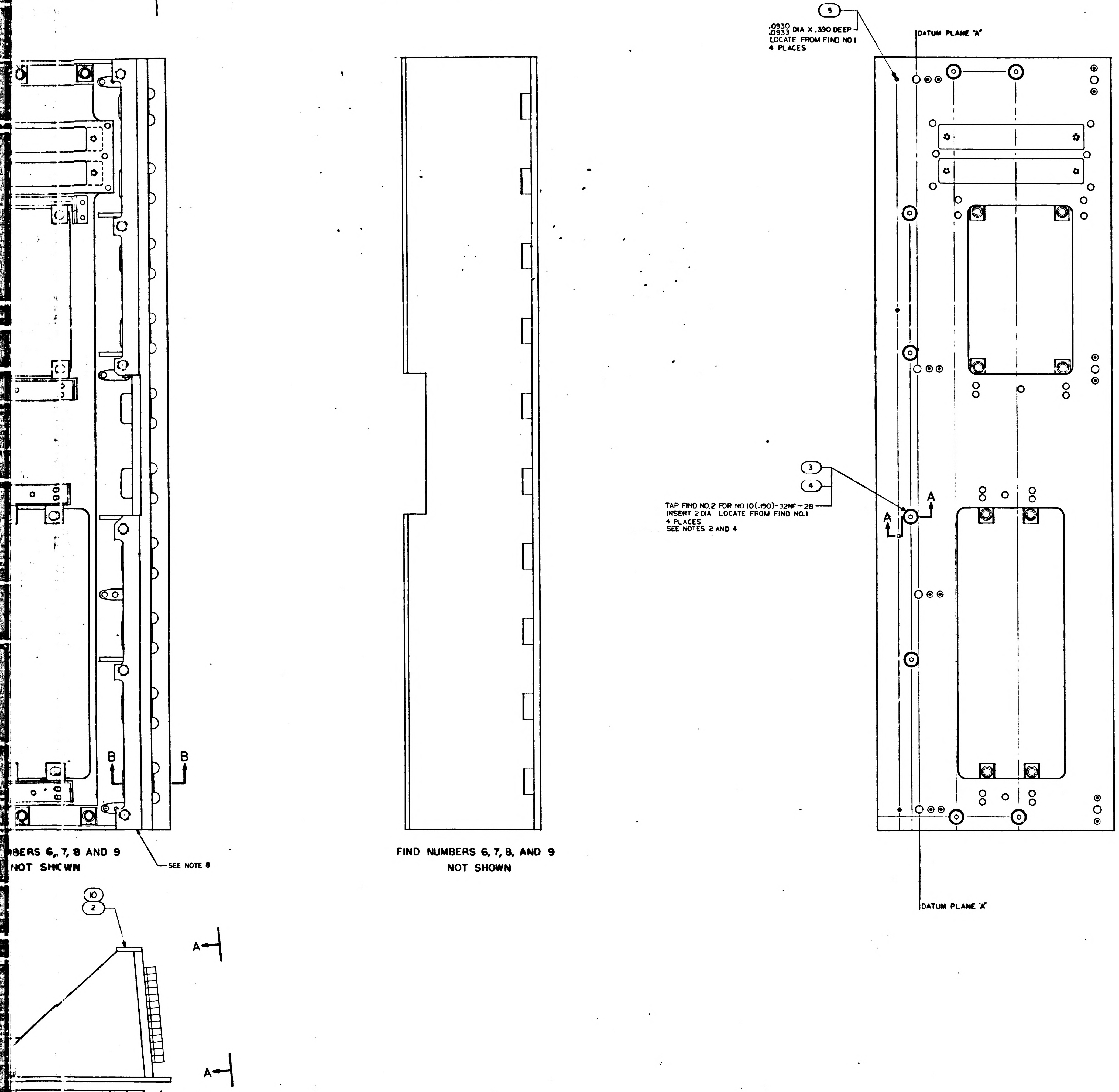
E	REVISED PER TDRR 04459	[illegible]	[illegible]
F	REVISED PER TDRR 05273	17 Dec 63	TFW PPK WK
G	REVISED PER TDRR 05269	17 Dec 63	TFW PPK WK
H	REVISED PER TDRR 06803	[illegible]	PPK WK
J	REVISED PER TDRR 16983	8 MAR 65	[illegible]


5
.0930
.0933 DIA X .390 DEEP
LOCATE FROM FIND NO I
4 PLACES
DATUM PLANE "A"
3
4
TAP FIND NO.2 FOR NO 10(.190)-32NF-2B
INSERT 2 DIA LOCATE FROM FIND NO.1
4 PLACES
SEE NOTES 2 AND 4
A
A
B
B
DATUM PLANE "A"
BERS 6, 7, 8 AND 9
NOT SHOWN
SEE NOTE 8
FIND NUMBERS 6, 7, 8, AND 9
NOT SHOWN
10
2
A
A
1007161
REV LTR J
SH 1

REV D REPLACES REV C

QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
10	–	MS16995-11	SCREW, CAP SOCKET HD. HEX	14
10	–	MS16995-9	SCREW, CAP SOCKET HD. HEX	13
5	–	1021711-002	TRAY STOP	12
5	–	1021711-001	TRAY STOP	11
1	–	1021712	FRONT PLATE	10
225	225	1006781-3	CONTACT, WRAPOST, FEMALE, MIN	9
225	225	1006774	INSULATOR, WRAPOST, FEMALE, MIN	8
720	720	1010379-5	CONTACT ELEC, FEMALE	7
720	720	1010380	INSULATOR, BUSHING, FEMALE	6
4	4	1008153	PIN, STEP	5
4	4	MS21209-F1-20	INSERT, SCREW LOCKING	4
8	8	1010731 -296	SCREW, FLAT HD, HEX SOC	3
–	1	1008151	FRONT PLATE	2
1	1	1008150	BOTTOM PLATE	1
011	000	LIST OF MATERIALS		

1014606	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —++—
DECIMALS ± SEE NOTE 5
ANGLES ± 0° 15'
DO NOT SCALE THIS DRAWING
MATERIAL —++—
HEAT TREATMENT —++—
FINAL FINISH —++—

M I T
INSTRUMENTATION LAB
Cambridge Mass
DWG NO CONTRACT
DRAWN J. Falgano DATE 25 Sept 63
CHECKED R.P. Kingsbury 8 Oct 63
APPROVAL D. B. [illegible] 10-8-63
APPROVAL
NASA APPROVAL W J [illegible] 10-8-63
MIT APPROVAL [illegible] 9 Oct 63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

END CONNECTOR ASSEMBLY
PSA

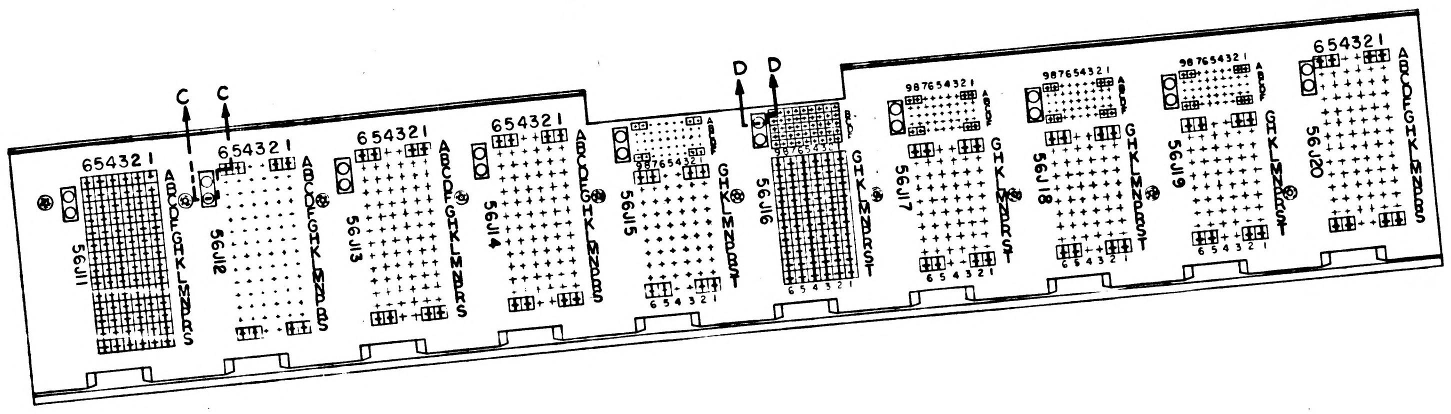
CODE IDENT NO.	SIZE	NASA DRAWING NO.
	J	1007161
SCALE 1/1	WT	SHEET 1 OF 1

1007161

3H

2/1007161

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO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C
D
D
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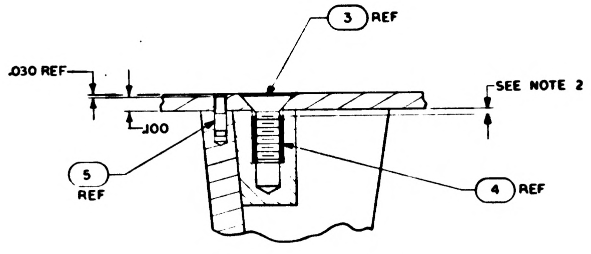
56J18
56J19
56J20
987654321
654321

VIEW A-A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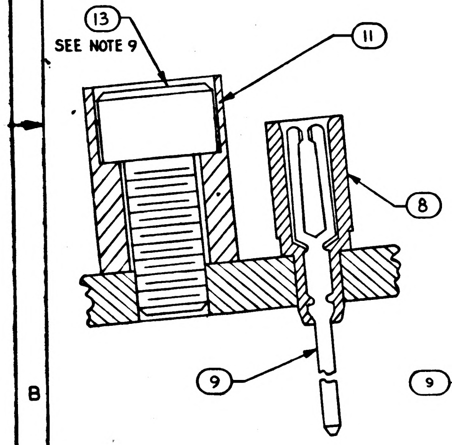
3 REF
SEE NOTE 2
.100
5 REF
4 REF

PARTIAL SECTION A-A
SCALE 2/1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SEE NOTE 9
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8
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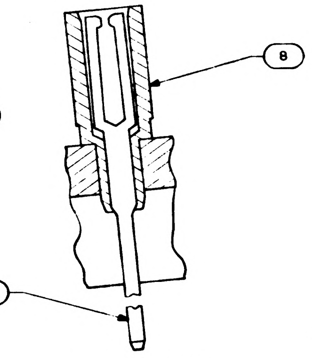
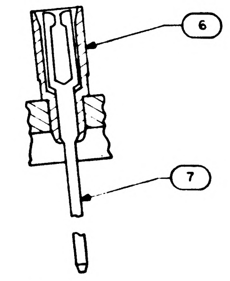
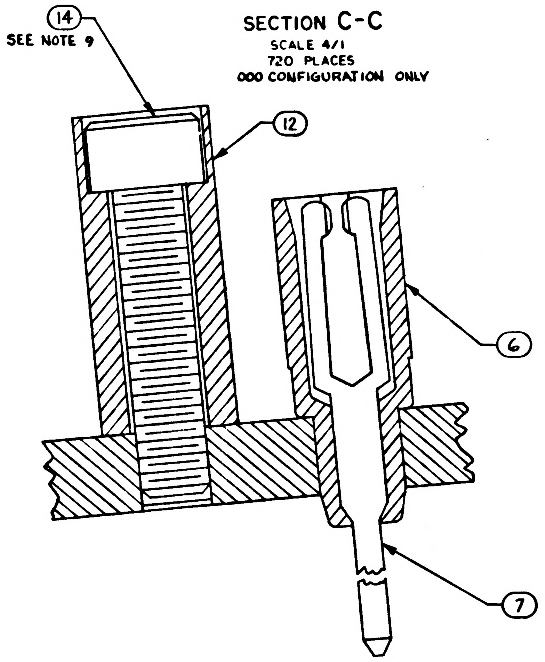
PARTIAL SECTION D-D
SCALE 10/1
011 CONFIGURATION ONLY



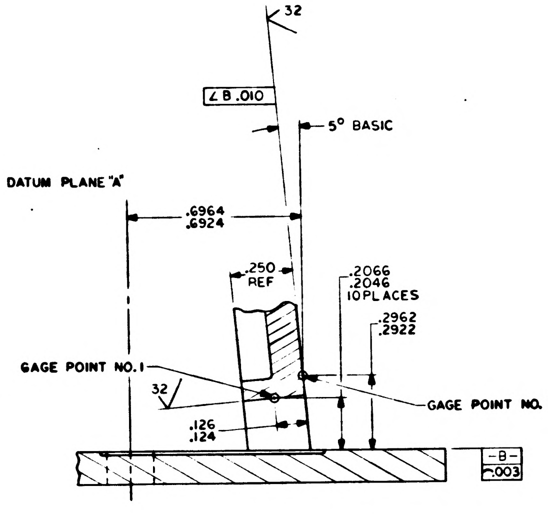
SECTION D-D
SCALE 10/1
225 PLACES
000 CONFIGURATION ONLY



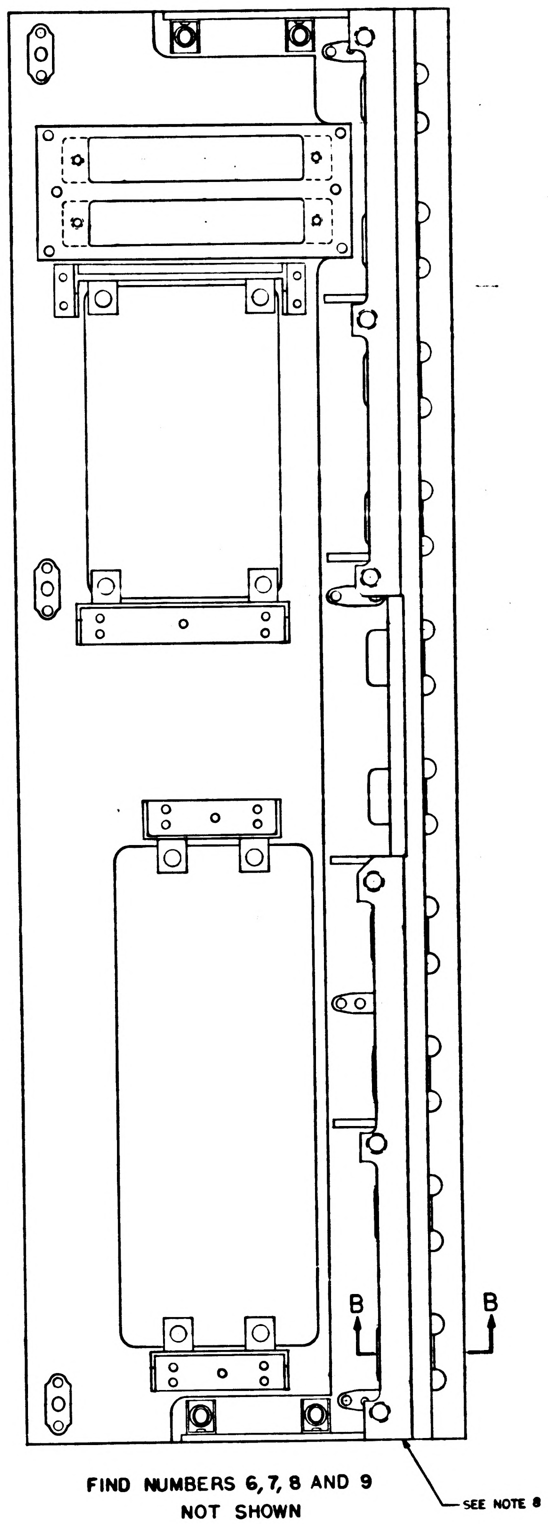
SECTION C-C
SCALE 4/1
720 PLACES
000 CONFIGURATION ONLY


14
SEE NOTE 9
12
6
7

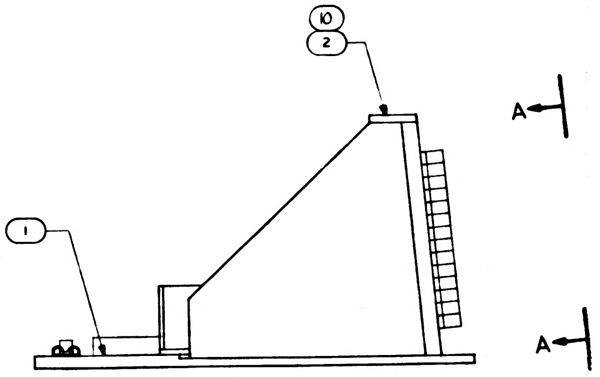
PARTIAL SECTION C-C
SCALE 10/1
011 CONFIGURATION ONLY


32
⏥ B .010
5° BASIC
DATUM PLANE "A"
.6964
.6924
.250 REF
.2066
.2046
10 PLACES
.2962
.2922
GAGE POINT NO. 1
GAGE POINT NO. 2
32
.126
.124
-B-
.003

PARTIAL SECTION B-B
SCALE 4/1

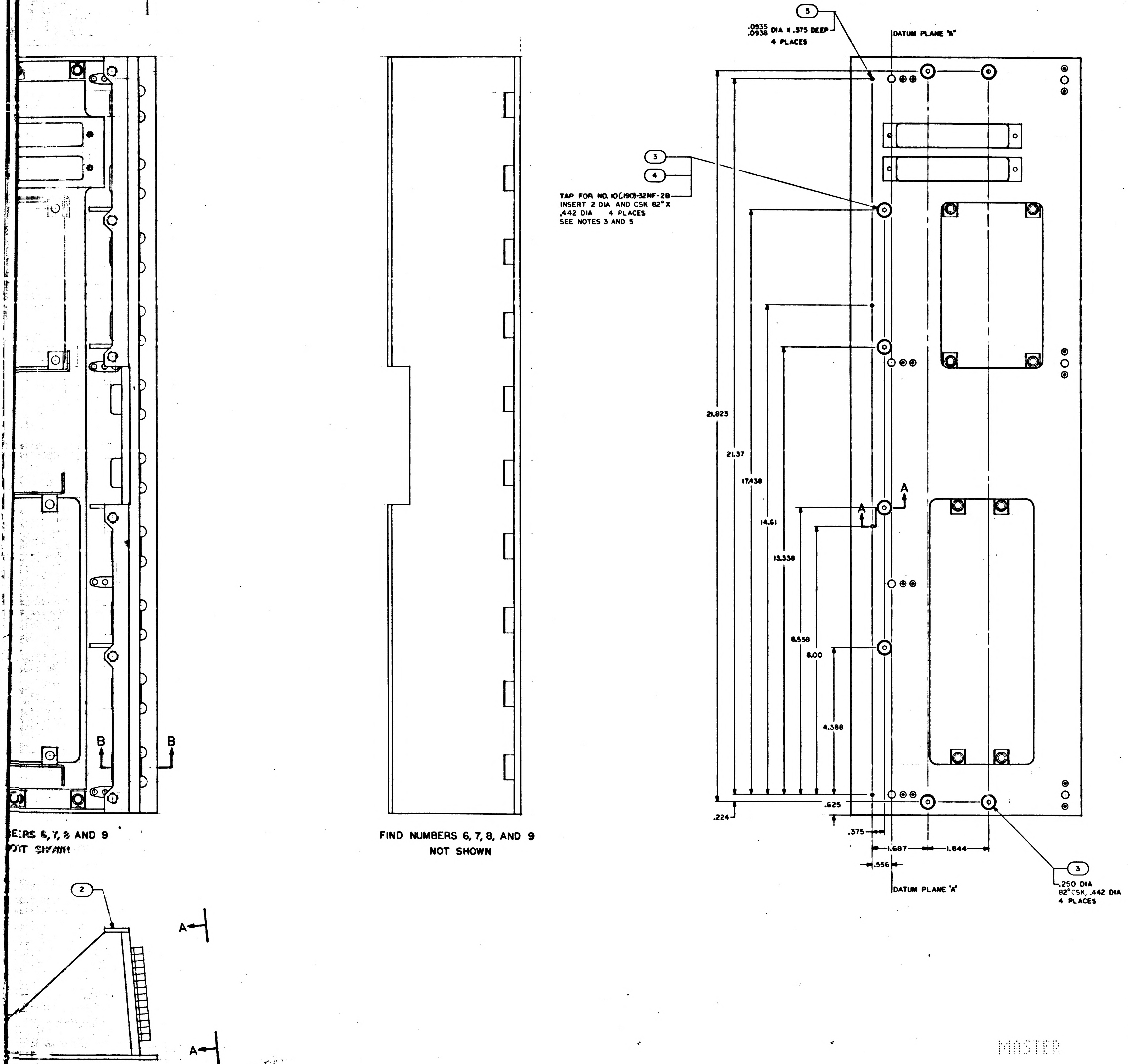

B
B
SEE NOTE 8

FIND NUMBERS 6, 7, 8 AND 9
NOT SHOWN



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. INSTALL FIND NO. 4 PER MS33646. BREAK OFF DRIVING TANG
3. INSTALL FIND NOS. 6, 7, 8 AND 9 PER ND1002136
4. COAT THREADS AND FIND NO. 4 WITH MIL-P-8585 WET ZINC CHROMATE PRIMER
5. TOLERANCES: 2 PLACE DECIMALS = ±.010
3 PLACE DECIMALS = ±.005
6. MOUNTING TORQUE FOR FIND NO. 3 35/40 INCH POUND
7. AFTER ASSEMBLY AND PINNING OF FIND NUMBERS 1 AND 2, REIDENTIFY THE 1008150 BOTTOM PLATE AS 1007161-1 AND THE 1008151 FRONT PLATE AS 1007161-2. SERIALIZE THESE PARTS PER ND1002023
8. ALIGNMENT BETWEEN FIND NOS 1 AND 2 AND BETWEEN FIND NOS 1 AND 10 TO BE FLUSH TO .010 MISALIGNMENT.
9. APPLY SEALING COMPOUND MIL-S-22473, GRADE C.

1007161	REV LTR J	SH 1


5
.0935
.0938 DIA X .375 DEEP
4 PLACES
DATUM PLANE "A"
3
4
TAP FOR NO. 10(.190)-32NF-2B
INSERT 2 DIA AND CSK 82° X
.442 DIA 4 PLACES
SEE NOTES 3 AND 5
21.823
21.37
17.438
14.61
13.338
8.558
8.00
4.388
.224
.625
.375
1.687
1.844
.556
A
A
3
.250 DIA
82° CSK, .442 DIA
4 PLACES
DATUM PLANE "A"
B
B
BERS 6, 7, 8 AND 9
OT SHOWN
FIND NUMBERS 6, 7, 8, AND 9
NOT SHOWN
2
A
A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
225	1006781-3	CONTACT, WRAPOST, FEMALE, MIN	9
225	1006774	INSULATOR, WRAPOST, FEMALE, MIN	8
720	1010379-5	CONTACT, ELEC, FEMALE	7
720	1010380	INSULATOR, BUSHING, FEMALE	6
4	1008153	PIN, STEP	5
4	MS21209-F1-20	INSERT, SCREW LOCKING	4
8	1015826-296	SCREW, FLAT HD, HEX SOC	3
1	1008151	FRONT PLATE	2
1	1008150	BOTTOM PLATE	1

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± SEE NOTE 7 — ANGLES ± 0° 15'
DO NOT SCALE THIS DRAWING

MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT

DRAWN J. Falzone DATE 25 Sep 63
CHECKED R.P. Kingsbury 10-1-63
APPROVAL 10-2-63
APPROVAL
NASA APPROVAL W J Rhine 10-8-63
MIT APPROVAL 10-4-63

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

END CONNECTOR ASSEMBLY PSA

CODE IDENT NO. | SIZE J | NASA DRAWING NO. 1007161
SCALE 1/1 | WT | SHEET 1 OF 1

REVISIONS

1007161

MASTER

(3N)

1007161

REVISIONS TORR 01476

ZONE	SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DESCRIPTION	REQD.
1010379-5	Contact, Electrical, Female Wrapost	1088*
1010380	Insulator, Bushing, Female Wrapost	1088*
1006781-3	Contact, Wrapost, Female, Miniature	135
1006774	Insulator, Wrapost, Female, Miniature	135

* NOTE: THESE NUMBERS INCLUDE 500 CONTACTS AND 500 INSULATORS USED IN THE PSA/COMPUTER HARNESS CONNECTOR.

QTY. REQD.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTES	FIND NO.

LIST OF PARTS AND MATERIALS

MASTER

NEXT ASSY	USED ON
1014606	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL:

MIT
INSTRUMENTATION LAB
CONTRACT
NAS 9-153
APPROVED 7-2-63
CHECKED
DRAWN
APPROVED FOR MSC 7/2/63
MIT/IL APPROVAL DATE

PSA JUNCTION BOX
ASSEMBLY

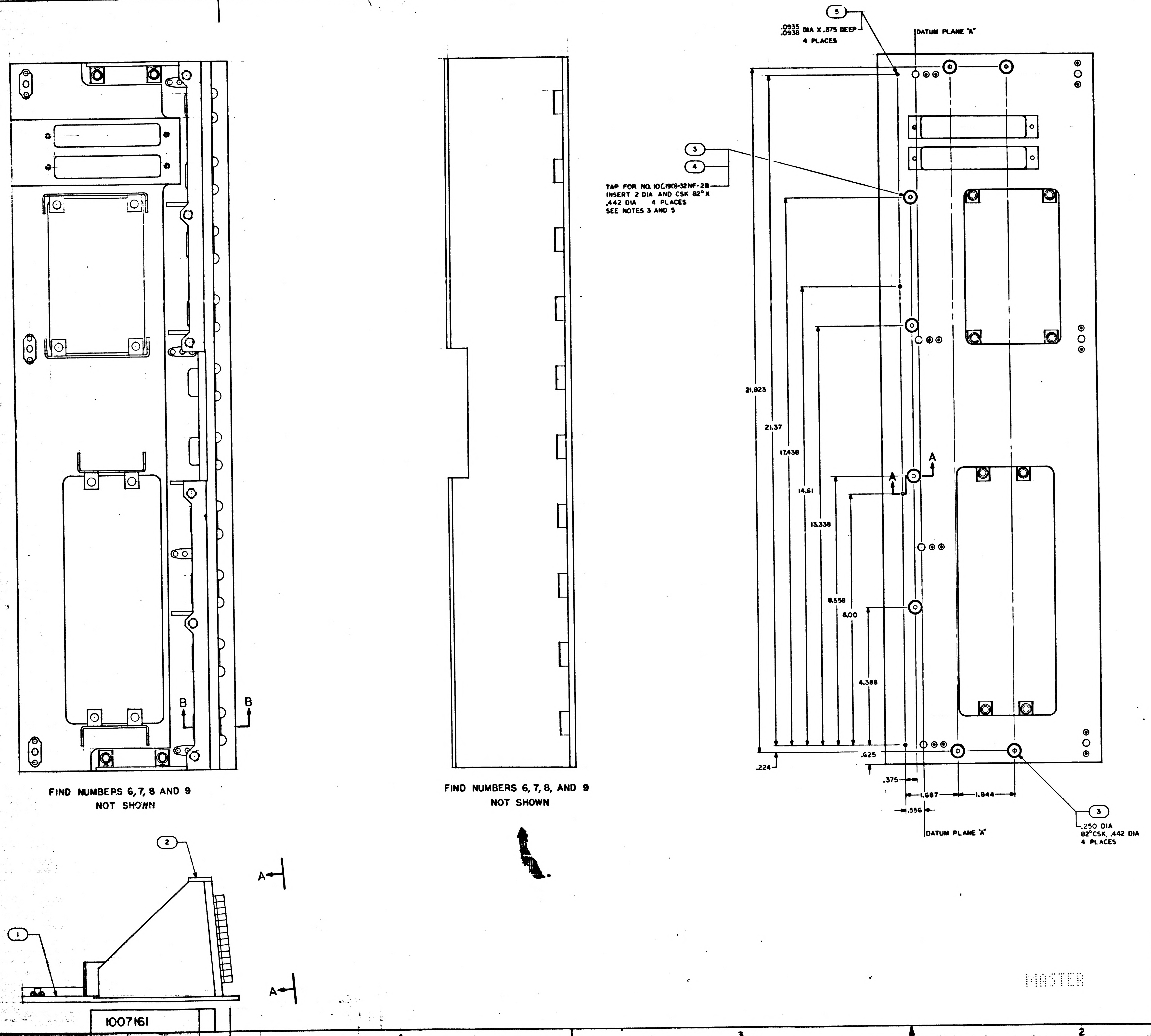
SCALE
UNIT WT.
CODE IDENT.

MIT
INSTRUMENTATION
LABORATORY
CAMBRIDGE, MASS.
DWG. NO.
MANNED
SPACECRAFT CENTER
HOUSTON TEXAS
NASA DRAWING NO.
1007161
SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

1007161

REVISIONS
SYM | DESCRIPTION | DATE | APPROVED
Δ3759


5
4
3
2
FIND NUMBERS 6, 7, 8 AND 9
NOT SHOWN
B
B
FIND NUMBERS 6, 7, 8, AND 9
NOT SHOWN
5
.0935
.0938 DIA X .375 DEEP
4 PLACES
DATUM PLANE "A"
3
4
TAP FOR NO. 10(.190)-32NF-2B
INSERT 2 DIA AND CSK 82° X
.442 DIA 4 PLACES
SEE NOTES 3 AND 5
21.823
21.37
17.438
14.61
13.338
8.558
8.00
4.388
A
A
.625
.224
.375
1.687
1.844
.556
DATUM PLANE "A"
3
.250 DIA
82° CSK, .442 DIA
4 PLACES
2
1
A
A
1007161

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
225	1006781-3	CONTACT, WRAPOST, FEMALE, MIN
225	1006774	INSULATOR, WRAPOST, FEMALE, MIN
720	1010379-5	CONTACT, ELE , FEMALE
720	1010380	INSULATOR, BUSHING, FEMALE
4	1008153	PIN, STEP
4	MS21209-F1-20	INSERT, SCREW, LOCKING
8	1015826-296	SCREW, FLAT HD, HEX SOC
1	1008151	FRONT PLATE
1	1008150	BOTTOM PLATE

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —//— DECIMALS SEE NOTE 7 ANGLES ± 0° 15'
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN J. F. [illegible] DATE
CHECKED R. P. [illegible]
APPROVAL [illegible] 10-8-62
APPROVAL
NASA APPROVAL W. J. [illegible] 10-8-63
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

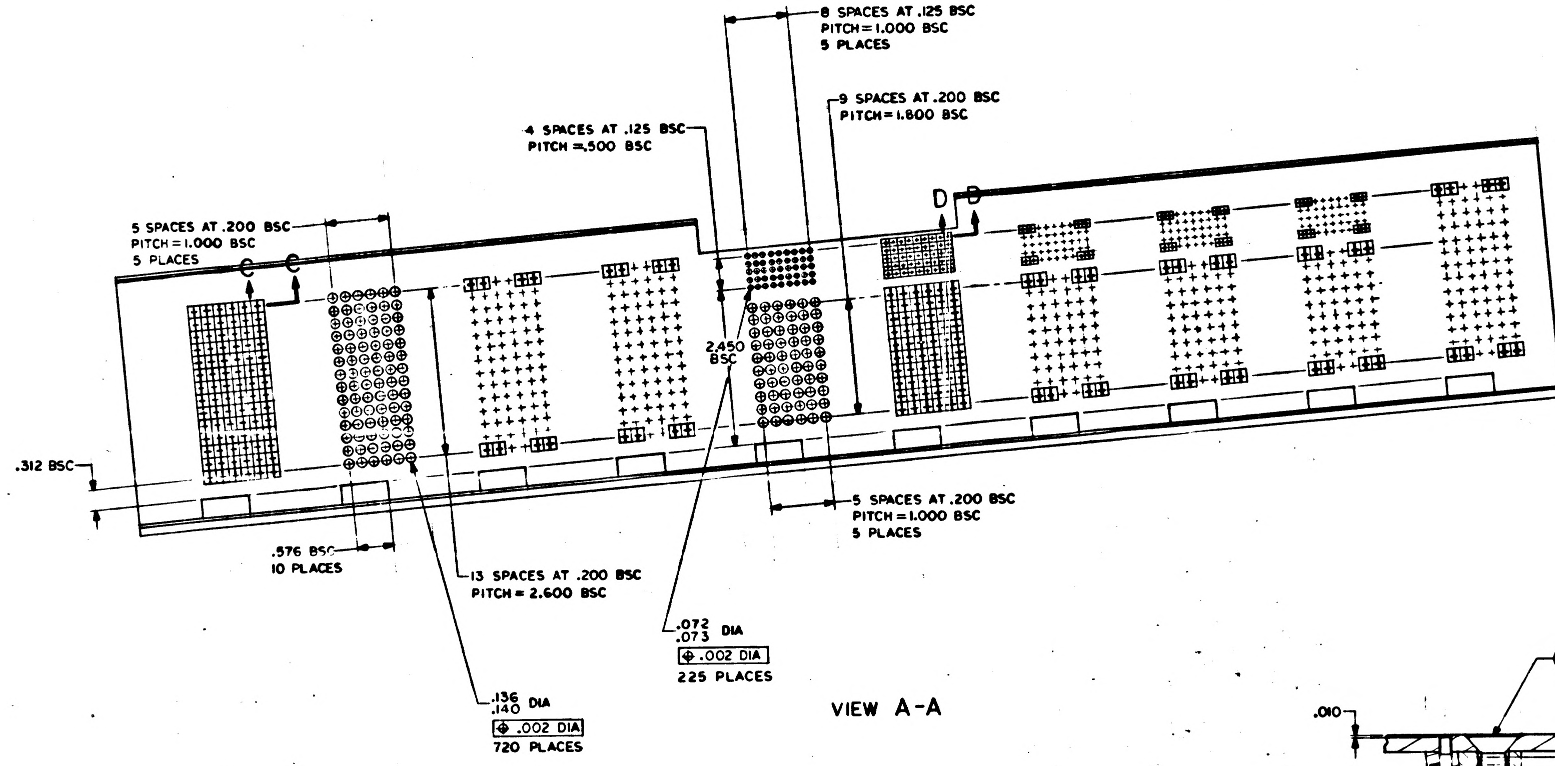
END CONNECTOR ASSEM
PSA

CODE IDENT NO. | SIZE J | NASA DRAWING NO. 1007161
SCALE 1/1 | WT

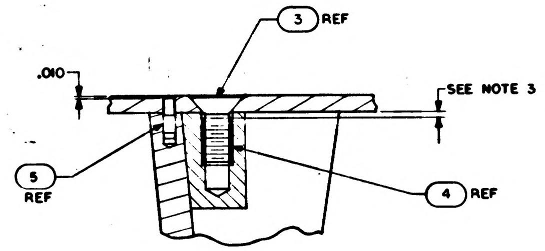
MASTER

INCHES
PHOTOGRAPHIC SCALE ONLY

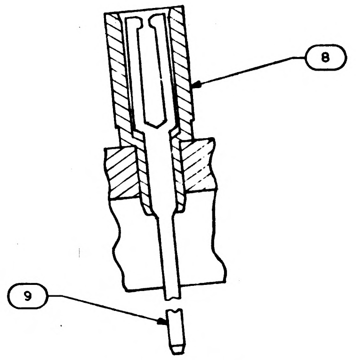
E-2


8 SPACES AT .125 BSC
PITCH = 1.000 BSC
5 PLACES
9 SPACES AT .200 BSC
PITCH = 1.800 BSC
4 SPACES AT .125 BSC
PITCH = .500 BSC
D
D
5 SPACES AT .200 BSC
PITCH = 1.000 BSC
5 PLACES
C
C
2.450 BSC
.312 BSC
.576 BSC
10 PLACES
5 SPACES AT .200 BSC
PITCH = 1.000 BSC
5 PLACES
13 SPACES AT .200 BSC
PITCH = 2.600 BSC
.072
.073 DIA
⌖ .002 DIA
225 PLACES
.136
.140 DIA
⌖ .002 DIA
720 PLACES

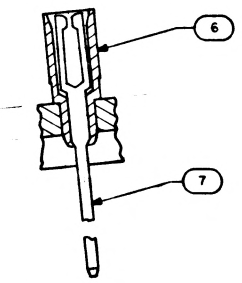
VIEW A-A


3 REF
.010
SEE NOTE 3
5
REF
4 REF

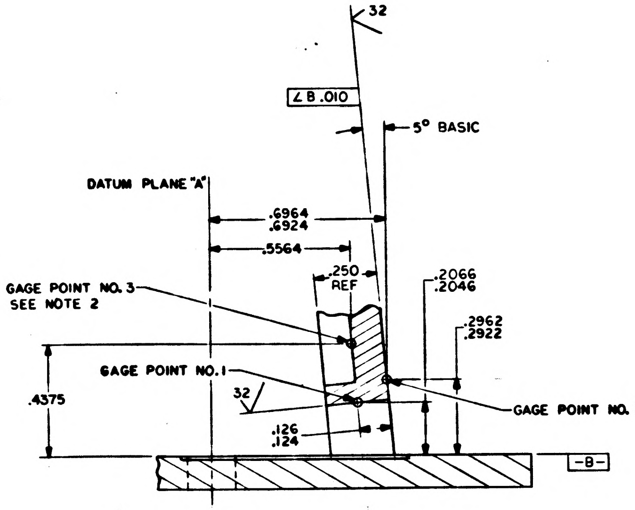
PARTIAL SECTION A-A
SCALE 2/1



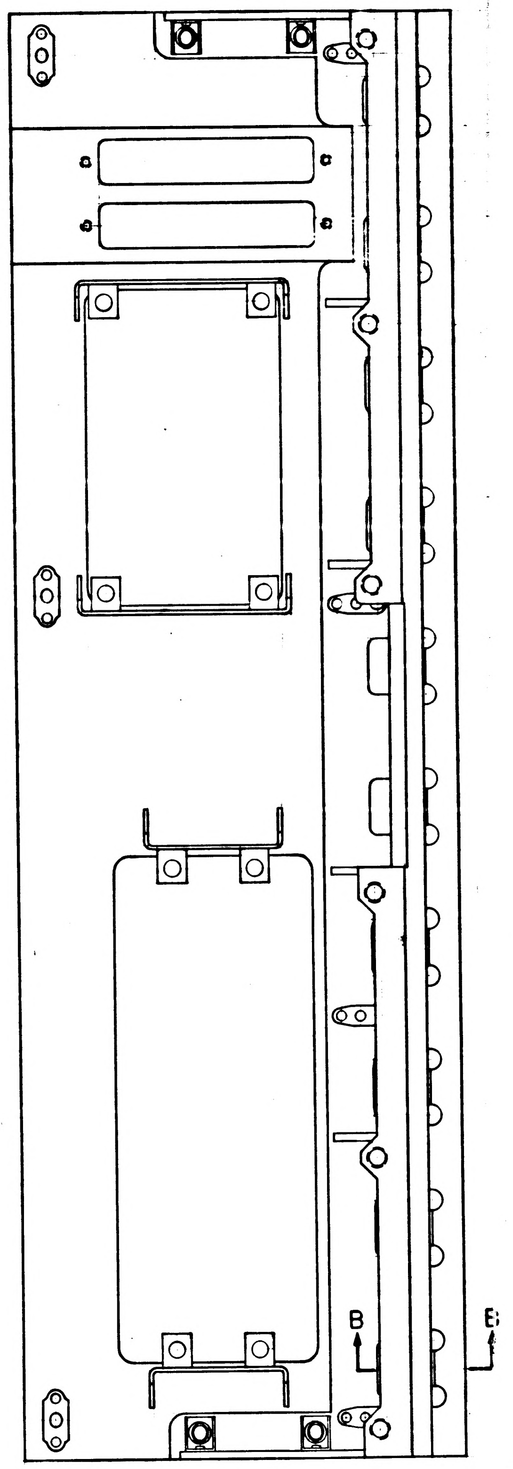
SECTION D-D
SCALE 10/1
225 PLACES



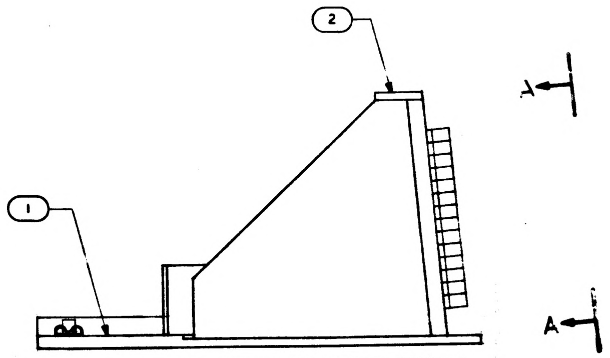
SECTION C-C
SCALE 4/1
720 PLACES


32
∠ B .010
5° BASIC
DATUM PLANE "A"
.6964
.6924
.5564
.250
REF
GAGE POINT NO. 3
SEE NOTE 2
.2066
.2046
.2962
.2922
GAGE POINT NO. 1
32
.4375
.126
.124
GAGE POINT NO. 2
-B-

PARTIAL SECTION B-B
SCALE 4/1



FIND NUMBERS 6, 7, 8 AND 9
NOT SHOWN



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. GAGE POINT NO. 3 FOR INITIAL LOCATION OF FIND NO. 2 PRIOR TO FINAL MACHINING
3. INSTALL FIND NO. 4 PER MS33646. BREAK OFF DRIVING TANG
4. INSTALL FIND NOS. 6, 7, 8 AND 9 PER ND1002136
5. COAT THREADS AND FIND NO. 4 WITH MIL-P-8585 WET ZINC CHROMATE PRIMER
6. FINISH: ANODIZE MACHINED SURFACES ON FIND NO. 2 PER MIL-A-8625, TYPE II, DYED BLACK PLUG INSERT HOLES
7. TOLERANCES: 2 PLACE DECIMALS = ±.010
   3 PLACE DECIMALS = ±.005

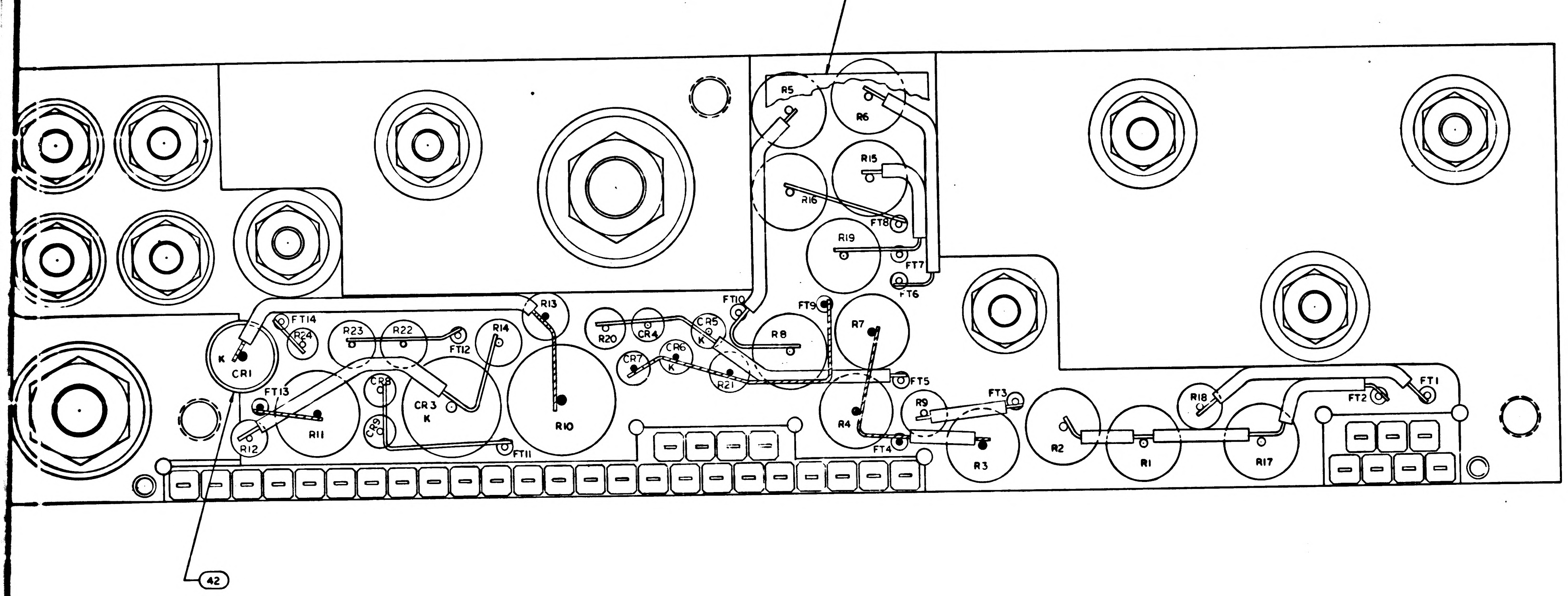
1007161

INCHES
PHOTOGRAPHIC SCALE ONLY

F-1

1007162 A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 12149	9/64	JWP CP



3
R5
R6
R15
R16
FT8
R19
FT7
FT6
FT10
FT9
R7
R8
R13
CR5
CR4
R20
CR7
CR6
K
R21
FT5
R14
R22
R23
FT12
FT14
R24
CR1
K
FT13
CR8
CR3
K
R11
CR2
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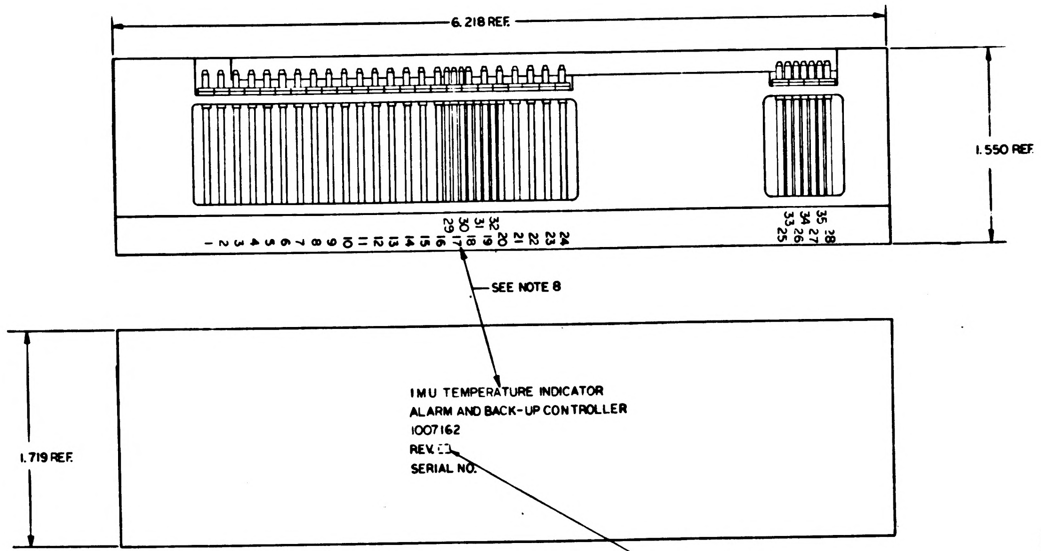
FT4
R9
FT3
R3
R2
R1
R18
FT2
FT1
R17
42



6.218 REF.
1.550 REF.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
29 30 31 32
33 34 35
25 26 27 28
SEE NOTE 8
1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV.
SERIAL NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010140	SCHEMATIC, ELECTRICAL	
2	1010311- SEE NOTE 15	RESISTOR	49
2	1010377-237	RESISTOR	48
1	1008185	INSULATOR TOP, AMPL	47
A/R	1006776-20	INSULATION SLEEVING	46
1	MS20341-10B	NUT HEX	45
1	MS20341-416B	NUT HEX	44
A/R	1006757-8	WIRE ELECTRICAL .020 DIA.	43
A/R	MIL-I-23053-8	INSULATION SLEEVING	42
A/R	1006776-21	INSULATION SLEEVING	41
A/R	1006757-1	WIRE ELECT. [illegible] X .020	40
35	1006782-5	CONTACT WRAPOST MALE	39
35	1006775	INSULATOR WRAPOST MALE	38
10	1008070-5	WASHER, FLAT	37
10	MS20341-4A	NUT-HEX	36
10	MS35338-78	WASHER, LOCK	35
1	1008021-1	BUSHING INSULATOR	34
1	1008021-2	BUSHING INSULATOR	33
1	1008020-2	WASHER FLAT	32
1	1008020-2	WASHER FLAT	31
1	1008024-1	WASHER INSULATOR	30
1	1008024-2	↓	29
1	1008024-4	↓	28
1	1008024-3	↓	27
1	1018900	AMPLIFIER	26
2	1000284	AMPLIFIER	25
2	1010353-1	RELAY	24
1	1010273-1	TRANSISTOR	23
6	1010362-3	DIODE	22
1	1010441-2 (~~SEE NOTE 19~~)	↓	21
1	1010331-20 ~~SEE NOTE 19)~~	↓	20
1	1010440-1	↓	19
☒	1010377 SEE NOTE 14	RESISTOR	18
		↓	17
2	1010364-368	↓	16
1	1010364-44	↓	15
1	1010361-112	↓	14
1	1010452-167	↓	13
2	1010450-9	↓	12
1	1010604-22	↓	11
1	1010450-10	↓	10
2	1010450-12	↓	9
1	1010450-13	↓	8
1	1010450-14	↓	7
2	1010450-3	↓	6
2	1010450-2	↓	5
1	1010450-11	↓	4
1	1008074	INSULATOR BOTTOM	3
1	1008166	INSULATOR TOP	2
1	1007072	HEATSINK	1

LIST OF MATERIALS

1007162 A

NEXT ASSY	USED ON
1007157	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X ± DECIMALS XX ± .02 .XXX ± .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN E. Krahn DATE 23 MAR 64
CHECKED R. P. [illegible] 24 Mar 64
APPROVAL
APPROVAL D. A. [illegible] 3/24/64
NASA APPROVAL [illegible] 3/24/64
MIT APPROVAL [illegible] 24 Mar 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

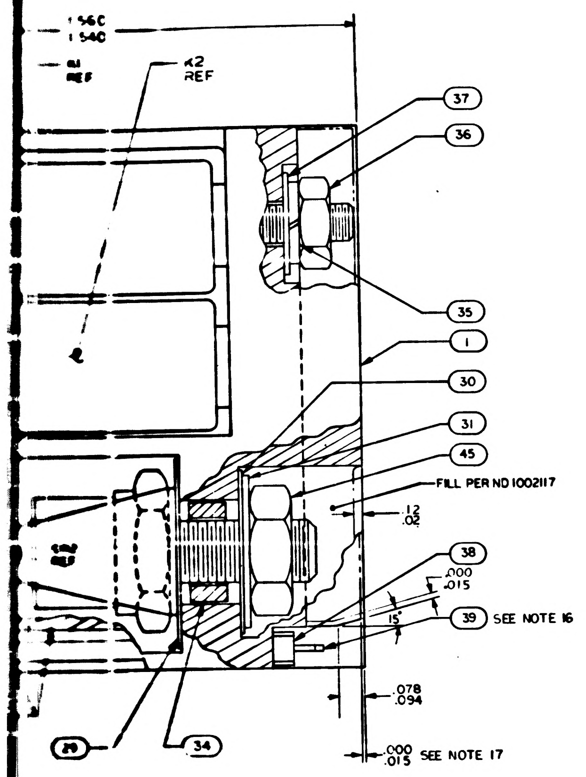
IMU TEMP INDICATOR ALARM
AND BACK-UP CONTROLLER
ASSEMBLY

CODE IDENT NO. SIZE NASA DRAWING NO. 1007162
SCALE 5:1 WT SHEET 1 OF 1

1007162

1007157

37 1007162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1.540
R1 REF
K2 REF
37
36
35
1
30
31
45
FILL PER ND 1002117
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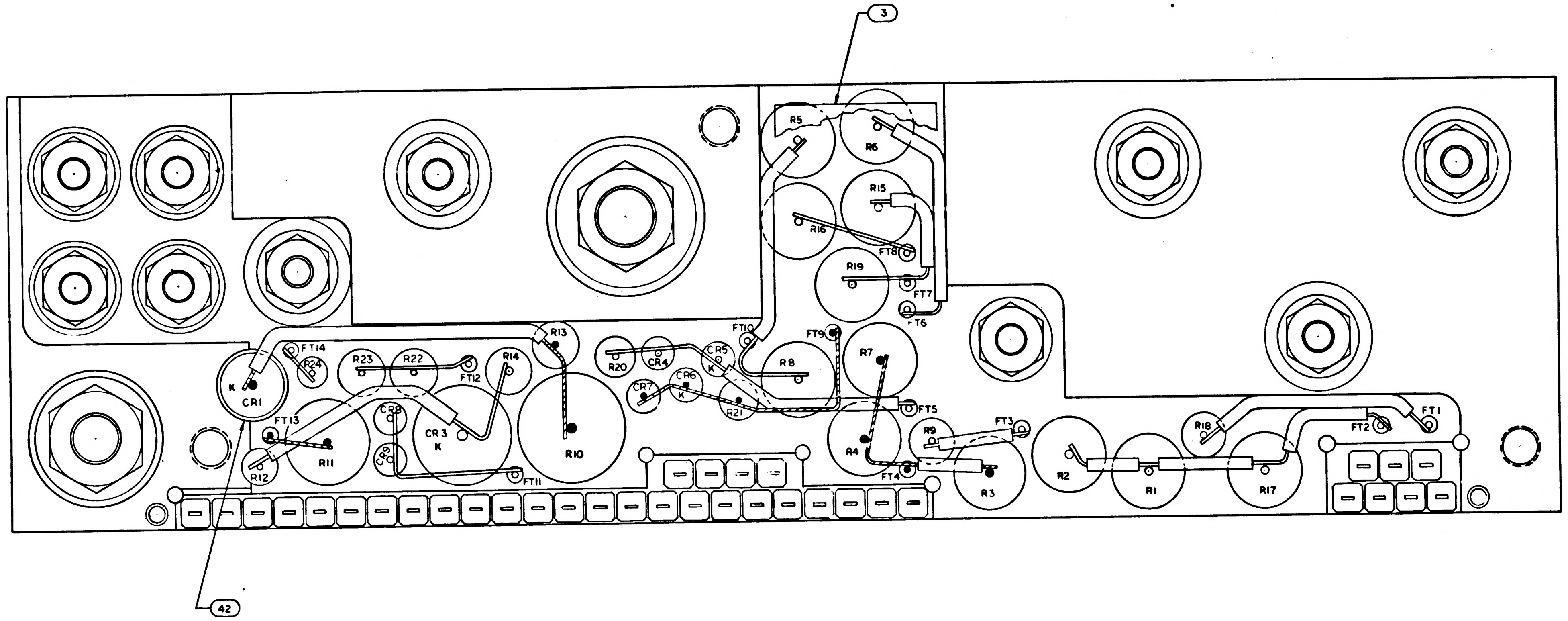
.02
38
.000
.015
15°
39 SEE NOTE 16
.078
.094
29
34
.000
.015 SEE NOTE 17


3
R5
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R15
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FT8
FT7
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R13
R14
FT14
R24
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R22
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CR1
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FT13
R11
CR8
CR9
CR3
K
R12
FT11
R10
R20
CR4
CR7
CR6
K
CR5
K
R21
FT10
R8
FT9
R7
FT5
R4
R9
FT4
FT3
R3
R2
R1
R18
R17
FT2
FT1
42

	R13		R14		R9 AND R18					
VALUE	PART NO	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE
[illegible]	1010377-164	117	1010377-141	71	1010311-126	1000	1010311-177	3400	1010311-228	11500
17	-165	119	-142	73	-127	1020	-178	3480	-229	11800
[illegible]	-166	121	-143	75	-128	1050	-179	3570	-230	12100
21	-167	123	-144	77	-129	1070	-180	3650	-231	12400
23	-168	125	-145	79	-130	1100	-181	3740	-232	12700
[illegible]	-169	127	-146	81	-131	1130	-182	3830	-233	13000
[illegible]	-170	129	-147	83	-132	1150	-183	3920	-234	13300
[illegible]	-171	131	-148	85	-133	1180	-184	4020	-235	13700
[illegible]	-172	133	-149	87	-134	1210	-185	4120	-236	14000
[illegible]	-173	135	-150	89	-135	1240	-186	4220	-237	14300
[illegible]	-174	137	-151	91	-136	1270	-187	4320	-238	14700
[illegible]	-175	139	-152	93	-137	1300	-188	4420	-239	15000
[illegible]	-176	141	-153	95	-138	1330	-189	4530	-240	15400
41	-177	143	-154	97	-139	1370	-190	4640	-241	15800
43	-178	145	-155	99	-140	1400	-191	4750	-242	16200
45	-179	147	-156	101	-141	1430	-192	4870	-243	16500
47	-180	149	-157	103	-142	1470	-193	4990	-244	16900
49	-181	151	-158	105	-143	1500	-194	5110	-245	17400
[illegible]	-182	153	-159	107	-144	1540	-195	5230	-246	17800
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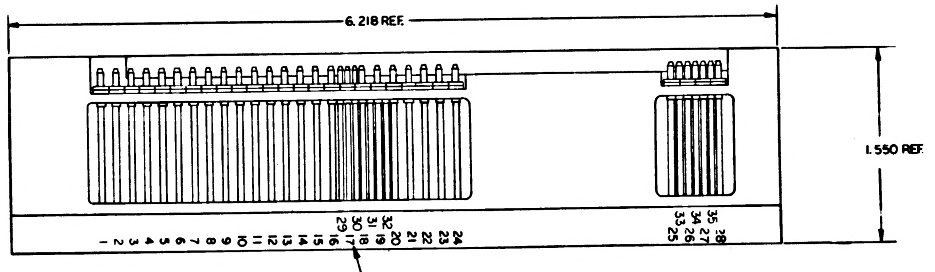
6.218 REF.
1.550 REF.
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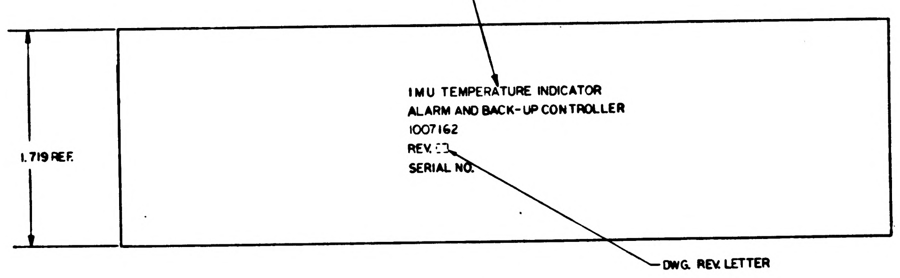
25 33 26 34 27 35 28
SEE NOTE 8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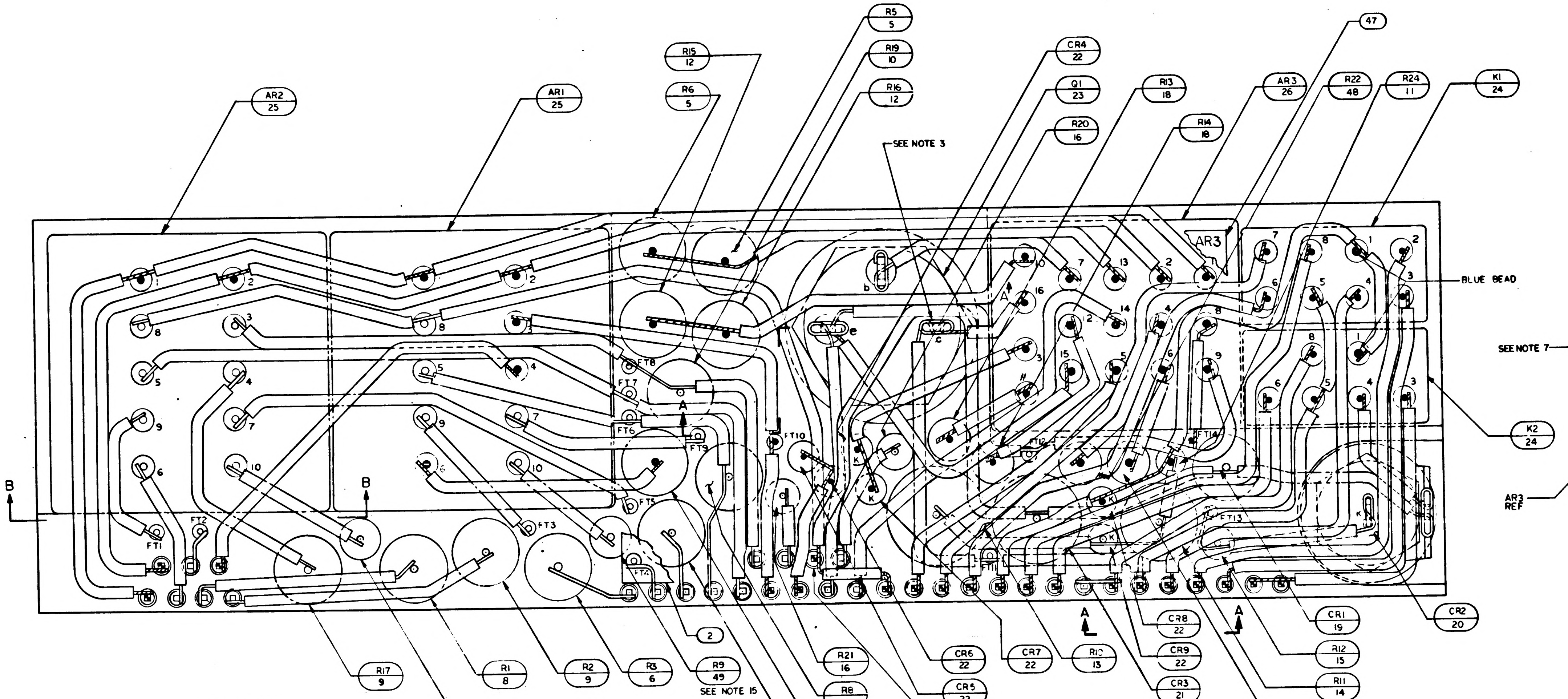
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV.
SERIAL NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

1007157	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS
X .XX .02
.XXX .005
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

1007157


AR2
25
AR1
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R15
12
R6
5
R5
5
R19
10
R16
12
SEE NOTE 3
CR4
22
Q1
23
R20
16
R13
18
R14
18
AR3
26
47
R22
48
R24
11
K1
24
AR3
BLUE BEAD
SEE NOTE 7
K2
24
AR3
REF
B
B
A
A
FT1
FT2
FT3
FT4
FT5
FT6
FT7
FT8
FT9
FT10
FT11
FT12
FT13
FT14
K
b
e
c
R17
9
R18
49
SEE NOTE 15
R1
8
R2
9
R3
6
2
R9
49
SEE NOTE 15
R21
16
R8
4
R7
6
R4
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CR6
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CR5
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SEE NOTE 18
CR7
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CR9
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CR3
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R11
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R23
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CR2
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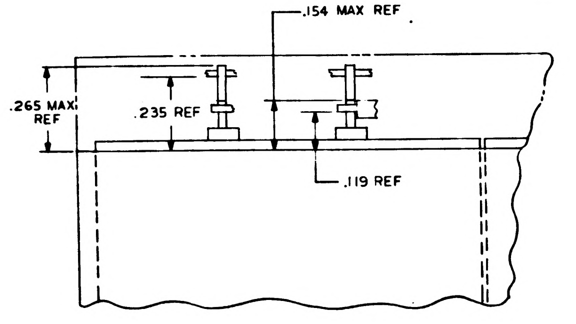
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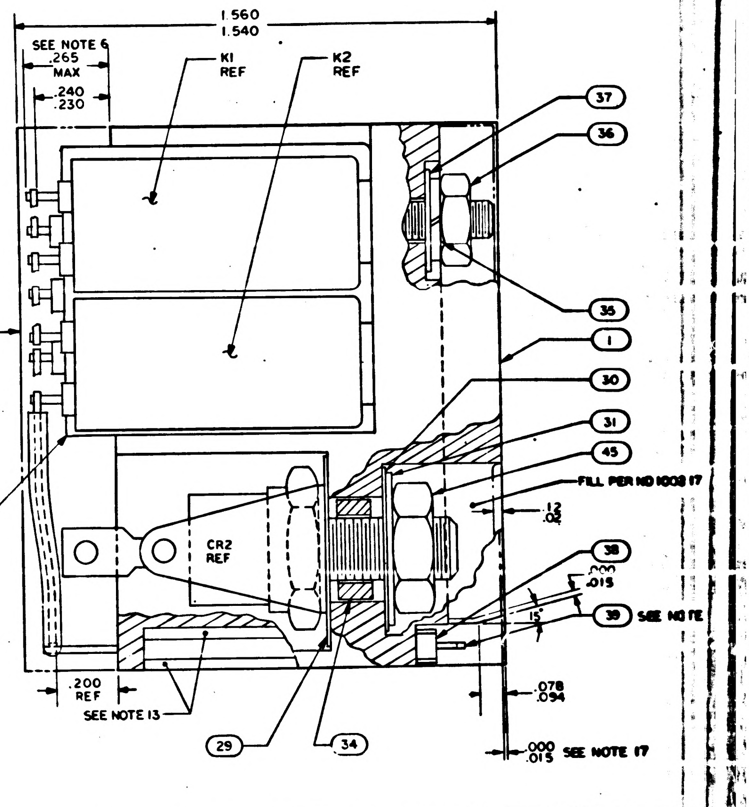
.265 MAX
REF
.235 REF
.119 REF

SECTION B-B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1.540
SEE NOTE 6
.265
MAX
.240
.230
K1
REF
K2
REF
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36
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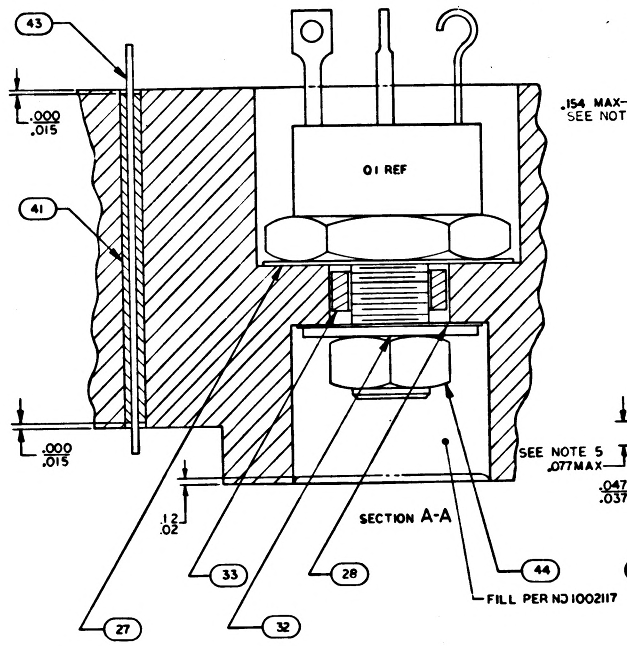
1
30
31
45
FILL PER ND100217
.12
.02
CR2
REF
38
.000
.015
15°
39
SEE NOTE
.200
REF
SEE NOTE 13
29
34
.078
.094
.000
.015
SEE NOTE 17


43
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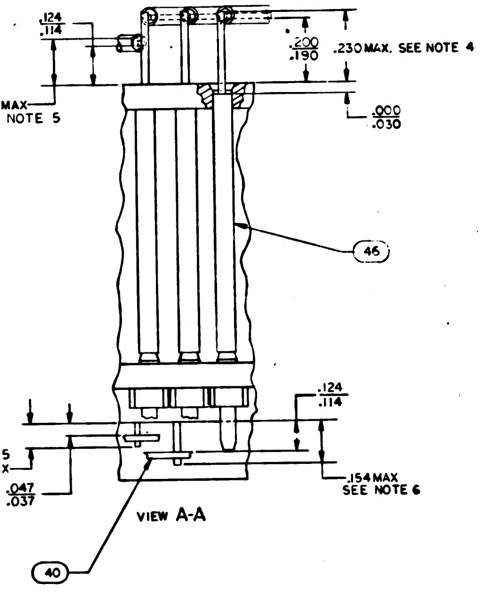
32
44
FILL PER ND1002117

SECTION A-A


.124
.114
.200
.190
.230 MAX. SEE NOTE 4
.154 MAX
SEE NOTE 5
.000
.030
46
.124
.114
SEE NOTE 5
.077 MAX
.047
.037
.154 MAX
SEE NOTE 6
40

VIEW A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS MADE BY WELDING TO BE PER ND1002005.
3. ALL CONNECTIONS MADE BY SOLDERING TO BE PER ND1002071 USING ND1002075.
4. CHECKERED INDICATES INTERMEDIATE LEVEL WIRING
5. WHITE DOT INDICATES LEAD TO BE CUT FOR LOWEST LEVEL WIRING
6. BLACK DOT INDICATES LEAD TO BE CUT FOR HIGHEST LEVEL WIRING
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE. THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
8. MARK PIN NUMBERS .08 HIGH (WHITE) AND SERIALIZE AND MARK ALL OTHER CHARACTERS .12 HIGH (WHITE) PER ND 1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE
9. A/R DENOTES AS REQUIRED
10. K DENOTES CATHODE SIDE OF DIODE
11. MOUNTING TORQUE FOR FIND NO. 20 TO BE 10/15 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 23 TO BE 22/26 INCH POUNDS
13. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
14. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007162 PART TO BE SELECTD FROM CHART.
15. R9 AND R18 TO BE SELECTED AT ASSEMBLY, PART NO AND DASH NO. AS MARKED ON AMPLIFIER. RANGE OF VALUES (OHMS) SHOWN ON CHART
16. ASSEMBLE FIND NO. 35 AND 38 PER ND1002136
17. COMPONENTS TO BE CENTRALIZED AND CEMENTED IN PLACE PER ND1002009
18. LEAD FROM AR1-8 TERMINATES AT LOWER WELD CONNECTION OF PIN 30. UPPER LEAD TIES PINS 15 AND 30 TO FT12
19. ~~CR2, 1010331-020 AND CR3, 1010441-2 SHALL BE SELECTED SUCH THAT CR2 ZENER VOLTAGE EXCEEDS CR3 ZENER VOLTAGE BY AT LEAST 1.6 VOLTS PER ATP 1007162.~~

1007162

R13				R14		
PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.
1010377-113	15	1010377-164	117	1010377-141	71	1010311-126
-114	17	-165	119	-142	73	-127
-115	19	-166	121	-143	75	-128
-116	21	-167	123	-144	77	-129
-117	23	-168	125	-145	79	-130
-118	25	-169	127	-146	81	-131
-119	27	-170	129	-147	83	[illegible]
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-121	31	-172	133	-149	87	-134
-122	33	-173	135	-150	89	-135
-123	35	-174	137	-151	91	-136
-124	37	-175	139	-152	93	-137
-125	39	-176	141	-153	95	-138
-126	41	-177	143	-154	97	-139
-127	43	-178	145	-155	99	-140
-128	45	-179	147	-156	101	-141
-129	47	-180	149	-157	103	-142
-130	49	-181	151	-158	105	-143
-131	51	-182	153	-159	107	-144
-132	53	-183	155	-160	109	-145
-133	55	-184	157	-161	111	-146
-134	57	-185	159	-162	113	-147
-135	59	-186	161	-163	115	-148
-136	61	-187	163	-164	117	-149
-137	63	-188	165	-165	119	-150
-138	65	-189	167	-166	121	-151
-139	67	-190	169	-167	123	-152
-140	69	-191	171	-168	125	-153
-141	71	-192	173	-169	127	-154
-142	73	-193	175	-170	129	-155
-143	75	-194	177	-171	131	-156
-144	77	-195	179	-172	133	-157
-145	79	-196	181	-173	135	-158
-146	81	-197	183	-174	137	-159
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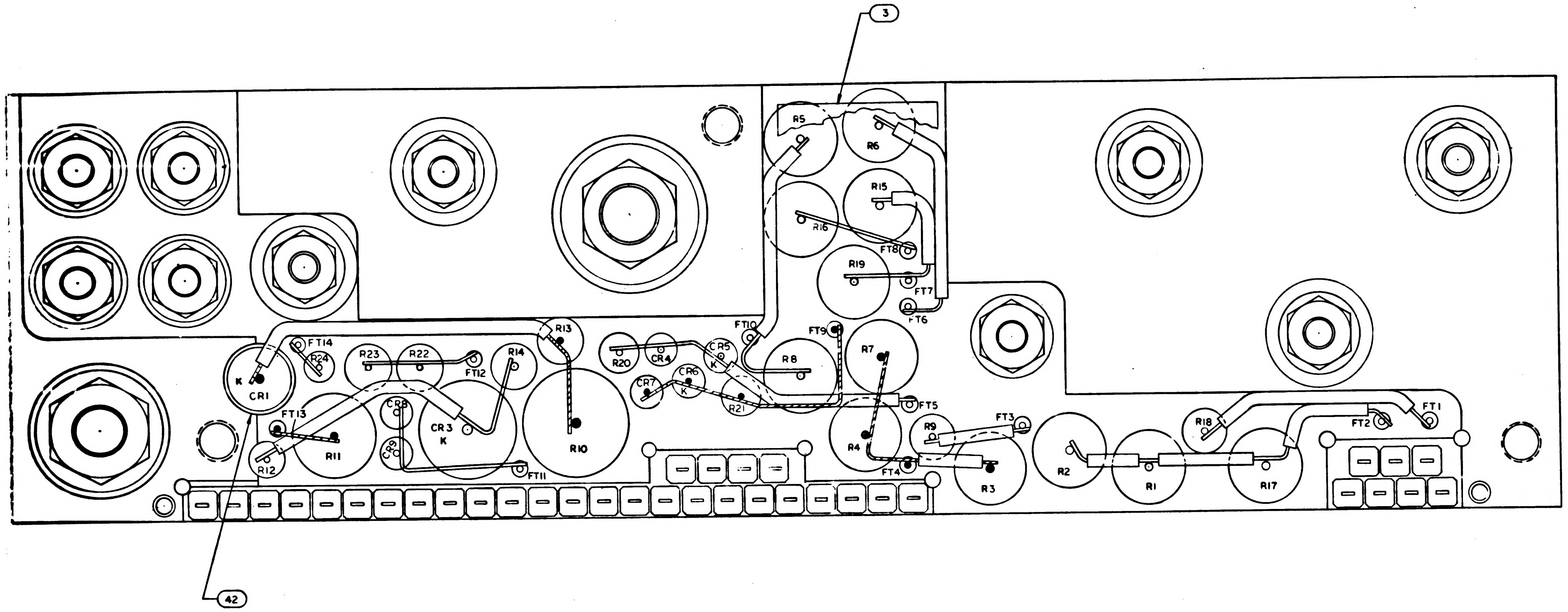
-161	111			-189	167	-174
-162	113			-190	169	-175
-163	115			-191	171	-176

B 1007162

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 12149	8 SEP 64	JWD
B	REVISED PER TDRR12618	25 SEP 64	LGC



3
R5
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CR1
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R11
CR8
CR3
K
CR9
R10
FT11
R20
CR4
CR7
CR6
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CR5
K
FT10
R21
FT9
R8
R7
FT5
R4
R9
FT4
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R18
R17
FT2
FT1
42

NO.	LUE
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229	11800
230	12100
231	12400
232	12700
233	[illegible]
234	[illegible]
235	11700
236	[illegible]
237	14300
238	14700
239	15000
240	[illegible]
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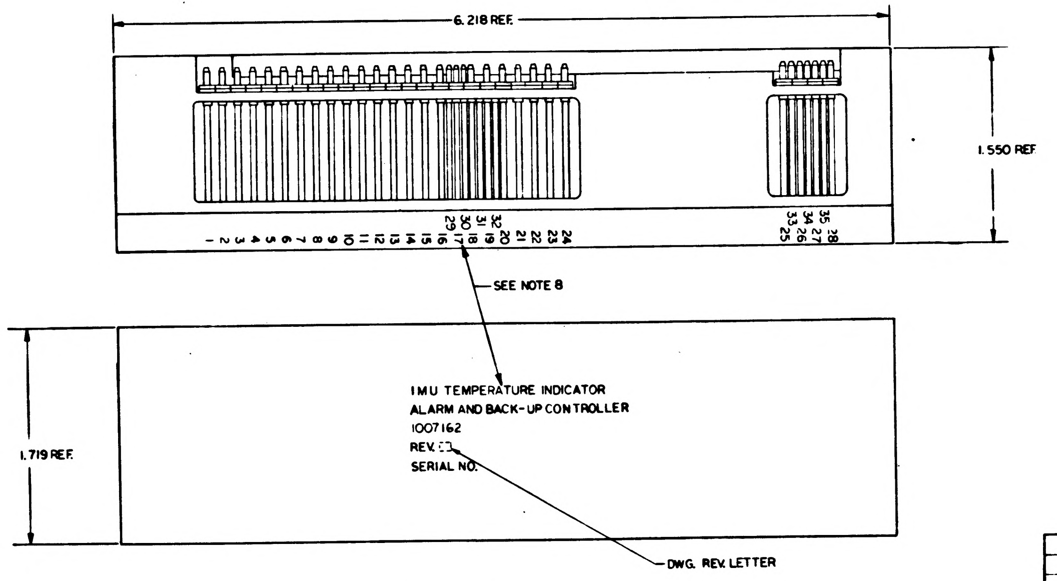

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1.550 REF
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29 30 31 32
33 34 35
25 26 27 28
SEE NOTE 8
1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV.
SERIAL NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010140	SCHEMATIC, ELECTRICAL	
2	1010311- SEE NOTE 15	RESISTOR	49
2	1010377-237	RESISTOR	48
1	1008185	INSULATOR TOP, AMPL	47
A/R	1006776-20	INSULATION SLEEVING	46
1	MS20341-10B	NUT HEX	45
1	MS20341-416B	NUT HEX	44
A/R	1006757-8	WIRE ELECTRICAL .020 DIA.	43
A/R	MIL-I-23053-8	INSULATION SLEEVING	42
A/R	1006776-21	INSULATION SLEEVING	41
A/R	1006757-1	WIRE ELECT. [illegible] X.020	40
35	1006782-5	CONTACT WRAPOST MALE	39
35	1006775	INSULATOR WRAPOST MALE	38
10	1008070-5	WASHER, FLAT	37
10	MS20341-4A	NUT-HEX	36
10	MS35338-78	WASHER, LOCK	35
1	1008021-1	BUSHING INSULATOR	34
1	1008021-2	BUSHING INSULATOR	33
1	1008020-2	WASHER FLAT	32
1	1008020-2	WASHER FLAT	31
1	1008024-1	WASHER INSULATOR	30
1	1008024-2		29
1	1008024-4		28
1	1008024-3		27
1	1018900	AMPLIFIER	26
2	1000284	AMPLIFIER	25
2	1010353-1	RELAY	24
1	1010273-1	TRANSISTOR	23
6	1010362-3	DIODE	22
1	1010441-2 (~~SEE NOTE 19~~)		21
1	1010331-20 ~~SEE NOTE 19~~		20
1	1010440-1		19
☒	1010377 SEE NOTE 14	RESISTOR	18
			17
2	1010364-368		16
1	1010364-44		15
1	1010361-112		14
1	1010452-167		13
2	1010450-9		12
1	1010604-22		11
1	1010450-10		10
2	1010450-12		9
1	1010450-13		8
1	1010450-14		7
2	1010450-3		6
2	1010450-2		5
1	1010450-11		4
1	1008074	INSULATOR BOTTOM	3
1	1008166	INSULATOR TOP	2
1	1007072	HEATSINK	1

LIST OF MATERIALS

B 1007162

NEXT ASSY	USED ON
1007157	

APPLICATION

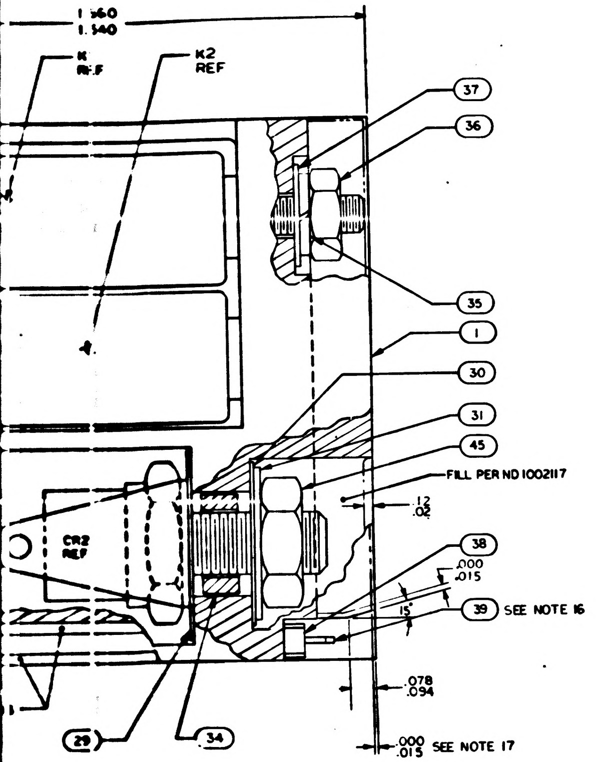
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X
DECIMALS .XX ± .02 .XXX ± .005
ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT
DRAWN Y. Kahn DATE 23MAR64
CHECKED
APPROVAL
APPROVAL 3/24/64
NASA APPROVAL 3/24/64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

IMU TEMP INDICATOR ALARM
AND BACK-UP CONTROLLER
ASSEMBLY

CODE IDENT NO.
SIZE
NASA DRAWING NO 1007162
SCALE 5:1
WT
SHEET 1 OF 1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FILL PER ND 1002117
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CR2
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SEE NOTE 16
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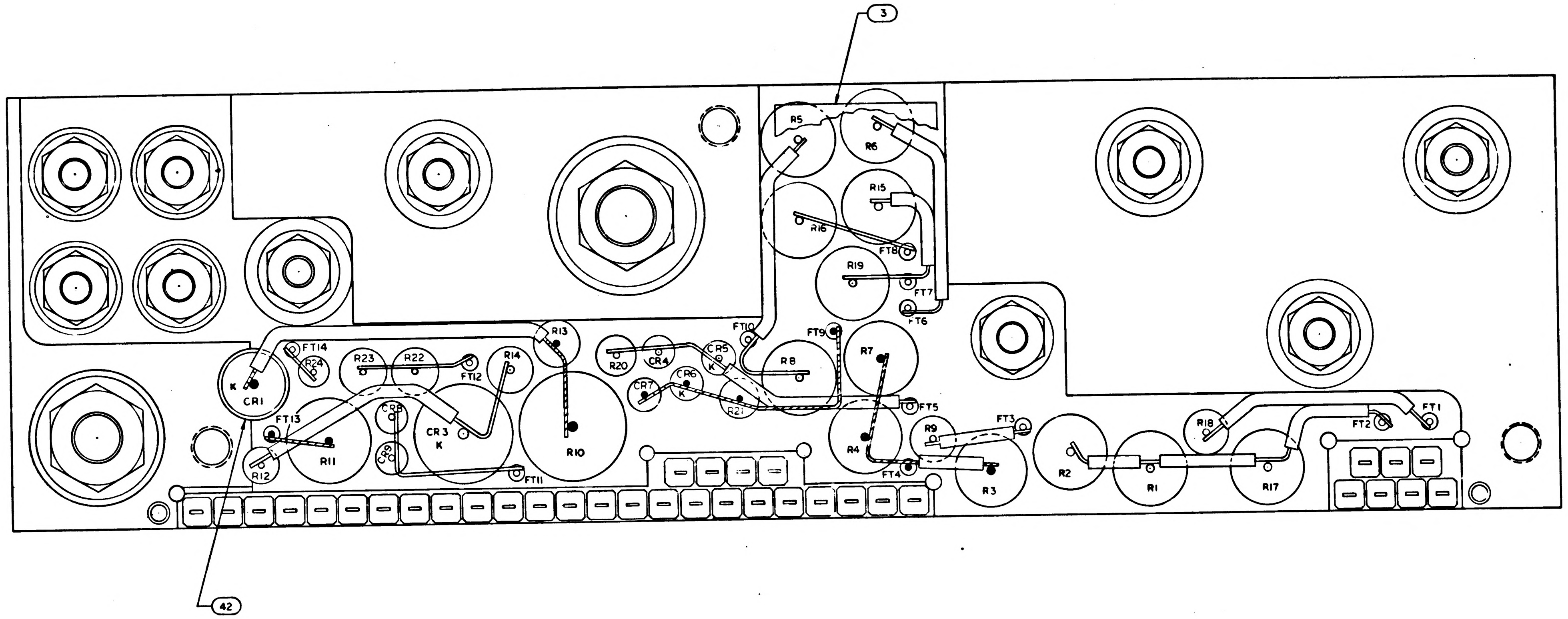
.015
SEE NOTE 17


3
R5
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CR4
CR5
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CR8
CR7
CR6
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R21
CR3
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R11
R10
FT11
FT5
R9
FT3
R4
FT4
R3
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R18
R17
FT2
FT1
R12
42

		R13		R14		R9 AND R18					
T NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE
-113	15	1010377-164	117	1010377-141	71	1010311-126	1000	1010311-177	3400	1010311-228	11500
-114	17	-165	119	-142	73	-127	1020	-178	3480	-229	11800
-115	19	-166	121	-143	75	-128	1050	-179	3570	-230	12100
-116	21	-167	123	-144	77	-129	1070	-180	3650	-231	12400
-117	23	-168	125	-145	79	-130	1100	-181	3740	-232	12700
-118	25	-169	127	-146	81	-131	1130	-182	3830	-233	13000
-119	27	-170	129	-147	83	-132	1150	-183	3920	-234	13300
-120	29	-171	131	-148	85	-133	1180	-184	4020	-235	13700
-121	31	-172	133	-149	87	-134	1210	-185	4120	-236	14000
-122	33	-173	135	-150	89	-135	1240	-186	4220	-237	14300
-123	35	-174	137	-151	91	-136	1270	-187	4320	-238	14700
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-125	39	-176	141	-153	95	-138	1330	-189	4530	-240	15400
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-130	49	-181	151	-158	105	-143	1500	-194	5110	-245	17400
-131	51	-182	153	-159	107	-144	1540	-195	5230	-246	17800
-132	53	-183	155	-160	109	-145	1580	-196	5360	-247	18200
-133	55	-184	157	-161	111	-146	1620	-197	5490	-248	18700
-134	57	-185	159	-162	113	-147	1650	-198	5620	-249	19100
-135	59	-186	161	-163	115	-148	1690	-199	5760	-250	19600
-136	61	-187	163	-164	117	-149	1740	-200	5900	-251	20000
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-139	67	-190	169	-167	123	-152	1870	-203	6340	-254	21500
-140	69	-191	171	-168	125	-153	1910	-204	6490	-255	22100
-141	71	-192	173	-169	127	-154	1960	-205	6650	-256	22600
-142	73	-193	175	-170	129	-155	2000	-206	6810	-257	23200
-143	75	-194	177	-171	131	-156	2050	-207	6980	-258	23700
144	77	-195	179	-172	133	-157	2100	-208	7150	-259	24300
-145	79	-196	181	-173	135	-158	2150	-209	7320	-260	24900
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-152	93	-203	195	-180	149	-165	2550	-216	8660	-267	29400
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-155	99	-206	201	-183	155	-168	2740	-219	9310		
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-159	107			-187	163	-172	3010	-223	10200		
-160	109			-188	165	-173	3090	-224	10500		
-161	111			-189	167	-174	3160	-225	10700		
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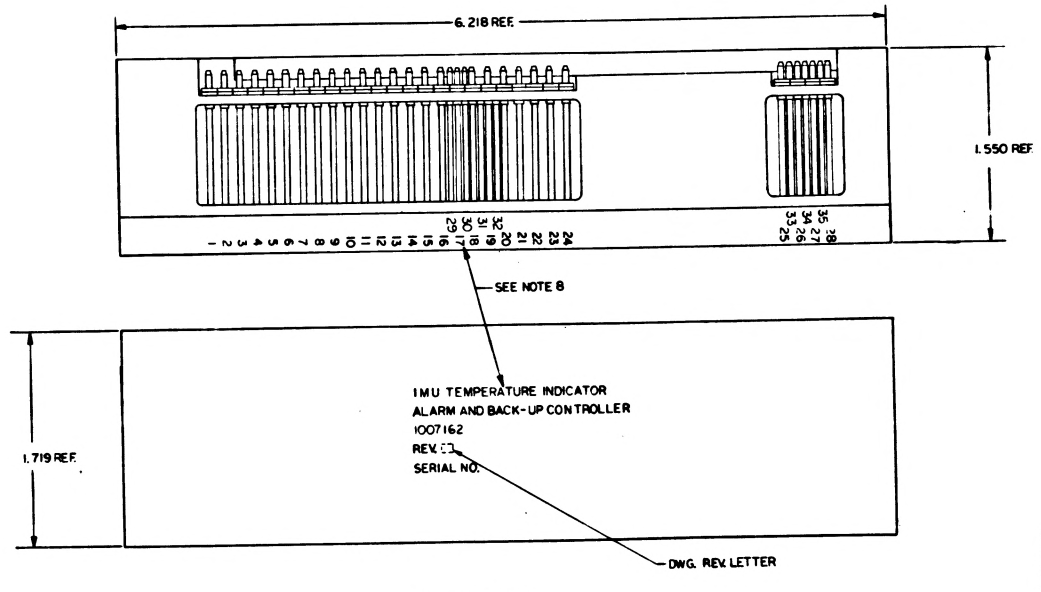
-163	115			-191	171	-176	3320	-227	11300		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29 30 31 32
33 34 35
25 26 27 28
SEE NOTE 8
1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV.
SERIAL NO.
DWG. REV. LETTER

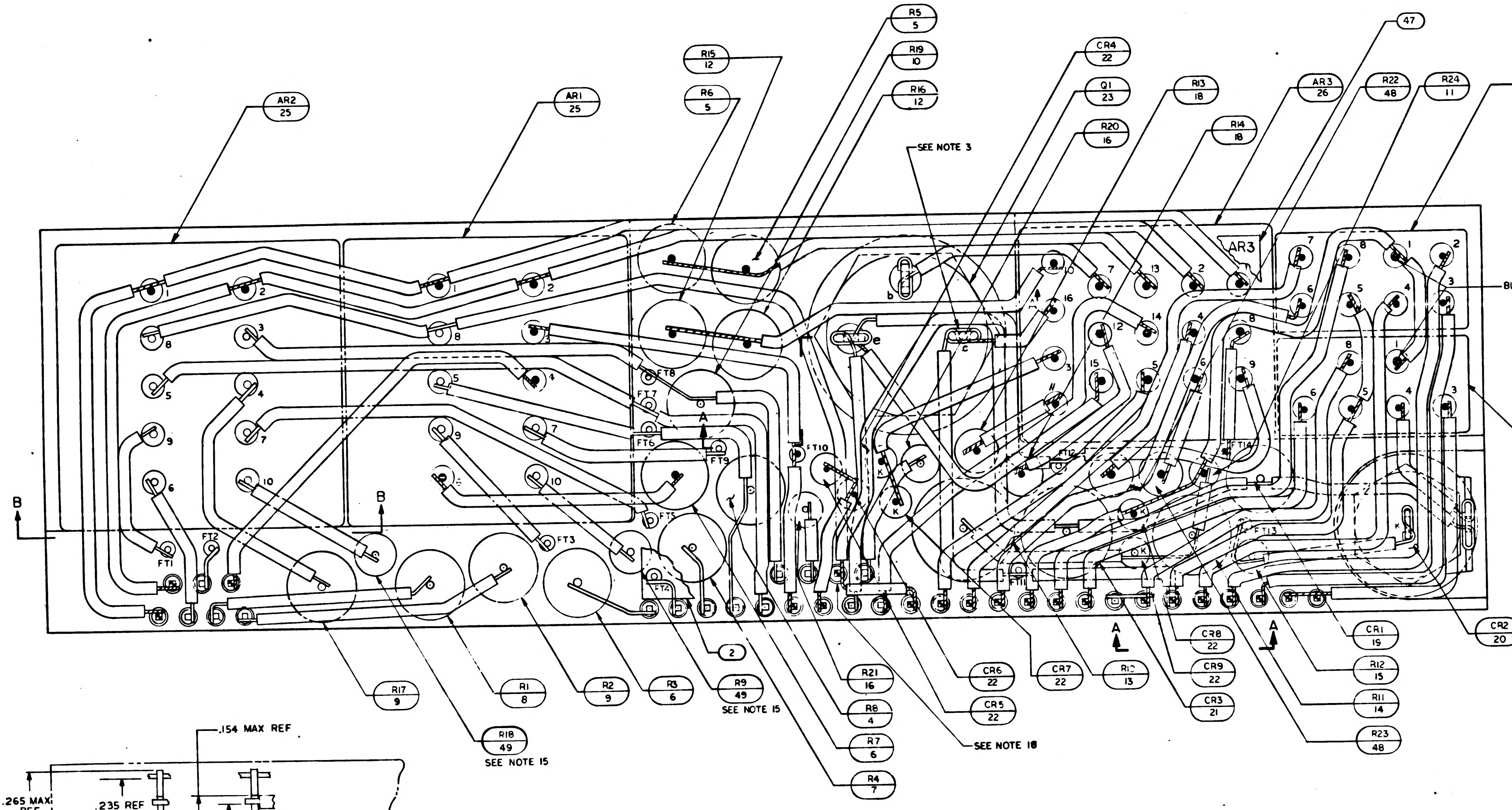
MARKING VIEW
SCALE 2:1

1007157	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCE ON
FRACTIONS DECIMALS
X - XX ± .02
XXX ± .005
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

1007162

1007157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CR4 22
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SEE NOTE 3
R13 18
R14 18
AR3 26
R22 48
R24 11
K1 24
47
AR3
BLUE BEAD
SEE NOTE 7
K2 24
FT1
FT2
FT3
FT4
FT5
FT6
FT7
FT8
FT9
FT10
FT11
FT12
FT13
FT14
B
A
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R11 14
R23 48
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CR9 22
CR3 21
R10 13
CR7 22
CR6 22
CR5 22
SEE NOTE 18
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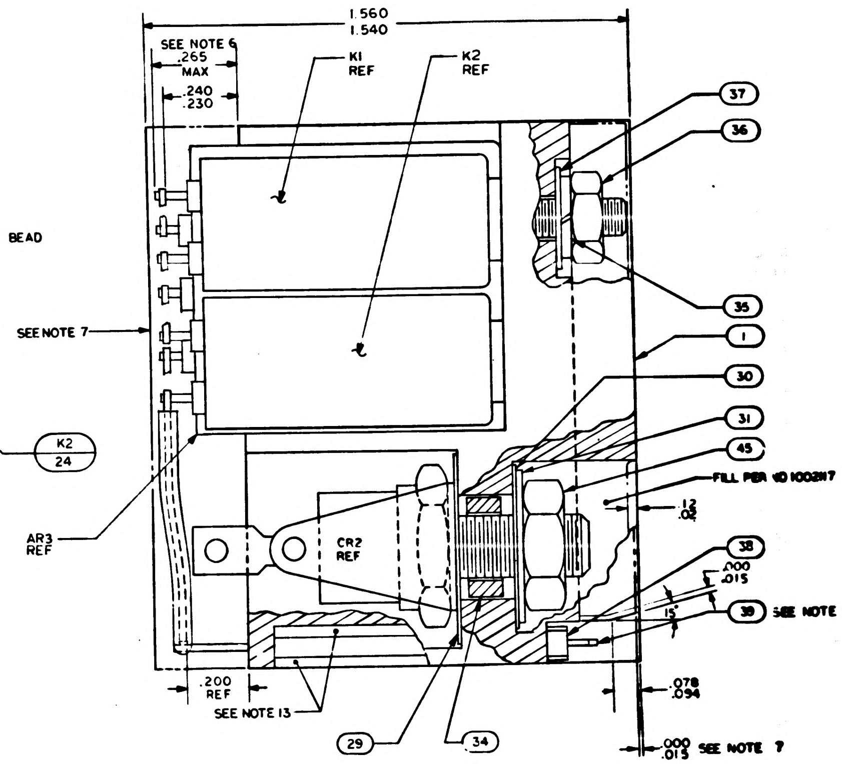
SEE NOTE 15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K2 REF
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35
1
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.02
AR3 REF
CR2 REF
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.015
39 SEE NOTE 16
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.200 REF
SEE NOTE 13
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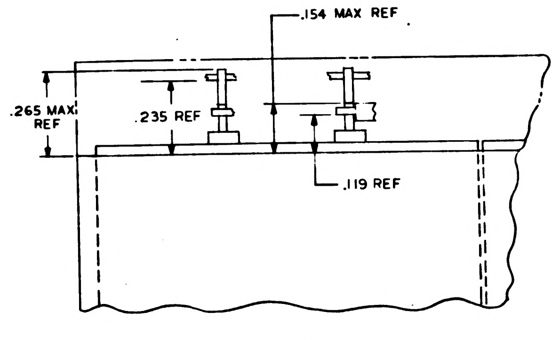
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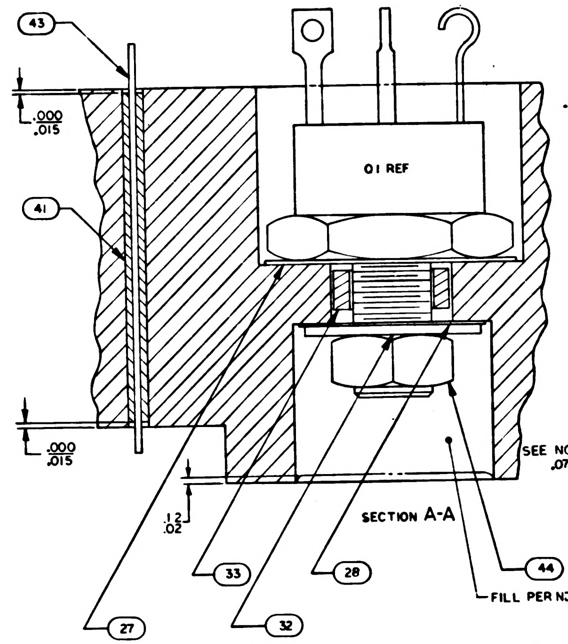
SECTION B-B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FILL PER ND1002117
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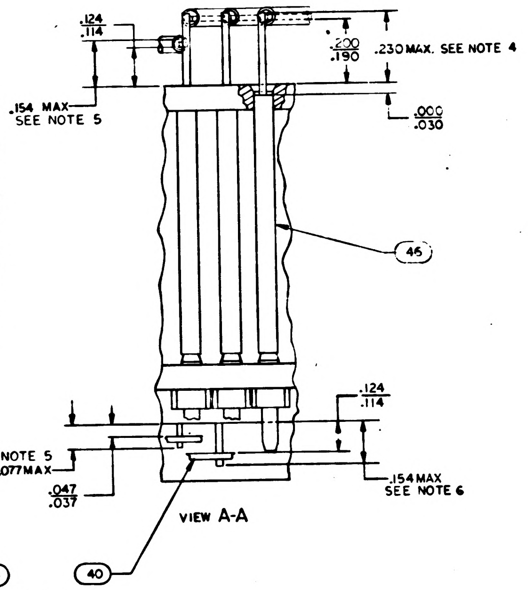
SECTION A-A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SEE NOTE 5
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SEE NOTE 5
.077MAX
.047
.037
.154MAX
SEE NOTE 6
40

VIEW A-A

R13				R14			
PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE
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-115	19	-166	121	-143	75	-128	[illegible]
-116	21	-167	123	-144	77	-129	[illegible]
-117	23	-168	125	-145	79	-130	[illegible]
-118	25	-169	127	-146	81	-131	[illegible]
-119	27	-170	129	-147	83	-132	[illegible]
-120	29	-171	131	-148	85	-133	[illegible]
-121	31	-172	133	-149	87	-134	[illegible]
-122	33	-173	135	-150	89	-135	[illegible]
-123	35	-174	137	-151	91	-136	[illegible]
-124	37	-175	139	-152	93	-137	[illegible]
-125	39	-176	141	-153	95	-138	[illegible]
-126	41	-177	143	-154	97	-139	[illegible]
-127	43	-178	145	-155	99	-140	[illegible]
-128	45	-179	147	-156	101	-141	[illegible]
-129	47	-180	149	-157	103	-142	[illegible]
-130	49	-181	151	-158	105	-143	[illegible]
-131	51	-182	153	-159	107	-144	[illegible]
-132	53	-183	155	-160	109	-145	[illegible]
-133	55	-184	157	-161	111	-146	[illegible]
-134	57	-185	159	-162	113	-147	[illegible]
-135	59	-186	161	-163	115	-148	[illegible]
-136	61	-187	163	-164	117	-149	[illegible]
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-139	67	-190	169	-167	123	-152	[illegible]
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-157	103			-185	159	[illegible]	[illegible]
-158	105			-186	161	[illegible]	[illegible]
-159	107			-187	163	[illegible]	[illegible]
-160	109			-188	165	-172	[illegible]
-161	111			-189	167	-173	[illegible]
-162	113			-190	169	-174	[illegible]
-163	115			-191	171	-175	[illegible]
						-176	[illegible]

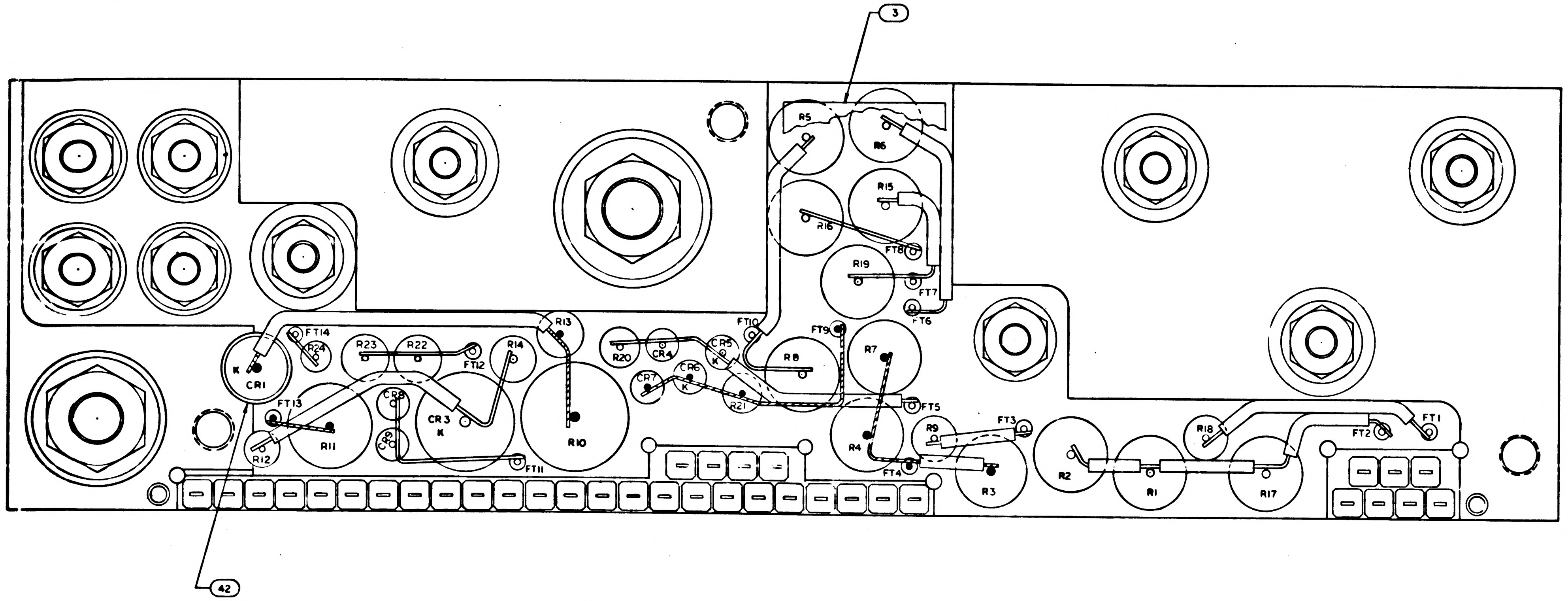
NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS MADE BY WELDING TO BE PER ND1002005.
3. ALL CONNECTIONS MADE BY SOLDERING TO BE PER ND1002071 USING ND1002075.
4. CHECKERED INDICATES INTERMEDIATE LEVEL WIRING
5. WHITE DOT INDICATES LEAD TO BE CUT FOR LOWEST LEVEL WIRING
6. BLACK DOT INDICATES LEAD TO BE CUT FOR HIGHEST LEVEL WIRING
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
8. MARK PIN NUMBERS .08 HIGH (WHITE) AND SERIALIZE AND MARK ALL OTHER CHARACTERS .12 HIGH (WHITE) PER ND 1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE
9. A/R DENOTES AS REQUIRED
10. K DENOTES CATHODE SIDE OF DIODE
11. MOUNTING TORQUE FOR FIND NO. 20 TO BE 10/15 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 23 TO BE 22/26 INCH POUNDS
13. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
14. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1C07162 PART TO BE SELECTD FROM CHART.
15. R9 AND R18 TO BE SELECTED AT ASSEMBLY, PART NO AND DASH NO. AS MARKED ON AMPLIFIER. RANGE OF VALUES (OHMS) SHOWN ON CHART
16. ASSEMBLE FIND NO. 35 AND 38 PER ND1002136
17. ALL ELECTRICAL COMPONENTS WHICH ARE NOT STUD MOUNTED AND ALL FEED THRUS TO BE CENTRALIZED AND CEMENTED IN PLACE PER ND 1002009.
18. LEAD FROM AR1-8 TERMINATES AT LOWER WELD CONNECTION OF PIN 30. UPPER LEAD TIES PINS 15 AND 30 TO FT12.

1007162

1007162 C

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 12149	8 SEP 64	JWP / CP
B	REVISED PER TDRR 12618	25 SEP 64	LGC / CJP
C	REVISED PER TDRR 13926	11 NOV 64	J.E.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R5
R6
R15
R16
FT8
R19
FT7
FT6
FT10
FT9
R8
R7
CR5
R20
CR4
CR7
CR6
R21
FT5
R4
FT4
R9
FT3
R3
R2
R1
R18
R17
FT2
FT1
FT14
R24
R23
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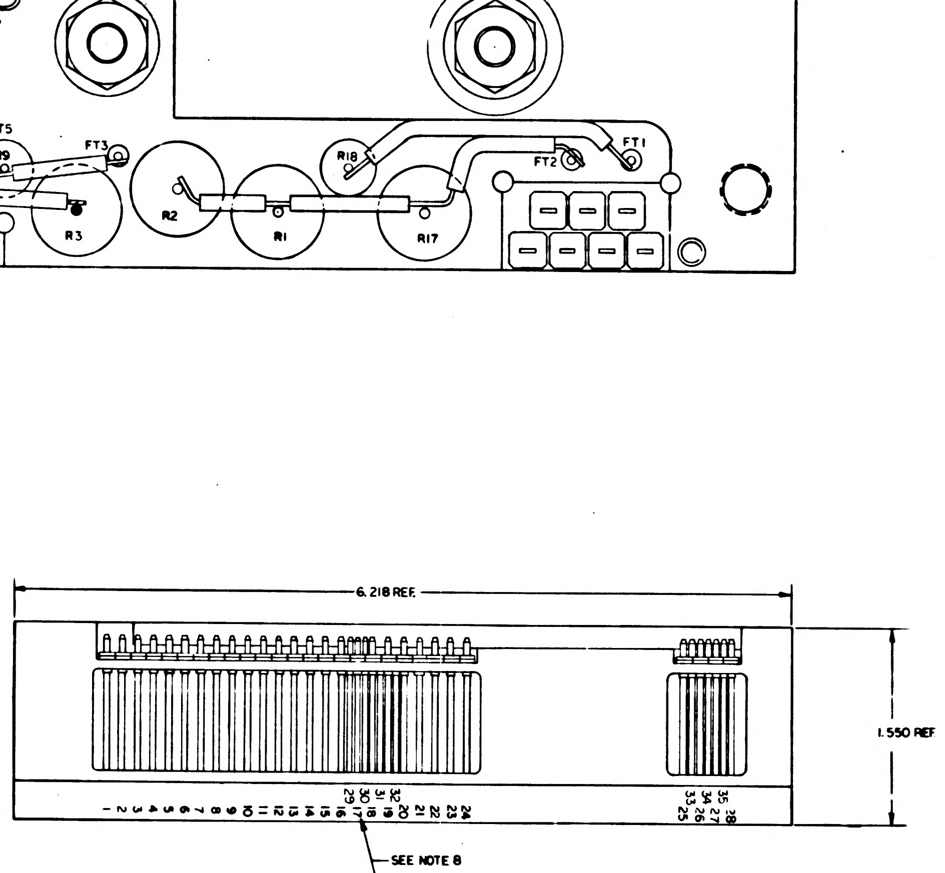
FT12
R13
K
CR1
FT13
CR8
CR3
K
R11
R10
R12
FT11
42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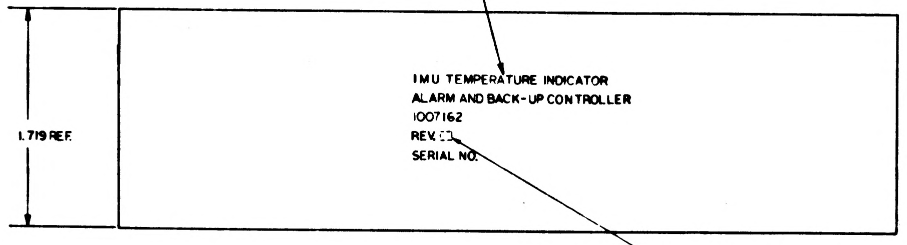
SEE NOTE 8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IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV.
SERIAL NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010140	SCHEMATIC, ELECTRICAL	
2	1010311- SEE NOTE 15	RESISTOR	49
2	1010377-237	RESISTOR	48
1	1008185	INSULATOR TOP, AMPL	47
A/R	1006776-20	INSULATION SLEEVING	46
1	MS20341-10B	NUT HEX	45
1	MS20341-416B	NUT HEX	44
A/R	1006757-8	WIRE ELECTRICAL .020 DIA.	43
A/R	MIL-I-23053-8	INSULATION SLEEVING	42
A/R	1006776-21	INSULATION SLEEVING	41
A/R	1006757-1	WIRE ELECT. Cl. X .020	40
35	1006782-5	CONTACT WRAPOST MALE	39
35	1006775	INSULATOR WRAPOST MALE	38
10	1008070-5	WASHER, FLAT	37
10	MS20341-4A	NUT-HEX	36
10	MS35338-78	WASHER, LOCK	35
1	1008021-1	BUSHING INSULATOR	34
1	1008021-2	BUSHING INSULATOR	33
1	1008020-2	WASHER FLAT	32
1	1008020-2	WASHER FLAT	31
1	1008024-1	WASHER INSULATOR	30
1	1008024-2	↓	29
1	1008024-4	↓	28
1	1008024-3	↓	27
1	1018900	AMPLIFIER	26
2	1000284	AMPLIFIER	25
2	1010353-1	RELAY	24
1	1010273-1	TRANSISTOR	23
6	1010362-3	DIODE	22
1	1010441-2 ~~(SEE NOTE 13)~~	↓	21
1	1010331-20 ~~SEE NOTE 13)~~	↓	20
1	1010440-1	↓	19
☒	1010377 SEE NOTE 14	RESISTOR	18
		↓	17
2	1010364-368	↓	16
1	1010364-44	↓	15
1	1010361-112	↓	14
1	1010452-167	↓	13
2	1010450-9	↓	12
1	1010604-22	↓	11
1	1010450-10	↓	10
2	1010450-12	↓	9
1	1010450-13	↓	8
1	1010450-14	↓	7
2	1010450-3	↓	6
2	1010450-2	↓	5
1	1010450-11	↓	4
1	1008074	INSULATOR BOTTOM	3
1	1008186	INSULATOR TOP	2
1	1007072	HEATSINK	1

LIST OF MATERIALS

C 1007162

1007157	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X DECIMALS .XX ± .02 .XXX ± .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN L. Krahn DATE 23 MAR 64
CHECKED
APPROVAL
APPROVAL 3/24/64
NASA APPROVAL 3/24/64
MIT APPROVAL 24 Mar 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

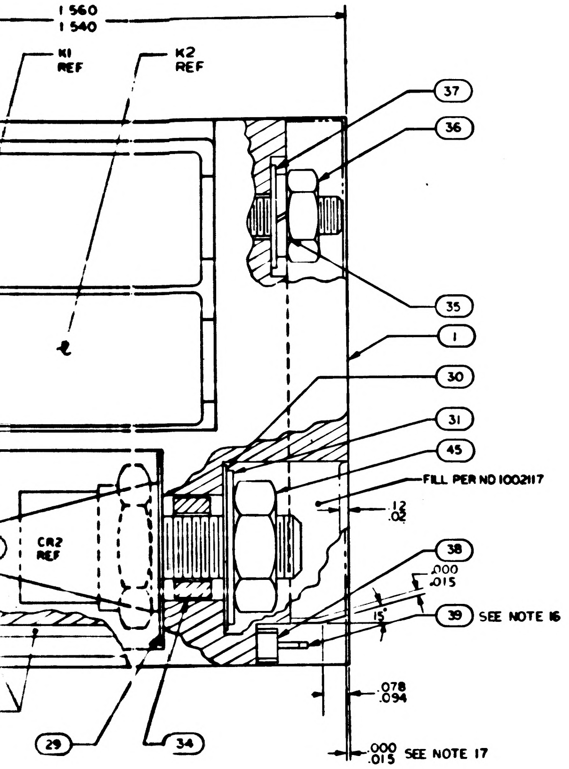
IMU TEMP INDICATOR ALARM
AND BACK-UP CONTROLLER
ASSEMBLY

CODE IDENT NO.
SIZE
NASA DRAWING NO. 1007162
SCALE 5:1
WT
SHEET 1 OF 1

1007162

3H

3/1007162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.015
39 SEE NOTE 16
CR2
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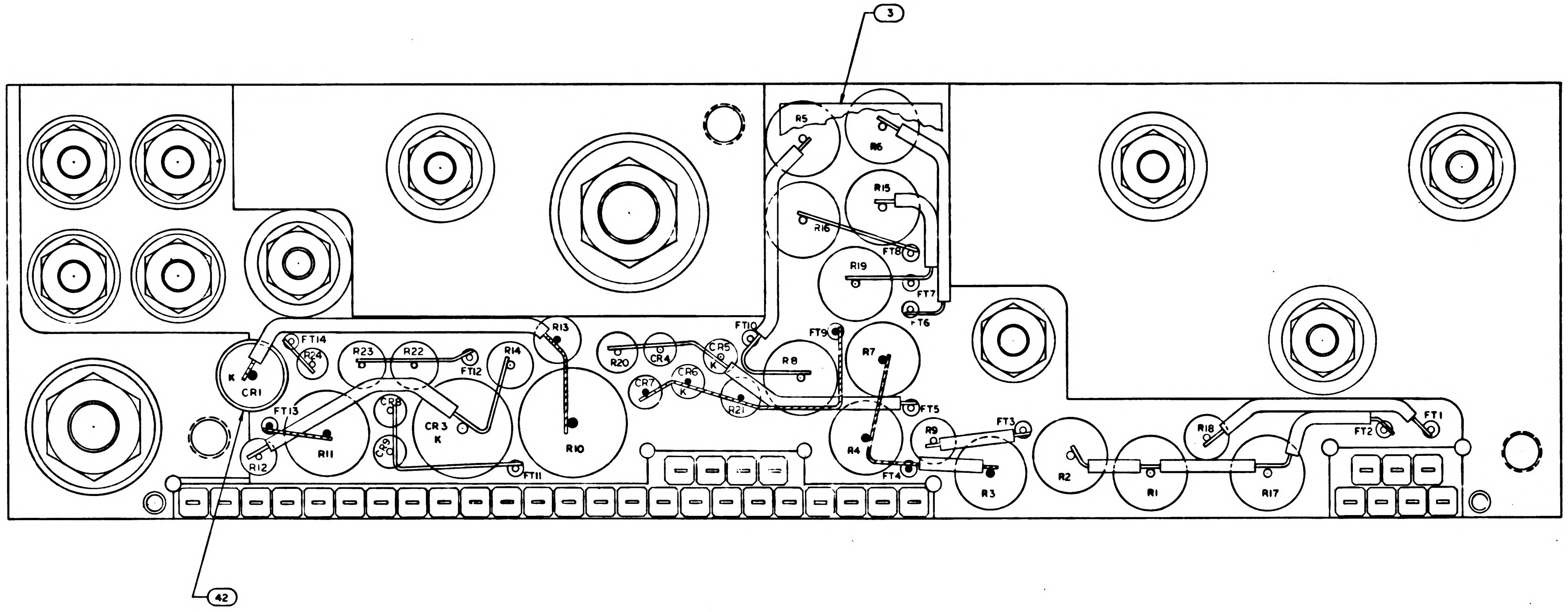
.015 SEE NOTE 17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FT12
R14
R20
CR4
CR5
K
CR7
CR6
K
R8
R7
R21
CR1
K
FT13
CR8
CR3
K
R11
R12
R10
FT11
FT5
R4
FT4
R9
FT3
R3
R2
R1
R18
FT2
FT1
R17
42

R13				R14		R9 AND R18					
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-113	5	1010377-164	117	1010377-141	71	1010311-126	1000	1010311-177	3400	1010311-228	11500
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-115	19	-166	121	-143	75	-128	1050	-179	3570	-230	12100
-116	21	-167	123	-144	77	-129	1070	-180	3650	-231	12400
-117	23	-168	125	-145	79	-130	1100	-181	3740	-232	12700
-118	25	-169	127	-146	81	-131	1130	-182	3830	-233	13000
-119	27	-170	129	-147	83	-132	1150	-183	3920	-234	13300
-120	29	-171	131	-148	85	-133	1180	-184	4020	-235	13700
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-123	35	-174	137	-151	91	-136	1270	-187	4320	-238	14700
-124	37	-175	139	-152	93	-137	1300	-188	4420	-239	15000
-125	39	-176	141	-153	95	-138	1330	-189	4530	-240	15400
-126	41	-177	143	-154	97	-139	1370	-190	4640	-241	15800
-127	43	-178	145	-155	99	-140	1400	-191	4750	-242	16200
-128	45	-179	147	-156	101	-141	1430	-192	4870	-243	16500
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-132	53	-183	155	-160	109	-145	1580	-196	5360	-247	18200
-133	55	-184	157	-161	111	-146	1620	-197	5490	-248	18700
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-139	67	-190	169	-167	123	-152	1870	-203	6340	-254	21500
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[illegible]	[illegible]			-190	169	-175	3240	-226	11000		
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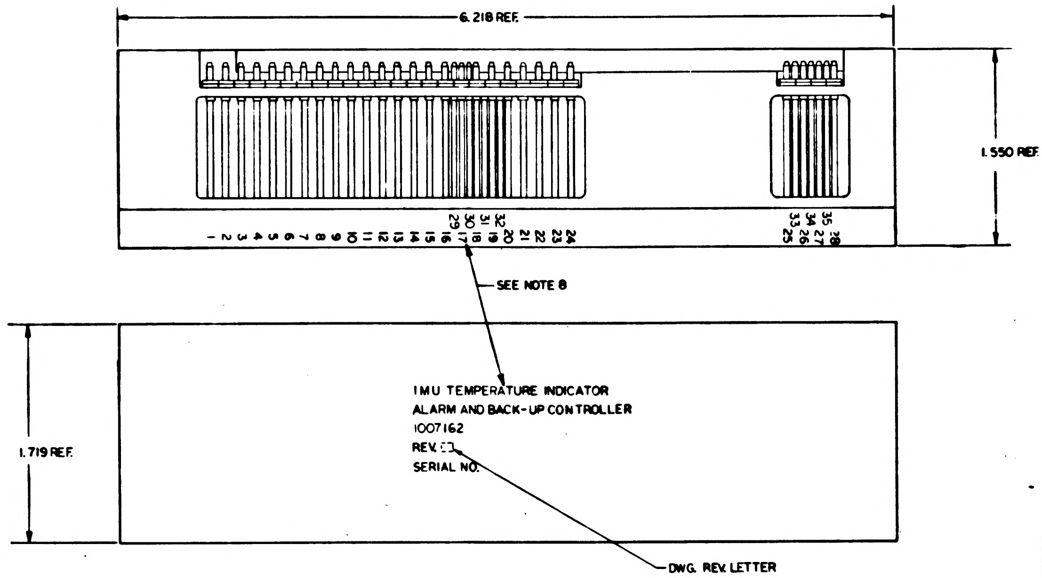
1007162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SEE NOTE 8
1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV.
SERIAL NO.
DWG. REV. LETTER

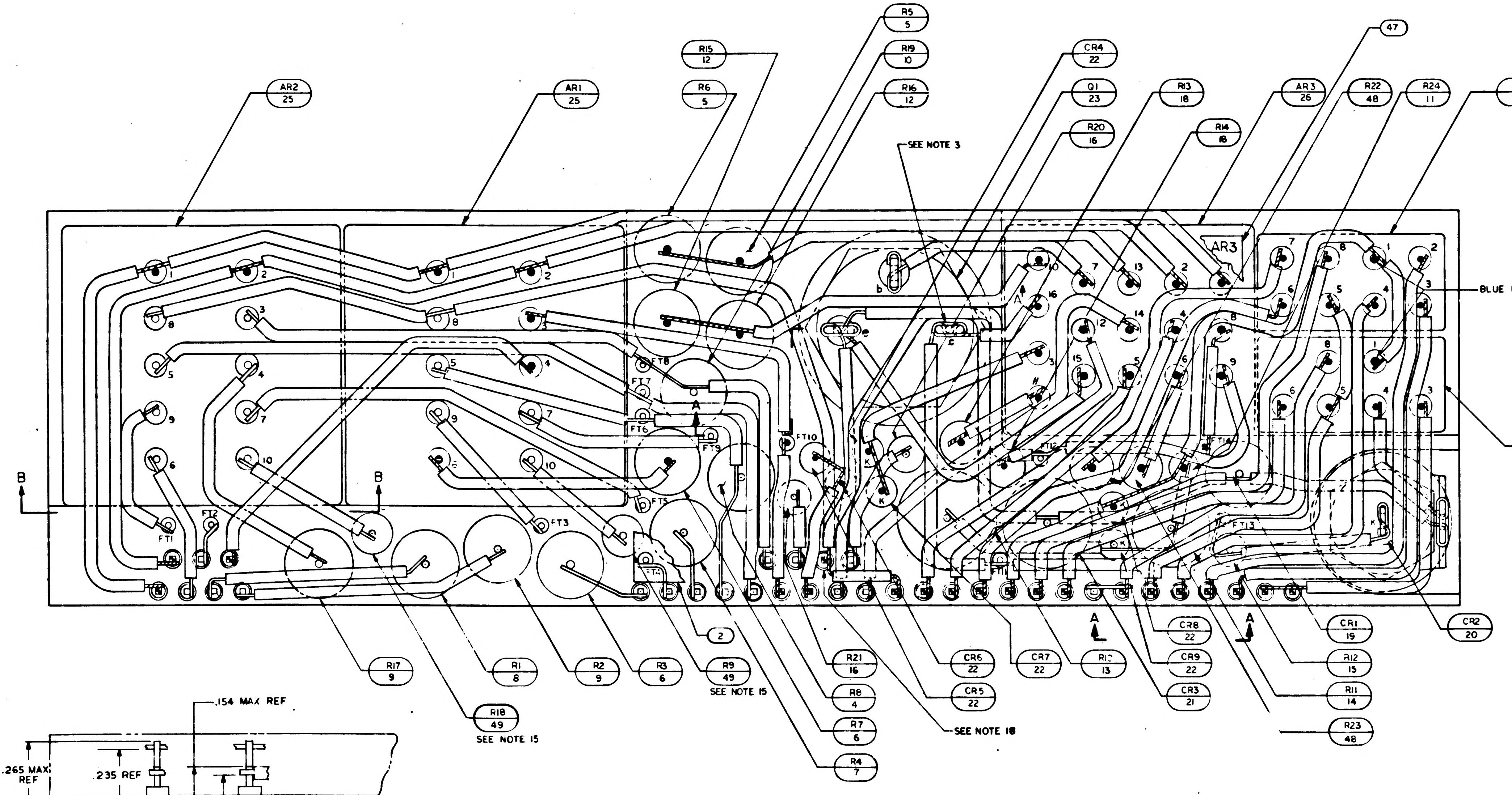
MARKING VIEW
SCALE 2:1

1007157	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
X XX ± .01 ± 1°
.XXX ± .005
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

2/1007162

1007157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AR1 25
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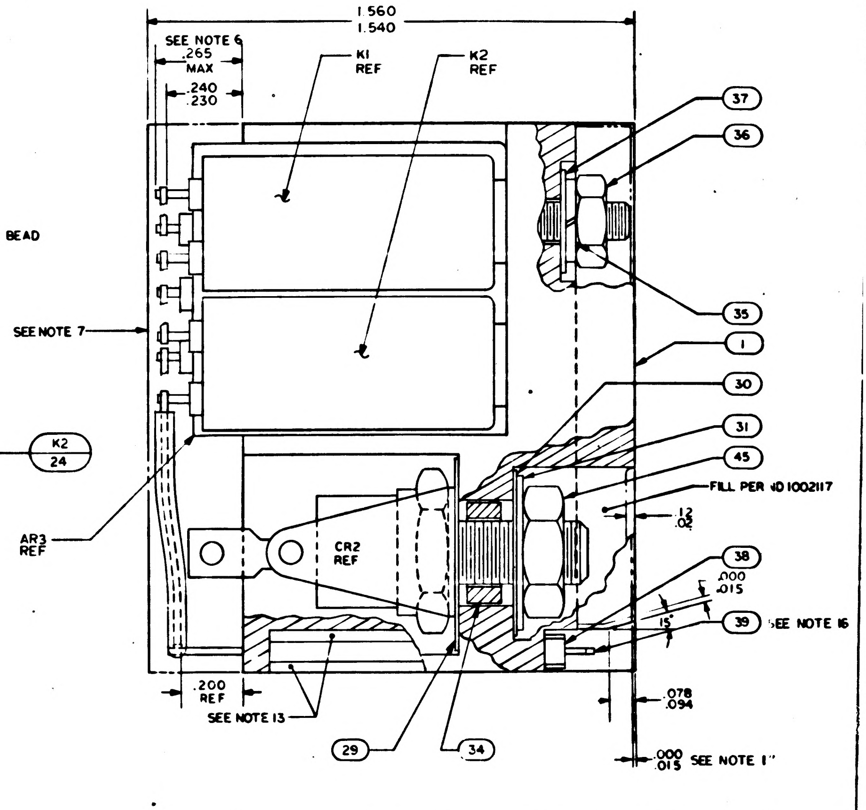
SEE NOTE 3
R14 18
AR3 26
R22 48
R24 11
K1 24
47
AR3
BLUE BEAD
SEE NOTE 7
AR3 REF
B
A
FT1
FT2
FT3
FT5
FT6
FT7
FT8
FT9
FT10
FT13
FT14
FT16
R17 9
R18 49
SEE NOTE 15
R1 8
R2 9
R3 6
R9 49
SEE NOTE 15
2
R21 16
R8 4
R7 6
R4 7
CR6 22
CR5 22
SEE NOTE 18
CR7 22
R10 13
CR8 22
CR9 22
CR3 21
CR1 19
R12 15
R11 14
R23 48
CR2 20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SEE NOTE 6
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K2 REF
K2 24
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FILL PER ND1002117
.12
.02
CR2 REF
38
.000
.015
15°
39
SEE NOTE 16
.078
.094
.200 REF
SEE NOTE 13
29
34
.000
.015
SEE NOTE 1

R13				R14			
PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE
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-131	51	-182	153	-159	107	-144	[illegible]
-132	53	-183	155	-160	109	-145	[illegible]
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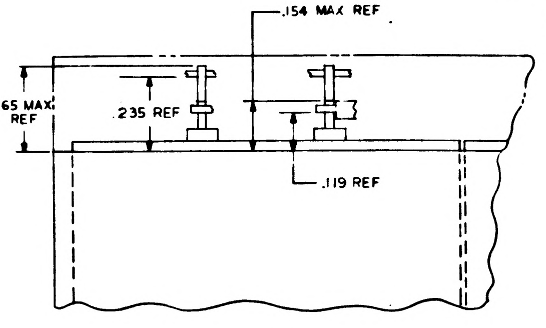
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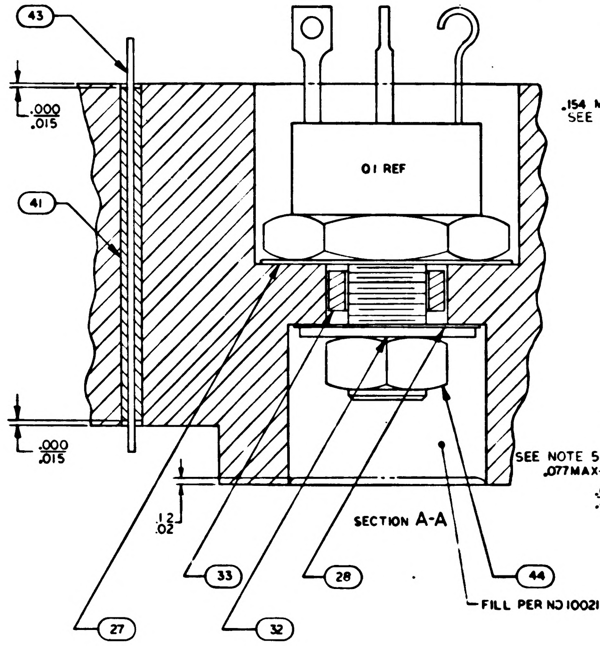
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FILL PER ND1002117
SEE NOTE 5
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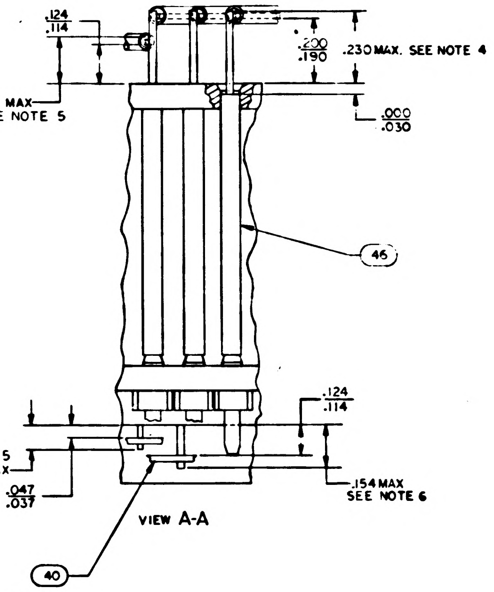
SECTION A-A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.154 MAX
SEE NOTE 6
40

VIEW A-A

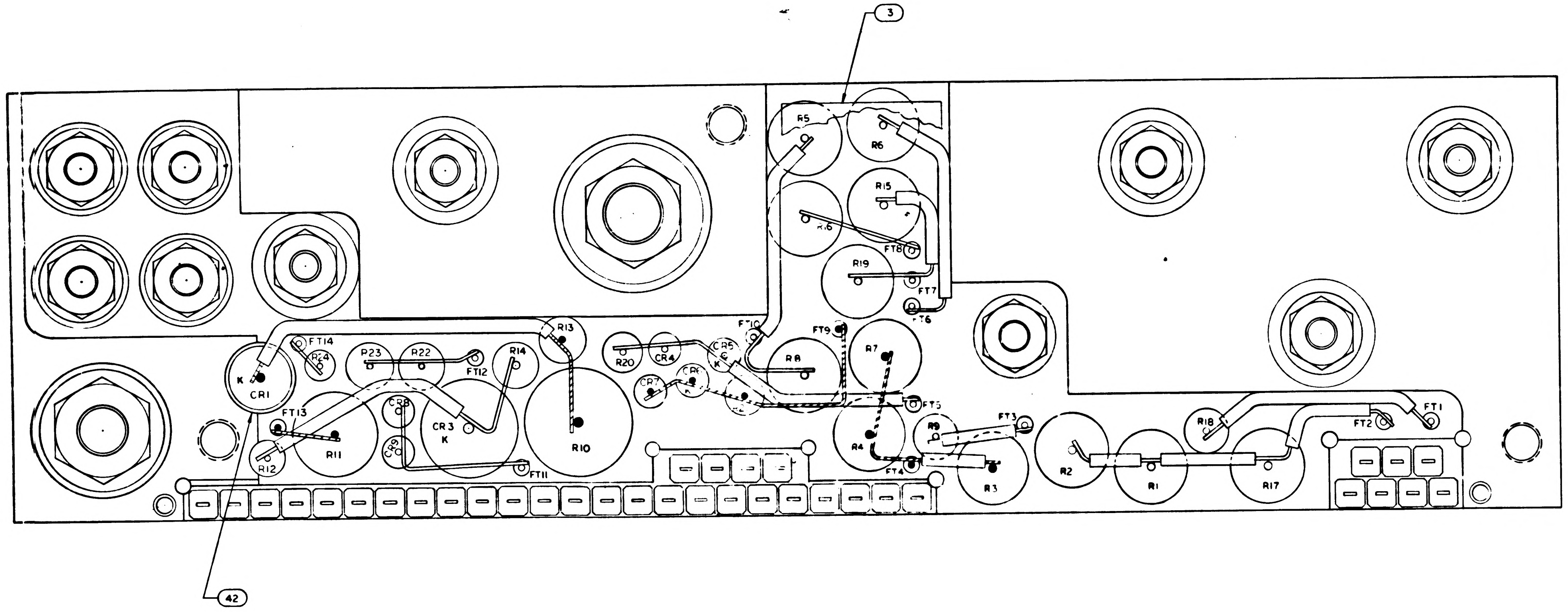
NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS MADE BY WELDING TO BE PER ND1002005.
3. ALL CONNECTIONS MADE BY SOLDERING TO BE PER ND1002071 USING ND1002075.
4. CHECKERED INDICATES INTERMEDIATE LEVEL WIRING
5. WHITE DOT INDICATES LEAD TO BE CUT FOR LOWEST LEVEL WIRING
6. BLACK DOT INDICATES LEAD TO BE CUT FOR HIGHEST LEVEL WIRING
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE. THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
8. MARK PIN NUMBERS .08 HIGH (WHITE) AND SERIALIZE AND MARK ALL OTHER CHARACTERS .12 HIGH (WHITE) PER ND 1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE
9. A/R DENOTES AS REQUIRED
10. K DENOTES CATHODE SIDE OF DIODE
11. MOUNTING TORQUE FOR FIND NO. 20 TO BE 10/15 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 23 TO BE 22/26 INCH POUNDS
13. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
14. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007162 PART TO BE SELECTD FROM CHART

Ⓒ 15. R9 AND R18 TO BE SELECTED AT ASSEMBLY, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER, *FOR R9 VALUE, USE BOTTOM DASH NO. ENGRAVED ON AR1 AND FOR R18 VALUE, USE TOP DASH NO. ENGRAVED ON AR2. RANGE OF VALUES (OHM) SHOWN ON CHART.*
16. *ASSEMBLE FIND NO. 35 AND 38 PER ND1002136.*
17. *ALL ELECTRICAL COMPONENTS WHICH ARE NOT STUD MOUNTED AND ALL FEED THRUS TO BE CENTRALIZED AND CEMENTED IN PLACE PER ND1002009, METHOD C.*
18. *LEAD FROM AR1-8 TERMINATES AT LOWER WELD CONNECTION OF PIN 30. UPPER LEAD TIES PINS 15 AND 30 TO FT12.*

1007162	D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 12149	6 SEP 64	JWP CP
B	REVISED PER TDRR 12618	25 SEP 64	LGC CJP
C	REVISED PER TDRR 13926	11 NOV 64	J.E.
D	REVISED PER TDRR 17192	12 MAR 66	GM



3
R5
R6
R15
R16
R19
FT8
FT7
FT6
FT9
FT10
R13
FT14
R24
R23
R22
FT12
R14
R20
CR4
CR5
K
R8
R7
CR1
K
CR6
CR7
CR2
FT5
FT13
CR8
CR3
K
R11
R10
R12
R9
R4
FT4
FT3
R3
R2
R1
R18
R17
FT2
FT1
FT11
42

IT NO.	VALUE
311-228	11500
-229	11800
-230	12100
-231	12400
-232	12700
-233	13000
-234	13300
-235	13700
-236	14000
-237	14300
-238	14700
-239	15000
-240	15400
-241	15800
-242	16200
-243	16500
244	16900
-245	17400
-246	17800
-247	18200
-248	18700
-249	19100
-250	19600
-251	20000
-252	20500
-253	21000
-254	21500
-255	22100
-256	22600
-257	23200
-258	23700
-259	24300
-260	24900
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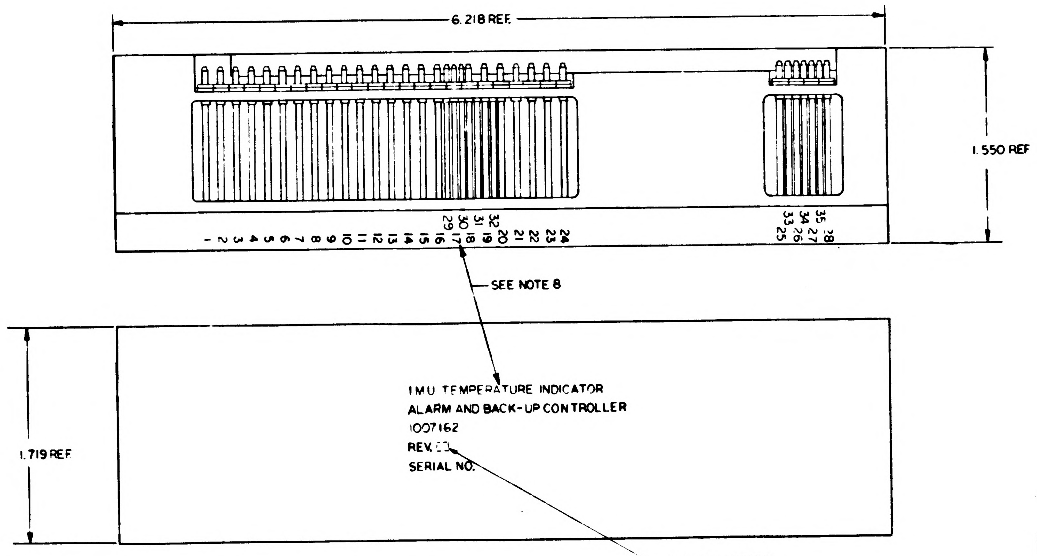
-262	26100
-263	26700
-264	27400
-265	28000
266	28700
-267	29400
-268	30100



6.218 REF.
1.550 REF
1.719 REF
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
29 30 31 32
25 26 27 28
33 34 35
SEE NOTE 8
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV.
SERIAL NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010140	SCHEMATIC, ELECTRICAL	
2	1010311- SEE NOTE 15	RESISTOR	49
2	1010377-237	RESISTOR	48
1	1008185	INSULATOR TOP, AMPL	47
A/R	1006776-20	INSULATION SLEEVING	46
1	MS20341-10B	NUT HEX	45
1	MS20341-416B	NUT HEX	44
A/R	1006757-8	WIRE ELECTRICAL .020 DIA.	43
A/R	MIL-I-23053-8	INSULATION SLEEVING	42
A/R	1006776-21	INSULATION SLEEVING	41
A/R	1006757-1	WIRE ELECT. [illegible] X .020	40
35	1006782-5	CONTACT WRAPOST MALE	39
35	1006775	INSULATOR WRAPOST MALE	38
10	1008070-5	WASHER, FLAT	37
10	MS20341-4A	NUT-HEX	36
10	MS35338-78	WASHER, LOCK	35
1	1008021-1	BUSHING INSULATOR	34
1	1008021-2	BUSHING INSULATOR	33
1	1008020-2	WASHER FLAT	32
1	1008020-2	WASHER FLAT	31
1	1008024-1	WASHER INSULATOR	30
1	1008024-2		29
1	1008024-4		28
1	1008024-3		27
1	1018900	AMPLIFIER	26
2	1000284	AMPLIFIER	25
2	1010353-1	RELAY	24
1	1010273-1	TRANSISTOR	23
6	1010362-3	DIODE	22
1	1010441-2 (~~SEE NOTE 19~~)		21
1	1010331-20 ~~SEE NOTE 19~~		20
1	1010440-1		19
☒	1010377 SEE NOTE 14	RESISTOR	18
			17
2	1010364-368		16
1	1010364-44		15
1	1010361-112		14
1	1010452-167		13
2	1010450-9		12
1	1010604-22		11
1	1010450-10		10
2	1010450-12		9
1	1010450-13		8
1	1010450-14		7
2	1010450-3		6
2	1010450-2		5
1	1010450-11		4
1	1008074	INSULATOR BOTTOM	3
1	1008166	INSULATOR TOP	2
1	1007072	HEATSINK	1

LIST OF MATERIALS

D	1007162

1007157	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X DECIMALS .XX ± .02 .XXX ± .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG. NO CONTRACT
DRAWN DATE 23 MAR 64
CHECKED
APPROVAL
APPROVAL 3/24/64
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

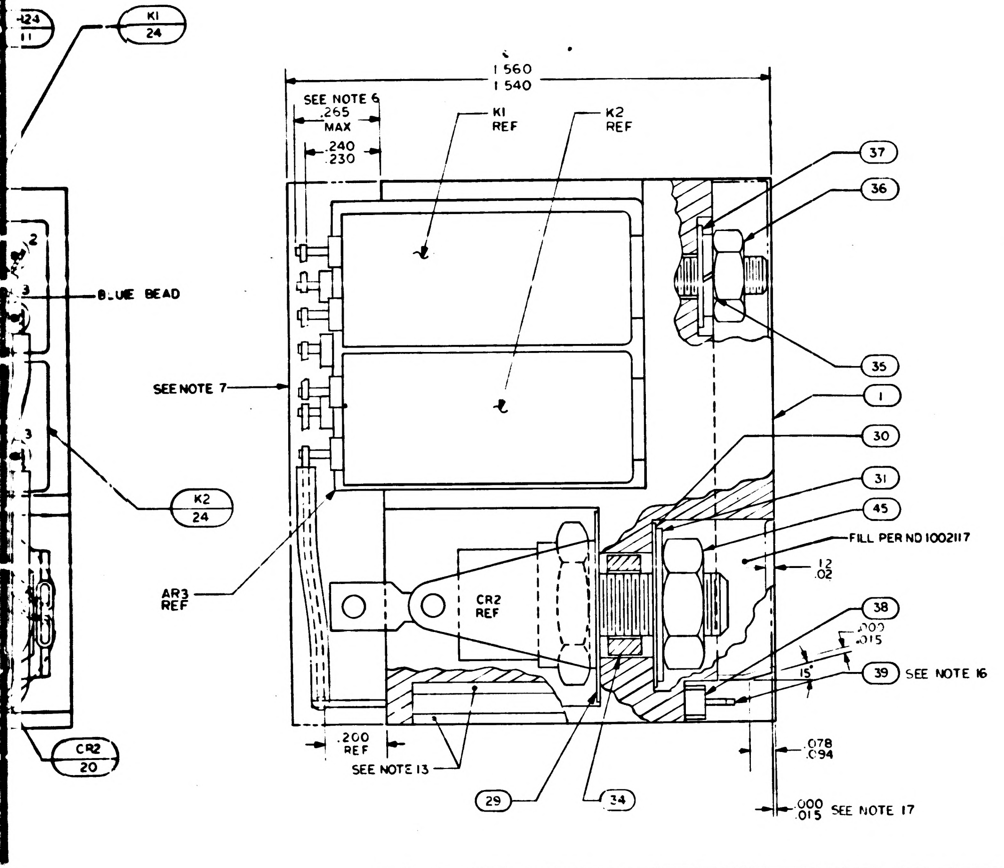
IMU TEMP INDICATOR ALARM AND BACK-UP CONTROLLER ASSEMBLY

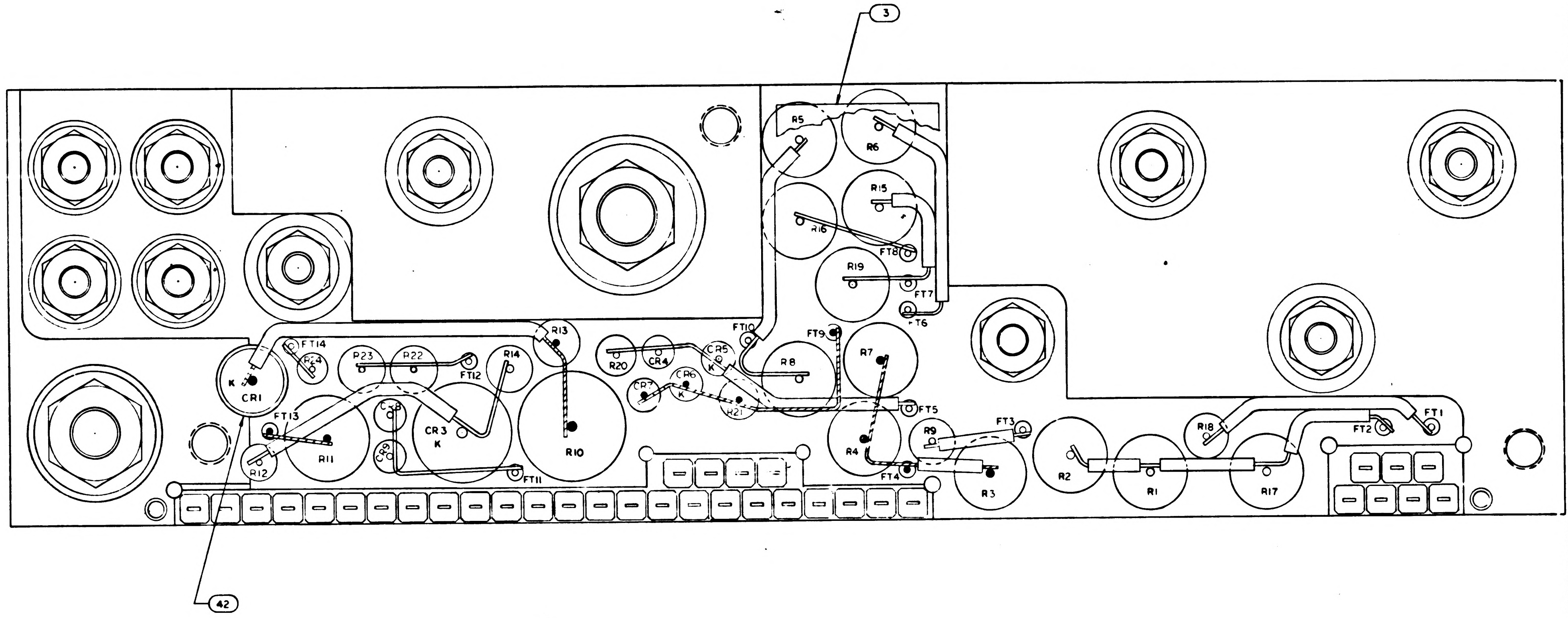
CODE IDENT NO.
SIZE
NASA DRAWING NO 1007162
SCALE 5:1
WT
SHEET 1 OF 1

1007162	D

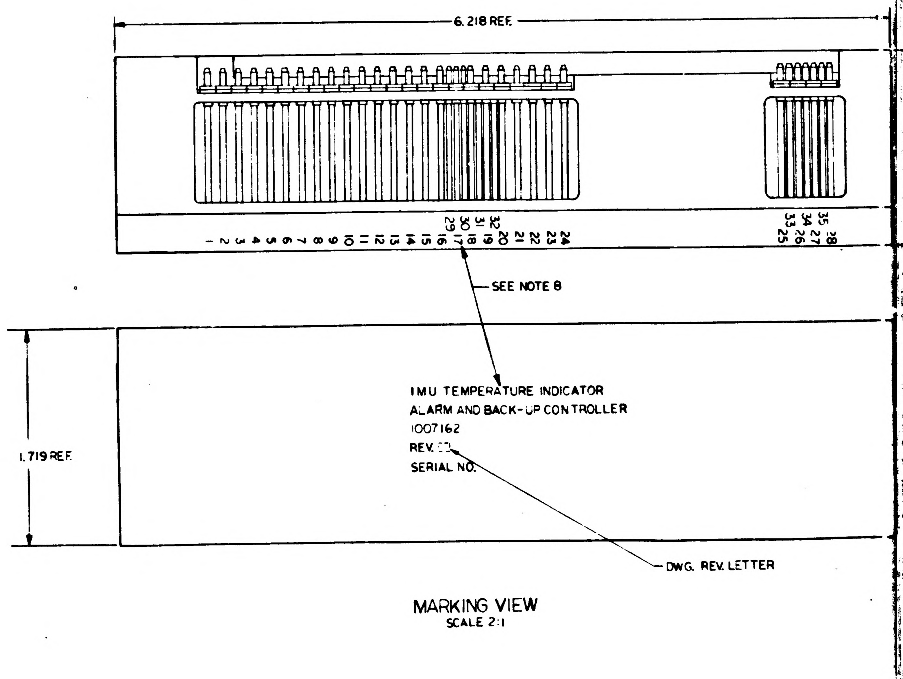
3H

3/1007162


K1
24
24
11
1 560
1 540
SEE NOTE 6
.265
MAX
.240
.230
K1
REF
K2
REF
37
36
35
1
30
31
45
FILL PER ND 1002117
.12
.02
38
.000
.015
15°
39 SEE NOTE 16
2
3
BLUE BEAD
SEE NOTE 7
3
K2
24
AR3
REF
CR2
REF
CR2
20
.200
REF
SEE NOTE 13
29
34
.078
.094
.000
.015 SEE NOTE 17

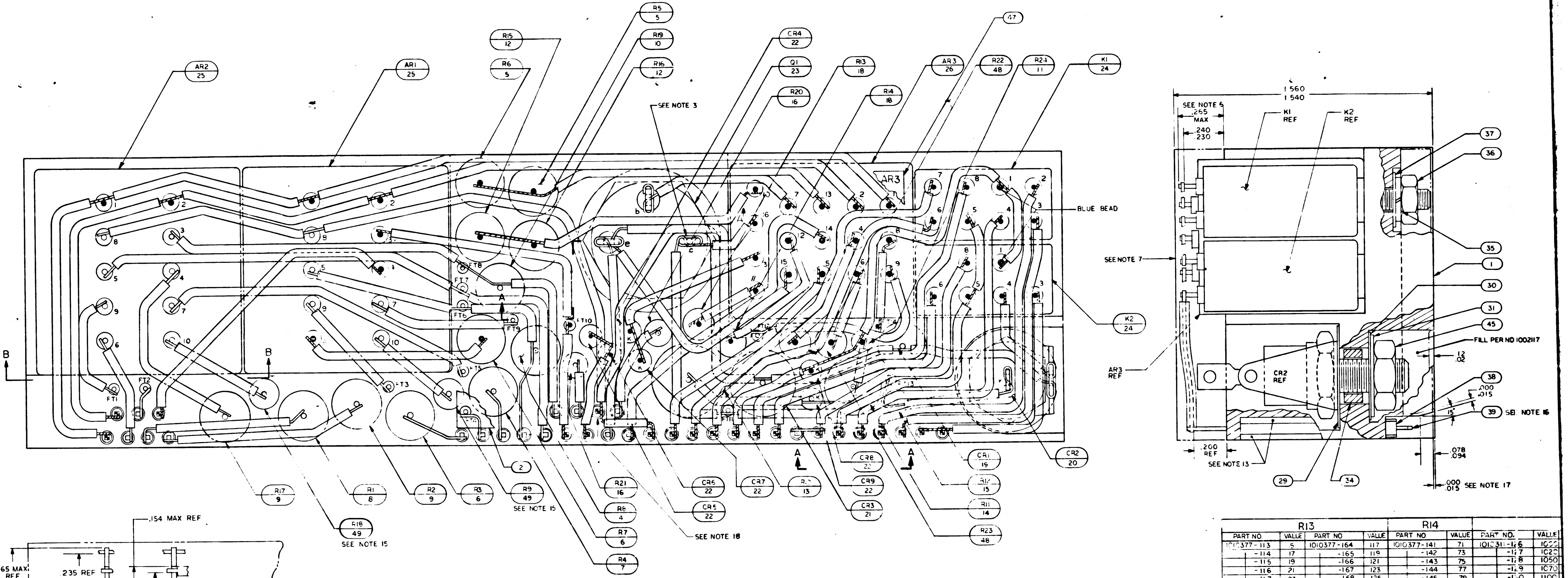

3
R5
R6
R15
R16
FT8
R19
FT7
T6
FT10
FT9
R7
R8
CR5
K
CR6
K
R21
FT5
FT3
R9
R4
FT4
R3
R2
R1
R17
R18
FT1
FT2
R13
R14
FT12
P23
P22
R20
CR4
CR7
FT14
K
CR1
FT13
R12
R11
CR8
CR9
CR3
K
R10
FT11
42

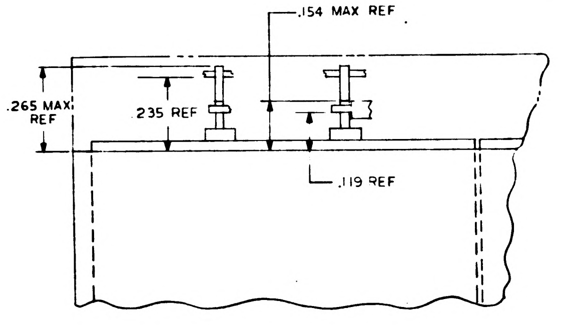
R13				R14		R9 AND R18					
PART NO	VALUE	PART NO	VALUE	PART NO	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE
1010377-113	15	1010377-164	117	1010377-141	71	1010311-126	1000	1010311-177	3400	1010311-228	11500
-114	17	-165	119	-142	73	-127	1020	-178	3480	-229	11800
-115	19	-166	121	-143	75	-128	1050	-179	3570	-230	12100
-116	21	-167	123	-144	77	-129	1070	-180	3650	-231	12400
-117	23	-168	125	-145	79	-130	1100	-181	3740	-232	12700
-118	25	-169	127	-146	81	-131	1130	-182	3830	-233	13000
-119	27	-170	129	-147	83	-132	1150	-183	3920	-234	13300
-120	29	-171	131	-148	85	-133	1180	-184	4020	-235	13700
-121	31	-172	133	-149	87	-134	1210	-185	4120	-236	14000
-122	33	-173	135	-150	89	-135	1240	-186	4220	-237	14300
-123	35	-174	137	-151	91	-136	1270	-187	4320	-238	14700
-124	37	-175	139	-152	93	-137	1300	-188	4420	-239	15000
-125	39	-176	141	-153	95	-138	1330	-189	4530	-240	15400
-126	41	-177	143	-154	97	-139	1370	-190	4640	-241	15800
-127	43	-178	145	-155	99	-140	1400	-191	4750	-242	16200
-128	45	-179	147	-156	101	-141	1430	-192	4870	-243	16500
-129	47	-180	149	-157	103	-142	1470	-193	4990	-244	16900
-130	49	-181	151	-158	105	-143	1500	-194	5110	-245	17400
-131	51	-182	153	-159	107	-144	1540	-195	5230	-246	17800
-132	53	-183	155	-160	109	-145	1580	-196	5360	-247	18200
-133	55	-184	157	-161	111	-146	1620	-197	5490	-248	18700
-134	57	-185	159	-162	113	-147	1650	-198	5620	-249	19100
-135	59	-186	161	-163	115	-148	1690	-199	5760	-250	19600
-136	61	-187	163	-164	117	-149	1740	-200	5900	-251	20000
-137	63	-188	165	-165	119	-150	1780	-201	6040	-252	20500
-138	65	-189	167	-166	121	-151	1820	-202	6190	-253	21000
-139	67	-190	169	-167	123	-152	1870	-203	6340	-254	21500
-140	69	-191	171	-168	125	-153	1910	-204	6490	-255	22100
-141	71	-192	173	-169	127	-154	1960	-205	6650	-256	22600
-142	73	-193	175	-170	129	-155	2000	-206	6810	-257	23200
-143	75	-194	177	-171	131	-156	2050	-207	6980	-258	23700
-144	77	-195	179	-172	133	-157	2100	-208	7150	-259	24300
-145	79	-196	181	-173	135	-158	2150	-209	7320	-260	24900
-146	81	-197	183	-174	137	-159	2210	-210	7500	-261	25500
-147	83	-198	185	-175	139	-160	2260	-211	7680	-262	26100
-148	85	-199	187	-176	141	-161	2320	-212	7870	-263	26700
-149	87	-200	189	-177	143	-162	2370	-213	8060	-264	27400
-150	89	-201	191	-178	145	-163	2430	-214	8250	-265	28000
-151	91	-202	193	-179	147	-164	2490	-215	8450	-266	28700
-152	93	-203	195	-180	149	-165	2550	-216	8660	-267	29400
-153	95	-204	197	-181	151	-166	2610	-217	8870	-268	30100
-154	97	-205	199	-182	153	-167	2670	-218	9090	-	
-155	99	-206	201	-183	155	-168	2740	-219	9310		
-156	101			-184	157	-169	2800	-220	9530		
-157	103			-185	159	-170	2870	-221	9760		
-158	105			-186	161	-171	2940	-222	10000		
-159	107			-187	163	-172	3010	-223	10200		
-160	109			-188	165	-173	3090	-224	10500		
-161	111			-189	167	-174	3160	-225	10700		
-162	113			-190	169	-175	3240	-226	11000		
-163	115			-191	171	-176	3320	-227	11300		


6.218 REF.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
29 30 31 32
25 26 27 28
33 34 35
SEE NOTE 8
1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV.
SERIAL NO.
DWG. REV. LETTER

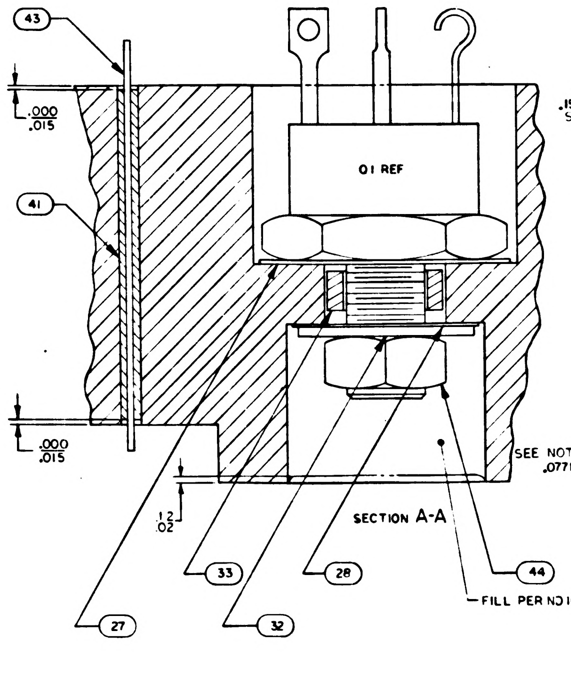
MARKING VIEW
SCALE 2:1

1007162


AR2 25
AR1 25
R15 12
R6 5
R5 5
R19 10
R16 12
CR4 22
Q1 23
R20 16
R13 18
R14 18
AR3 26
R22 48
R24 11
K1 24
47
SEE NOTE 3
AR3
BLUE BEAD
K2 24
CR2 20
CR1 15
R12 15
R11 14
R23 48
CR8 22
CR9 22
CR3 21
R10 13
CR7 22
CR6 22
CR5 22
SEE NOTE 18
R21 16
R8 4
R7 6
R4 7
R9 49
SEE NOTE 15
R3 6
R2 9
R1 8
R17 9
R18 49
SEE NOTE 15
2
B
B
A
A
FT1
FT2
FT3
FT6
FT7
FT8
FT9
FT10
1.560
1.540
SEE NOTE 6
.255 MAX
.240
.230
K1 REF
K2 REF
37
36
35
1
30
31
45
FILL PER ND 1002117
.12
.02
38
.000
.015
39 SEE NOTE 16
.078
.094
.000
.015 SEE NOTE 17
SEE NOTE 7
AR3 REF
CR2 REF
.200 REF
SEE NOTE 13
29
34


.154 MAX REF
.265 MAX REF
.235 REF
.119 REF

SECTION B-B


43
41
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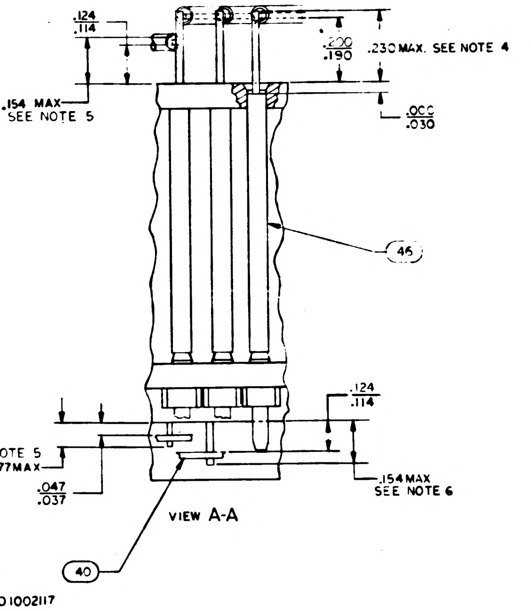
.015
.000
.015
Q1 REF
.12
.02
27
33
32
28
44
SEE NOTE 5
.077 MAX
FILL PER ND 1002117

SECTION A-A


.124
.114
.200
.190
.230 MAX. SEE NOTE 4
.154 MAX
SEE NOTE 5
.000
.030
46
.124
.114
.047
.037
.154 MAX
SEE NOTE 6
40

VIEW A-A

R13				R14			
PART NO	VALUE	PART NO	VALUE	PART NO	VALUE	PART NO.	VALUE
1010377-113	15	1010377-164	117	1010377-141	71	1010311-126	1000
-114	17	-165	119	-142	73	-127	1020
-115	19	-166	121	-143	75	-128	1050
-116	21	-167	123	-144	77	-129	1070
-117	23	-168	125	-145	79	-130	1100
-118	25	-169	127	-146	81	-131	1130
-119	27	-170	129	-147	83	-132	1150
-120	29	-171	131	-148	85	-133	1180
-121	31	-172	133	-149	87	-134	1210
-122	33	-173	135	-150	89	-135	1240
-123	35	-174	137	-151	91	-136	1270
-124	37	-175	139	-152	93	-137	1300
-125	39	-176	141	-153	95	-138	1330
-126	41	-177	143	-154	97	-139	1370
-127	43	-178	145	-155	99	-140	1400
-128	45	-179	147	-156	101	-141	1430
-129	47	-180	149	-157	103	-142	1470
-130	49	-181	151	-158	105	-143	1500
-131	51	-182	153	-159	107	-144	1540
-132	53	-183	155	-160	109	-145	1580
-133	55	-184	157	-161	111	-146	1620
-134	57	-185	159	-162	113	-147	1650
-135	59	-186	161	-163	115	-148	1690
-136	61	-187	163	-164	117	-149	1740
-137	63	-188	165	-165	119	-150	1780
-138	65	-189	167	-166	121	-151	1820
-139	67	-190	169	-167	123	-152	1870
-140	69	-191	171	-168	125	-153	1910
-141	71	-192	173	-169	127	-154	1960
-142	73	-193	175	-170	129	-155	2000
-143	75	-194	177	-171	131	-156	2050
-144	77	-195	179	-172	133	-157	2100
-145	79	-196	181	-173	135	-158	2150
-146	81	-197	183	-174	137	-159	2210
-147	83	-198	185	-175	139	-160	2260
-148	85	-199	187	-176	141	-161	2320
-149	87	-200	189	-177	143	-162	2370
-150	89	-201	191	-178	145	-163	2430
-151	91	-202	193	-179	147	-164	2490
-152	93	-203	195	-180	149	-165	2550
-153	95	-204	197	-181	151	-166	2610
-154	97	-205	199	-182	153	-167	2670
-155	99	-206	201	-183	155	-168	2740
-156	101			-184	157	-169	2800
-157	103			-185	159	-170	2870
-158	105			-186	161	-171	2940
-159	107			-187	163	-172	3010
-160	109			-188	165	-173	3090
-161	111			-189	167	-174	3160
-162	113			-190	169	-175	3240
-163	115			-191	171	-176	3320

NOTES

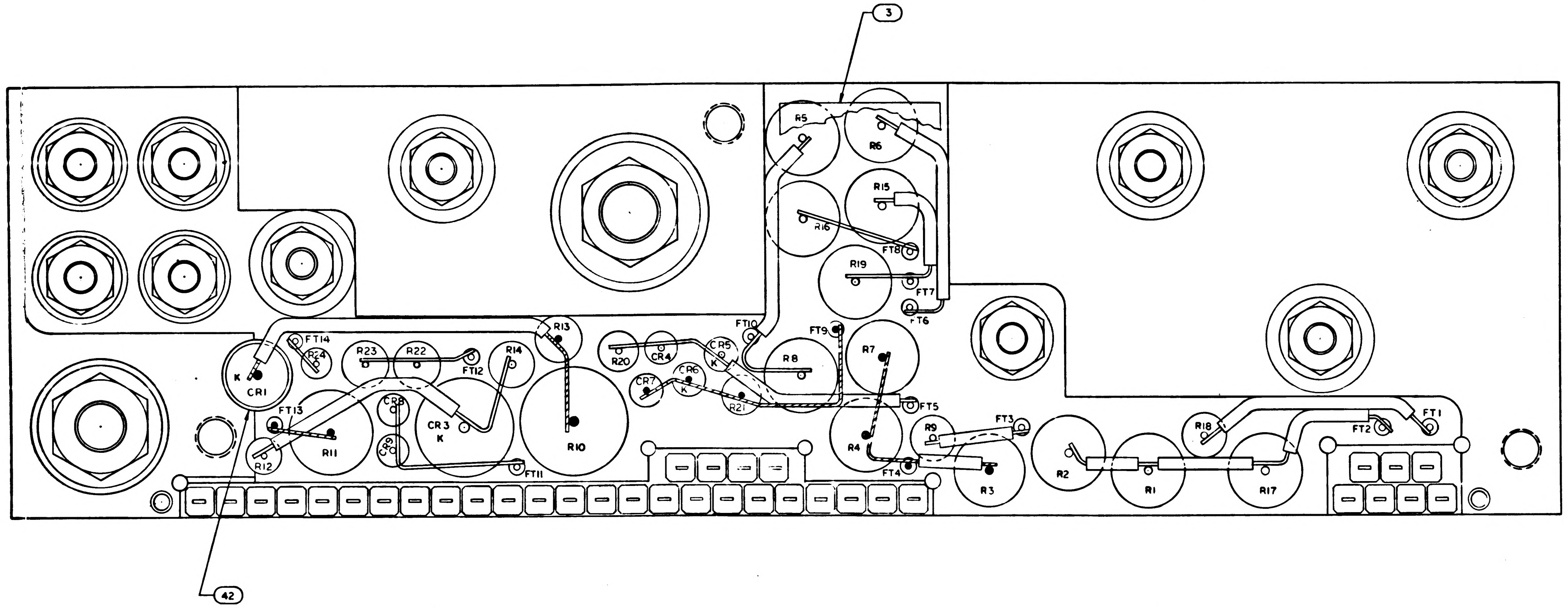
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS MADE BY WELDING TO BE PER ND1002005.
3. ALL CONNECTIONS MADE BY SOLDERING TO BE PER ND1002071 USING ND1002075.
4. CHECKERED INDICATES INTERMEDIATE LEVEL WIRING
5. WHITE DOT INDICATES LEAD TO BE CUT FOR LOWEST LEVEL WIRING
6. BLACK DOT INDICATES LEAD TO BE CUT FOR HIGHEST LEVEL WIRING
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
8. MARK PIN NUMBERS .08 HIGH (WHITE) AND SERIALIZE AND MARK ALL OTHER CHARACTERS .12 HIGH (WHITE) PER ND 1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE
9. A/R DENOTES AS REQUIRED
10. K DENOTES CATHODE SIDE OF DIODE
11. MOUNTING TORQUE FOR FIND NO. 20 TO BE 10/15 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 23 TO BE 22/26 INCH POUNDS
13. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
14. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP1007162 PART TO BE SELECTD FROM CHART
15. Ⓒ R9 AND R18 TO BE SELECTED AT ASSEMBLY, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER. *FOR R9 VALUE*, SEE BOTTOM DASH NO. ENGRAVED ON AR1 AND *FOR R18 VALUE*, USE TOP DASH NO. ENGRAVED ON AR2. RANGE OF VALUES (OHM) SHOWN ON CHART.
16. [illegible] FIND NO. 35 AND 36 PER ND1002136.
17. ALL ELECTRICAL COMPONENTS WHICH ARE NOT STUD MOUNTED AND ALL FEED THRUS TO BE CENTRALIZED AND CEMENTED IN PLACE PER ND1002009, METHOD C.
18. LEAD FROM AR1-9 TERMINATES AT LOWER WELD CONNECTION OF PIN 30. UPPER LEAD TIES PINS 15 AND 30 TO FT12.
19. PROCURE PER PS 1007162.
20. TEST PER ALL REQUIREMENTS OF ATP1007162 PRIOR TO ENCAPSULATION

1007162	SHT 0

1-1007162

1007162 E

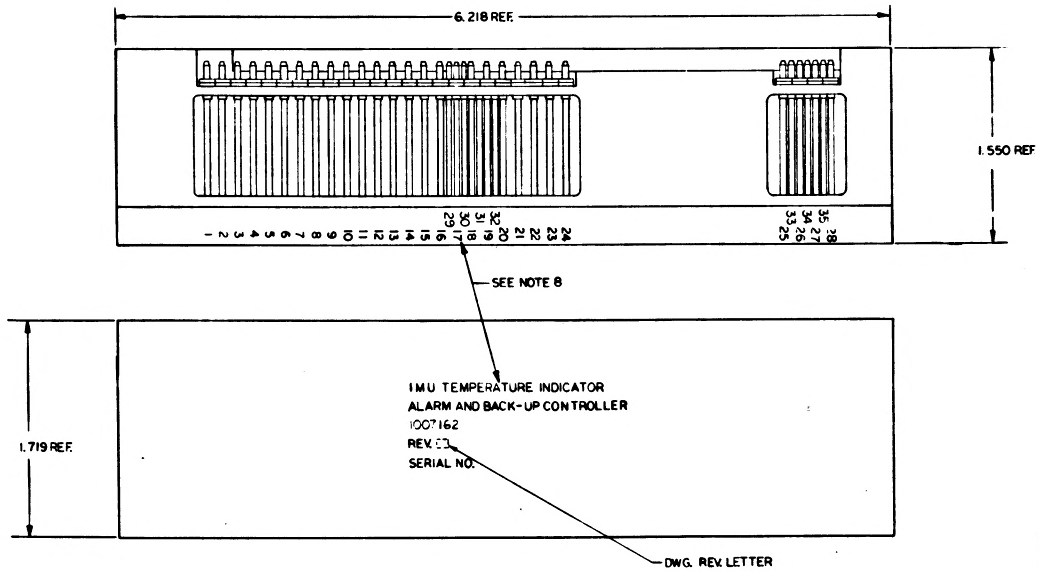
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 12149	8 SEP 64	JWF CD
B	REVISED PER TDRR 12618	25 SEP 64	LGC
C	REVISED PER TDRR 13926	11 NOV 64	
D	REVISED PER TDRR 17192	12 MAR 66	GM
E	REVISED PER TDRR 3.8	16 V 32 68	JMR



3
R5
R6
R15
R16
R19
FT8
FT7
FT6
FT10
FT9
R7
R8
CR5
CR4
R20
CR6
CR7
R21
FT5
R13
R14
FT12
R22
R23
R24
FT14
K
CR1
FT13
R11
CR8
CR9
CR3
K
R10
FT11
R12
R4
FT4
R9
FT3
R3
R2
R1
R18
FT2
FT1
R17
42

IT NO.	VALUE
311-228	115 00
-229	118 00
-230	121 00
-231	124 00
-232	127 00
-233	130 00
-234	133 00
-235	137 00
-236	140 00
-237	143 00
-238	147 00
-239	150 00
-240	154 00
-241	15[illegible] 00
-242	162 00
-243	165 00
244	16[illegible] 00
-245	174 00
-246	178 00
-247	182 00
-248	187 00
-249	19[illegible] 00
-250	196 00
-251	20[illegible] 00
-252	205 00
-253	21[illegible] 00
-254	215 00
-255	221 00
-256	226 00
-257	232 00
-258	237 00
-259	24[illegible] 00
-260	249 00
-261	[illegible] 00
262	26[illegible] 00
-263	267 00
-264	274 00
-265	280 00
-266	287 00
-267	29[illegible] 00
-268	30[illegible] 00

1007162 D



6.218 REF.
1.550 REF
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
29 30 31 32
25 26 27 28
33 34 35
SEE NOTE 8
1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV.
SERIAL NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010140	SCHEMATIC, ELECTRICAL	
2	1010311- SEE NOTE 15	RESISTOR	49
2	1010377-237	RESISTOR	48
1	1008185	INSULATOR TOP, AMPL	47
A/R	1006776-20	INSULATION SLEEVING	46
1	MS20341-10B	NUT HEX	45
1	MS20341-416B	NUT HEX	44
A/R	1006757-8	WIRE ELECTRICAL .020 DIA.	43
A/R	MIL-I-23053-8	INSULATION SLEEVING	42
A/R	1006776-21	INSULATION SLEEVING	41
A/R	1006757-1	WIRE ELECT. CL. X .020	40
35	1006782-5	CONTACT WRAPOST MALE	39
35	1006775	INSULATOR WRAPOST MALE	38
10	1008070-5	WASHER, FLAT	37
10	MS20341-4A	NUT-HEX	36
10	MS35338-78	WASHER, LOCK	35
1	1008021-1	BUSHING INSULATOR	34
1	1008021-2	BUSHING INSULATOR	33
1	1008020-2	WASHER FLAT	32
1	1008020-2	WASHER FLAT	31
1	1008024-1	WASHER INSULATOR	30
1	1008024-2	↓	29
1	1008024-4	↓	28
1	1008024-3	↓	27
1	1018900	AMPLIFIER	26
2	1000284	AMPLIFIER	25
2	1010353-1	RELAY	24
1	1010273-1	TRANSISTOR	23
6	1010362-3	DIODE	22
1	1010441-2 ~~(SEE NOTE 19)~~	↓	21
1	1010331-20 ~~SEE NOTE 19)~~	↓	20
1	1010440-1	↓	19
☒	1010377 SEE NOTE 14	RESISTOR	18
		↓	17
2	1010364-368	↓	16
1	1010364-44	↓	15
1	1010361-112	↓	14
1	1010452-167	↓	13
2	1010450-9	↓	12
1	1010604-22	↓	11
1	1010450-10	↓	10
2	1010450-12	↓	9
1	1010450-13	↓	8
1	1010450-14	↓	7
2	1010450-3	↓	6
2	1010450-2	↓	5
1	1010450-11	↓	4
1	1008074	INSULATOR BOTTOM	3
1	1008186	INSULATOR TOP	2
1	1007072	HEATSINK	1

LIST OF MATERIALS

1007162

1007157	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X DECIMALS .XX ± .02 .XXX ± .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN Veahn DATE 23MAR64
CHECKED 4 APR 64
APPROVAL
APPROVAL 3/24/64
NASA APPROVAL 3/24/64
MIT APPROVAL

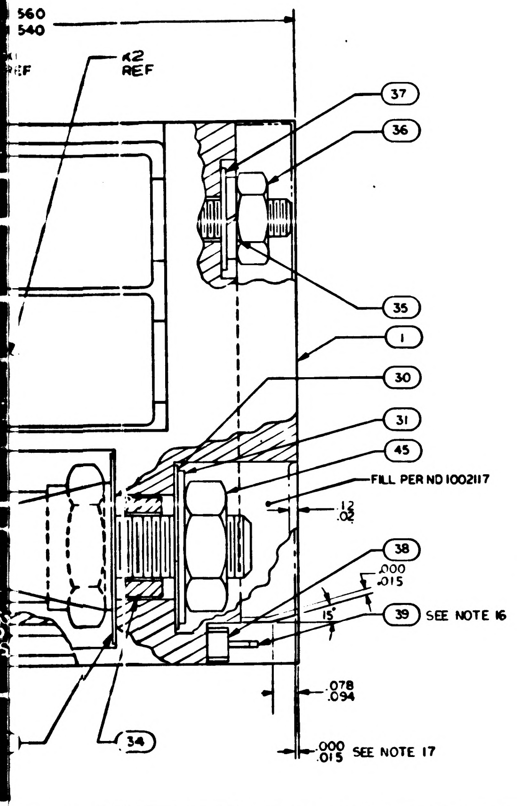
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

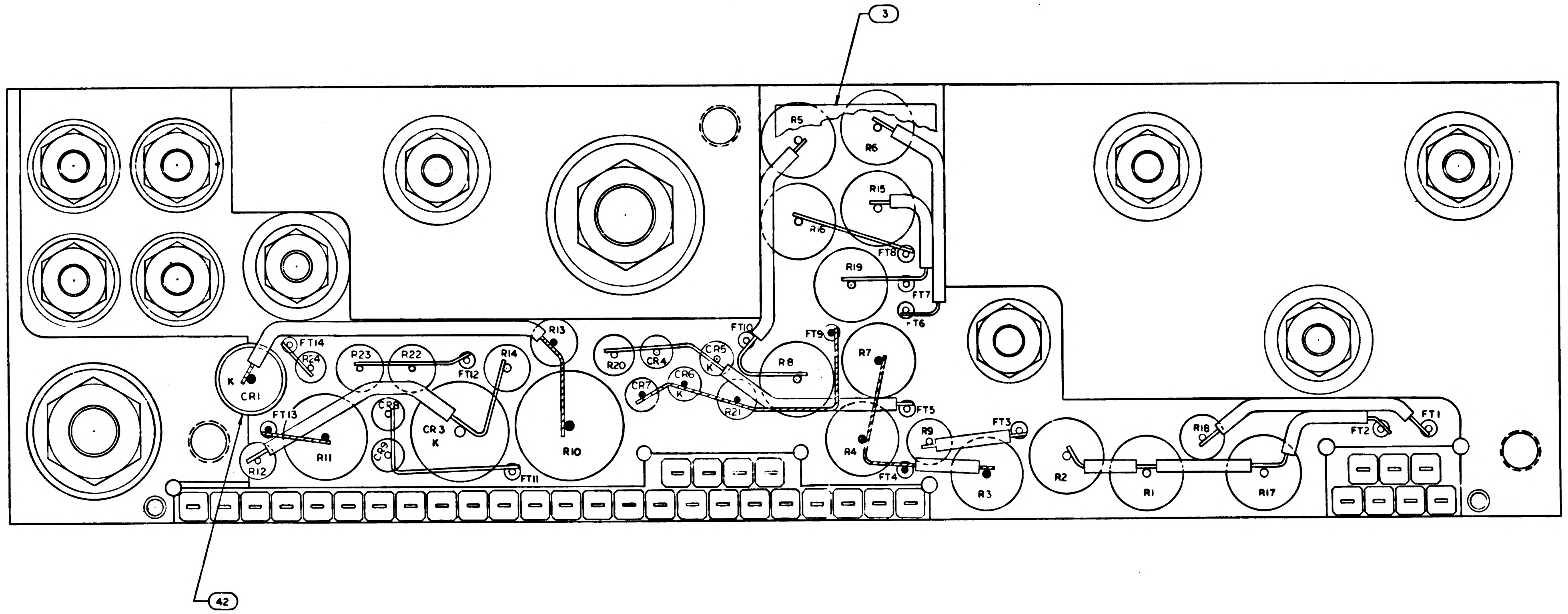
IMU TEMP INDICATOR ALARM
AND BACK-UP CONTROLLER
ASSEMBLY

CODE IDENT NO. SIZE NASA DRAWING NO 1007162
SCALE 5:1 WT SHEET 1 OF 1

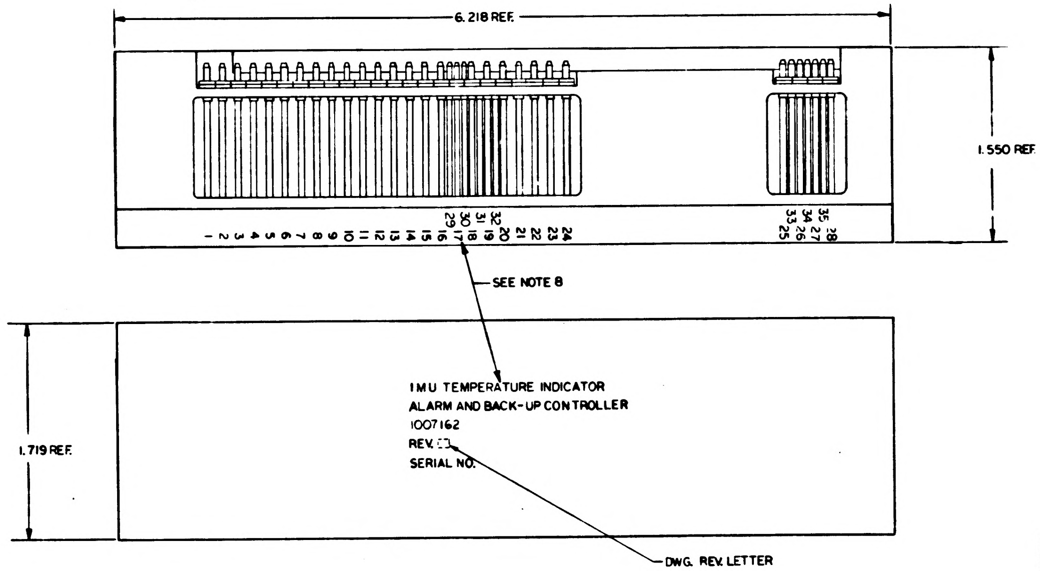
1007157

3/1007162


560
540
REF
R2
REF
37
36
35
1
30
31
45
FILL PER ND 1002117
.12
.02
38
.000
.015
15°
39
SEE NOTE 16
.078
.094
34
.000
.015
SEE NOTE 17


3
R5
R6
R15
R16
FT8
R19
FT7
T6
R13
FT10
FT9
R7
R8
FT14
R24
R23
R22
FT12
R14
R20
CR4
CR5
CR7
CR6
R21
FT5
FT3
FT1
FT2
R18
K
CR1
FT13
CR8
CR9
CR3
K
R12
R11
FT11
R10
R4
FT4
R9
R3
R2
R1
R17
42

R13		R14		R9 AND R18					
PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE
1010377-164	117	1010377-141	71	1010311-126	1000	1010311-177	3400	1010311-228	11500
-165	119	-142	73	-127	1020	-178	3480	-229	11800
-166	121	-143	75	-128	1050	-179	3570	-230	12100
-167	123	-144	77	-129	1070	-180	3650	-231	12400
-168	125	-145	79	-130	1100	-181	3740	-232	12700
-169	127	-146	81	-131	1130	-182	3830	-233	13000
-170	129	-147	83	-132	1150	-183	3920	-234	13300
-171	131	-148	85	-133	1180	-184	4020	-235	13700
-172	133	-149	87	-134	1210	-185	4120	-236	14000
-173	135	-150	89	-135	1240	-186	4220	-237	14300
-174	137	-151	91	-136	1270	-187	4320	-238	14700
-175	139	-152	93	-137	1300	-188	4420	-239	15000
-176	141	-153	95	-138	1330	-189	4530	-240	15400
-177	143	-154	97	-139	1370	-190	4640	-241	15800
-178	145	-155	99	-140	1400	-191	4750	-242	16200
-179	147	-156	101	-141	1430	-192	4870	-243	16500
-180	149	-157	103	-142	1470	-193	4990	-244	16900
-181	151	-158	105	-143	1500	-194	5110	-245	17400
-182	153	-159	107	-144	1540	-195	5230	-246	17800
-183	155	-160	109	-145	1580	-196	5360	-247	18200
-184	157	-161	111	-146	1620	-197	5490	-248	18700
-185	159	-162	113	-147	1650	-198	5620	-249	19100
-186	161	-163	115	-148	1690	-199	5760	-250	19600
-187	163	-164	117	-149	1740	-200	5900	-251	20000
-188	165	-165	119	-150	1780	-201	6040	-252	20500
-189	167	-166	121	-151	1820	-202	6190	-253	21000
-190	169	-167	123	-152	1870	-203	6340	-254	21500
-191	171	-168	125	-153	1910	-204	6490	-255	22100
-192	173	-169	127	-154	1960	-205	6650	-256	22600
-193	175	-170	129	-155	2000	-206	6810	-257	23200
-194	177	-171	131	-156	2050	-207	6980	-258	23700
-195	179	-172	133	-157	2100	-208	7150	-259	24300
-196	181	-173	135	-158	2150	-209	7320	-260	24900
-197	183	-174	137	-159	2210	-210	7500	-261	25500
-198	185	-175	139	-160	2260	-211	7680	-262	26100
-199	187	-176	141	-161	2320	-212	7870	-263	26700
-200	189	-177	143	-162	2370	-213	8060	-264	27400
-201	191	-178	145	-163	2430	-214	8250	-265	28000
-202	193	-179	147	-164	2490	-215	8450	-266	28700
-203	195	-180	149	-165	2550	-216	8660	-267	29400
-204	197	-181	151	-166	2610	-217	8870	-268	30100
-205	199	-182	153	-167	2670	-218	9090	–	
-206	201	-183	155	-168	2740	-219	9310		
		-184	157	-169	2800	-220	9530		
		-185	159	-170	2870	-221	9760		
		-186	161	-171	2940	-222	10000		
		-187	163	-172	3010	-223	10200		
		-188	165	-173	3090	-224	10500		
		-189	167	-174	3160	-225	10700		
		-190	169	-175	3240	-226	11000		
		-191	171	-176	3320	-227	11300		


6.218 REF.
1.550 REF.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
29 30 31 32
33 34 35
25 26 27 28
SEE NOTE 8
1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV.
SERIAL NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

☒	10101
2	10103
2	1010
1	10081
A/R	10061
1	MS20
1	MS20
A/R	10061
A/R	MIL-I-
A/R	100
A/R	1006
35	1006
35	1006
10	1008
10	MS20
10	MS35
1	1008
1	1008
1	1008
1	1008
1	1008
1	100
1	1008
1	100
1	1018
2	1000
2	10103
1	10102
6	10103
1	10104
1	10103
1	10104
☒	10103
2	10103
1	10103
1	10103
1	10104
2	10104
1	1010
1	1010 4
2	10104
1	10104
1	10104
2	10104
2	10104
1	10104
1	10080
1	1008
1	100
QTY REQD	

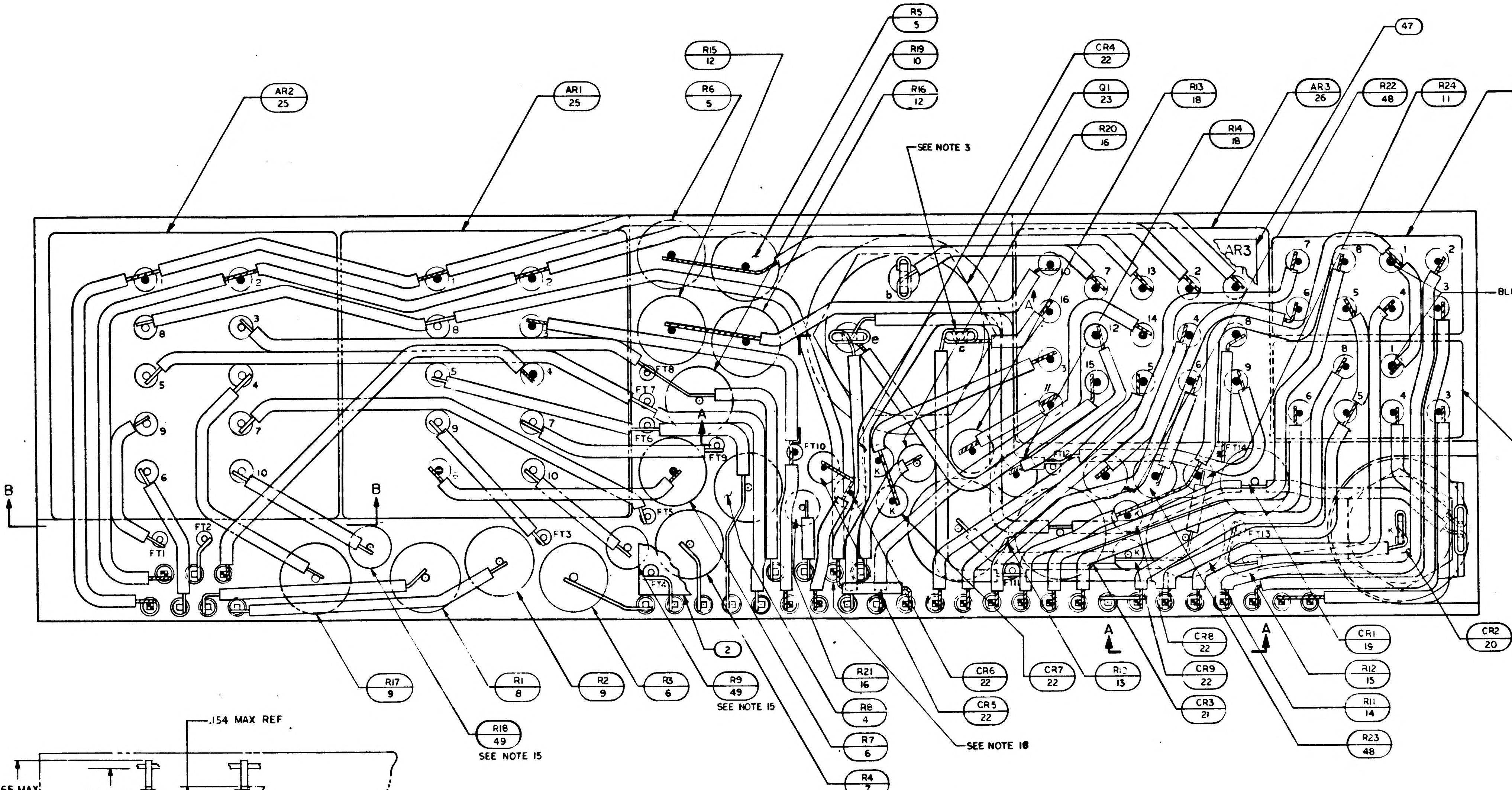
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLE: X - .XX ± .02 ± 1° .XXX ± .005 DO NOT SCALE THIS DRAWING
		MATERIAL
1007157		HEAT TREATMENT
NEXT ASSY	USED ON	FINAL FINISH
APPLICATION		

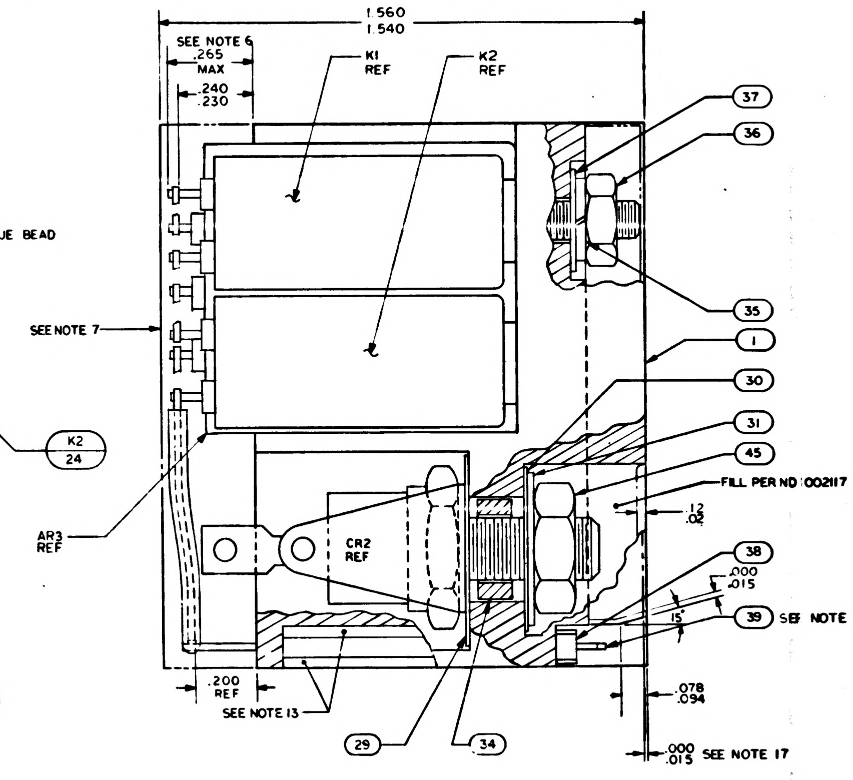
INSTRUMEN
DWG NO

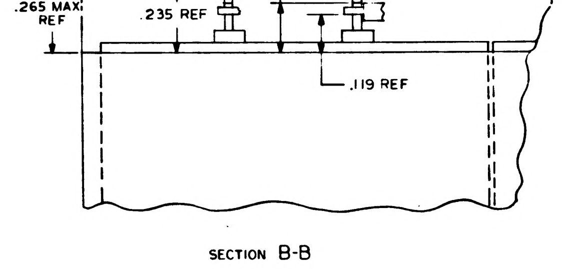
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

1007162 D

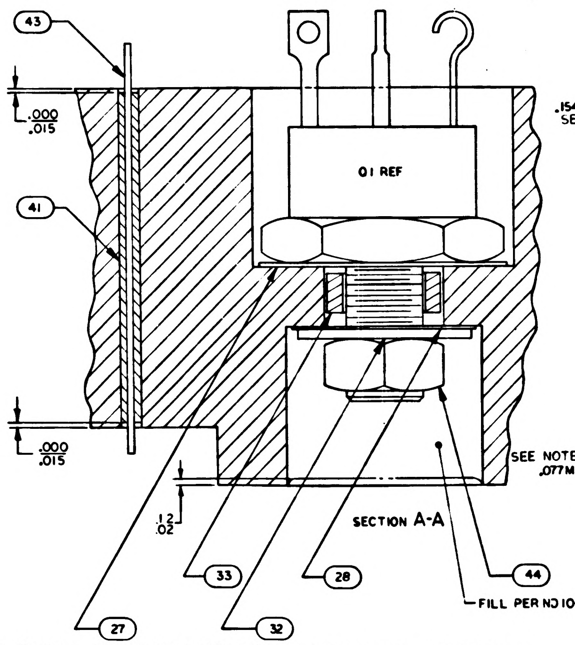
1007157


AR2
25
AR1
25
R15
12
R6
5
R5
5
R19
10
R16
12
SEE NOTE 3
CR4
22
Q1
23
R20
16
R13
18
R14
18
AR3
26
R22
48
R24
11
K1
24
47
AR3
BLUE BEAD
K2
24
B
B
A
A
FT1
FT2
FT3
FT4
FT5
FT6
FT7
FT8
FT9
FT10
FT11
FT12
FT13
FT14
2
R17
9
R18
49
SEE NOTE 15
R1
8
R2
9
R3
6
R9
49
SEE NOTE 15
R21
16
R8
4
R7
6
R4
7
CR6
22
CR5
22
SEE NOTE 18
CR7
22
R10
13
CR8
22
CR9
22
CR3
21
CR1
15
R12
15
R11
14
R23
48
CR2
20

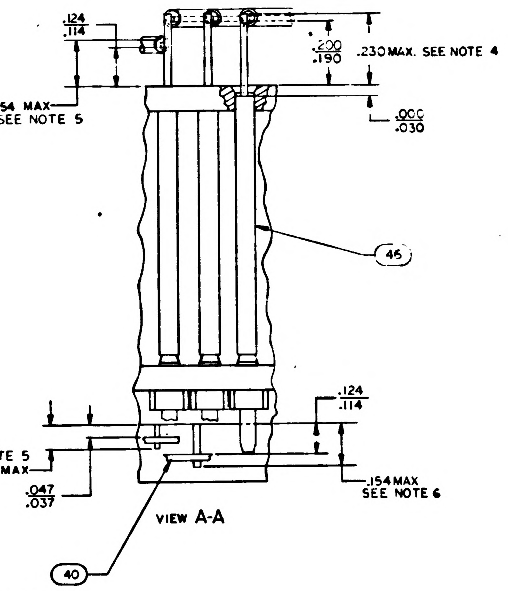

1.560
1.540
SEE NOTE 6
.265
MAX
.240
.230
K1
REF
K2
REF
SEE NOTE 7
AR3
REF
CR2
REF
37
36
35
1
30
31
45
FILL PER ND 1002117
.12
.02
38
.000
.015
15°
39 SEE NOTE 16
.200
REF
SEE NOTE 13
.078
.094
29
34
.000
.015 SEE NOTE 17


.154 MAX REF
.265 MAX
REF
.235 REF
.119 REF

SECTION B-B


43
41
.000
.015
Q1 REF
.000
.015
.12
.02
33
28
44
27
32
FILL PER ND 1002117

SECTION A-A


.124
.114
.154 MAX
SEE NOTE 5
.200
.190
.230 MAX. SEE NOTE 4
.000
.030
46
.124
.114
SEE NOTE 5
.077 MAX
.047
.037
.154 MAX
SEE NOTE 6
40

VIEW A-A

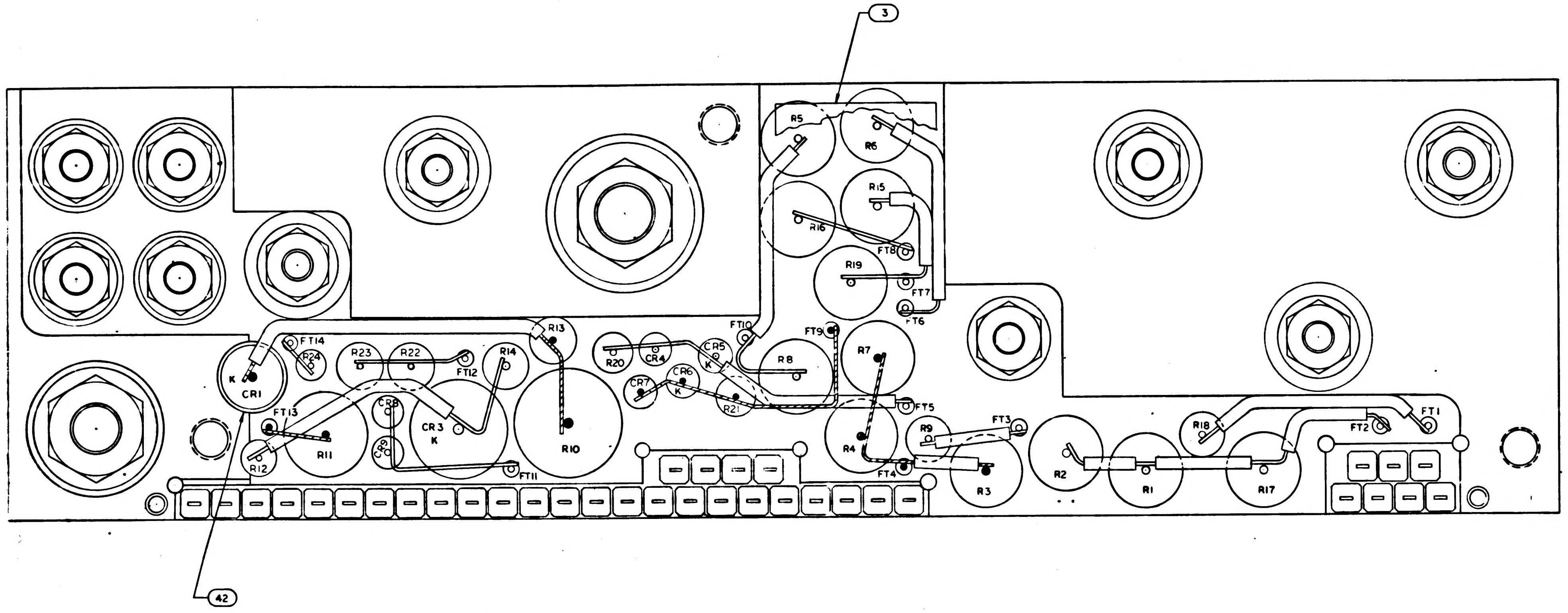
R13				R14			
PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE
1010377-113	15	1010377-164	117	1010377-141	71	1010311-126	1000
-114	17	-165	119	-142	73	-127	1020
-115	19	-166	121	-143	75	-128	1050
-116	21	-167	123	-144	77	-129	1070
-117	23	-168	125	-145	79	-130	1100
-118	25	-169	127	-146	81	-131	1130
-119	27	-170	129	-147	83	-132	1150
-120	29	-171	131	-148	85	-133	1180
-121	31	-172	133	-149	87	-134	1210
-122	33	-173	135	-150	89	-135	1240
-123	35	-174	137	-151	91	-136	1270
-124	37	-175	139	-152	93	-137	1300
-125	39	-176	141	-153	95	-138	1330
-126	41	-177	143	-154	97	-139	1370
-127	43	-178	145	-155	99	-140	1400
-128	45	-179	147	-156	101	-141	1430
-129	47	-180	149	-157	103	-142	1470
-130	49	-181	151	-158	105	-143	1500
-131	51	-182	153	-159	107	-144	1540
-132	53	-183	155	-160	109	-145	1580
-133	55	-184	157	-161	111	-146	1620
-134	57	-185	159	-162	113	-147	1650
-135	59	-186	161	-163	115	-148	1690
-136	61	-187	163	-164	117	-149	1740
-137	63	-188	165	-165	119	-150	1780
-138	65	-189	167	-166	121	-151	[illegible]
-139	67	-190	169	-167	123	-152	1870
-140	69	-191	171	-168	125	-153	1910
-141	71	-192	173	-169	127	-154	1960
-142	73	-193	175	-170	129	-155	2000
-143	75	-194	177	-171	131	-156	2050
-144	77	-195	179	-172	133	-157	[illegible]
-145	79	-196	181	-173	135	-158	2150
-146	81	-197	183	-174	137	-159	2210
-147	83	-198	185	-175	139	-160	[illegible]
-148	85	-199	187	-176	141	-161	2320
-149	87	-200	189	-177	143	-162	2370
-150	89	-201	191	-178	145	-163	2430
-151	91	-202	193	-179	147	-164	2490
-152	93	-203	195	-180	149	-165	2550
-153	95	-204	197	-181	151	-166	2610
-154	97	-205	199	-182	153	-167	2670
-155	99	-206	201	-183	155	-168	2740
-156	101			-184	157	-169	[illegible]
-157	103			-185	159	-170	2870
-158	105			-186	161	-171	2940
-159	107			-187	163	-172	3010
-160	109			-188	165	-173	3090
-161	111			-189	167	-174	[illegible]
-162	113			-190	169	-175	3240
-163	115			-191	171	-176	[illegible]

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS MADE BY WELDING TO BE PER ND1002005.
3. ALL CONNECTIONS MADE BY SOLDERING TO BE PER ND1002071 USING ND1002075.
4. CHECKERED INDICATES INTERMEDIATE LEVEL WIRING
5. WHITE DOT INDICATES LEAD TO BE CUT FOR LOWEST LEVEL WIRING
6. BLACK DOT INDICATES LEAD TO BE CUT FOR HIGHEST LEVEL WIRING
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE. THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
8. MARK PIN NUMBERS .08 HIGH (WHITE) AND SERIALIZE AND MARK ALL OTHER CHARACTERS .12 HIGH (WHITE) PER ND 1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE
9. A/R DENOTES AS REQUIRED
10. K DENOTES CATHODE SIDE OF DIODE
11. MOUNTING TORQUE FOR FIND NO. 20 TO BE 10/15 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 23 TO BE 22/26 INCH POUNDS
13. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
14. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP1007162 PART TO BE SELECTD FROM CHART.
15. Ⓒ R9 AND R18 TO BE SELECTED AT ASSEMBLY, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER, *FOR R9 VALUE, USE BOTTOM DASH NO. ENGRAVED ON AR1 AND FOR R18 VALUE, USE TOP DASH NO. ENGRAVED ON AR2. RANGE OF VALUES (OHM) SHOWN ON CHART.*
16. *ASSEMBLE FIND NO. 35 AND 38 PER ND1002136.*
17. *ALL ELECTRICAL COMPONENTS WHICH ARE NOT STUD MOUNTED AND ALL FEED THRUS TO BE CENTRALIZED AND CEMENTED IN PLACE PER ND1002009, METHOD C.*
18. *LEAD FROM AR1-8 TERMINATES AT LOWER WELD CONNECTION OF PIN 30. UPPER LEAD TIES PINS 15 AND 30 TO FT12.*
19. "PROCURE PER PS 1007162."
20. TEST PER ALL REQUIREMENTS OF ATP1007162 PRIOR TO ENCAPSULATION
21. BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.

1007162 D

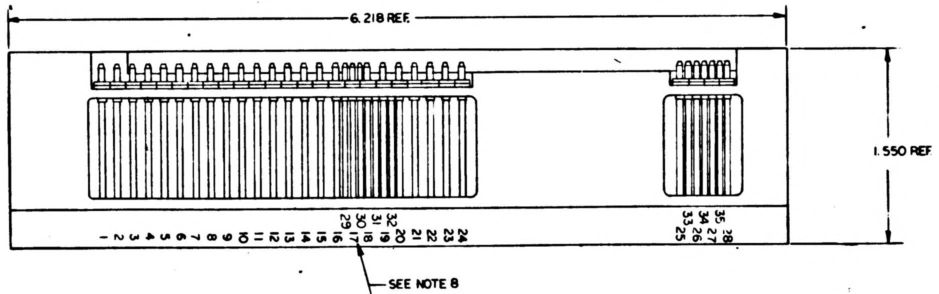
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 12149	8 SEP 64	JWP / CP
B	REVISED PER TDRR 12618	25 SEP 64	LGC / CJP
C	REVISED PER TDRR 13926	11-NOV-64	J.E.
D	REVISED PER TDRR 17192	12-MAR 65	GM / EF
E	REVISED PER TDRR 17518	16 MAR 65	JMR / mem
F	REVISED PER TDRR 19476	2 JUN 65	JJJ / PP

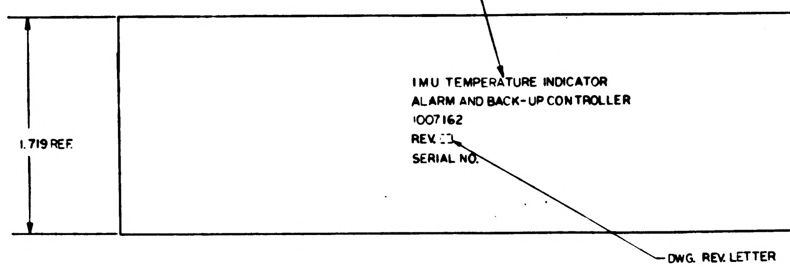

3
R5
R6
R15
R16
R19
FT8
FT7
FT6
FT10
FT9
R8
R7
FT14
R24
R23
R22
R14
R13
FT12
R20
CR4
CR5
CR6
CR7
K
CR1
FT13
CR8
CR9
CR3
K
R11
R12
R10
FT11
R21
FT5
FT3
R9
R4
FT4
R3
R2
R1
R18
R17
FT2
FT1
42

T NO.	VALUE
11-228	1500
-229	1800
-230	12100
-231	12400
-232	12700
-233	13000
-234	13300
-235	13700
-236	14000
-237	14300
-238	14700
-239	15000
-240	15400
-241	15800
-242	16200
-243	16500
-244	16900
-245	7400
-246	7800
-247	8200
-248	8700
-249	9100
-250	9600
-251	20000
-252	20500
-253	21000
-254	21500
-255	22100
-256	22600
-257	23200
-258	23700
-259	24300
-260	24900
-261	25500
-262	26100
-263	26700
-264	27400
-265	28000
-266	28700
-267	29400
-268	30100

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100 % OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE


6.218 REF.
1.550 REF
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
29 30 31 32
33 34 35
25 26 27 28
SEE NOTE 8


IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV.
SERIAL NO.
1.719 REF.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010140	SCHEMATIC, ELECTRICAL	
2	1010311- SEE NOTE 15	RESISTOR	49
2	1010377-237	RESISTOR	48
1	1008185	INSULATOR TOP, AMPL	47
A/R	1006776-20	INSULATION SLEEVING	46
1	MS20341-10B	NUT HEX	45
1	MS20341-416B	NUT HEX	44
A/R	1006757-8	WIRE ELECTRICAL .020 DIA.	43
A/R	MIL-I-23053-8	INSULATION SLEEVING	42
A/R	1006776-21	INSULATION SLEEVING	41
A/R	1006757-1	WIRE ELECT. CL X .020	40
35	1006782-5	CONTACT WRAPOST MALE	39
35	1006775	INSULATOR WRAPOST MALE	38
10	1008070-5	WASHER, FLAT	37
10	MS20341-4A	NUT-HEX	36
10	MS35338-78	WASHER, LOCK	35
1	1008021-1	BUSHING INSULATOR	34
1	1008021-2	BUSHING INSULATOR	33
1	1008020-2	WASHER FLAT	32
1	1008020-2	WASHER FLAT	31
1	1008024-1	WASHER INSULATOR	30
1	1008024-2		29
1	1008024-4		28
1	1008024-3		27
1	1018900	AMPLIFIER	26
2	1000284	AMPLIFIER	25
2	1010353-1	RELAY	24
1	1010273-1	TRANSISTOR	23
6	1010362-3	DIODE	22
1	1010441-2 (~~SEE NOTE 18~~)		21
1	1010331-20 ~~SEE NOTE 19~~		20
1	1010440-1		19
☒	1010377 SEE NOTE 14	RESISTOR	18
			17
2	1010364-368		16
1	1010364-44		15
1	1010361-112		14
1	1010452-167		13
2	1010450-9		12
1	1010604-22		11
1	1010450-10		10
2	1010450-12		9
1	1010450-13		8
1	1010450-14		7
2	1010450-3		6
2	1010450-2		5
1	1010450-11		4
1	1008074	INSULATOR BOTTOM	3
1	1008186	INSULATOR TOP	2
1	1007072	HEATSINK	1

LIST OF MATERIALS

1007157	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X DECIMALS .XX ± .02 .XXX ± .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

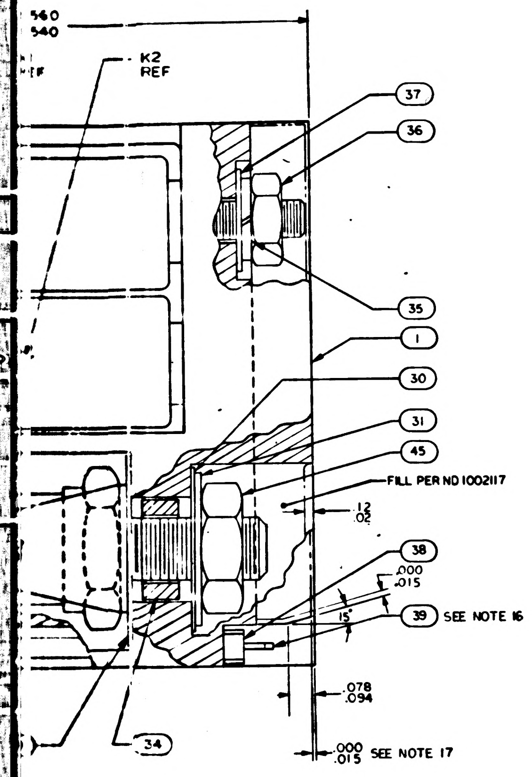
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN L. Veakin DATE 23MAR64
CHECKED A. L. 4 MAR 64
APPROVAL
APPROVAL 3/24/64
NASA APPROVAL 3/27/64
MIT APPROVAL 24 Mar 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

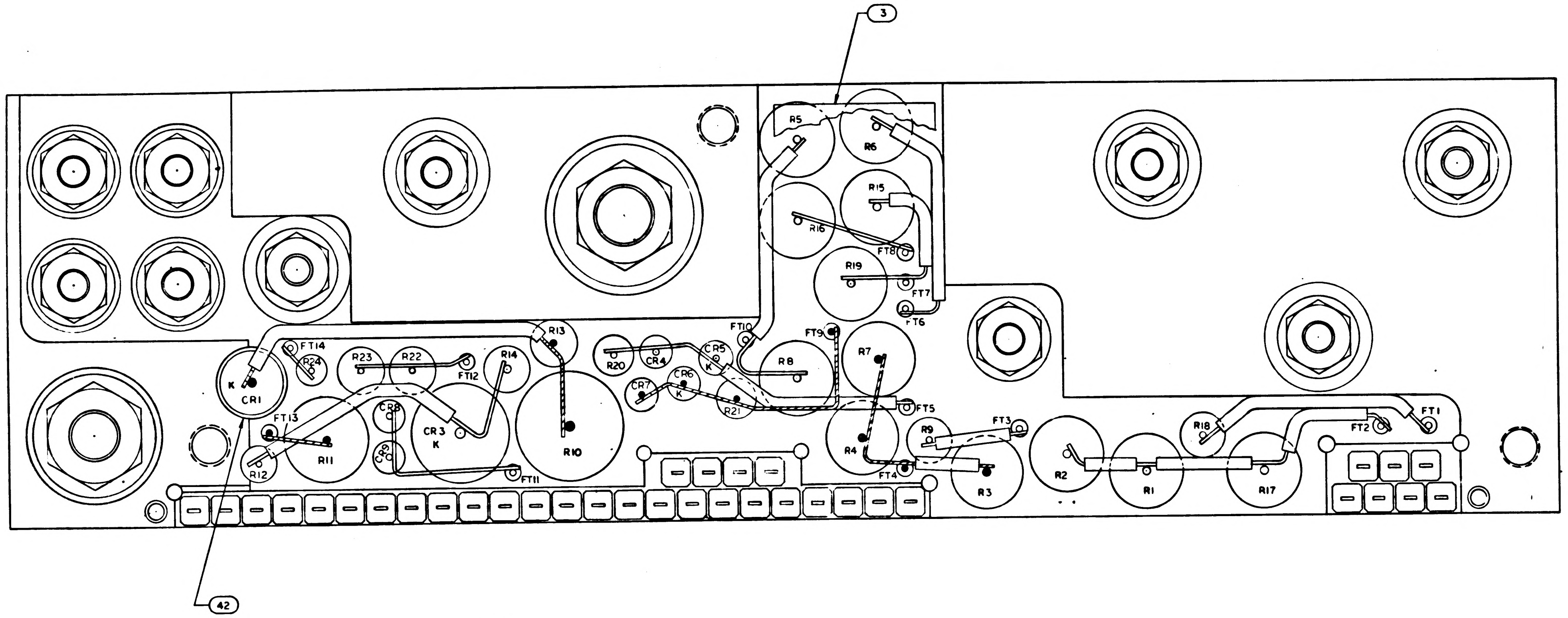
IMU TEMP INDICATOR ALARM AND BACK-UP CONTROLLER ASSEMBLY

CODE IDENT NO. 80230
SIZE
NASA DRAWING NO 1007162
SCALE 5:1
WT
SHEET 1 OF 1

1007162 F



560
540
K2
REF
37
36
35
1
30
31
45
FILL PER ND 1002117
.12
.02
38
.000
.015
15°
39
SEE NOTE 16
.078
.094
34
.000
.015
SEE NOTE 17

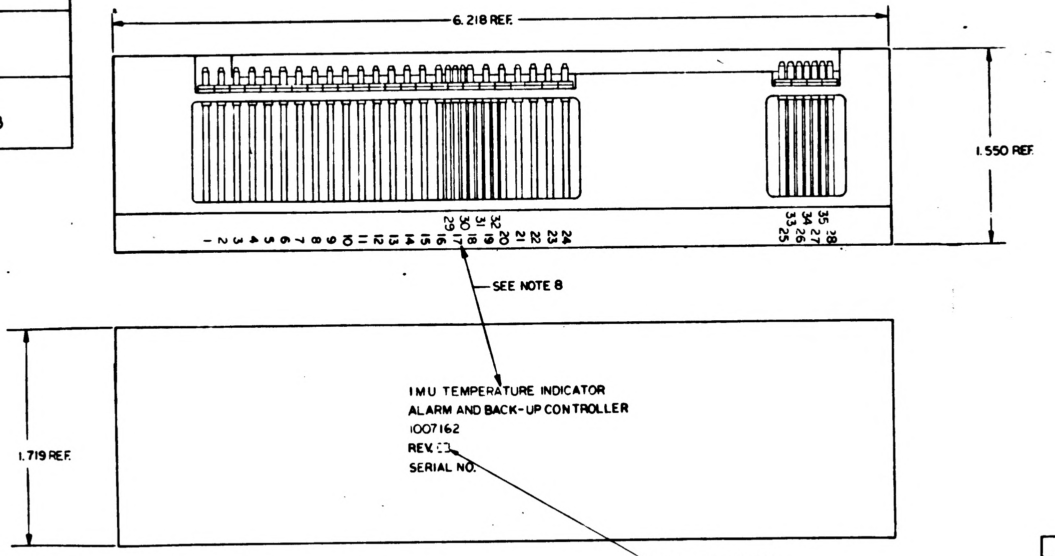


3
R5
R6
R15
R16
R19
FT8
FT7
FT6
FT10
FT9
R8
R7
CR5
K
CR4
R20
CR7
CR6
K
R21
FT5
R13
R14
FT14
R24
R23
R22
FT12
CR1
K
FT13
CR2
CR3
K
R11
R10
R12
FT11
R9
FT3
FT4
R4
R3
R2
R1
R18
FT2
FT1
R17
42

R13		R14		R9 AND R18					
PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE
1010377-164	117	1010377-141	71	1010311-126	1000	1010311-177	3400	1010311-228	11500
-165	119	-142	73	-127	1020	-178	3480	-229	11800
-166	121	-143	75	-128	1050	-179	3570	-230	12100
-167	123	-144	77	-129	1070	-180	3650	-231	12400
-168	125	-145	79	-130	1100	-181	3740	-232	12700
-169	127	-146	81	-131	1130	-182	3830	-233	13000
-170	129	-147	83	-132	1150	-183	3920	-234	13300
-171	131	-148	85	-133	1180	-184	4020	-235	13700
-172	133	-149	87	-134	1210	-185	4120	-236	14000
-173	135	-150	89	-135	1240	-186	4220	-237	14300
-174	137	-151	91	-136	1270	-187	4320	-238	14700
-175	139	-152	93	-137	1300	-188	4420	-239	15000
-176	141	-153	95	-138	1330	-189	4530	-240	15400
-177	143	-154	97	-139	1370	-190	4640	-241	15800
-178	145	-155	99	-140	1400	-191	4750	-242	16200
-179	147	-156	101	-141	1430	-192	4870	-243	16500
-180	149	-157	103	-142	1470	-193	4990	-244	16900
-181	151	-158	105	-143	1500	-194	5110	-245	17400
-182	153	-159	107	-144	1540	-195	5230	-246	17800
-183	155	-160	109	-145	1580	-196	5360	-247	18200
-184	157	-161	111	-146	1620	-197	5490	-248	18700
-185	159	-162	113	-147	1650	-198	5620	-249	19100
-186	161	-163	115	-148	1690	-199	5760	-250	19600
-187	163	-164	117	-149	1740	-200	5900	-251	20000
-188	165	-165	119	-150	1780	-201	6040	-252	20500
-189	167	-166	121	-151	1820	-202	6190	-253	21000
-190	169	-167	123	-152	1670	-203	6340	-254	21500
-191	171	-168	125	-153	1910	-204	6490	-255	22100
-192	173	-169	127	-154	1960	-205	6650	-256	22600
-193	175	-170	129	-155	2000	-206	6810	-257	23200
-194	177	-171	131	-156	2050	-207	6980	-258	23700
-195	179	-172	133	-157	2100	-208	7150	-259	24300
-196	181	-173	135	-158	2150	-209	7320	-260	24900
-197	183	-174	137	-159	2210	-210	7500	-261	25500
-198	185	-175	139	-160	2260	-211	7680	-262	26100
-199	187	-176	141	-161	2320	-212	7870	-263	26700
-200	189	-177	143	-162	2370	-213	8060	-264	27400
-201	191	-178	145	-163	2430	-214	8250	-265	28000
-202	193	-179	147	-164	2490	-215	8450	-266	28700
-203	195	-180	149	-165	2550	-216	8660	-267	29400
-204	197	-181	151	-166	2610	-217	8870	-268	30100
-205	199	-182	153	-167	2670	-218	9090	–	
-206	201	-183	155	-168	2740	-219	9310		
		-184	157	-169	2800	-220	9530		
		-185	159	-170	2870	-221	9760		
		-166	161	-171	2940	-222	10000		
		-187	163	-172	3010	-223	10200		
		-188	165	-173	3090	-224	10500		
		-189	167	-174	3160	-225	10700		
		-190	169	-175	3240	-226	11000		
		-191	171	-176	3320	-227	11300		

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100 % OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE



6.218 REF.
1.550 REF.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
29 30 31 32
33 34 35 25 26 27 28
SEE NOTE 8
1.719 REF.
DWG. REV. LETTER

IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV.
SERIAL NO.

MARKING VIEW
SCALE 2:1

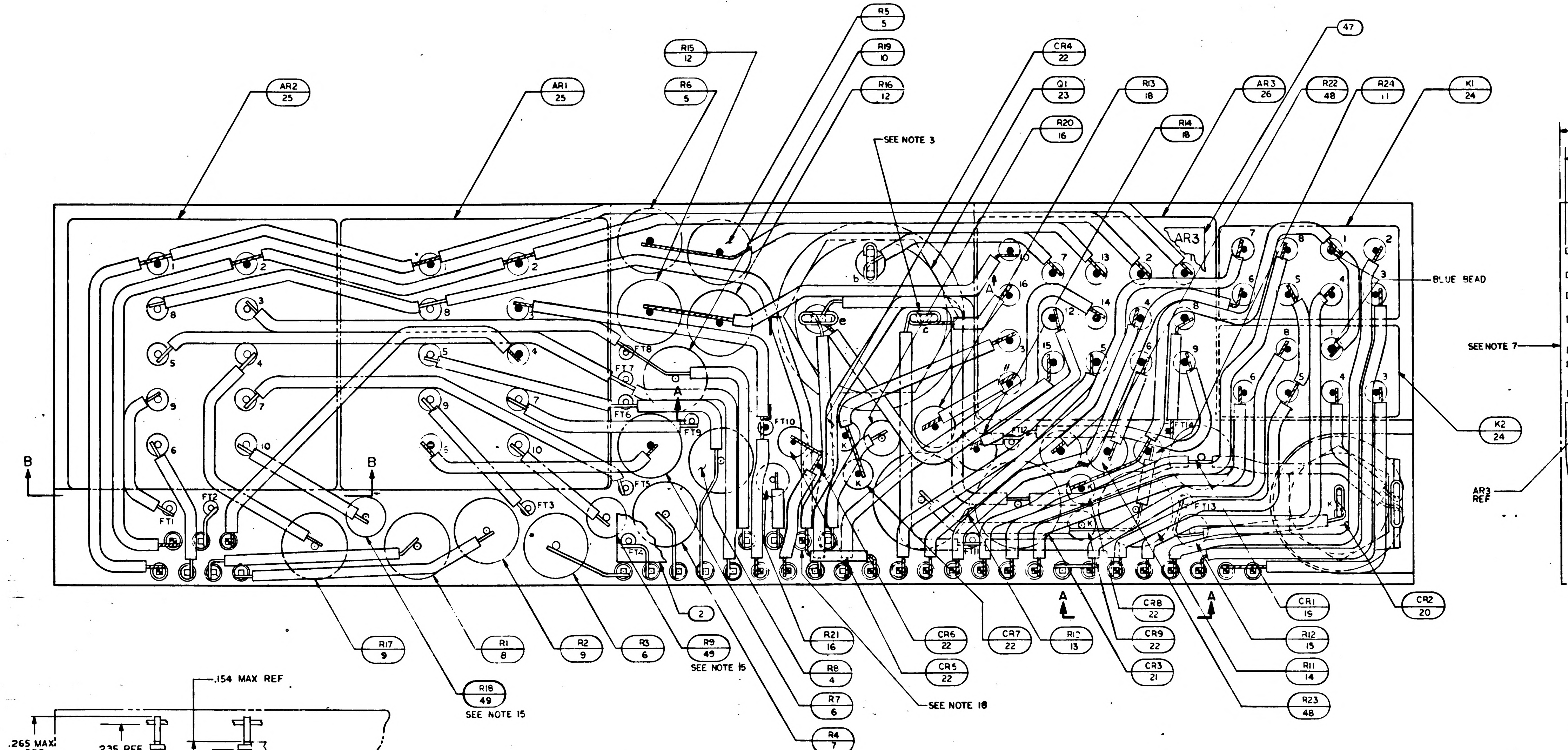
1007157	
NEXT ASSY	USED ON
APPLICATION	

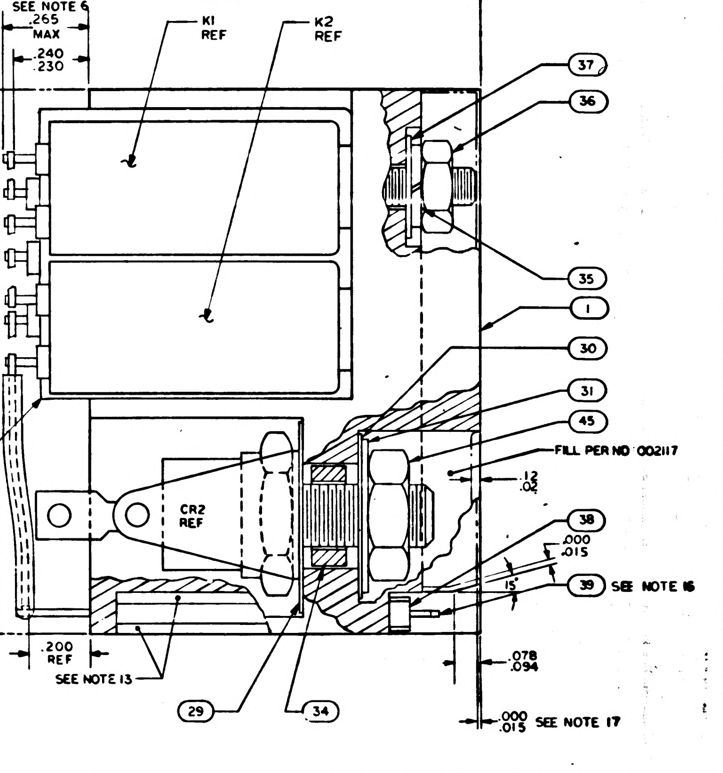
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X DECIMALS XX ±.02 .XXX ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

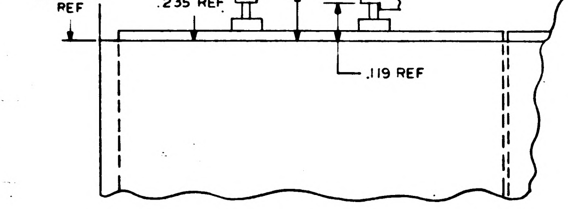
MATERIAL

HEAT TREATMENT

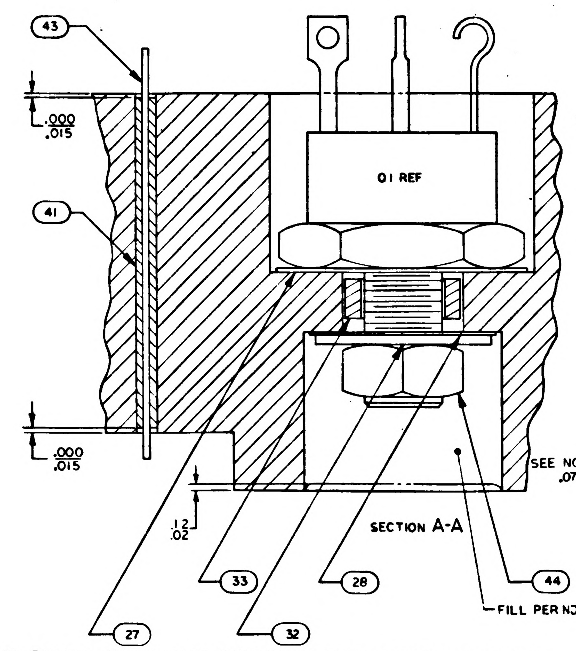
FINAL FINISH


AR2 25
AR1 25
R15 12
R6 5
R5 5
R19 10
R16 12
CR4 22
Q1 23
R20 16
R13 18
R14 18
AR3 26
R22 48
R24 11
K1 24
47
SEE NOTE 3
AR3
BLUE BEAD
K2 24
CR2 20
B
B
A
A
FT1
FT2
FT3
FT4
FT5
FT6
FT7
FT8
FT9
FT10
FT11
FT12
FT13
FT14
R17 9
R18 49
SEE NOTE 15
R1 8
R2 9
R3 6
2
R9 49
SEE NOTE 15
R21 16
R8 4
R7 6
R4 7
CR6 22
CR5 22
SEE NOTE 18
CR7 22
R10 13
CR8 22
CR9 22
CR3 21
CR1 19
R12 15
R11 14
R23 48

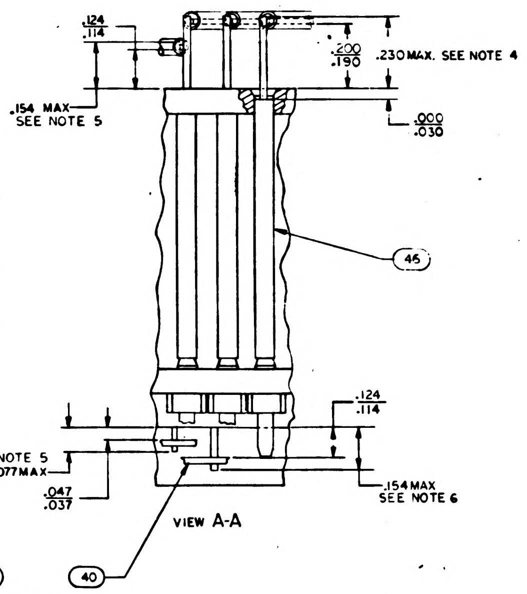

1.560
1.540
SEE NOTE 6
.265 MAX
.240
.230
K1 REF
K2 REF
SEE NOTE 7
AR3 REF
CR2 REF
37
36
35
1
30
31
45
FILL PER ND 002117
.12
.02
38
.000
.015
15°
39 SEE NOTE 16
.200 REF
SEE NOTE 13
29
34
.078
.094
.000
.015 SEE NOTE 17


.154 MAX REF
.265 MAX REF
.235 REF
.119 REF

SECTION B-B


43
.000
.015
41
Q1 REF
.000
.015
.12
.02
33
28
44
27
32
FILL PER ND 1002117

SECTION A-A


.124
.114
.200
.190
.230 MAX. SEE NOTE 4
.154 MAX
SEE NOTE 5
.000
.030
46
.124
.114
SEE NOTE 5
.077 MAX
.047
.037
.154 MAX
SEE NOTE 6
40

VIEW A-A

R13				R14			
PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE
1010377-113	15	1010377-164	117	1010377-141	71	1010311-126	1000
-114	17	-165	119	-142	73	-127	020
-115	19	-166	121	-143	75	-128	1050
-116	21	-167	123	-144	77	-129	1070
-117	23	-168	125	-145	79	-130	1100
-118	25	-169	127	-146	81	-131	1130
-119	27	-170	129	-147	83	-132	1150
-120	29	-171	131	-148	85	-133	1180
-121	31	-172	133	-149	87	-134	1210
-122	33	-173	135	-150	89	-135	1240
-123	35	-174	137	-151	91	-136	270
-124	37	-175	139	-152	93	-137	1300
-125	39	-176	141	-153	95	-138	1330
-126	41	-177	143	-154	97	-139	1370
-127	43	-178	145	-155	99	-140	1400
-128	45	-179	147	-156	101	-141	1430
-129	47	-180	149	-157	103	-142	1470
-130	49	-181	151	-158	105	-143	1500
-131	51	-182	153	-159	107	-144	1540
-132	53	-183	155	-160	109	-145	580
-133	55	-184	157	-161	111	-146	1620
-134	57	-185	159	-162	113	-147	1650
-135	59	-186	161	-163	115	-148	1690
-136	61	-187	163	-164	117	-149	1740
-137	63	-188	165	-165	119	-150	1780
-138	65	-189	167	-166	121	-151	1820
-139	67	-190	169	-167	123	-152	1870
-140	69	-191	171	-168	125	-153	1910
-141	71	-192	173	-169	127	-154	1960
-142	73	-193	175	-170	129	-155	2000
-143	75	-194	177	-171	131	-156	2050
-144	77	-195	179	-172	133	-157	2100
-145	79	-196	181	-173	135	-158	2150
-146	81	-197	183	-174	137	-159	2210
-147	83	-198	185	-175	139	-160	2260
-148	85	-199	187	-176	141	-161	2320
-149	87	-200	189	-177	143	-162	2370
-150	89	-201	191	-178	145	-163	2430
-151	91	-202	193	-179	147	-164	2490
-152	93	-203	195	-180	149	-165	2550
-153	95	-204	197	-181	151	-166	2610
-154	97	-205	199	-182	153	-167	2670
-155	99	-206	201	-183	155	-168	2740
-156	101			-184	157	-169	280
-157	103			-185	159	-170	287
-158	105			-186	161	-171	294
-159	107			-187	163	-172	301
-160	109			-188	165	-173	309
-161	111			-189	167	-174	316
-162	113			-190	169	-175	324
-163	115			-191	171	-176	332

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS MADE BY WELDING TO BE PER ND1002005.
3. ALL CONNECTIONS MADE BY SOLDERING TO BE PER ND1002071 USING ND1002075.
4. CHECKERED INDICATES INTERMEDIATE LEVEL WIRING
5. WHITE DOT INDICATES LEAD TO BE CUT FOR LOWEST LEVEL WIRING
6. BLACK DOT INDICATES LEAD TO BE CUT FOR HIGHEST LEVEL WIRING
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
8. MARK PIN NUMBERS .08 HIGH (WHITE) AND SERIALIZE AND MARK ALL OTHER CHARACTERS .12 HIGH (WHITE) PER ND 1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE
9. A/R DENOTES AS REQUIRED
10. K DENOTES CATHODE SIDE OF DIODE
11. MOUNTING TORQUE FOR FIND NO. 20 TO BE 10/15 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 23 TO BE 22/26 INCH POUNDS
13. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
14. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007162 PART TO BE SELECTD FROM CHART.

Ⓒ 15. R9 AND R18 TO BE SELECTED AT ASSEMBLY, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER. *FOR R9 VALUE, USE BOTTOM DASH NO. ENGRAVED ON AR1 AND FOR R18 VALUE, USE TOP DASH NO. ENGRAVED ON AR2. RANGE OF VALUES (OHM) SHOWN ON CHART.*

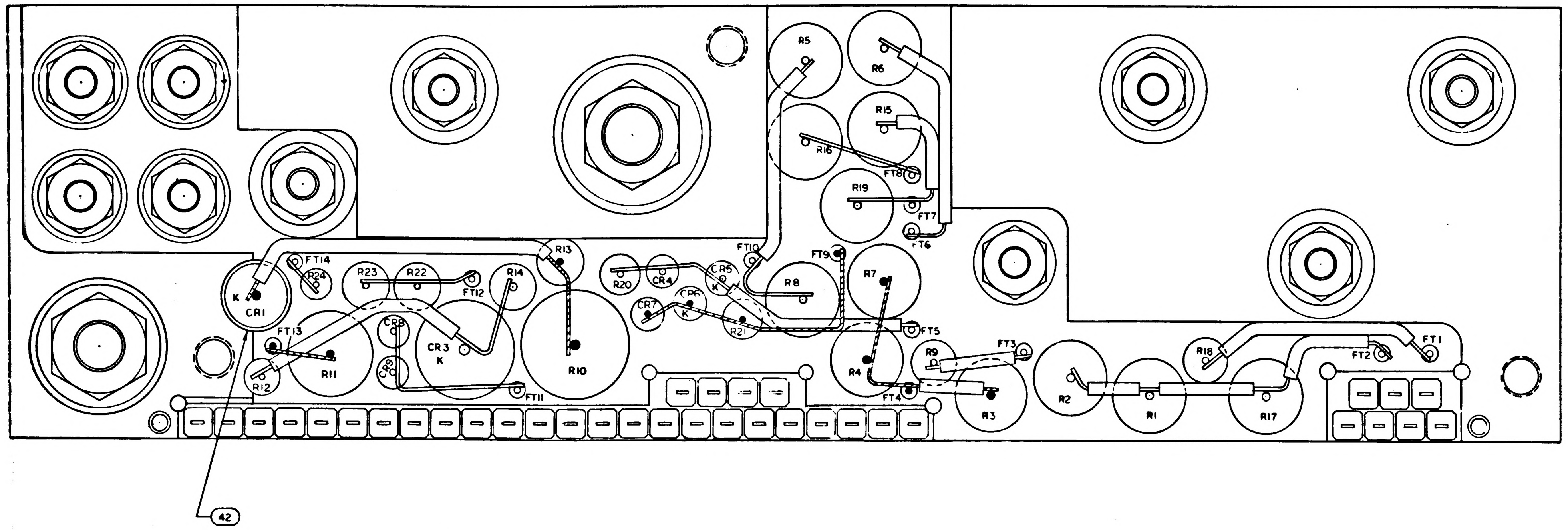
16. *ASSEMBLE FIND NO. 35 AND 38 PER ND 1002136.*
17. *ALL ELECTRICAL COMPONENTS WHICH ARE NOT STUD MOUNTED AND ALL FEED THRUS TO BE CENTRALIZED AND CEMENTED IN PLACE PER ND1002009, METHOD C.*
18. *LEAD FROM AR1-8 TERMINATES AT LOWER WELD CONNECTION OF PIN 30. UPPER LEAD TIES PINS 15 AND 30 TO FT12.*
19. PROCURE PER PS 1007162.
20. TEST PER ALL REQUIREMENTS OF ATP 1007162 PRIOR TO ENCAPSULATION
21. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
22. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.

1007162 | F

1/1007162

1007162 G

SYM	REVISIONS DESCRIPTION	DATE	APPROVAL
Ⓜ A	REVISED PER TDRR 12149	8 SEP 64	JWD CP
Ⓐ B	REVISED PER TDRR 12618	25 SEP 64	LGC
Ⓜ C	REVISED PER TDRR 13926	11 NOV 64	
D	REVISED PER TDRR 17192	12 MAR 66	GM
Ⓜ E	REVISED PER TDRR 17318	16 MAR 66	
F	REVISED PER TDRR 19476	2	
G	REVISED PER TDRR 19557	5 JUN 68	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R15
R16
R19
FT8
FT7
FT6
R13
FT10
FT9
R8
R7
FT14
R24
R23
R22
R14
FT12
R20
CR4
R25
CR7
CR6
R21
K
CR1
FT13
CR8
CR3
K
R11
R10
R12
FT11
FT5
R9
FT3
R4
FT4
R3
R2
R1
R18
FT2
FT1
R17
42

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE

NO.	VALUE
228	11500
229	11800
230	12100
231	12400
232	12700
233	13000
234	13300
235	13700
236	14000
237	14300
238	14700
239	15000
240	15400
241	15800
242	16200
243	16500
244	16900
245	17400
246	17800
247	18200
248	18700
249	19100
250	19600
251	20000
252	20500
253	21000
254	21500
255	22100
256	22600
257	23200
258	23700
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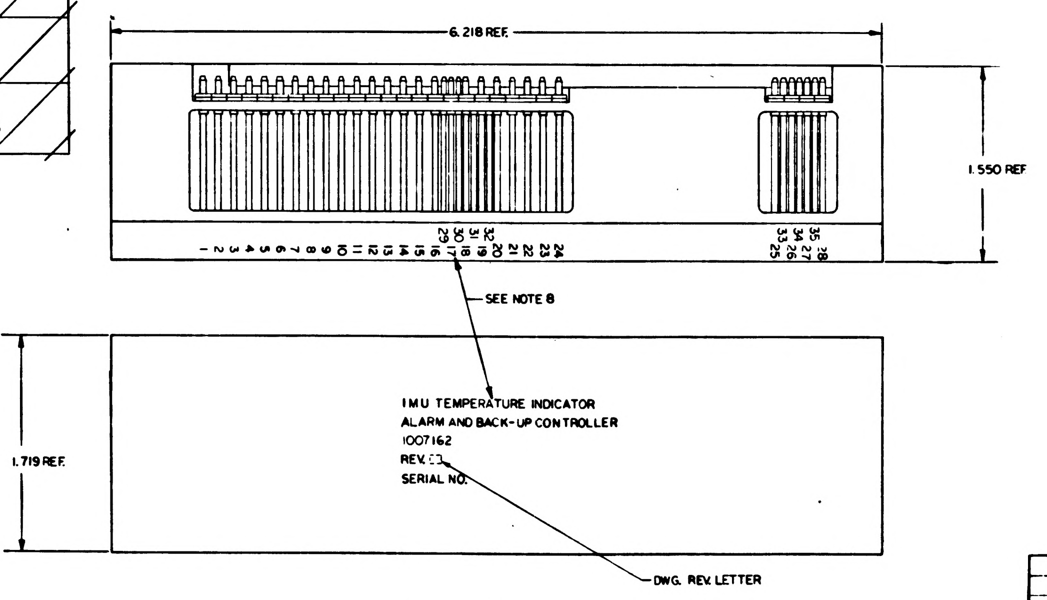
265	28000
266	28700
267	29400
268	30100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1.550 REF
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29 30 31 32
33 34 35 25 26 27 28
SEE NOTE 8
1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV.
SERIAL NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010140	SCHEMATIC, ELECTRICAL	
2	1010311- SEE NOTE 15	RESISTOR	49
2	1010377-237	RESISTOR	48
1	1008185	INSULATOR TOP, AMPL	47
A/R	1006776-20	INSULATION SLEEVING	46
1	MS20341-10B	NUT HEX	45
1	MS20341-416B	NUT HEX	44
A/R	1006757-8	WIRE ELECTRICAL .020 DIA.	43
A/R	MIL-I-23053-8	INSULATION SLEEVING	42
A/R	1006776-21	INSULATION SLEEVING	41
A/R	1006757-1	WIRE ELECT. CL X .020	40
35	1006782-5	CONTACT WRAPOST MALE	39
35	1006775	INSULATOR WRAPOST MALE	38
10	1008070-5	WASHER, FLAT	37
10	MS20341-4A	NUT-HEX	36
10	MS35338-78	WASHER, LOCK	35
1	1008021-1	BUSHING INSULATOR	34
1	1008021-2	BUSHING INSULATOR	33
1	1008020-2	WASHER FLAT	32
1	1008020-2	WASHER FLAT	31
1	1008024-1	WASHER INSULATOR	30
1	1008024-2	↓ ↓	29
1	1008024-4		28
1	1008024-3		27
1	1018900	AMPLIFIER	26
2	1000284	AMPLIFIER	25
2	1010353-1	RELAY	24
1	1010273-1	TRANSISTOR	23
6	1010362-3	DIODE	22
1	1010441-2 (~~SEE NOTE 19~~)	↓	21
1	1010331-20 ~~SEE NOTE 19~~		20
1	1010440-1		19
☒	1010377 SEE NOTE 14	RESISTOR	18
		↓	17
2	1010364-368		16
1	1010364-44		15
1	1010361-112		14
1	1010452-167		13
2	1010450-9		12
1	1010604-22		11
1	1010450-10		10
2	1010450-12		9
1	1010450-13		8
1	1010450-14		7
2	1010450-3		6
2	1010450-2		5
1	1010450-11		4
‡	~~1008074~~	~~INSULATOR BOTTOM~~	3
1	1008166	INSULATOR TOP	2
1	1007072	HEATSINK	1

LIST OF MATERIALS

1007157	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X
DECIMALS .XX ± .02 .XXX ± .005
ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT
DRAWN Vcahn DATE 23MAR64
CHECKED
APPROVAL
APPROVAL 3/24/64
NASA APPROVAL 3/24/64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

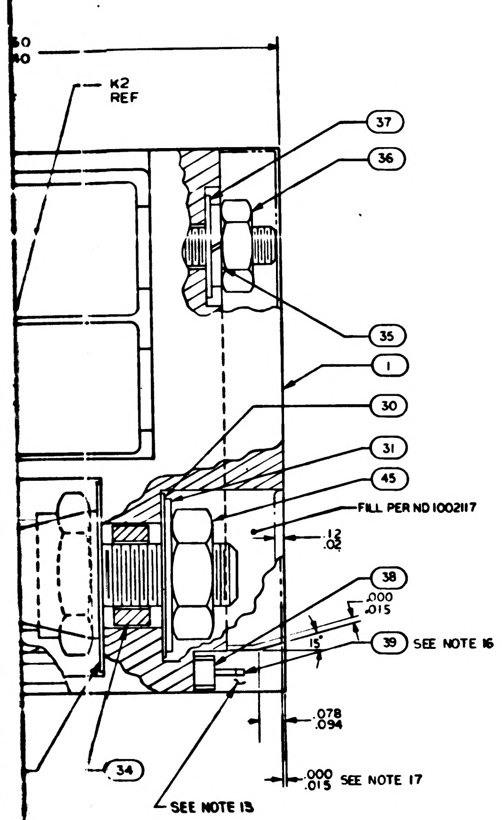
IMU TEMP INDICATOR ALARM
AND BACK-UP CONTROLLER
ASSEMBLY

CODE IDENT NO 80230
SIZE
NASA DRAWING NO 1007162
SCALE 5:1
WT
SHEET 1 OF 1

1007162 G

1007162 G

3/1007162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15°
39 SEE NOTE 16
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.000
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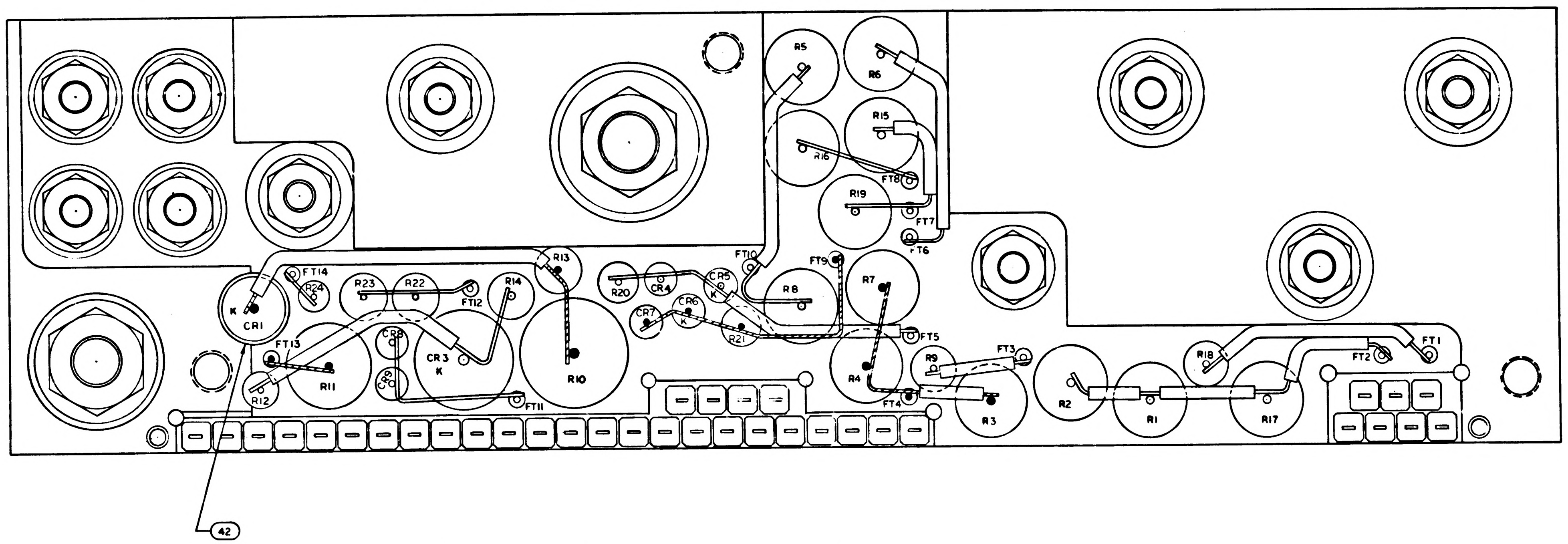
SEE NOTE 13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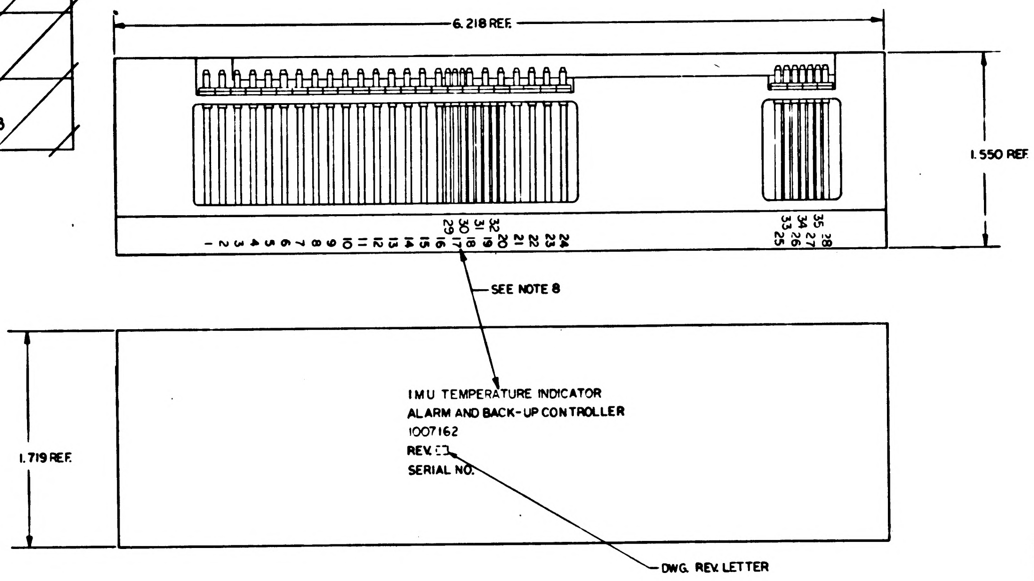
K
FT10
FT9
R8
R7
CR1
K
CR7
CR6
K
R21
FT13
R11
CR8
CR3
K
CR2
R10
FT11
R12
FT5
R9
FT3
R4
FT4
R3
R2
R1
R18
FT2
FT1
R17
42

R13		R14		R9 AND R18					
PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE
1010377-164	117	1010377-141	71	1010311-126	1000	1010311-177	3400	1010311-228	11500
-165	119	-142	73	-127	1020	-178	3480	-229	11800
-166	121	-143	75	-128	1050	-179	3570	-230	12100
-167	123	-144	77	-129	1070	-180	3650	-231	12400
-168	125	-145	79	-130	1100	-181	3740	-232	12700
-169	127	-146	81	-131	1130	-182	3830	-233	13000
-170	129	-147	83	-132	1150	-183	3920	-234	13300
-171	131	-148	85	-133	1180	-184	4020	-235	13700
-172	133	-149	87	-134	1210	-185	4120	-236	14000
-173	135	-150	89	-135	1240	-186	4220	-237	14300
-174	137	-151	91	-136	1270	-187	4320	-238	14700
-175	139	-152	93	-137	1300	-188	4420	-239	15000
-176	141	-153	95	-138	1330	-189	4530	-240	15400
-177	143	-154	97	-139	1370	-190	4640	-241	15800
-178	145	-155	99	-140	1400	-191	4750	-242	16200
-179	147	-156	101	-141	1430	-192	4870	-243	16500
-180	149	-157	103	-142	1470	-193	4990	-244	16900
-181	151	-158	105	-143	1500	-194	5110	-245	17400
-182	153	-159	107	-144	1540	-195	5230	-246	17800
-183	155	-160	109	-145	1580	-196	5360	-247	18200
-184	157	-161	111	-146	1620	-197	5490	-248	18700
-185	159	-162	113	-147	1650	-198	5620	-249	19100
-186	161	-163	115	-148	1690	-199	5760	-250	19600
-187	163	-164	117	-149	1740	-200	5900	-251	20000
-188	165	-165	119	-150	1780	-201	6040	-252	20500
-189	167	-166	121	-151	1820	-202	6190	-253	21000
-190	169	-167	123	-152	1870	-203	6340	-254	21500
-191	171	-168	125	-153	1910	-204	6490	-255	22100
-192	173	-169	127	-154	1960	-205	6650	-256	22600
-193	175	-170	129	-155	2000	-206	6810	-257	23200
-194	177	-171	131	-156	2050	-207	6980	-258	23700
-195	179	-172	133	-157	2100	-208	7150	-259	24300
-196	181	-173	135	-158	2150	-209	7320	-260	24900
-197	183	-174	137	-159	2210	-210	7500	-261	25500
-198	185	-175	139	-160	2260	-211	7680	-262	26100
-199	187	-176	141	-161	2320	-212	7870	-263	26700
-200	189	-177	143	-162	2370	-213	8060	-264	27400
-201	191	-178	145	-163	2430	-214	8250	-265	28000
-202	193	-179	147	-164	2490	-215	8450	-266	28700
-203	195	-180	149	-165	2550	-216	8660	-267	29400
-204	197	-181	151	-166	2610	-217	8870	-268	30100
-205	199	-182	153	-167	2670	-218	9090	–	
-206	201	-183	155	-168	2740	-219	9310		
		-184	157	-169	2800	-220	9530		
		-185	159	-170	2870	-221	9760		
		-186	161	-171	2940	-222	10000		
		-187	163	-172	3010	-223	10200		
		-188	165	-173	3090	-224	10500		
		-189	167	-174	3160	-225	10700		
		-190	169	-175	3240	-226	11000		
		-191	171	-176	3320	-227	11300		

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100 % OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE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1.550 REF.
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33 34 35
25 26 27 28
SEE NOTE 8
1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV.
SERIAL NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS
X ± XX ± .02
.XXX ± .005
DO NOT SCALE THIS DRAWING

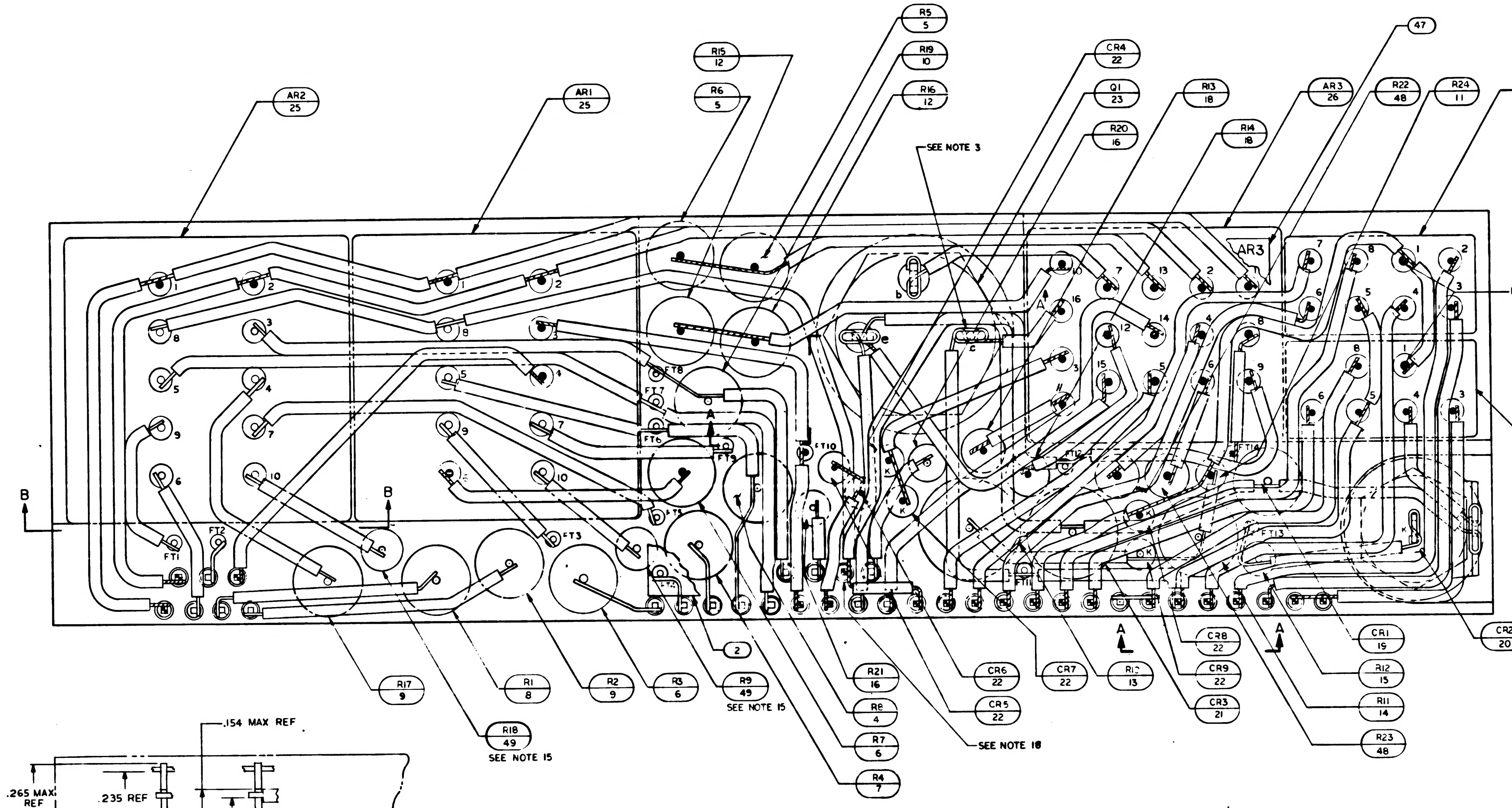
MATERIAL

HEAT TREATMENT

FINAL FINISH

NEXT ASSY	USED ON
1009157	

APPLICATION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C
AR2 25
AR1 25
R15 12
R6 5
R5 5
R19 10
R16 12
CR4 22
Q1 23
R20 16
SEE NOTE 3
R13 18
R14 18
AR3 26
47
R22 48
R24 11
K1 24
AR3
BLUE BEAD
SEE NOTE 7
K2 24
AR3 REF
FT1
FT2
FT3
FT6
FT7
FT8
FT9
FT10
FT11
FT12
FT13
FT14
A
B
B
A
A
K
b
c
e
2
R17 9
R18 49
SEE NOTE 15
R1 8
R2 9
R3 6
R9 49
SEE NOTE 15
R21 16
R8 4
R7 6
R4 7
CR6 22
CR5 22
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CR8 22
CR9 22
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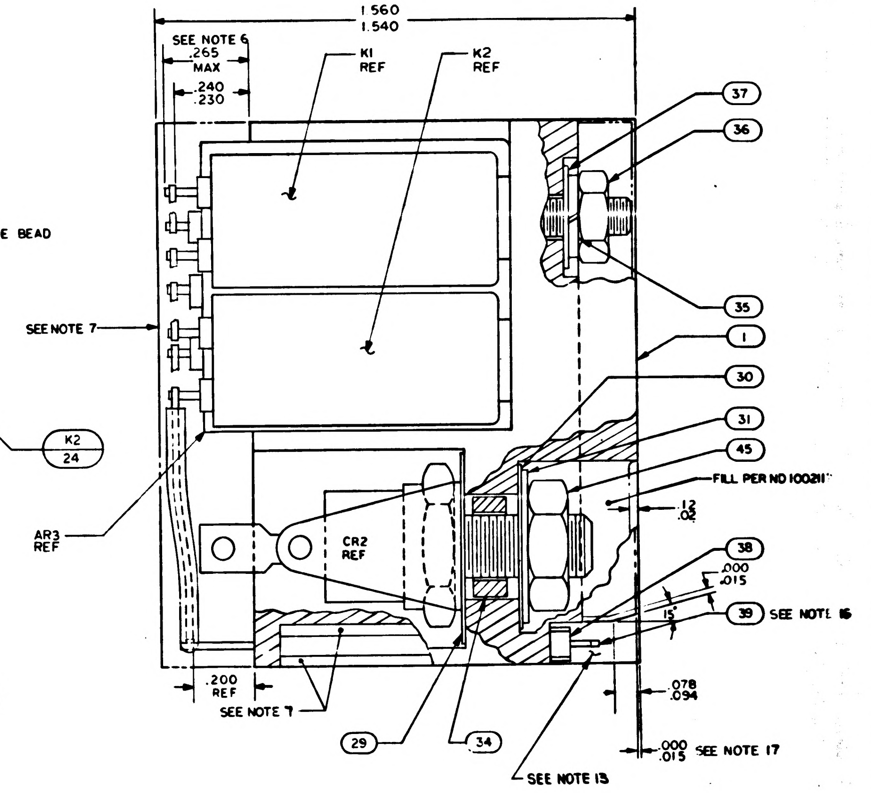
CR1 19
R12 15
R11 14
R23 48
CR2 20


1.560
1.540
SEE NOTE 6
.265 MAX
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.230
K1 REF
K2 REF
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35
1
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31
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.12
.02
CR2 REF
38
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SEE NOTE 16
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.015
SEE NOTE 17
SEE NOTE 13
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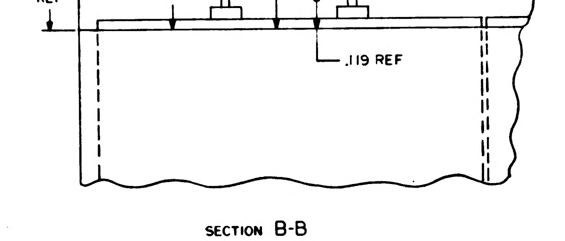
34
.200 REF
SEE NOTE 7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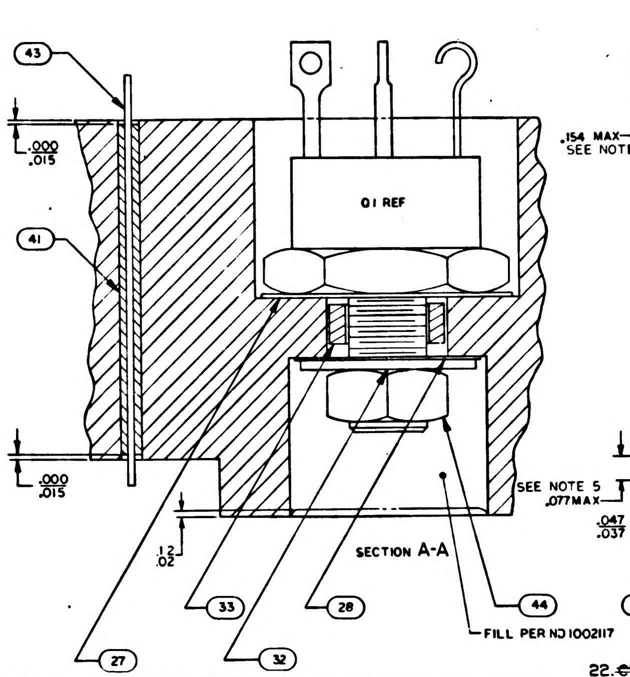
.265 MAX REF
.235 REF
.119 REF

SECTION B-B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SEE NOTE 5
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.02
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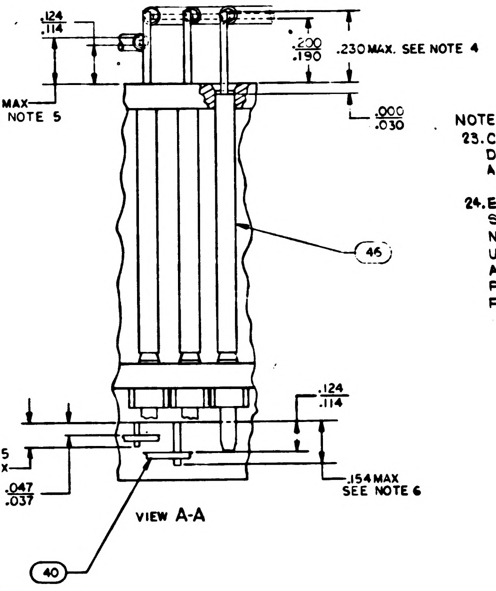
32
FILL PER ND 1002117

SECTION A-A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.230 MAX. SEE NOTE 4
.000
.030
46
.124
.114
.047
.037
.154 MAX
SEE NOTE 6
40

VIEW A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS MADE BY WELDING TO BE PER ND1002005.
3. ALL CONNECTIONS MADE BY SOLDERING TO BE PER ND1002071 USING ND1002075.
4. CHECKERED INDICATES INTERMEDIATE LEVEL WIRING
5. WHITE DOT INDICATES LEAD TO BE CUT FOR LOWEST LEVEL WIRING
6. BLACK DOT INDICATES LEAD TO BE CUT FOR HIGHEST LEVEL WIRING
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE. THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
8. MARK PIN NUMBERS .08 HIGH (WHITE) AND SERIALIZE AND MARK ALL OTHER CHARACTERS .12 HIGH (WHITE) PER ND 1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE
9. A/R DENOTES AS REQUIRED
10. K DENOTES CATHODE SIDE OF DIODE
11. MOUNTING TORQUE FOR FIND NO. 20 TO BE 10/15 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 23 TO BE 22/26 INCH POUNDS
13. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
14. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP1007162 PART TO BE SELECTD FROM CHART.
Ⓒ 15. R9 AND R18 TO BE SELECTED AT ASSEMBLY, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER, *FOR R9 VALUE, USE BOTTOM DASH NO. ENGRAVED ON AR1 AND FOR R18 VALUE, USE TOP DASH NO. ENGRAVED ON AR2. RANGE OF VALUES (OHM) SHOWN ON CHART.*
16. ASSEMBLE FIND NO. 35 AND 38 PER ND1002136.
17. *ALL ELECTRICAL COMPONENTS WHICH ARE NOT STUD MOUNTED AND ALL FEED THRUS TO BE CENTRALIZED AND CEMENTED IN PLACE PER ND1002009, METHOD H.*
18. *LEAD FROM AR1-8 TERMINATES AT LOWER WELD CONNECTION OF PIN 30. UPPER LEAD TIES PINS 15 AND 30 TO FT12.*
19. PROCURE PER PS 1007162.
20. TEST PER ALL REQUIREMENTS OF ATP1007162 PRIOR TO ENCAPSULATION

21. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~

22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~

NOTES (CONT):

23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.

24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES & INSULATORS TO BE FREE FROM PAINT.

R13				R14			
PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE
1010377-113	15	1010377-164	117	1010377-141	71	1010311-126	1000
-114	17	-165	119	-142	73	-127	1020
-115	19	-166	121	-143	75	-128	1050
-116	21	-167	123	-144	77	-129	1070
-117	23	-168	125	-145	79	-130	1100
-118	25	-169	127	-146	81	-131	1130
-119	27	-170	129	-147	83	-132	1150
-120	29	-171	131	-148	85	-133	1180
-121	31	-172	133	-149	87	-134	1210
-122	33	-173	135	-150	89	-135	1240
-123	35	-174	137	-151	91	-136	1270
-124	37	-175	139	-152	93	-137	1300
-125	39	-176	141	-153	95	-138	1330
-126	41	-177	143	-154	97	-139	1370
-127	43	-178	145	-155	99	-140	1400
-128	45	-179	147	-156	101	-141	1430
-129	47	-180	149	-157	103	-142	1470
-130	49	-181	151	-158	105	-143	1500
-131	51	-182	153	-159	107	-144	1540
-132	53	-183	155	-160	109	-145	156
-133	55	-184	157	-161	111	-146	162
-134	57	-185	159	-162	113	-147	165
-135	59	-186	161	-163	115	-148	16
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-140	69	-191	171	-168	125	-153	[illegible]
-141	71	-192	173	-169	127	-154	[illegible]
-142	73	-193	175	-170	129	-155	200
-143	75	-194	177	-171	131	-156	20
-144	77	-195	179	-172	133	-157	21
-145	79	-196	181	-173	135	-158	21
-146	81	-197	183	-174	137	-159	22
-147	83	-198	185	-175	139	-160	[illegible]
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-149	87	-200	189	-177	143	-162	23
-150	89	-201	191	-178	145	-163	24
-151	91	-202	193	-179	147	-164	24
-152	93	-203	195	-180	149	-165	25
-153	95	-204	197	-181	151	-166	26
-154	97	-205	199	-182	153	-167	26
-155	99	-206	201	-183	155	-168	274
-156	101			-184	157	-169	280
-157	103			-185	159	-170	287
-158	105			-186	161	-171	294
-159	107			-187	163	-172	30
-160	109			-188	165	-173	30
-161	111			-189	167	-174	31
-162	113			-190	169	-175	324
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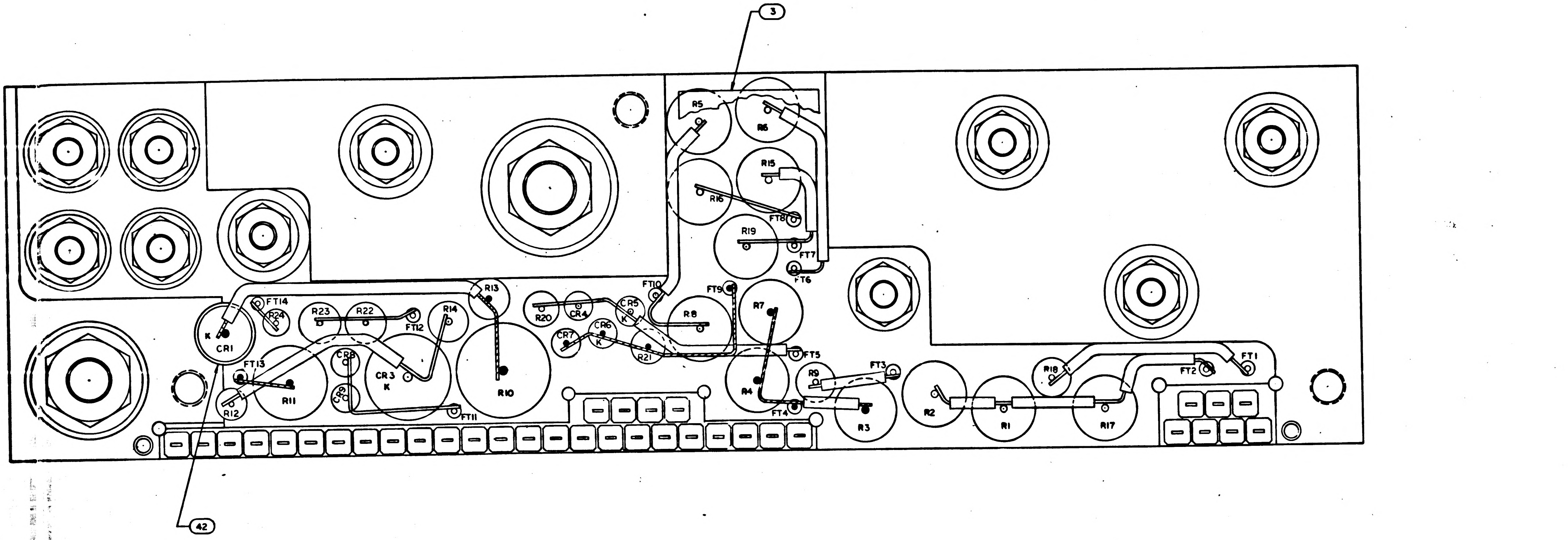
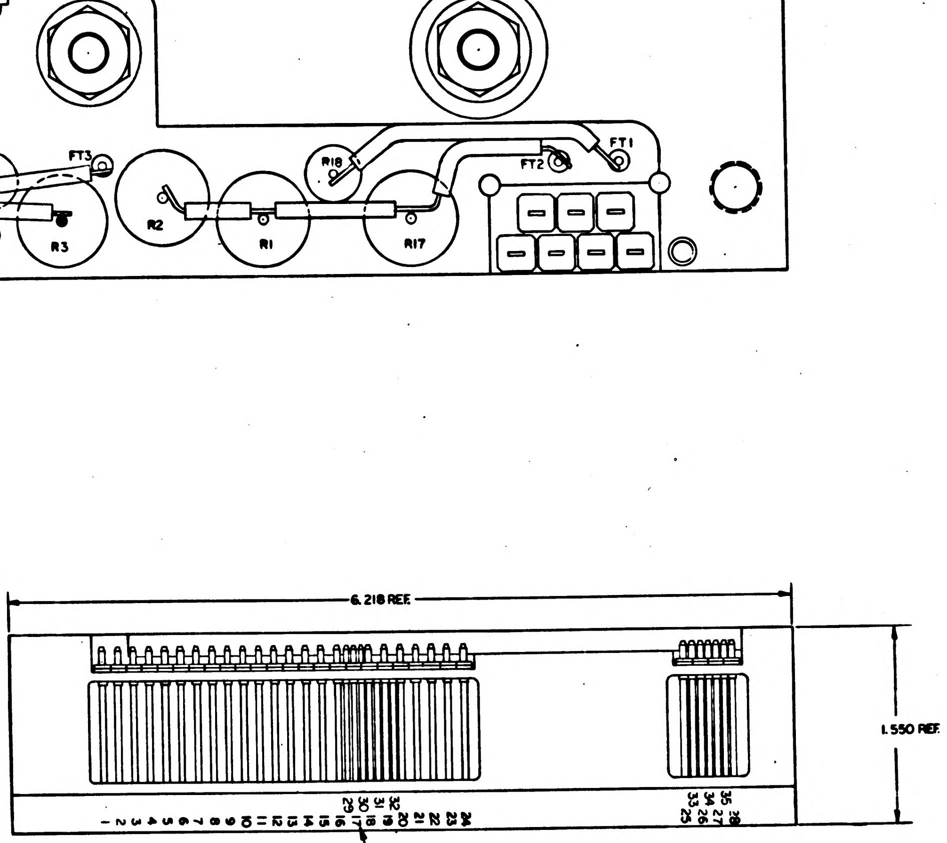
1007162	G

1/1007162

1007162	REVISIONS		
SYM	DESCRIPTION	DATE	APPROVAL


3
42
R5
R6
R15
R16
R19
FT8
FT7
FT6
R13
FT14
R24
R23
R22
FT12
R14
K
CR1
FT13
R12
R11
CR8
CR9
CR3
K
R10
FT11
R20
CR4
CR7
CR6
K
CR5
K
FT10
R21
R8
FT9
R7
FT5
R4
FT4
R9
FT3
R3
R2
R1
R18
R17
FT2
FT1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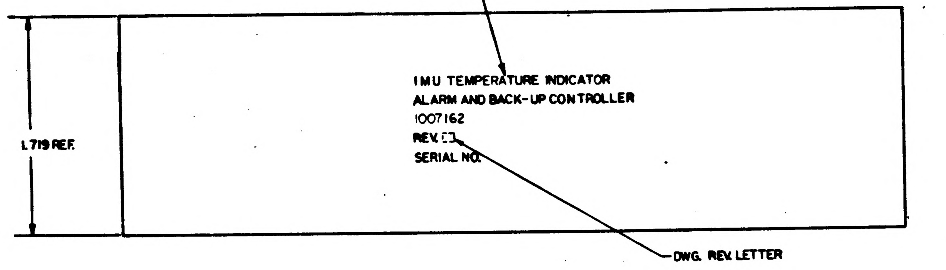
1.550 REF
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 29 30 31 32
25 26 27 28 33 34 35
SEE NOTE 8


1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV.
SERIAL NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

ART NO.	VALUE
010311-228	11500
-229	11800
-230	12100
-231	12400
-232	12700
-233	13000
-234	13300
-235	13700
-236	14000
-237	14300
-238	14700
-239	15000
-240	15400
-241	15800
-242	16200
-243	16500
-244	16900
-245	17400
-246	17800
-247	18200
-248	18700
-249	19100
-250	19600
-251	20000
-252	20500
-253	21000
-254	21500
-255	22100
-256	22600
-257	23200
-258	23700
-259	24300
-260	24900
-261	[illegible]
-262	[illegible]
-263	26700
-264	27400
-265	28000
-266	28700
-267	29400
-268	[illegible]
-	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010140	SCHEMATIC, ELECTRICAL	
2	1010311- SEE NOTE 15	RESISTOR	49
2	1010377-237	RESISTOR	48
1	1008185	INSULATOR TOP, AMPL	47
A/R	1006776-20	INSULATION SLEEVING	46
1	MS20341-10B	NUT HEX	45
1	MS20341-416B	NUT HEX	44
A/R	1006757-8	WIRE ELECTRICAL .020 DIA.	43
A/R	MIL-I-23053-8	INSULATION SLEEVING	42
A/R	1006776-21	INSULATION SLEEVING	41
A/R	1006757-1	WIRE ELECT. .010 X .020	40
35	1006782-5	CONTACT WRAPOST MALE	39
35	1006775	INSULATOR WRAPOST MALE	38
10	1008070-5	WASHER, FLAT	37
10	MS20341-4A	NUT-HEX	36
10	MS35338-78	WASHER, LOCK	35
1	1008021-1	BUSHING INSULATOR	34
1	1008021-2	BUSHING INSULATOR	33
1	1008020-2	WASHER FLAT	32
1	1008020-2	WASHER FLAT	31
1	1008024-1	WASHER INSULATOR	30
1	1009024-2		29
1	1008024-4		28
1	1008024-3		27
1	1018900	AMPLIFIER	26
2	1000284	AMPLIFIER	25
2	1010353-1	RELAY	24
1	1010273-1	TRANSISTOR	23
6	1010362-3	DIODE	22
1	1010441-2 (SEE NOTE 19)		21
1	1010331-20 (SEE NOTE 19)		20
1	1010440-1		19
☒	1010377 SEE NOTE 14	RESISTOR	18
			17
2	1010364-368		16
1	1010364-44		15
1	1010361-112		14
1	1010452-167		13
2	1010450-9		12
1	1010604-22		11
1	1010450-10		10
2	1010450-12		9
1	1010450-13		8
1	1010450-14		7
2	1010450-3		6
2	1010450-2		5
1	1010450-11		4
1	1008074	INSULATOR BOTTOM	3
1	1008186	INSULATOR TOP	2
1	1007072	HEATSINK	1

LIST OF MATERIALS

1007162

MASTER

1007157	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X ± DECIMALS XX ± .02 .XXX ± .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN L. Krahn DATE 23 MAR 64
CHECKED C. P. Kempe 24 Mar 64
APPROVAL
APPROVAL D. A. Hoag 3/24/64
NASA APPROVAL 3/24/64
MIT APPROVAL 24 Mar 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

IMU TEMP INDICATOR ALARM AND BACK-UP CONTROLLER ASSEMBLY

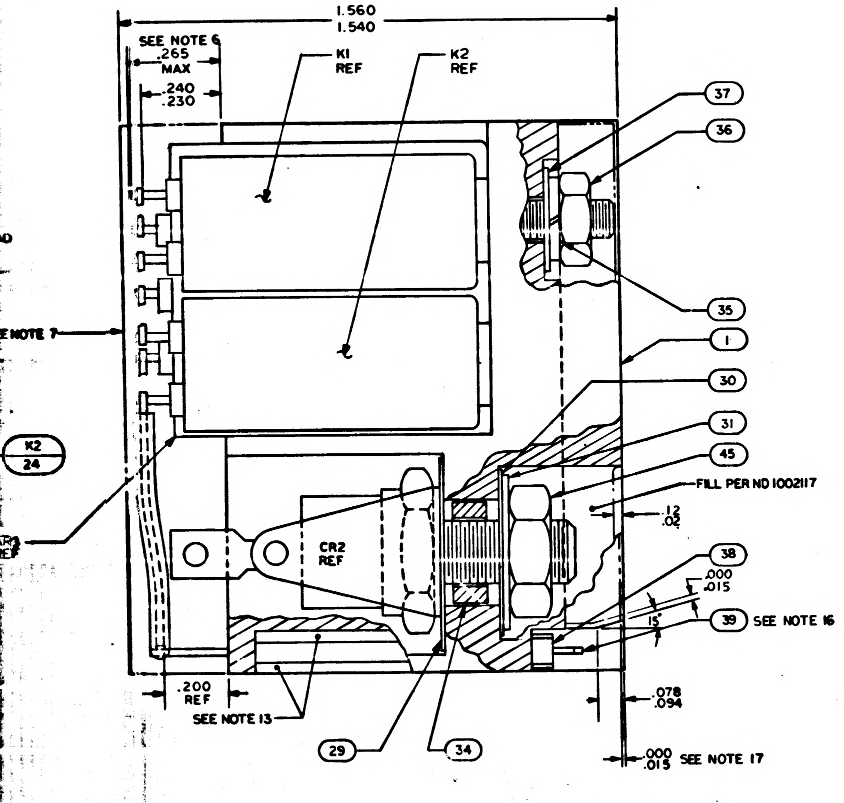
CODE IDENT NO.
SIZE
NASA DRAWING NO. 1007162
SCALE 5:1
WT
SHEET 1 OF 1

1007162

1007157

INCHES
PHOTOGRAPHIC SCALE ONLY

F3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SEE NOTE 6
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MAX
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.230
K1
REF
K2
REF
37
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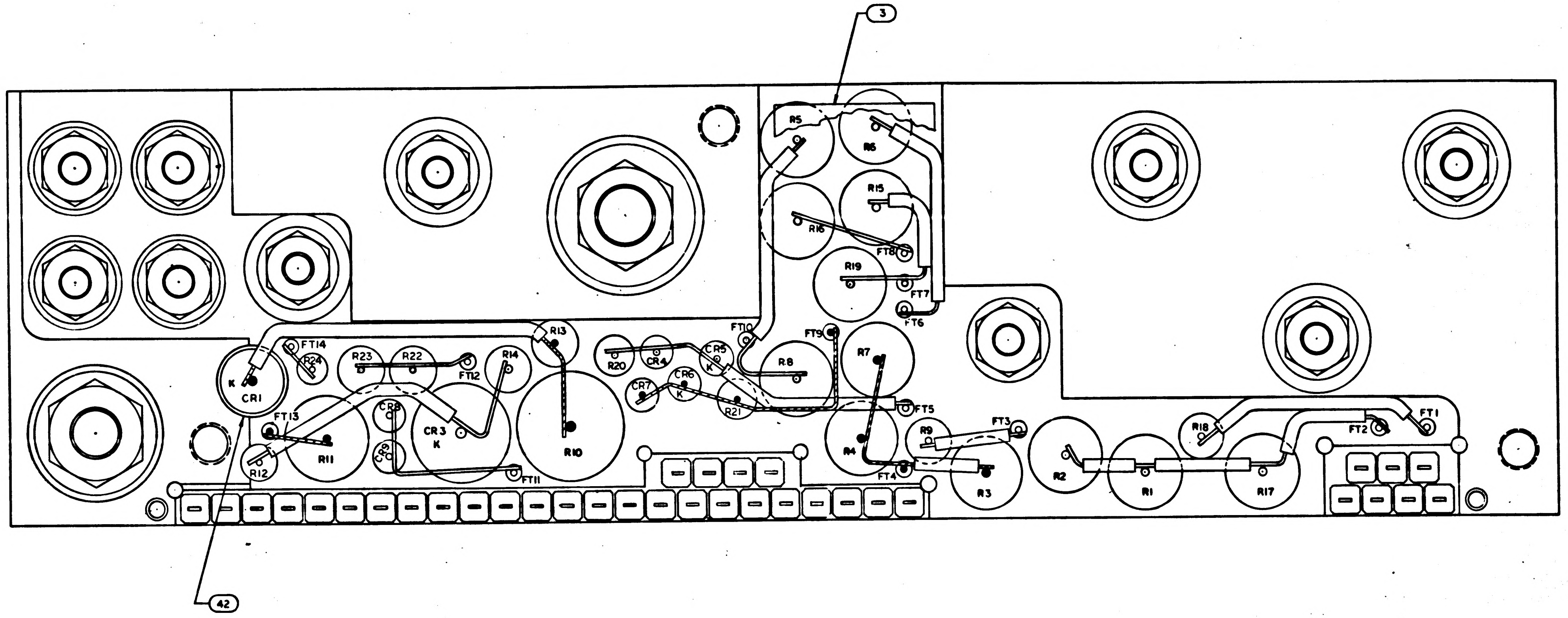
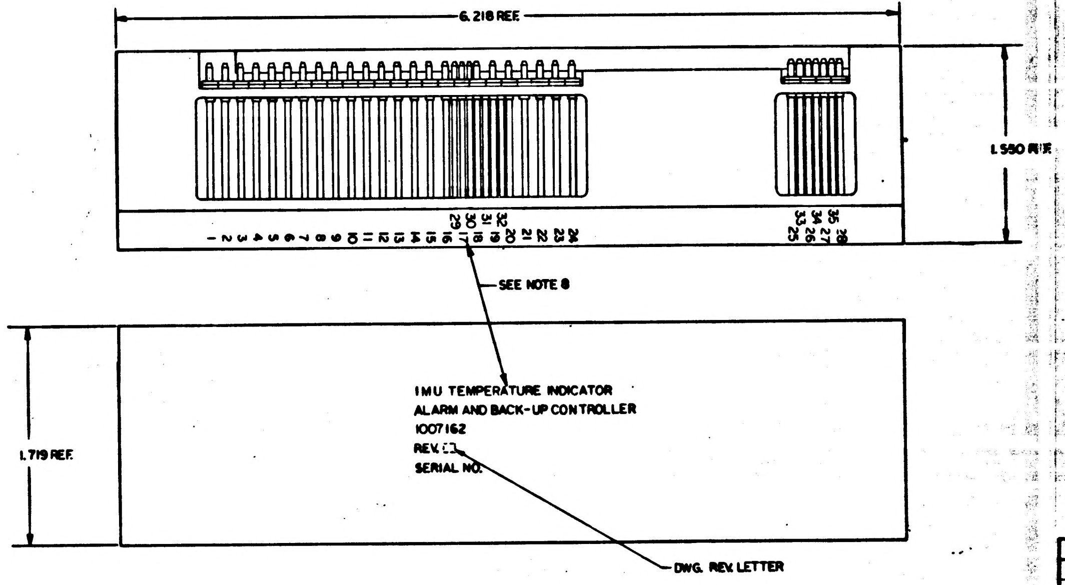
30
31
45
FILL PER ND 1002117
.12
.02
38
.000
.015
15°
39 SEE NOTE 16
.078
.094
.000
.015 SEE NOTE 17
CR2
REF
.200
REF
SEE NOTE 13
29
34
SEE NOTE 7
K2
24

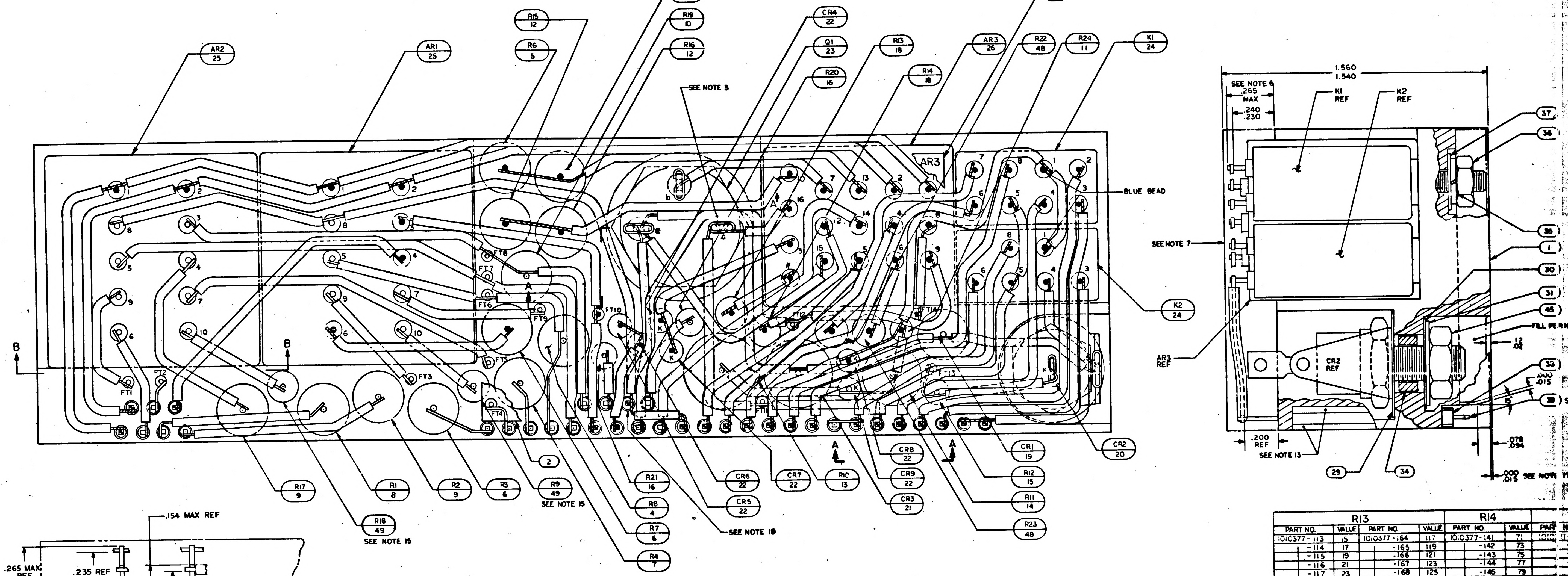

3
R5
R6
R15
R16
R19
FT8
FT7
FT6
FT10
FT9
R8
R7
FT5
CR5
K
CR6
K
CR7
R21
R20
CR4
R13
R14
R22
R23
R24
FT14
FT12
FT13
CR1
K
CR3
K
CR8
CR9
R11
R10
R12
FT11
R9
FT3
R4
FT4
R3
R2
R1
R18
R17
FT2
FT1
42

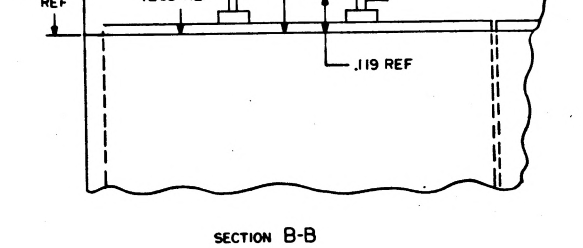
R13				R14		R9 AND R18					
PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE
1010377-113	15	1010377-164	117	1010377-141	71	1010311-126	1000	1010311-177	3400	1010311-228	11500
-114	17	-165	119	-142	73	-127	1020	-178	3480	-229	11800
-115	19	-166	121	-143	75	-128	1050	-179	3570	-230	12100
-116	21	-167	123	-144	77	-129	1070	-180	3650	-231	12400
-117	23	-168	125	-145	79	-130	1100	-181	3740	-232	12700
-118	25	-169	127	-146	81	-131	1130	-182	3830	-233	13000
-119	27	-170	129	-147	83	-132	1150	-183	3920	-234	13300
-120	29	-171	131	-148	85	-133	1180	-184	4020	-235	13700
-121	31	-172	133	-149	87	-134	1210	-185	4120	-236	14000
-122	33	-173	135	-150	89	-135	1240	-186	4220	-237	14300
-123	35	-174	137	-151	91	-136	1270	-187	4320	-238	14700
-124	37	-175	139	-152	93	-137	1300	-188	4420	-239	15000
-125	39	-176	141	-153	95	-138	1330	-189	4530	-240	15400
-126	41	-177	143	-154	97	-139	1370	-190	4640	-241	15800
-127	43	-178	145	-155	99	-140	1400	-191	4750	-242	16200
-128	45	-179	147	-156	101	-141	1430	-192	4870	-243	16500
-129	47	-180	149	-157	103	-142	1470	-193	4990	-244	16900
-130	49	-181	151	-158	105	-143	1500	-194	5110	-245	17400
-131	51	-182	153	-159	107	-144	1540	-195	5230	-246	17800
-132	53	-183	155	-160	109	-145	1580	-196	5360	-247	18200
-133	55	-184	157	-161	111	-146	1620	-197	5490	-248	18700
-134	57	-185	159	-162	113	-147	1650	-198	5620	-249	19100
-135	59	-186	161	-163	115	-148	1690	-199	5760	-250	19600
-136	61	-187	163	-164	117	-149	1740	-200	5900	-251	20000
-137	63	-188	165	-165	119	-150	1780	-201	6040	-252	20500
-138	65	-189	167	-166	121	-151	1820	-202	6190	-253	21000
-139	67	-190	169	-167	123	-152	1870	-203	6340	-254	21500
-140	69	-191	171	-168	125	-153	1910	-204	6490	-255	22100
-141	71	-192	173	-169	127	-154	1960	-205	6650	-256	22600
-142	73	-193	175	-170	129	-155	2000	-206	6810	-257	23200
-143	75	-194	177	-171	131	-156	2050	-207	6980	-258	23700
-144	77	-195	179	-172	133	-157	2100	-208	7150	-259	24300
-145	79	-196	181	-173	135	-158	2150	-209	7320	-260	24900
-146	81	-197	183	-174	137	-159	2210	-210	7500	-261	25500
-147	83	-198	185	-175	139	-160	2260	-211	7680	-262	26100
-148	85	-199	187	-176	141	-161	2320	-212	7870	-263	26700
-149	87	-200	189	-177	143	-162	2370	-213	8060	-264	27400
-150	89	-201	191	-178	145	-163	2430	-214	8250	-265	28000
-151	91	-202	193	-179	147	-164	2490	-215	8450	-266	28700
-152	93	-203	195	-180	149	-165	2550	-216	8660	-267	29400
-153	95	-204	197	-181	151	-166	2610	-217	8870	-268	30100
-154	97	-205	199	-182	153	-167	2670	-218	9090	-	
-155	99	-206	201	-183	155	-168	2740	-219	9310		
-156	101			-184	157	-169	2800	-220	9530		
-157	103			-185	159	-170	2870	-221	9760		
-158	105			-186	161	-171	2940	-222	10000		
-159	107			-187	163	-172	3010	-223	10200		
-160	109			-188	165	-173	3090	-224	10500		
-161	111			-189	167	-174	3160	-225	10700		
-162	113			-190	169	-175	3240	-226	11000		
-163	115			-191	171	-176	3320	-227	11300		


6.218 REF
1.550 REF
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
29 30 31 32
25 26 27 28
33 34 35
SEE NOTE 8
1.719 REF
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007162
REV. [ ]
SERIAL NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

1007157	
NEXT ASSY	USED
APPLICATION	


AR2 25
AR1 25
R15 12
R6 5
R5 5
R19 10
R16 12
CR4 22
Q1 23
R20 16
R13 18
R14 18
AR3 26
R22 48
R24 11
K1 24
47
SEE NOTE 3
AR3
BLUE BEAD
SEE NOTE 7
K2 24
AR3 REF
CR2 20
CR1 19
R12 15
R11 14
R23 48
CR3 21
CR9 22
CR8 22
R10 13
CR7 22
CR6 22
CR5 22
SEE NOTE 18
R21 16
R8 4
R7 6
R4 7
R9 49
SEE NOTE 15
2
R3 6
R2 9
R1 8
R17 9
R18 49
SEE NOTE 15
FT1
FT2
FT3
FT4
FT5
FT6
FT7
FT8
FT9
FT10
FT11
FT12
FT14
B
B
A
A
A
1.560
1.540
SEE NOTE 6
.265 MAX
.240
.230
K1 REF
K2 REF
37
36
35
1
30
31
45
FILL PER ND1002117
.12
.02
CR2 REF
33
.000
.015
39 SEE NOTE 16
.200 REF
SEE NOTE 13
.078
.094
29
34
.000
.015 SEE NOTE 17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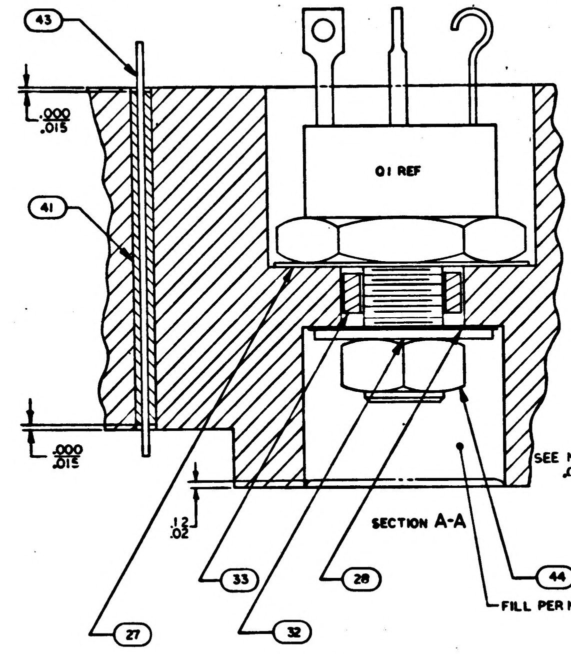
.265 MAX REF
.235 REF
.119 REF

SECTION B-B


43
.000
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41
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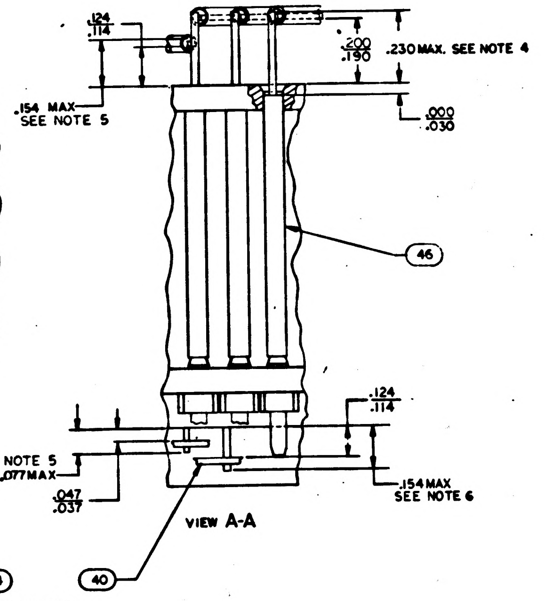
.015
.12
.02
33
28
44
27
32
FILL PER ND1002117

SECTION A-A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.114
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.230 MAX. SEE NOTE 4
.154 MAX
SEE NOTE 5
.000
.030
46
.124
.114
SEE NOTE 5
.077 MAX
.047
.037
.154 MAX
SEE NOTE 6
40

VIEW A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS MADE BY WELDING TO BE PER ND1002005.
3. ALL CONNECTIONS MADE BY SOLDERING TO BE PER ND1002071 USING ND1002075.
4. CHECKERED INDICATES INTERMEDIATE LEVEL WIRING
5. WHITE DOT INDICATES LEAD TO BE CUT FOR LOWEST LEVEL WIRING
6. BLACK DOT INDICATES LEAD TO BE CUT FOR HIGHEST LEVEL WIRING
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE. THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
8. MARK PIN NUMBERS .08 HIGH (WHITE) AND SERIALIZE AND MARK ALL OTHER CHARACTERS .12 HIGH (WHITE) PER ND 1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE
9. A/R DENOTES AS REQUIRED
10. K DENOTES CATHODE SIDE OF DIODE
11. MOUNTING TORQUE FOR FIND NO. 20 TO BE 10/15 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 23 TO BE 22/26 INCH POUNDS
13. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
14. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007162 PART TO BE SELECTD FROM CHART.
15. R9 AND R18 TO BE SELECTED AT ASSEMBLY, PART NO AND DASH NO. AS MARKED ON AMPLIFIER. RANGE OF VALUES (OHMS) SHOWN ON CHART
16. ASSEMBLE FIND NO. 35 AND 38 PER ND1002136
17. COMPONENTS TO BE CENTRALIZED AND CEMENTED IN PLACE PER ND1002009
18. LEAD FROM AR1-8 TERMINATES AT LOWER WELD CONNECTION OF PIN 30. UPPER LEAD TIES PINS 15 AND 30 TO FT12
19. CR2, 1010331-020 AND CR3, 1010441-2 SHALL BE SELECTED SUCH THAT CR2 ZENER VOLTAGE EXCEEDS CR3 ZENER VOLTAGE BY AT LEAST 1.6 VOLTS PER ATP 1007162.

R13				R14			
PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE
1010377-113	15	1010377-164	117	1010377-141	71	[illegible]-126	[illegible]
-114	17	-165	119	-142	73	-127	1020
-115	19	-166	121	-143	75	-128	1050
-116	21	-167	123	-144	77	-129	1070
-117	23	-168	125	-145	79	-130	1100
-118	25	-169	127	-146	81	-131	1130
-119	27	-170	129	-147	83	-132	1150
-120	29	-171	131	-148	85	-133	1180
-121	31	-172	133	-149	87	-134	1210
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-123	35	-174	137	-151	91	-136	[illegible]
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-128	45	-179	147	-156	101	-141	1430
-129	47	-180	149	-157	103	-142	1470
-130	49	-181	151	-158	105	-143	1500
-131	51	-182	153	-159	107	-144	1540
-132	53	-183	155	-160	109	-145	1560
-133	55	-184	157	-161	111	-146	1620
-134	57	-185	159	-162	113	-147	1650
-135	59	-186	161	-163	115	-148	1690
-136	61	-187	163	-164	117	-149	1740
-137	63	-188	165	-165	119	-150	1780
-138	65	-189	167	-166	121	-151	1820
-139	67	-190	169	-167	123	-152	1870
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-144	77	-195	179	-172	133	-157	2100
-145	79	-196	181	-173	135	-158	2150
-146	81	-197	183	-174	137	-159	2210
-147	83	-198	185	-175	139	-160	2260
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-153	95	-204	197	-181	151	-166	2610
-154	97	-205	199	-182	153	-167	2670
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-157	103			-185	159	-170	2870
-158	105			-186	161	-171	2940
-159	107			-187	163	-172	3010
-160	109			-188	165	-173	3090
-161	111			-189	167	-174	3160
-162	113			-190	169	-175	3240
-163	115			-191	171	-176	3320

1007162

APOLLO G&N Specification
PS1007162
Original Issue Date: 4 August 1964
Release Authority: TDRR 11276
Class A Release

PROCUREMENT SPECIFICATION

FOR

IMU TEMPERATURE INDICATOR ALARM

AND BACKUP CONTROLLER ASSEMBLY

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page i
and 1 to 5 inclusive.

APPROVALS NASA/MSC MIT/IL W. 8/ /64 Tom Wolff E. P. Armstrong ACSP

PROCUREMENT SPECIFICATION

FOR

IMU TEMPERATURE INDICATOR ALARM

AND BACKUP CONTROLLER ASSEMBLY

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the IMU Temperature Indicator Alarm and Backup Controller Assembly, Drawing 1007162, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
ND-1002214	General Specification for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment
FTM-1007162	Final Test Method for IMU Temperature Indicator Alarm and Backup Controller Assembly

DRAWINGS

APOLLO G&N

1007162	IMU Temperature Indicator Alarm and Backup Controller Assembly

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

APOLLO G&N Specification
PS1007162
Original Issue Date: 4 August 1964
Release Authority: TDRR 11276
Class A Release

PROCUREMENT SPECIFICATION

FOR

IMU TEMPERATURE INDICATOR ALARM

AND BACKUP CONTROLLER ASSEMBLY

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page i
and 1 to 5 inclusive.

				Tom Wolff
APPROVALS	NASA/MSC		MIT/IL	E.P. Armstrong ACSP

APOLLO G&N Specification
PS-1007162
4 August 1964

PROCUREMENT SPECIFICATION
FOR
IMU TEMPERATURE INDICATOR ALARM
AND BACKUP CONTROLLER ASSEMBLY

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the IMU Temperature Indicator Alarm and Backup Controller Assembly, Drawing 1007162, hereafter called the assembly.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of this specification form a part of this specification to the extent specified herein.

SPECIFICATIONS

APOLLO G&N

ND-1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
ND-1002214	General Specification for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment
FTM-1007162	Final Test Method for IMU Temperature Indicator Alarm and Backup Controller Assembly

DRAWINGS

APOLLO G&N

1007162	IMU Temperature Indicator Alarm and Backup Controller Assembly

3. REQUIREMENTS

3.1 GENERAL SPECIFICATION. Unless otherwise specified herein, all the requirements of Specification ND-1002210 shall apply as requirements of this specification.

3.2 DESCRIPTION. The assembly shall be used in the Power and Servo Assembly to indicate out of tolerance temperatures for the IRIG's and PIP's and to provide a backup temperature control function.

3.3 FUNCTIONAL REQUIREMENTS

3.3.1 Electrical Inputs. The assembly shall perform as specified herein with the following electrical inputs:

a. DC Supply Voltage: 25 to 30 vdc
b. Reference Signal:

  (1) Voltage: 20±2V rms center tapped square wave
  (2) Frequency: 3200±32 cps
  (3) Risetime: 20 μsec max.
  (4) Droop plus Overshoot: ≤3V (See 6.1)

3.3.2 Insulation Resistance. The resistance between each assembly pin and the heatsink shall be equal to or greater than 100 megohms.

3.3.3 Accelerometer Temperature Indicating Bridge. The bridge excitation shall be such that a current of 6 ma ±2 percent shall flow through each leg of the bridge when the bridge is completed by a 1560.0 ohm resistance.

3.3.4 IRIG Temperature Indicating Bridge. The bridge excitation shall be such that a current of 2 ma ±2 percent shall flow through each leg of the bridge when the bridge is completed by a 2365.3 ohm resistance.

3.3.5 Accelerometer Indicating Amplifier. The Accelerometer Temperature Indicating Amplifier and Bridge shall provide a 0 to 5±0.2 vdc output which is linearly proportional to a 125° to 135°F temperature change in the Accelerometer Temperature Indicating Sensor. The bridge shall provide an unbalance voltage of 45.4 mv for 125° and 44.7 mv of opposite polarity for 135°.

3.3.6 IRIG Indicating Amplifier. The IRIG Temperature Indicating Amplifier and Bridge shall provide a 0 to 5±0.2 vdc output which is linearly proportional to a 128.5° to 138.5°F temperature change in the IRIG Temperature Indicating Sensor. The bridge shall provide an unbalance of 143.9 mv for 128.5° and 147.5 mv of opposite polarity for 138.5°.

3.3.7 Alarm and Backup Control Amplifier. The Alarm and Backup Control Amplifier when operating in auto-override or proportional mode shall provide an alarm indication if IRIG temperatures go 4.0° ±0.5°F above or below 133.5°F. It shall also provide an alarm indication

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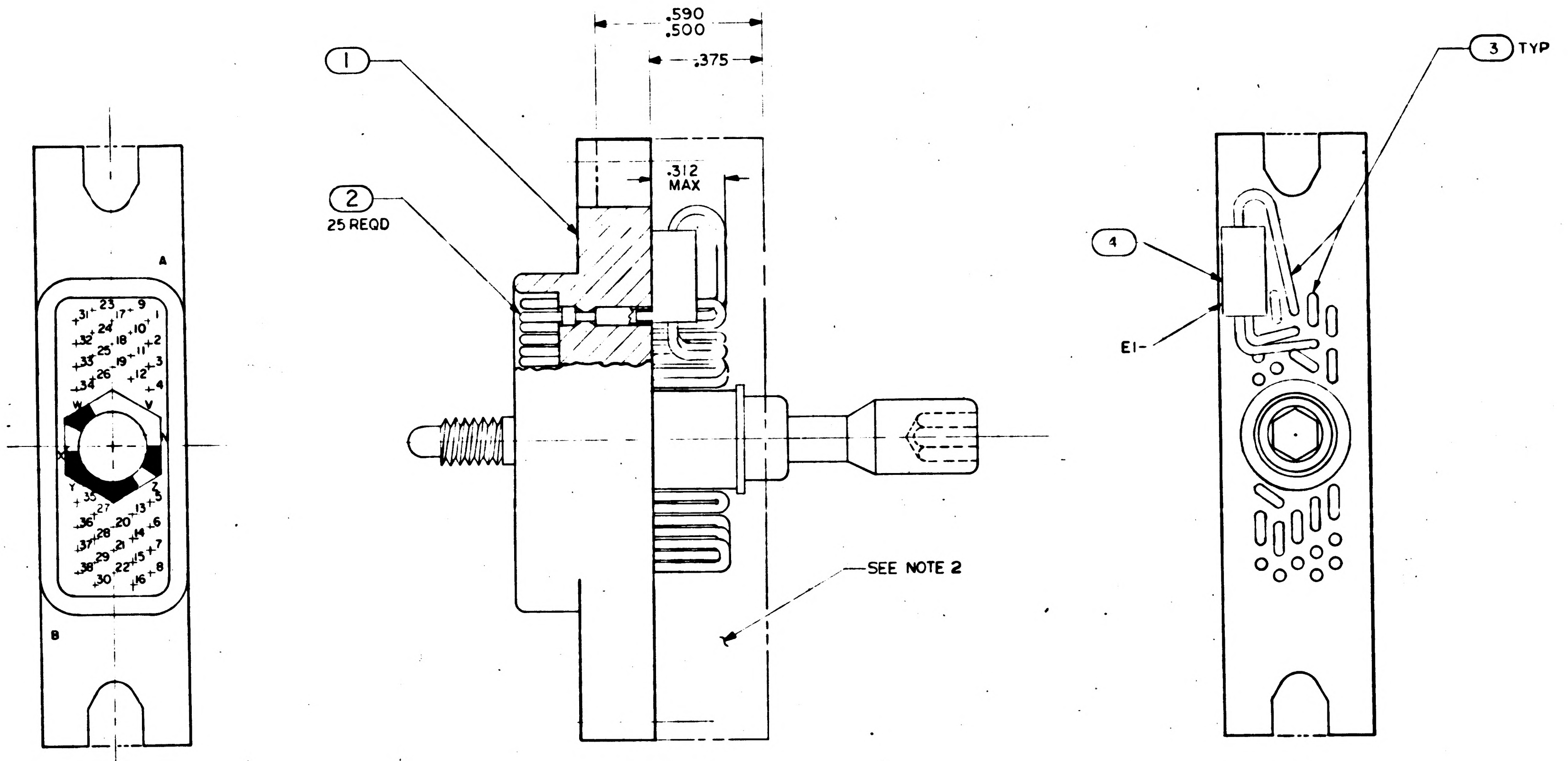
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 13920	15 NOV 64	JWP



WIRE LIST

CONDUCTOR	FROM	TO	WIRE	GAGE
AA-1	45A7P2-35	45A7P2-36	FIND NO. 3	NO.24 GAGE
AA-2	-23	-24		
AA-3	-33	-34		
AA-4	-25	-E1		
AA-5	-17	-E1		
AA-6	-9	-10		
AA-7	-31	-32		
AA-8	-27	-28		
AA-9	-19	-26		
AA-10	-5	-13		
AA-11	-6	-7		
AA-12	-20	-21		
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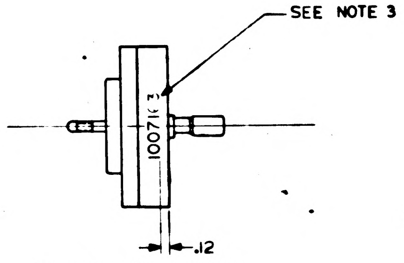
AA-14	-16	-E1		



MARKING VIEW

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ENCAPSULATE PER ND1002126 (METHOD II) USING NASA DWG 1006836
3. MARK PIECE PER ND1002019 1/8 HIGH WHITE CHARACTERISTICS, CENTRALIZE AS SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1010711-1	SPLICE ELECTRICAL	4
AR	MIL-W-16878/1(TYPE B24)19STRAND	WIRE PVC INSULATED WHITE	3
25	1010738-1	CONTACT PIN, ELECTRICAL	2
1	1008160-2	CONNECTOR PLUG, ELECT, REWORKED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007157	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — # — DECIMALS XX ±.02 XXX ±.005 ANGLES ± #
DO NOT SCALE THIS DRAWING
MATERIAL — # —
HEAT TREATMENT — # —
FINAL FINISH — # —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN F. Welch DATE 3/4/64
CHECKED
APPROVAL
APPROVAL D. R. Scott 3/24/64
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

CONNECTOR PLUG
ELECTRICAL REWORKED

CODE IDENT NO
SIZE D
NASA DRAWING NO 1007163
SCALE NONE
WT
SHEET 1 OF 1

1007163 A

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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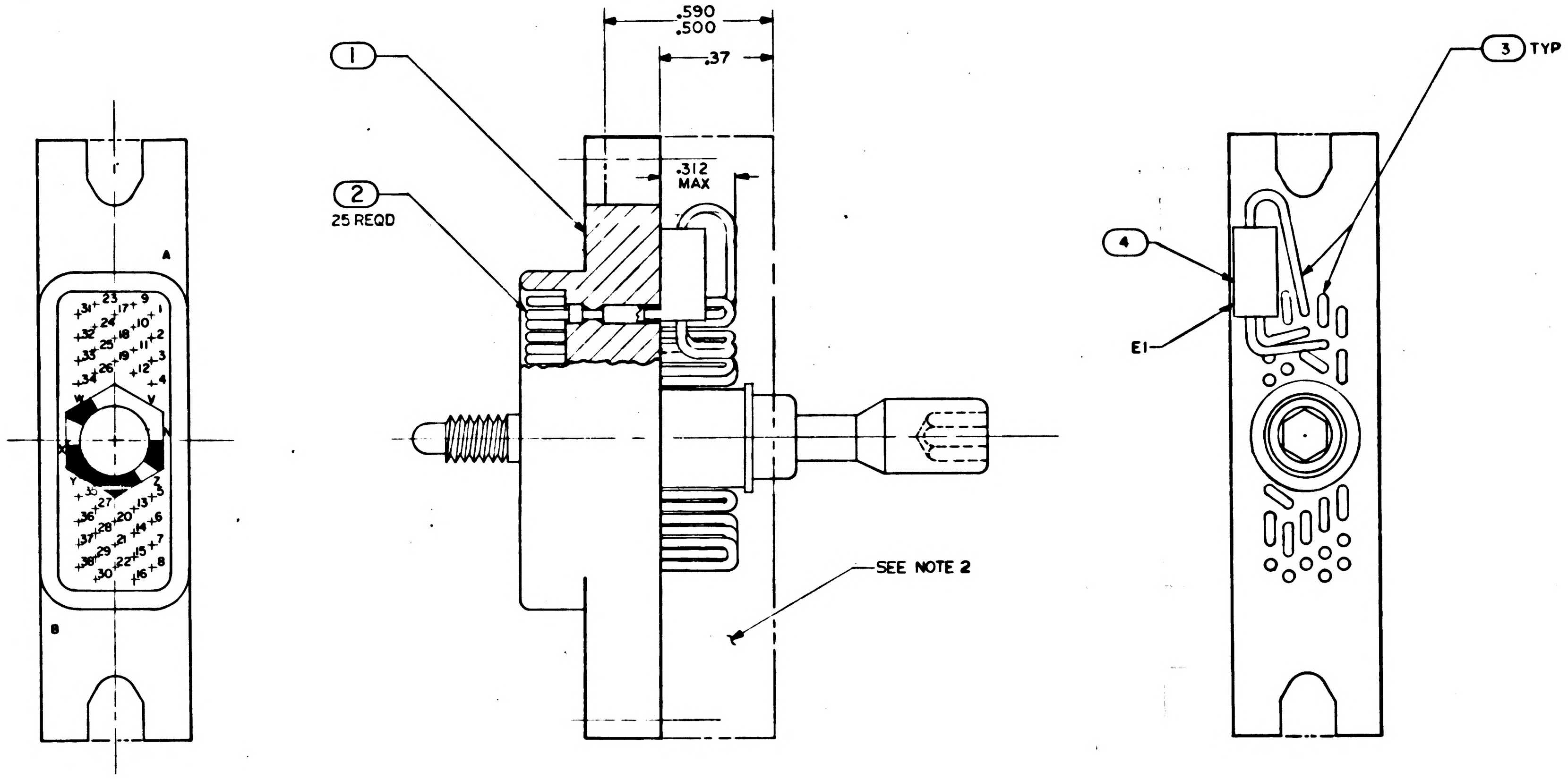
B	REVISED PER TDRR 13928	11-NOV 64	



WIRE LIST

CONDUCTOR	FROM	TO	WIRE	GAGE
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AA-2	-23	-24		
AA-3	-33	-34		
AA-4	-25	-E1		
AA-5	-17	-E1		
AA-6	-9	-10		
AA-7	-31	-32		
AA-8	-27	-28		
AA-9	-19	-26		
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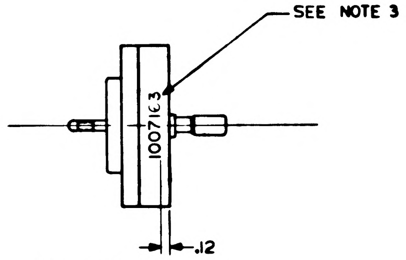

MARKING VIEW

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ENCAPSULATE PER ND1002126 (METHOD II) USING NASA DWG 1006836
3. MARK PIECE PER ND1002019 1/8 HIGH WHITE CHARACTERISTICS, CENTRALIZE AS SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1010711-1	SPLICE ELECTRICAL	4
AR	MIL-W-16878/1(TYPE B24)19STRAND	WIRE PVC INSULATED WHITE	3
25	1010738-1	CONTACT PIN, ELECTRICAL	2
1	1008160-2	CONNECTOR PLUG, ELECT, REWORKED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007157	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS —#— DECIMALS XX ±.02 XXX ±.005 ANGLES ±—#—
DO NOT SCALE THIS DRAWING
MATERIAL —#—
HEAT TREATMENT —#—
FINAL FINISH —#—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN F. Walsh DATE 3/24/64
CHECKED
APPROVAL
APPROVAL D. A. Frost 3/24/64
NASA APPROVAL 3/24/64
MIT APPROVAL 24 Mar 64

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HOUSTON, TEXAS

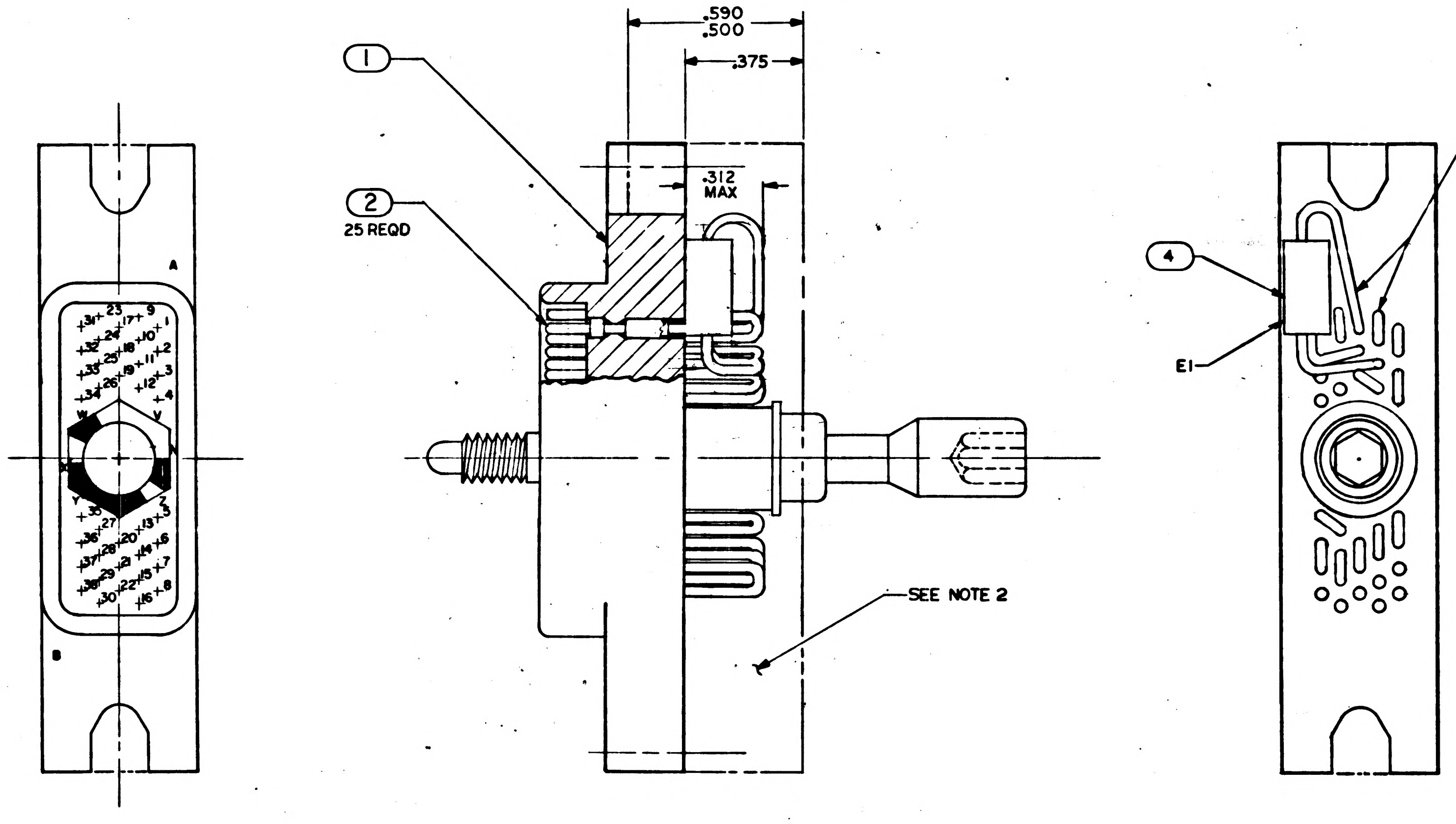
CONNECTOR PLUG
ELECTRICAL REWORKED

CODE IDENT NO.
SIZE D
NASA DRAWING NO. 1007163
SCALE NONE
WT
SHEET 1 OF 1

1007163 B

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 07722			
SYM	DESCRIPTION	DATE	APPROVAL



WIRE LIST

CONDUCTOR	FROM	TO	WIRE	GAGE
AA-1	45A7P2-35	45A7P2-36	FIND NO. 3	NO.24 GAGE
AA-2	-23	-24		
AA-3	-33	-34		
AA-4	-25	-E1		
AA-5	-17	-E1		
AA-6	-9	-10		
AA-7	-31	-32		
AA-8	-27	-28		
AA-9	-19	-26		
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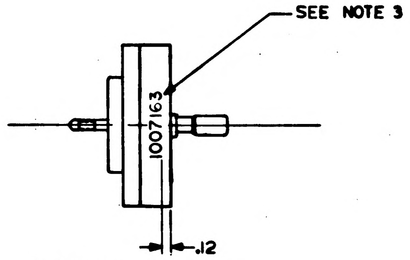

MARKING VIEW

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ENCAPSULATE PER ND1002126 (METHOD II) USING NASA DWG 1006836
3. MARK PIECE PER ND1002019 1/8 HIGH WHITE CHARACTERISTICS, CENTRALIZE AS SHOWN

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1010711-1	SPLICE ELECTRICAL	4
AR	MIL-W-16878/1(TYPE B24)19STRAND	WIRE PVC INSULATED WHITE	3
25	1010464-1	CONTACT PIN, ELECTRICAL	2
1	1008160-2	CONNECTOR PLUG, ELECT, REWORKED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007157	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — DECIMALS XX ±.02 XXX ±.005 — ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN J.F. Walsh DATE 3/24/64
CHECKED R.P. Kunga [illegible]
APPROVAL
APPROVAL N. R. Stout 3/24/64
NASA APPROVAL W. S. Dwyer 3/24/64
MIT APPROVAL W. Kupfer 24 Mar 64

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CONNECTOR PLUG
ELECTRICAL REWORKED

CODE IDENT NO. | SIZE D | NASA DRAWING NO. 1007163
SCALE NONE | WT | SHEET 1 OF 1

1007163

1007114

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PHOTOGRAPHIC SCALE ONLY

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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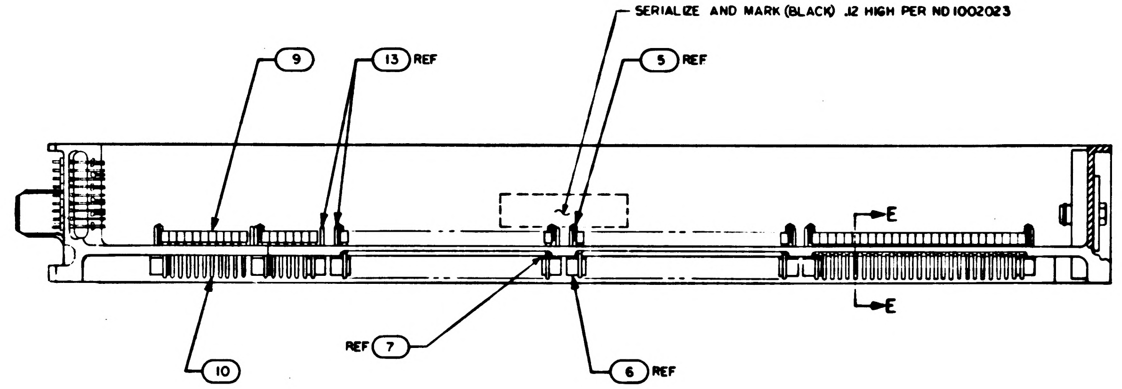
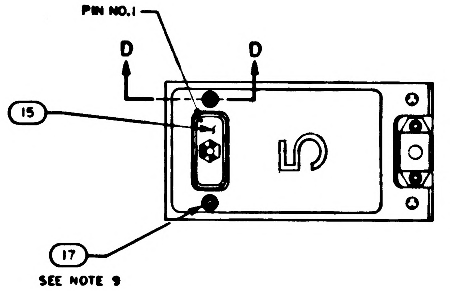
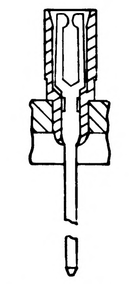
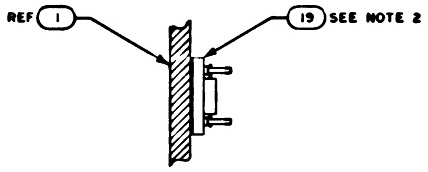






SECTION E-E



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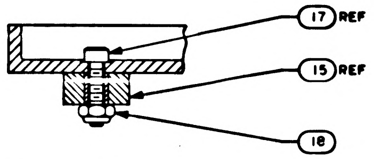

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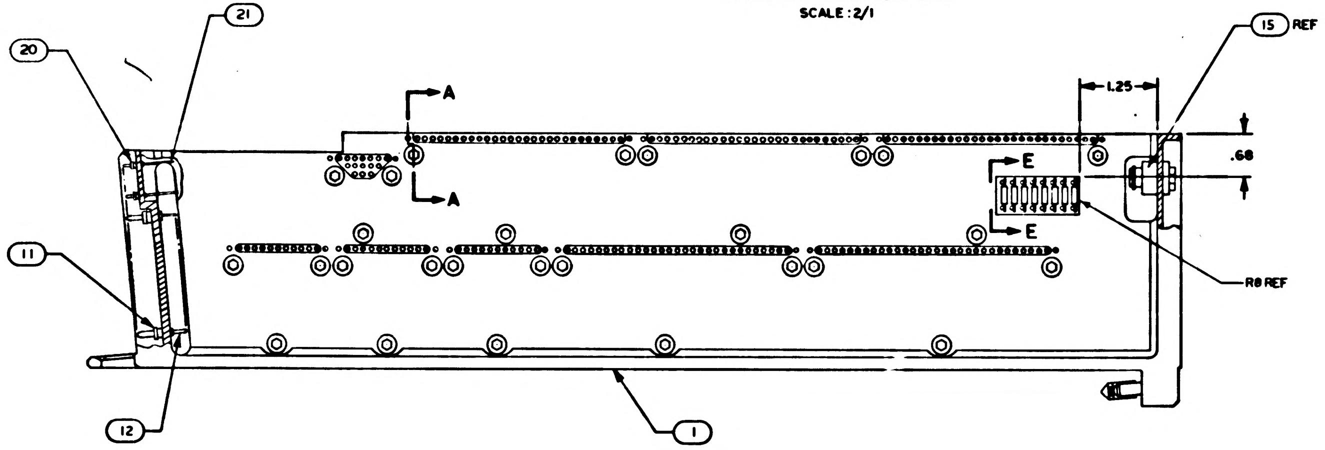

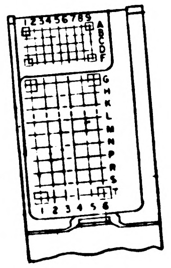

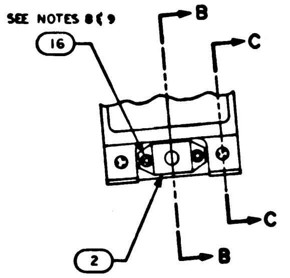

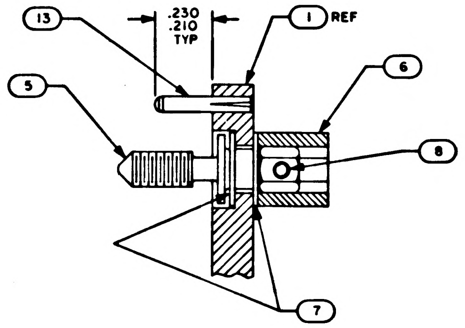

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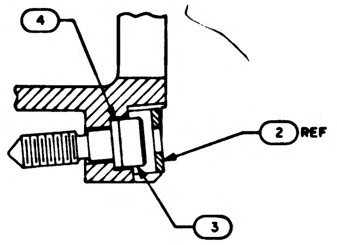

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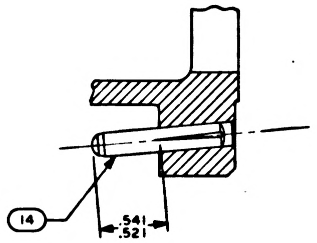

SECTION C-C
SCALE: 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686
3. MARK PER ND1002019, WHITE
4. ASSEMBLE FIND NUMBERS 9,10,11 AND 12 PER ND 1002136
5. BOND FIND NOS. 22,23,24.25 AND 26 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
8. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

A	—
SHEET 1	SHEET 2
REVISION STATUS OF SHEETS	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010095	WIRING DIAGRAM	REF
1	1015753	WIRE LIST AA	26
1	1015752	WIRING HARNESS D	25
1	1015751	WIRING HARNESS C	24
1	1015750	WIRING HARNESS B	23
1	1015749	WIRING HARNESS A	22
45	1006782-2	CONTACT, WRAPOST MALE MIN	21
45	1006775	INSULATOR, MALE WRAPOST MIN	20
1	1007099	BUFFER RESISTORS ASSEMBLY	19
2	MA21045 C 04	NUT, SELF-LOCKING, HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-3	SCREW, CAP, SOCKET HEAD	16
1	1010622-1	CONNECTOR, RECEPTACLE	15
2	1010620-2	PIN, GUIDE	14
18	1010620-1	PIN, GUIDE	13
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	12
60	1010383-1	INSULATOR, WRAPOST, MALE	11
166	1006781-2	CONTACT, WRAPOST, FEMALE, MIN	10
188	1006774	INSULATOR, WRAPOST, FEMALE, MIN	9
27	MS 171433	PIN, SPRING	8
54	1004206	WASHER, THRUST	[illegible]
27	1004207	DRIVE CYLINDER	[illegible]
27	1008095	SCREW, JACK	5
1	1008099-2	WASHER,	4
1	1008098	SCREW, SOCKET HEAD	3
1	1001317	RETAINER, JACK SCREW	2
1	1008175	FRAME	1

LIST OF MATERIALS

1007175	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO Contract NAS 9-497
DRAWN E. Krahn DATE 2 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007165
SCALE 1/1
WT
SHEET 1 OF 2

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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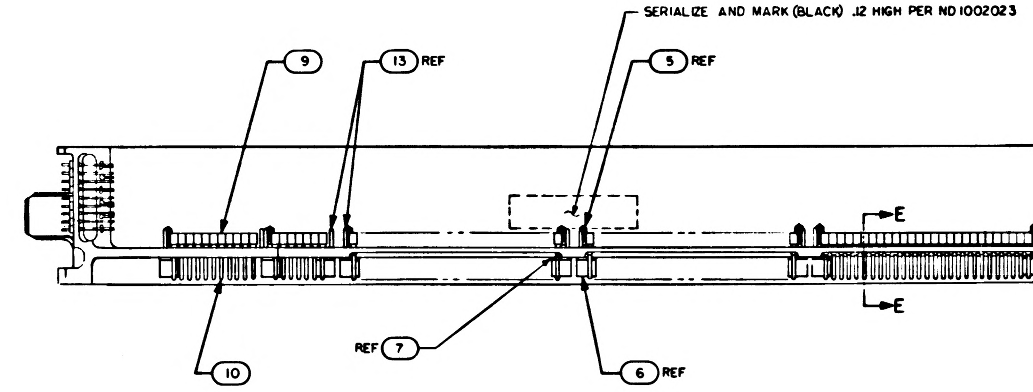
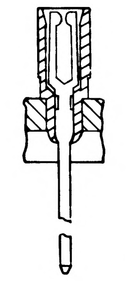
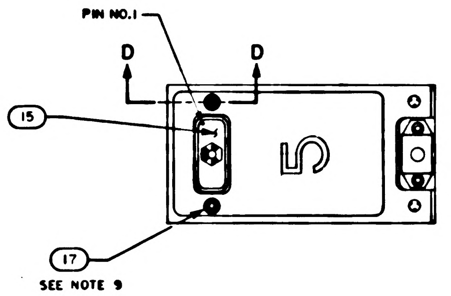
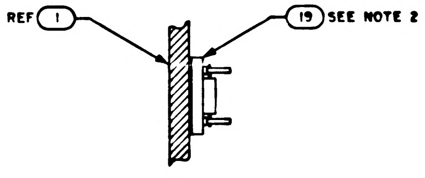
B	REVISED PER TDRR 08145	13 MAY 64	JB





SECTION E-E





PARTIAL SECTION E-E

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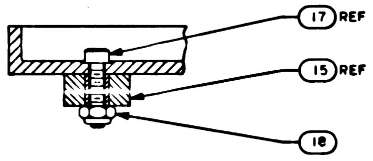
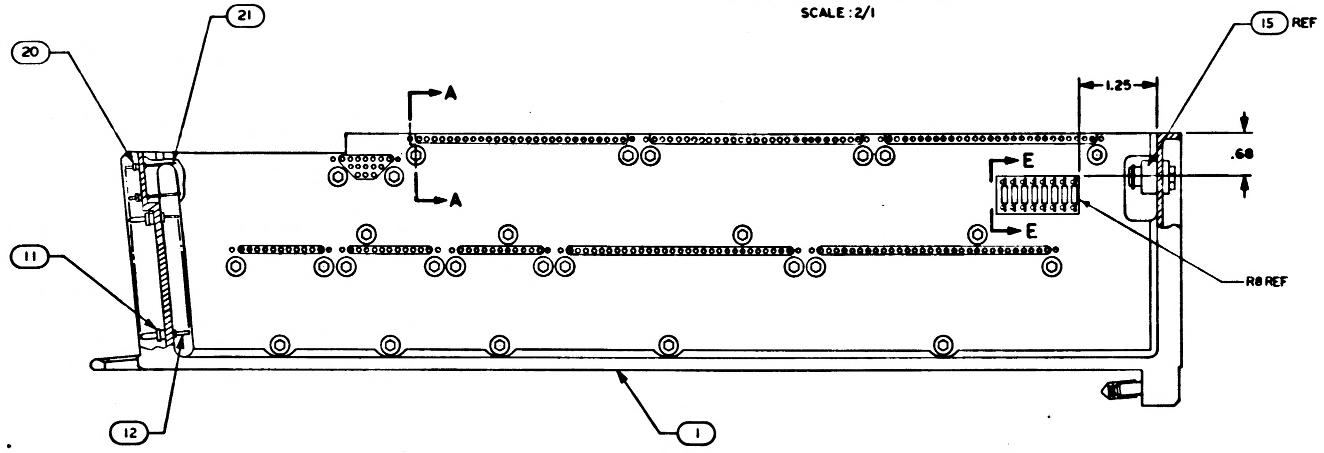
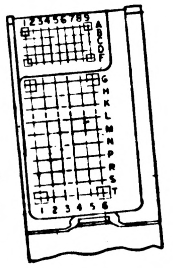
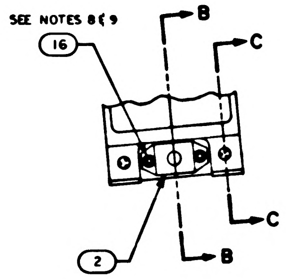


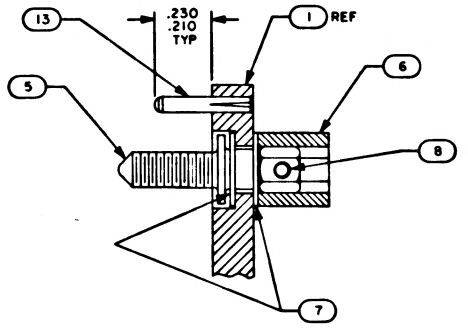
PARTIAL SECTION D-D

SCALE: 2/1



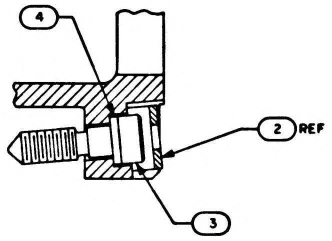






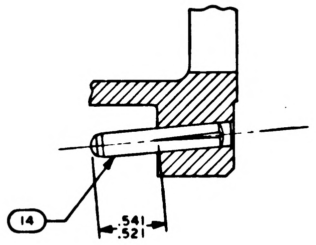
PARTIAL SECTION A-A

SCALE: 4/1



SECTION B-B

SCALE: 2/1



SECTION C-C

SCALE: 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686
3. MARK PER ND1002019, WHITE
4. ASSEMBLE FIND NUMBERS 9,10,11 AND 12 PER ND 1002136
5. BOND FIND NOS. 22,23,24.25 AND 26 TO FIND NO. 1 PER ND1002004 AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
8. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
11. PROCURE PER PS1007145.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010095	WIRING DIAGRAM	REF
1	1015753	WIRE LIST AA	26
1	1015752	WIRING HARNESS D	25
1	1015751	WIRING HARNESS C	24
1	1015750	WIRING HARNESS B	23
1	1015749	WIRING HARNESS A	22
45	1006782-2	CONTACT, WRAPOST MALE MIN	21
45	1006775	INSULATOR, MALE WRAPOST MIN	20
1	1007099	BUFFER RESISTORS ASSEMBLY	19
2	MA21045 C 04	NUT, SELF-LOCKING, HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-3	SCREW, CAP, SOCKET HEAD	16
1	1010622-1	CONNECTOR, RECEPTACLE	15
2	1010620-5	PIN, GUIDE	14
18	1010620-4	PIN, GUIDE	13
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	12
60	1010383-1	INSULATOR, WRAPOST, MALE	11
166	1006781-2	CONTACT, WRAPOST, FEMALE, MIN	10
188	1006774	INSULATOR, WRAPOST, FEMALE, MIN	9
27	MS 171433	PIN, SPRING	8
54	1004206	WASHER, THRUST	7
27	1004207	DRIVE CYLINDER	6
27	1008172	SCREW, JACK	5
1	1008099-2	WASHER,	4
1	1008098	SCREW, SOCKET HEAD	3
1	1001317	RETAINER, JACK SCREW	2
1	1008175	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007175	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO Contract NAS 9-497
DRAWN E. Krahn DATE 4 MAR 64
CHECKED
APPROVAL D. R. Test 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

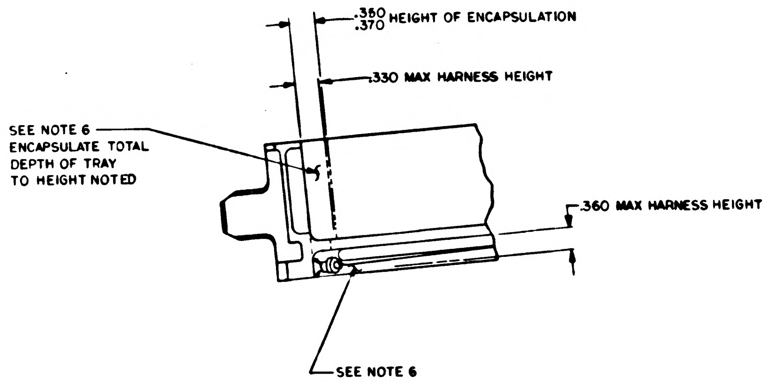
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

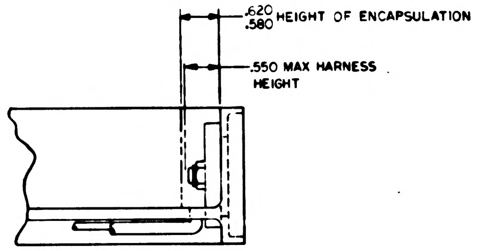
FRAME ASSEMBLY
TRAY 5

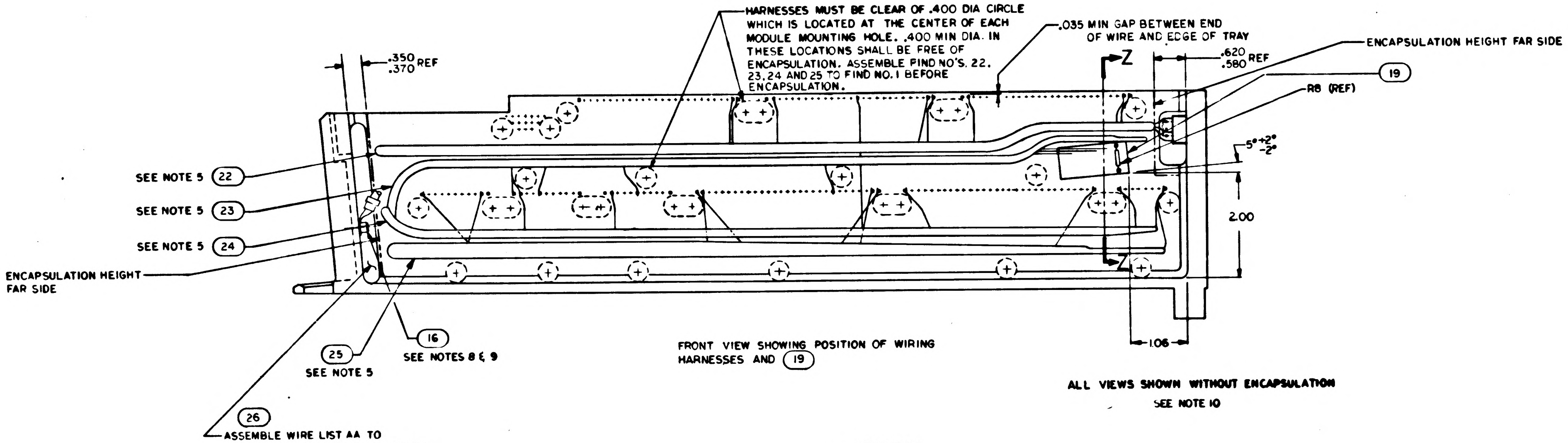
CODE IDENT NO. | SIZE E | NASA DRAWING NO. 1007165
SCALE 1/1 | WT | SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
B	REVISED PER TDRR 08145	15 MAY 64	JB

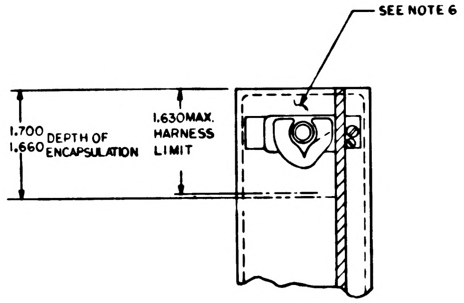

.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6
ENCAPSULATE TOTAL
DEPTH OF TRAY
TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS
HEIGHT

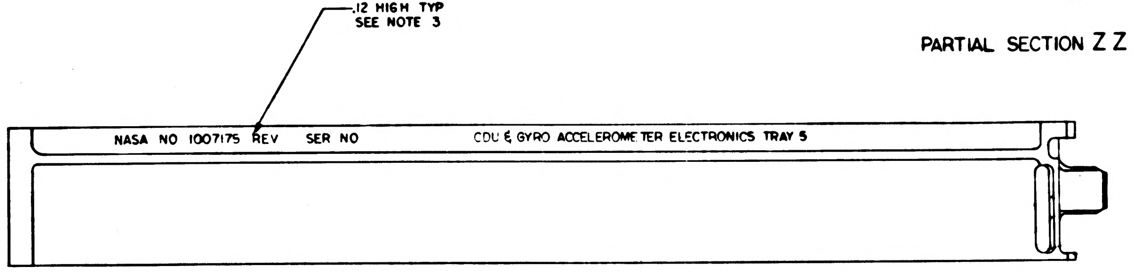

HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE. .400 MIN DIA. IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO'S. 22, 23, 24 AND 25 TO FIND NO. 1 BEFORE ENCAPSULATION.
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
ENCAPSULATION HEIGHT FAR SIDE
.350
.370 REF
Z
.620
.580 REF
19
R8 (REF)
5° +2° -2°
2.00
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
ENCAPSULATION HEIGHT FAR SIDE
.106
16
SEE NOTES 8 & 9
25
SEE NOTE 5
26
ASSEMBLE WIRE LIST AA TO FIND NO. 1 BEFORE ENCAPSULATION

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ⑲

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10


SEE NOTE 6
1.700
1.660 DEPTH OF ENCAPSULATION
1.630 MAX. HARNESS LIMIT

PARTIAL SECTION Z Z


.12 HIGH TYP
SEE NOTE 3
NASA NO 1007175 REV SER NO
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

1007175	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO Contract NAS 9-497
DRAWN L. Heahn DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007165
SCALE 1/1 WT SHEET 2 OF 2

1007165 B

NOTICE.– WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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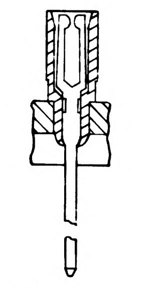
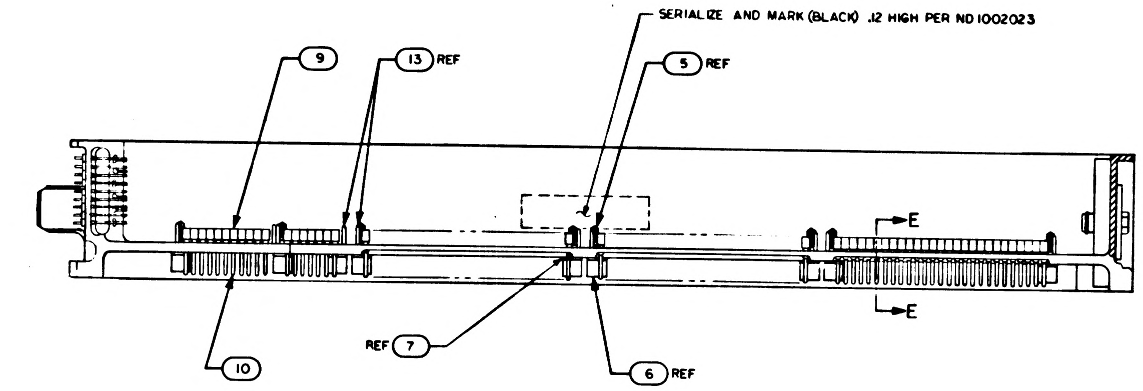
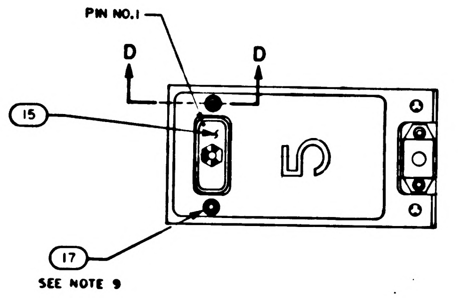
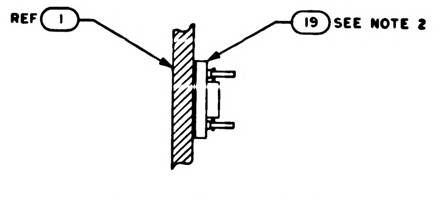
B	REVISED PER TORR 08145	13 MAY 64	JB
C	REVISED PER TORR 14322	23 NOV 64	JK



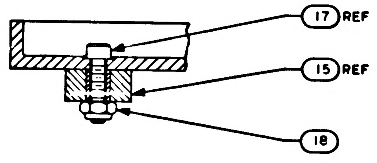
SECTION E-E



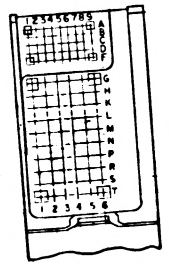


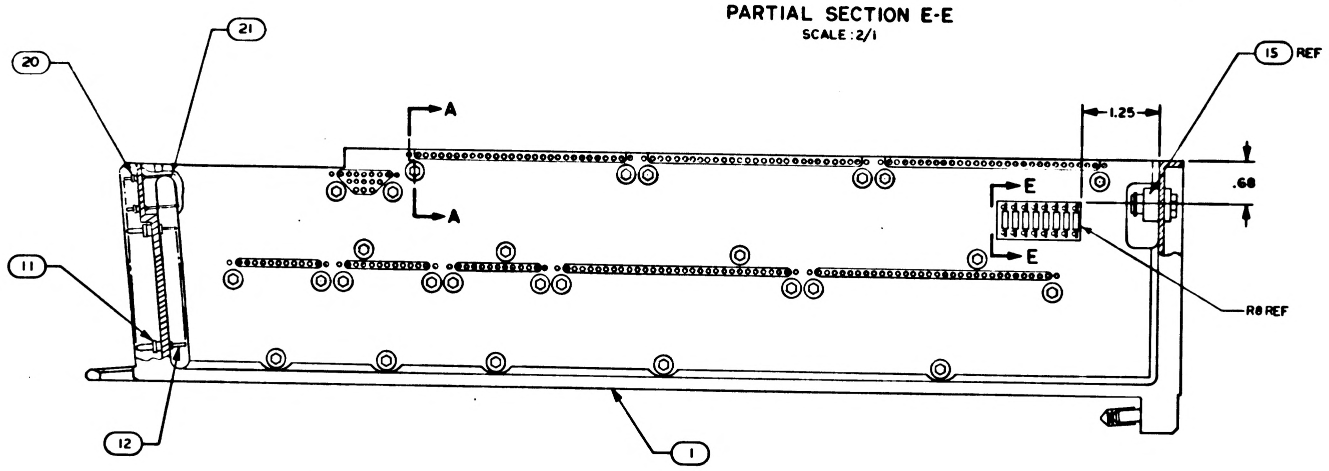


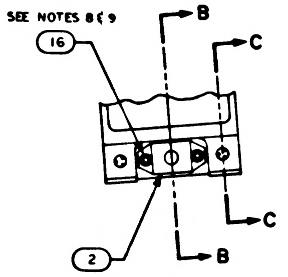
PARTIAL SECTION E-E
SCALE: 2/1

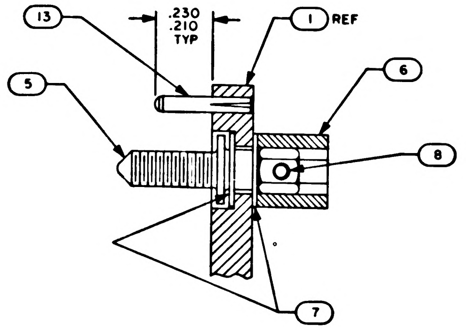


PARTIAL SECTION D-D
SCALE: 2/1

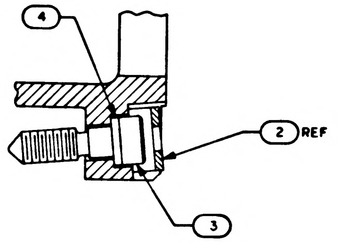




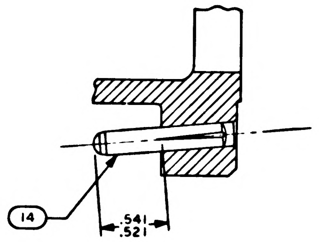




PARTIAL SECTION A-A
SCALE: 4/1



SECTION B-B
SCALE: 2/1



SECTION C-C
SCALE: 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686
3. MARK PER ND1002019, WHITE
4. ASSEMBLE FIND NUMBERS 9,10,11 AND 12 PER ND 1002136
5. BOND FIND NOS. 22,23,24.25 AND 26 TO FIND NO. 1 PER ND1002004 AS NECESSARY
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7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
8. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
11. PROCURE PER PS1007145.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1008454	WIRING DIAGRAM	REF
1	1015753	WIRE LIST AA	26
1	1015752	WIRING HARNESS D	25
1	1015751	WIRING HARNESS C	24
1	1015750	WIRING HARNESS B	23
1	1015749	WIRING HARNESS A	22
45	1006782-2	CONTACT, WRAPOST MALE MIN	21
45	1006775	INSULATOR, MALE WRAPOST MIN	20
1	1007099	BUFFER RESISTORS ASSEMBLY	19
2	MA21045C04	NUT, SELF-LOCKING, HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-3	SCREW, CAP, SOCKET HEAD	16
1	1010622-1	CONNECTOR, RECEPTACLE	15
2	1010620-5	PIN, GUIDE	14
18	1010620-4	PIN, GUIDE	13
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	12
60	1010383-1	INSULATOR, WRAPOST, MALE	11
166	1006781-2	CONTACT, WRAPOST, FEMALE, MIN	10
188	1006774	INSULATOR, WRAPOST, FEMALE, MIN	9
27	MS171433	PIN, SPRING	8
54	1004206	WASHER, THRUST	7
27	1004207	DRIVE CYLINDER	6
27	1008172	SCREW, JACK	5
1	1008099-2	WASHER,	4
1	1008098	SCREW, SOCKET HEAD	3
1	1001317	RETAINER, JACK SCREW	2
1	1008175	FRAME	1

LIST OF MATERIALS

1007175	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN E. Krahn DATE 4 MAR 64
CHECKED
APPROVAL D. A. Fast 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

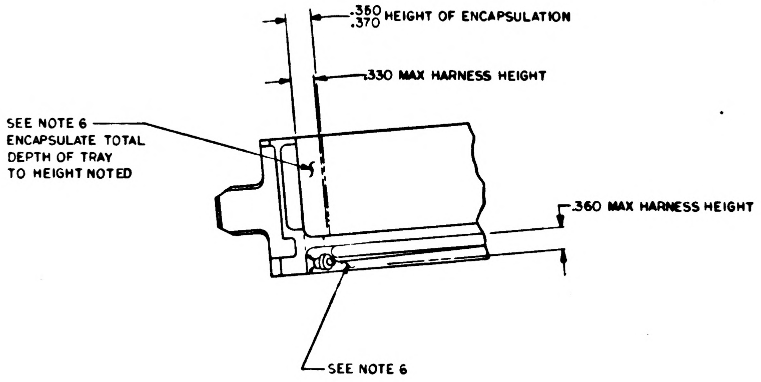
CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007165
SCALE 1/1
WT
SHEET 1 OF 2

1007165 C

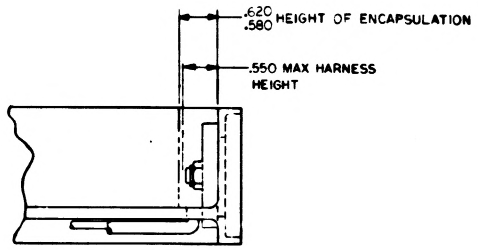
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

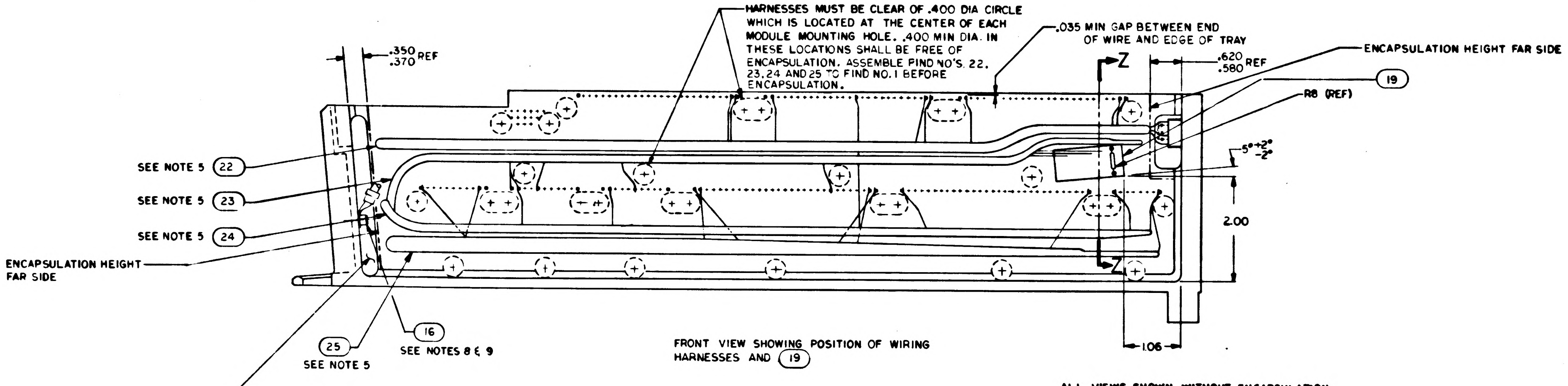
SYM	DESCRIPTION	DATE	APPROVAL
B	REVISED PER TDRR 08145	15 MAY 64	JB
C	REVISED PER TDRR 4322	23 NOV	



.380
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6
ENCAPSULATE TOTAL
DEPTH OF TRAY
TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6



.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS
HEIGHT

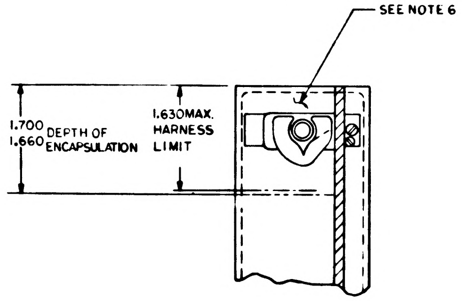


HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE. .400 MIN DIA. IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO'S. 22, 23, 24 AND 25 TO FIND NO. 1 BEFORE ENCAPSULATION.
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
Z
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
19
R8 (REF)
5° +2° −2°
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
ENCAPSULATION HEIGHT FAR SIDE
2.00
1.06
25
SEE NOTE 5
16
SEE NOTES 8 & 9

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND (19)

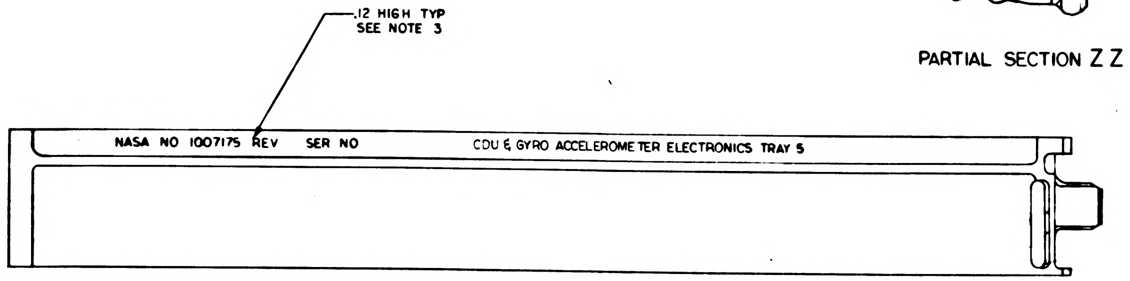
(26) ASSEMBLE WIRE LIST AA TO FIND NO. 1 BEFORE ENCAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10



SEE NOTE 6
1.700
1.660 DEPTH OF ENCAPSULATION
1.630 MAX. HARNESS LIMIT

PARTIAL SECTION Z Z



.12 HIGH TYP
SEE NOTE 3
NASA NO 1007175 REV SER NO
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007175	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN L. Healey DATE 4 MAR 64
CHECKED
APPROVAL D. A. Fost 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

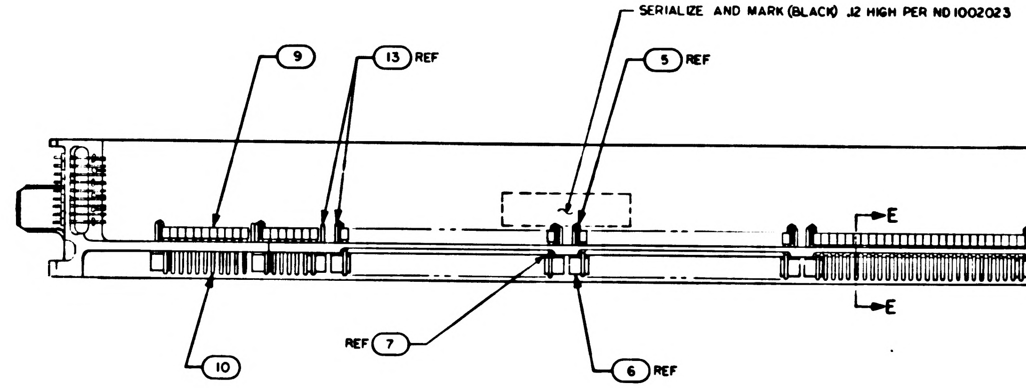
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

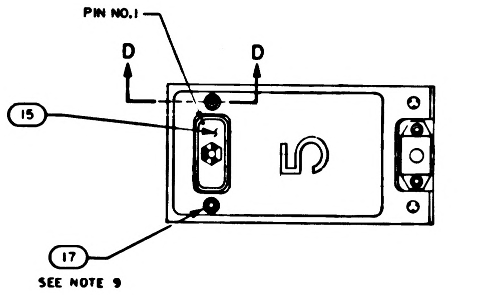
FRAME ASSEMBLY
TRAY 5

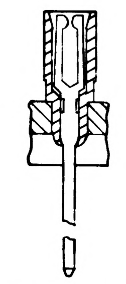
CODE IDENT NO
SIZE E
NASA DRAWING NO 1007165
SCALE 1/1
WT
SHEET 2 OF 2

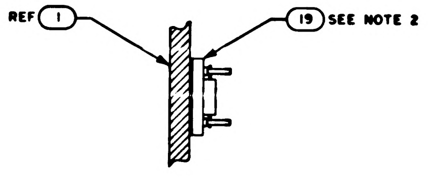
NOTICE.— WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07276	8 APR 64	
B	REVISED PER TDRR 08145	13 MAY 64	
C	REVISED PER TDRR 14322	[illegible]	
D	REVISED PER TDRR 16639	[illegible]	

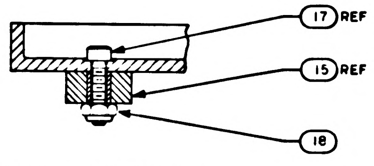





SECTION E-E



PARTIAL SECTION E-E
SCALE: 2/1



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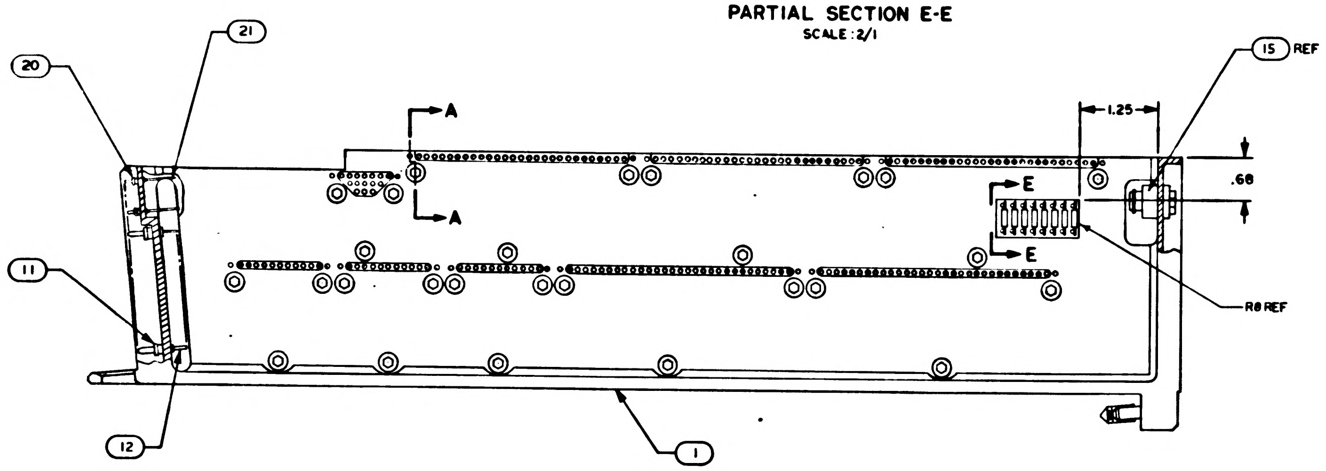
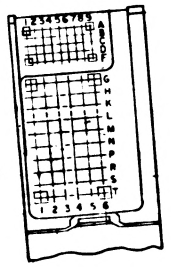
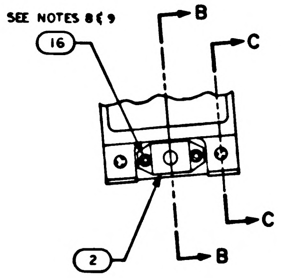
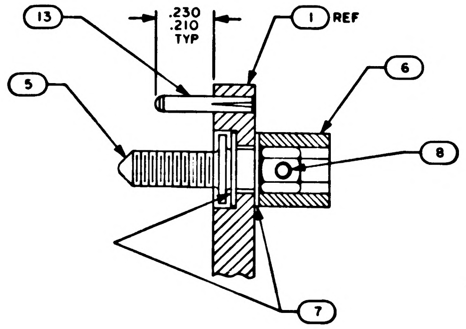
SCALE: 2/1

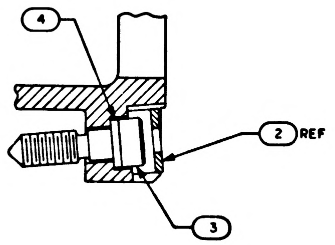




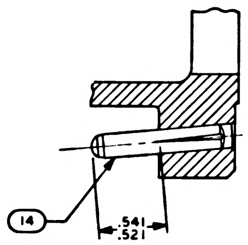




PARTIAL SECTION A-A
SCALE: 4/1



SECTION B-B
SCALE: 2/1



SECTION C-C
SCALE: 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686
3. MARK PER ND1002019, WHITE
4. ASSEMBLE FIND NUMBERS 9,10,11 AND 12 PER ND 1002136
5. BOND FIND NOS. 22,23,24.25 AND 26 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
8. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
11. PROCURE PER PS1007145.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1008454	WIRING DIAGRAM	REF
1	1015753	WIRE LIST AA	26
1	1015752	WIRING HARNESS D	25
1	1015751	WIRING HARNESS C	24
1	1015750	WIRING HARNESS B	23
1	1015749	WIRING HARNESS A	22
45	1006782-2	CONTACT, WRAPOST MALE MIN	21
45	1006775	INSULATOR, MALE WRAPOST MIN	20
1	1007099	BUFFER RESISTORS ASSEMBLY	19
2	MA21045 C 04	NUT, SELF-LOCKING, HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-3	SCREW, CAP, SOCKET HEAD	16
1	1010622-1	CONNECTOR, RECEPTACLE	15
2	1010620-5	PIN, GUIDE	14
18	1010620-4	PIN, GUIDE	13
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	12
60	1010383-1	INSULATOR, WRAPOST, MALE	11
166	1006781-2	CONTACT, WRAPOST, FEMALE, MIN	10
188	1006774	INSULATOR, WRAPOST, FEMALE, MIN	9
27	MS 171433	PIN, SPRING	8
54	1004206	WASHER, THRUST	7
27	1004207	DRIVE CYLINDER	6
27	1008172	SCREW, JACK	5
1	1008099-2	WASHER,	4
1	1008098	SCREW, SOCKET HEAD	3
1	1001317	RETAINER, JACK SCREW	2
1	1008525	FRAME	1

LIST OF MATERIALS

1007175	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN L. Krahn DATE 4 MAR 64
CHECKED
APPROVAL D. R. [illegible] 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007165
SCALE 1/1
WT
SHEET 1 OF 2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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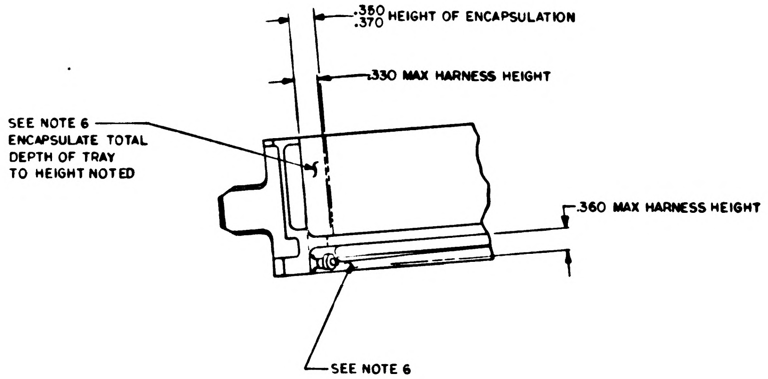
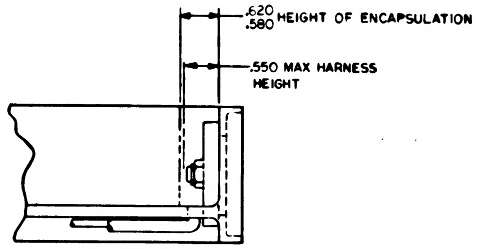
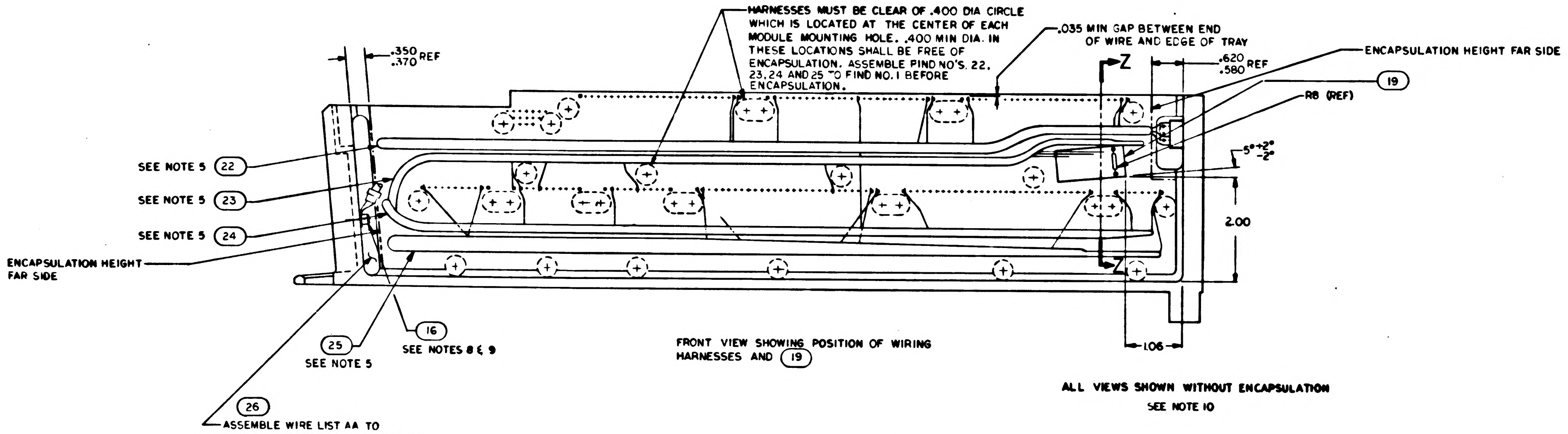
C	REVISED PEP TDRR 14322	23 NOV	
D	REVISED PER TDRR 16639	22 -65	


.380
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6
ENCAPSULATE TOTAL
DEPTH OF TRAY
TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6

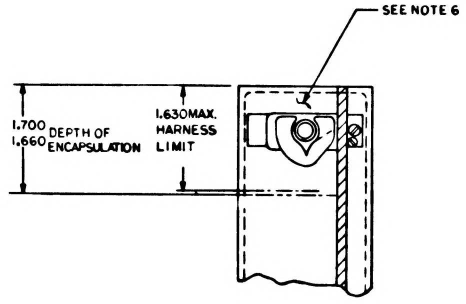

.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS
HEIGHT


HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE. .400 MIN DIA. IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO'S. 22, 23, 24 AND 25 TO FIND NO. 1 BEFORE ENCAPSULATION.
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
Z
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
19
R8 (REF)
5° +2° -2°
2.00
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
ENCAPSULATION HEIGHT FAR SIDE
Z
1.06
25
SEE NOTE 5
16
SEE NOTES 8 & 9
26
ASSEMBLE WIRE LIST AA TO FIND NO. 1 BEFORE ENCAPSULATION

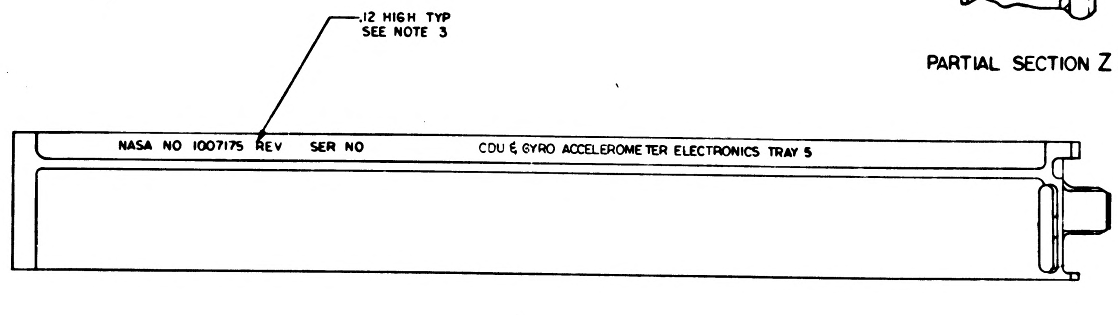
FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND (19)

ALL VIEWS SHOWN WITHOUT ENCAPSULATION

SEE NOTE 10


SEE NOTE 6
1.700
1.660 DEPTH OF ENCAPSULATION
1.630 MAX. HARNESS LIMIT

PARTIAL SECTION Z Z


.12 HIGH TYP
SEE NOTE 3
NASA NO 1007175 REV SER NO
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007175	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN L. Kaslow DATE 4 MAR 64
CHECKED
APPROVAL D. R. Test 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

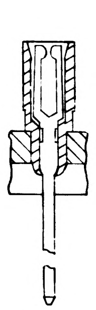
FRAME ASSEMBLY
TRAY 5

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007165
SCALE 1/1
WT
SHEET 2 OF 2

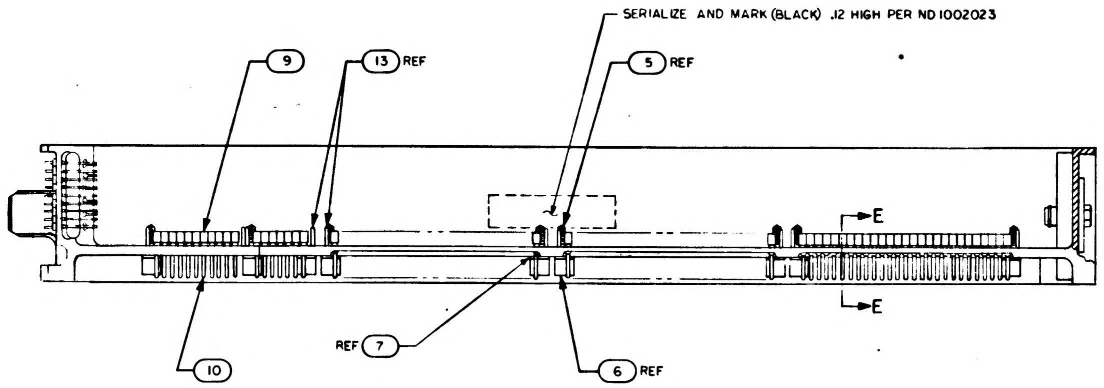
1007165 D

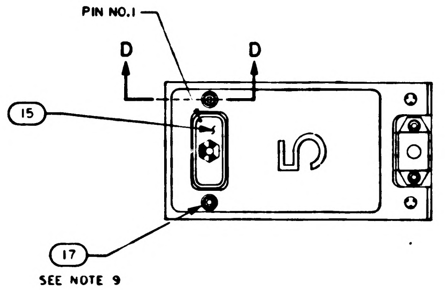
NOTICE.— WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

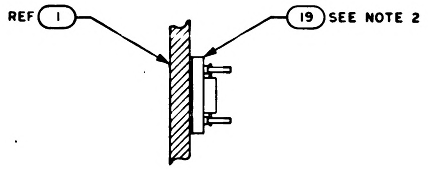
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07276	8 APR 64	J J J
B	REVISED PER TDRR 08145	13 MAY 64	JB PJ
C	REVISED PER TDRR 14322	23 NOV 64	JK
D	REVISED PER TDRR16639	24 FEB -65	
E	REVISED PER TDRR 20118	21-JUN 65	MG



SECTION E-E







PARTIAL SECTION E-E
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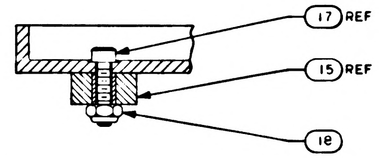

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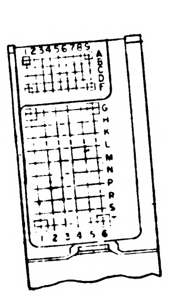
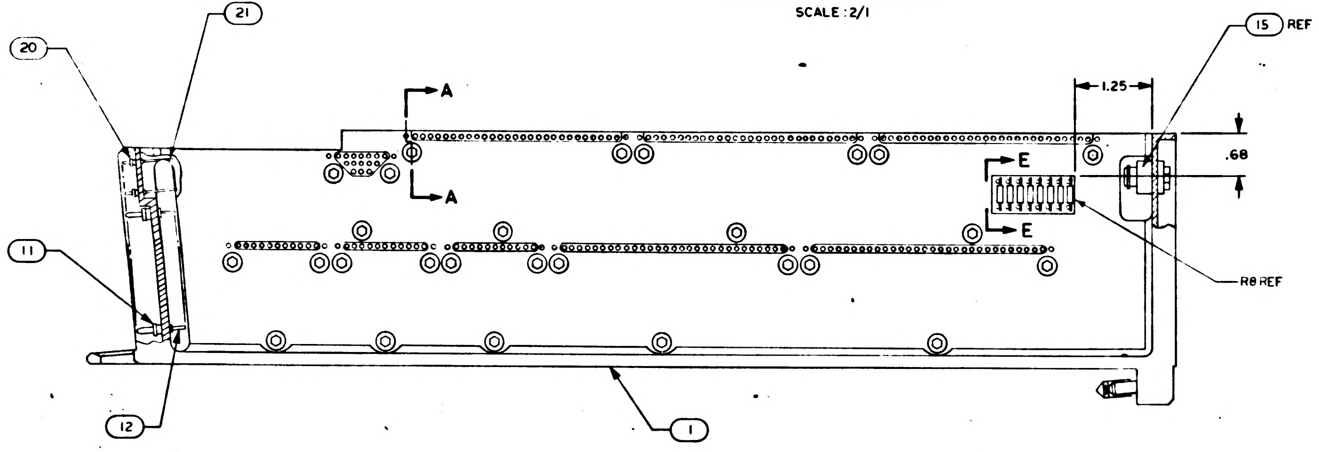
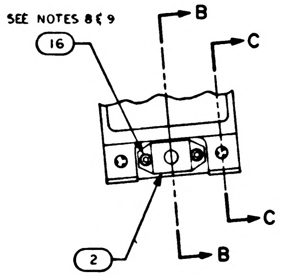
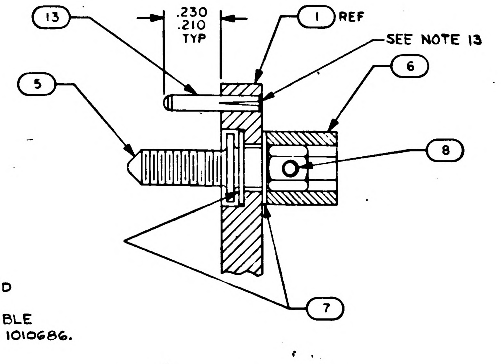
SCALE: 2/1

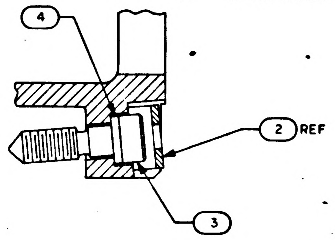




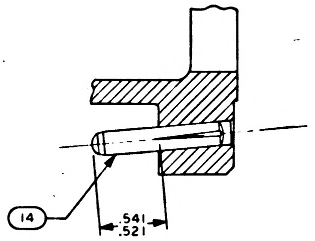




PARTIAL SECTION A-A
SCALE: 4/1



SECTION B-B
SCALE: 2/1



SECTION C-C
SCALE: 2/1

13. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE 1 ADHESIVE PER ND 1002004, POTTING SIDE ONLY.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
3. MARK PER ND1002019, WHITE.
4. ASSEMBLE FIND NUMBERS 9, 10, 11 AND 12 PER ND1002136
5. BOND FIND NOS 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND1002004 AS NECESSARY.
6. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
8. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
11. PROCURE PER PS1007145.
12. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004 TYPE 1.

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1008454	WIRING DIAGRAM	REF
1	1015753	WIRE LIST AA	26
1	1015752	WIRING HARNESS D	25
1	1015751	WIRING HARNESS C	24
1	1015750	WIRING HARNESS B	23
1	1015749	WIRING HARNESS A	22
45	1006782-2	CONTACT, WRAPOST MALE MIN	21
45	1006775	INSULATOR, MALE WRAPOST MIN	20
1	1007099	BUFFER RESISTORS ASSEMBLY	19
2	MA21045 C 04	NUT, SELF-LOCKING, HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-3	SCREW, CAP, SOCKET HEAD	16
1	1010622-1	CONNECTOR, RECEPTACLE	15
2	1010620-5	PIN, GUIDE	14
18	MS[illegible]-604	PIN, GUIDE	13
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	12
60	1010383-1	INSULATOR, WRAPOST, MALE	11
166	1006781-2	CONTACT, WRAPOST, FEMALE, MIN	10
188	1006774	INSULATOR, WRAPOST, FEMALE, MIN	9
27	MS 171433	PIN, SPRING	8
54	1004206	WASHER, THRUST	7
27	1004207	DRIVE CYLINDER	6
27	1008172	SCREW, JACK	5
1	1008099-2	WASHER,	4
1	1008098	SCREW, SOCKET HEAD	3
1	1001317	RETAINER, JACK SCREW	2
1	1008525	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007175	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO Contract NAS 9-497
DRAWN E. Kahn DATE 4 MAR. 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007165
SCALE 1/1
WT
SHEET 1 OF 2

1007165 E

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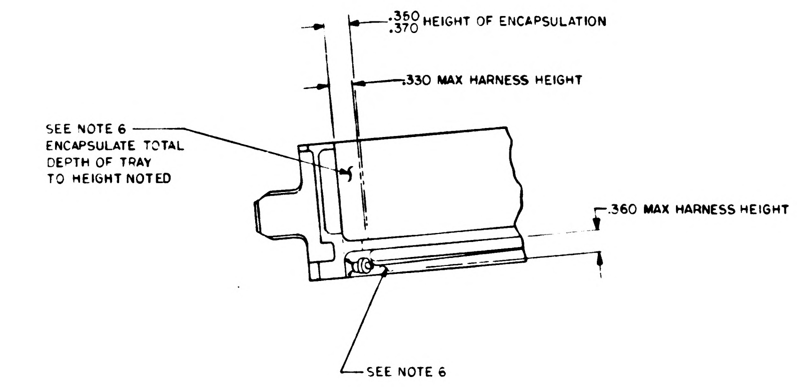
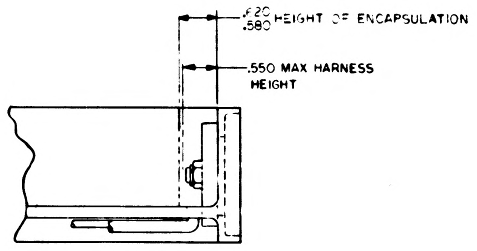
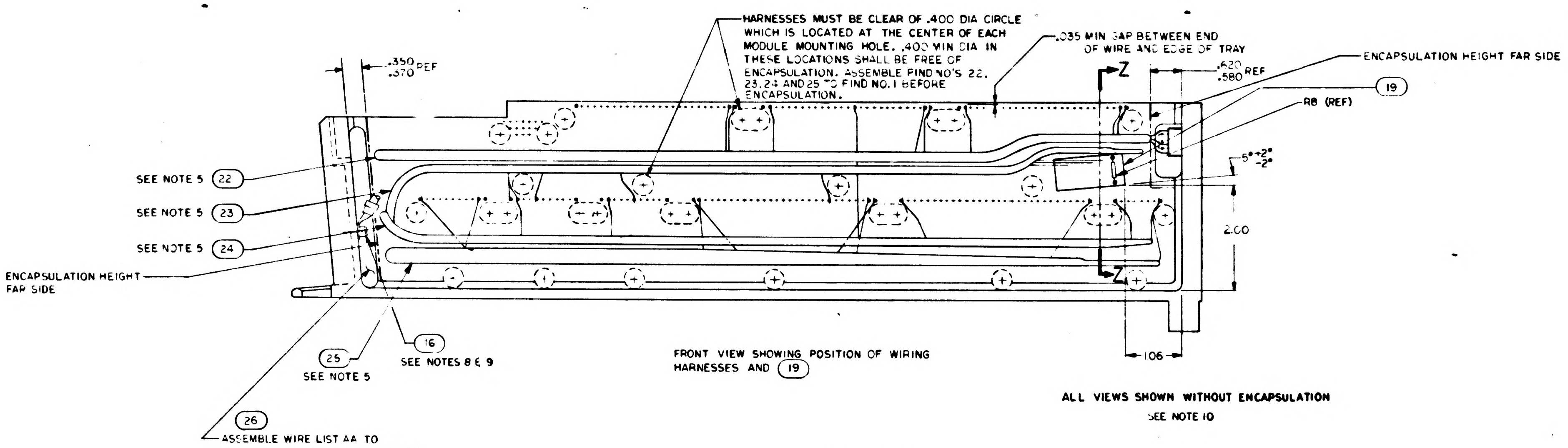
REVISIONS

	SYM	DESCRIPTION	DATE	APPROVAL
Ⓜ	B	REVISED PER TDRR 08145	15 MAY 64	JB
Ⓜ	C	REVISED PER TDRR 14322	23 NOV 64	
Ⓔ	D	REVISED PER TDRR 16639	24 FEB 65	
	E	REVISION STATUS CHANGED	21 JUN 65	MG

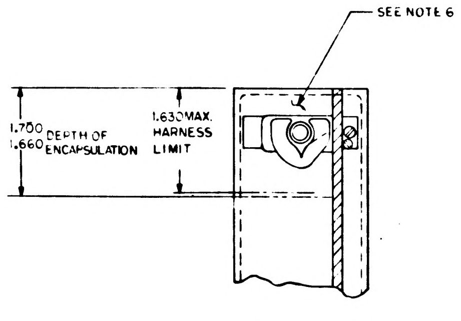

.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6
ENCAPSULATE TOTAL
DEPTH OF TRAY
TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS
HEIGHT

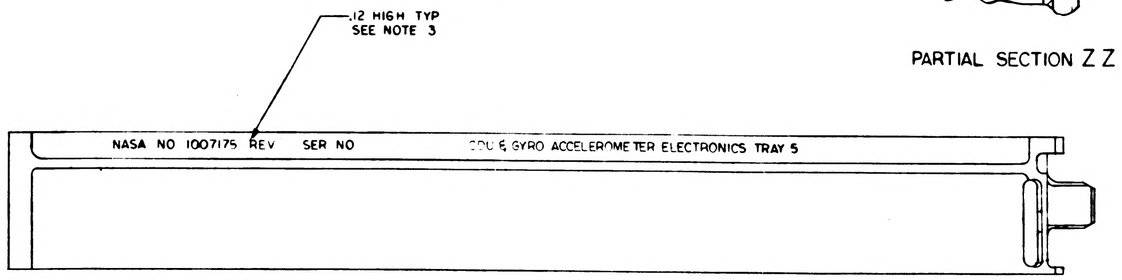

HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE. .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO'S 22, 23, 24 AND 25 TO FIND NO. 1 BEFORE ENCAPSULATION.
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
ENCAPSULATION HEIGHT FAR SIDE
.350
.370 REF
Z
.620
.580 REF
19
R8 (REF)
5° +2° −2°
2.00
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
ENCAPSULATION HEIGHT FAR SIDE
Z
.106
25
SEE NOTE 5
16
SEE NOTES 8 & 9
26
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND (19)

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10


SEE NOTE 6
1.700
1.660 DEPTH OF ENCAPSULATION
1.630 MAX. HARNESS LIMIT

PARTIAL SECTION Z Z


.12 HIGH TYP
SEE NOTE 3
NASA NO 1007175 REV SER NO
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007175	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN L. Healy DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL 3/10/64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

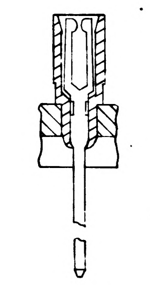
FRAME ASSEMBLY
TRAY 5

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007165
SCALE 1/1
WT
SHEET 2 OF 2

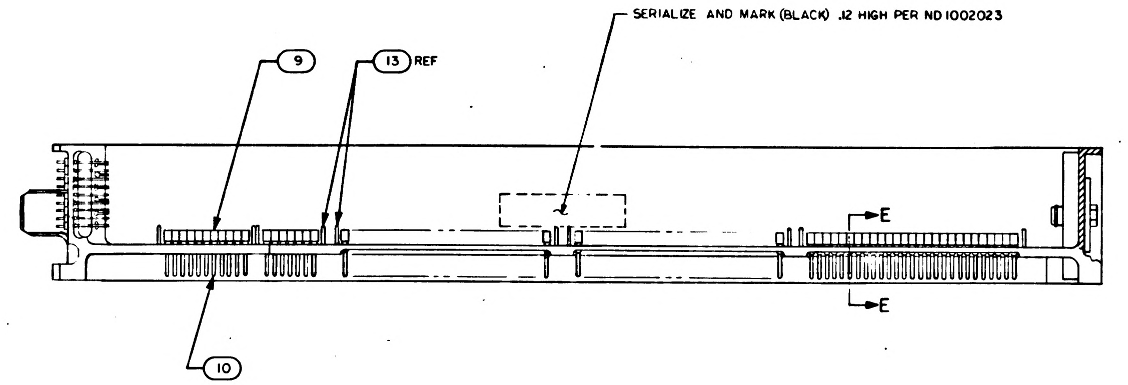
1007165 E

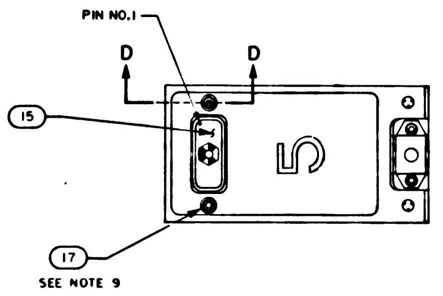
NOTICE.– WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

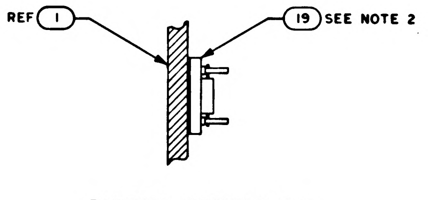
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07276	APR 64	J
B	REVISED PER TDRR 08145	MAY 64	JB
C	REVISED PER TDRR 14322		
D	REVISED PER TDRR 1663	24 -65	
E	REVISED PER TDRR 20118	65	MG
F	REVISED PER TDRR 20	23 JUN 65	JW



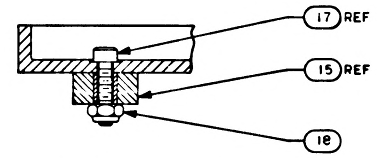
SECTION E-E



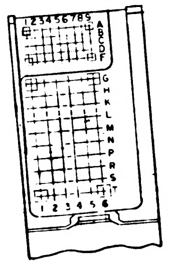


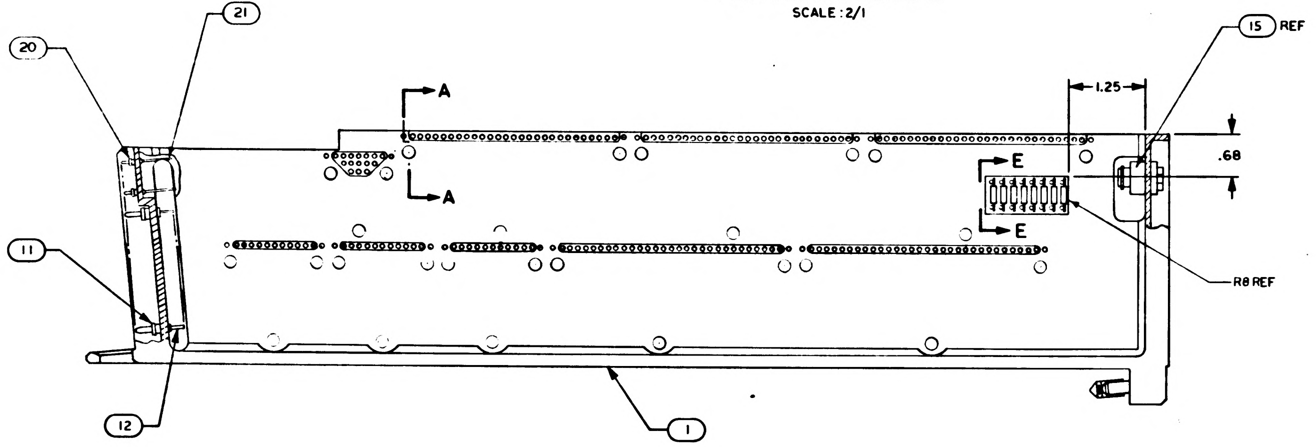


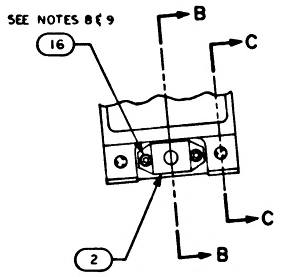
PARTIAL SECTION E-E
SCALE: 2/1

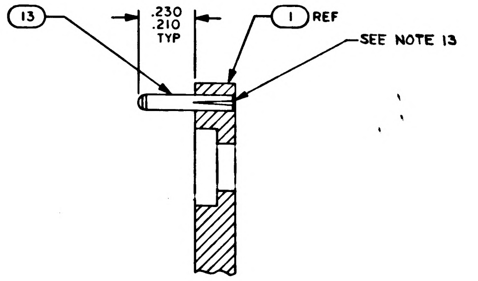


PARTIAL SECTION D-D
SCALE: 2/1

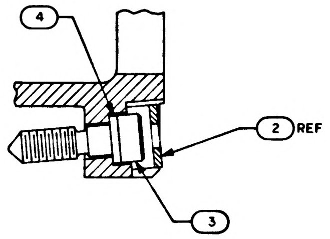




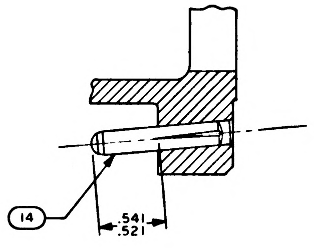




PARTIAL SECTION A-A
SCALE: 4/1



SECTION B-B
SCALE: 2/1



SECTION C-C
SCALE: 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686.
3. MARK PER ND1002013, WHITE.
4. ASSEMBLE FIND NUMBERS 9, 10, 11 AND 12 PER ND1002136
5. BOND FIND NO'S 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND1002004 AS NECESSARY.
6. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
8. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
11. PROCURE PER PS1007145.
12. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004 TYPE 1.
13. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE 1 ADHESIVE PER ND1002004, POTTING SIDE ONLY.

LIST OF MATERIALS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
	1008454	WIRING DIAGRAM	REF
1	1015753	WIRE LIST AA	26
1	1015752	WIRING HARNESS D	25
1	1015751	WIRING HARNESS C	24
1	1015750	WIRING HARNESS B	23
1	1015749	WIRING HARNESS A	22
45	1006782-2	CONTACT, WRAPOST MALE MIN	21
45	1006775	INSULATOR, MALE WRAPOST MIN	20
1	1007099	BUFFER RESISTORS ASSEMBLY	19
2	MA21045 C 04	NUT, SELF-LOCKING, HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-3	SCREW, CAP, SOCKET HEAD	16
1	1010622-1	CONNECTOR, RECEPTACLE	15
2	1010620-5	PIN, GUIDE	14
18	MS1[illegible]-604	PIN, GUIDE	13
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	12
60	1010383-1	INSULATOR, WRAPOST, MALE	11
166	1006781-2	CONTACT, WRAPOST, FEMALE, MIN	10
188	1006774	INSULATOR, WRAPOST, FEMALE, MIN	9
~~27~~	~~MS171483~~	~~PIN, SPRING~~	8
~~54~~	~~1004206~~	~~WASHER, THRUST~~	7
~~27~~	~~1004207~~	~~DRIVE CYLINDER~~	6
~~27~~	~~1008172~~	~~SCREW, JACK~~	5
1	1008099-2	WASHER,	4
1	1008098	SCREW, SOCKET HEAD	3
1	1001317	RETAINER, JACK SCREW	2
1	1008525	FRAME	

NEXT ASSY	USED ON
1007175	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN E Kahn DATE 4 MAR 64
CHECKED
APPROVAL D. R. Test 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

CODE IDENT NO	SIZE	NASA DRAWING NO
80230	E	1007165

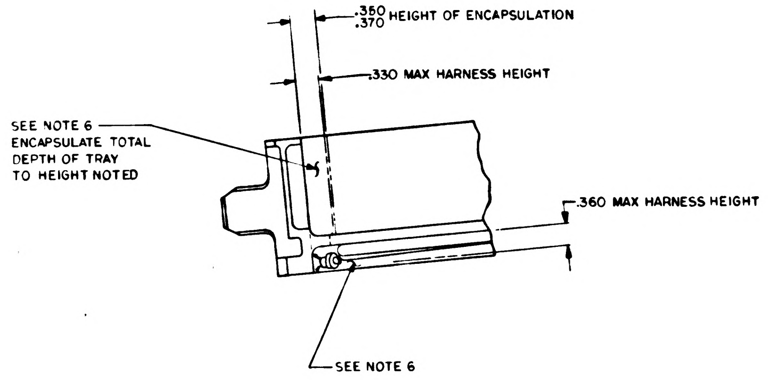
SCALE 1/1 WT SHEET 1 OF 2

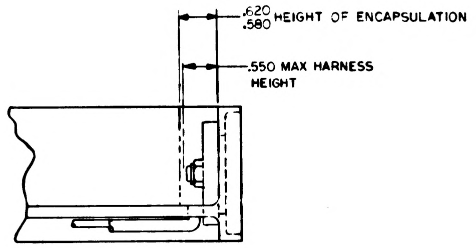
1007165 E

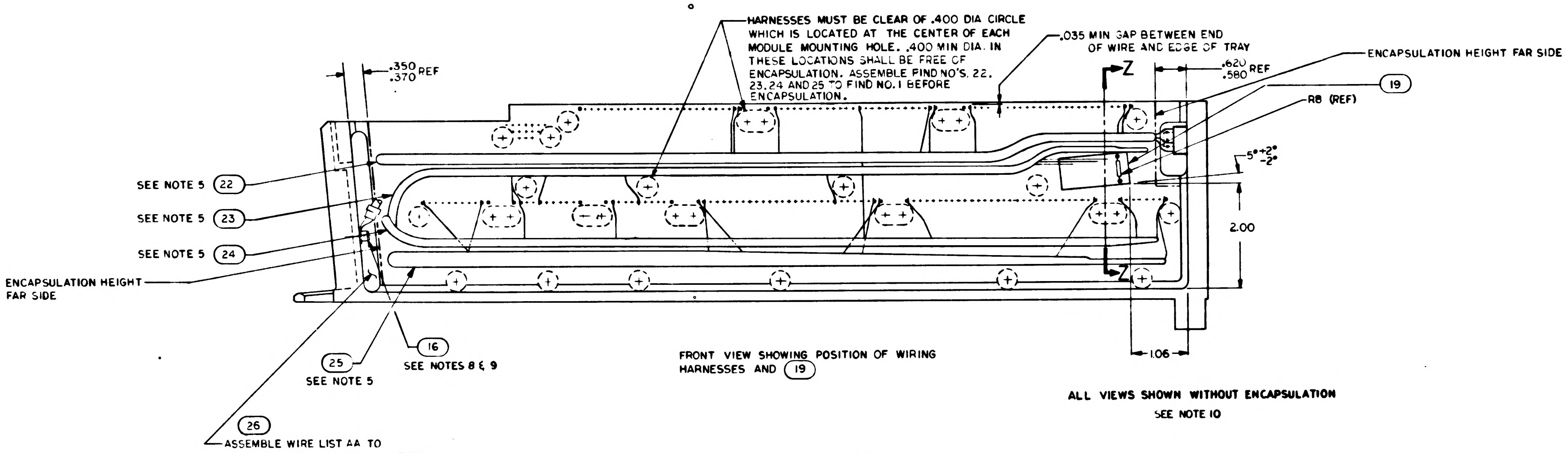
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
B	REVISED PER TDRR 08145	15 MAY 64	JB
C	REVISED PER TDRR 14322	3 N[illegible] 64	[illegible]
D	REVISED PER TDRR [illegible]339	[illegible] FEB 65	[illegible]
E	REVISION STATUS [illegible] 5D	[illegible] 65	[illegible]
F	REVISION STATUS CHANGED	23 [illegible] 65	[illegible]

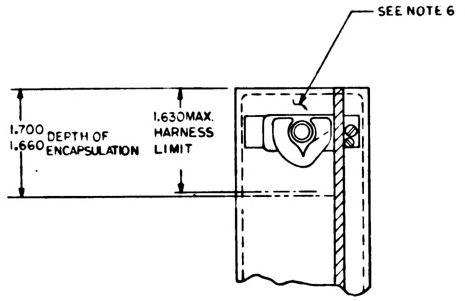

.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6
ENCAPSULATE TOTAL
DEPTH OF TRAY
TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS
HEIGHT

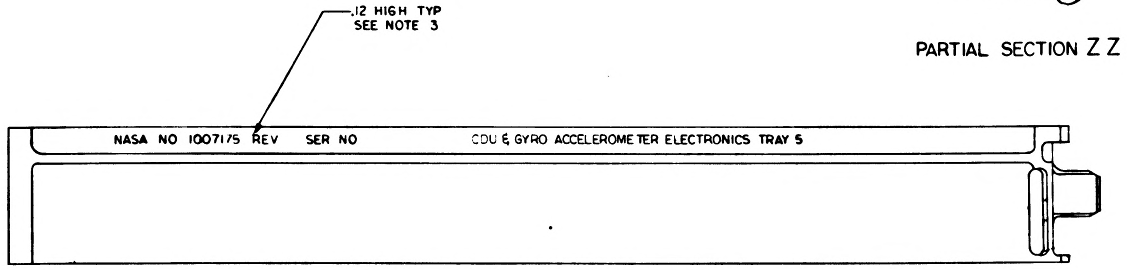

HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE. .400 MIN DIA. IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO'S. 22, 23, 24 AND 25 TO FIND NO. 1 BEFORE ENCAPSULATION.
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
ENCAPSULATION HEIGHT FAR SIDE
.350
.370 REF
Z
.620
.580 REF
19
R8 (REF)
5° +2° -2°
2.00
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
ENCAPSULATION HEIGHT
FAR SIDE
Z
1.06
25
SEE NOTE 5
16
SEE NOTES 8 & 9
26
ASSEMBLE WIRE LIST AA TO
FIND NO. 1 BEFORE ENCAPSULATION

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND (19)

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10


SEE NOTE 6
1.700
1.660 DEPTH OF ENCAPSULATION
1.630 MAX. HARNESS LIMIT

PARTIAL SECTION Z Z


.12 HIGH TYP
SEE NOTE 3
NASA NO 1007175 REV SER NO
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007175	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

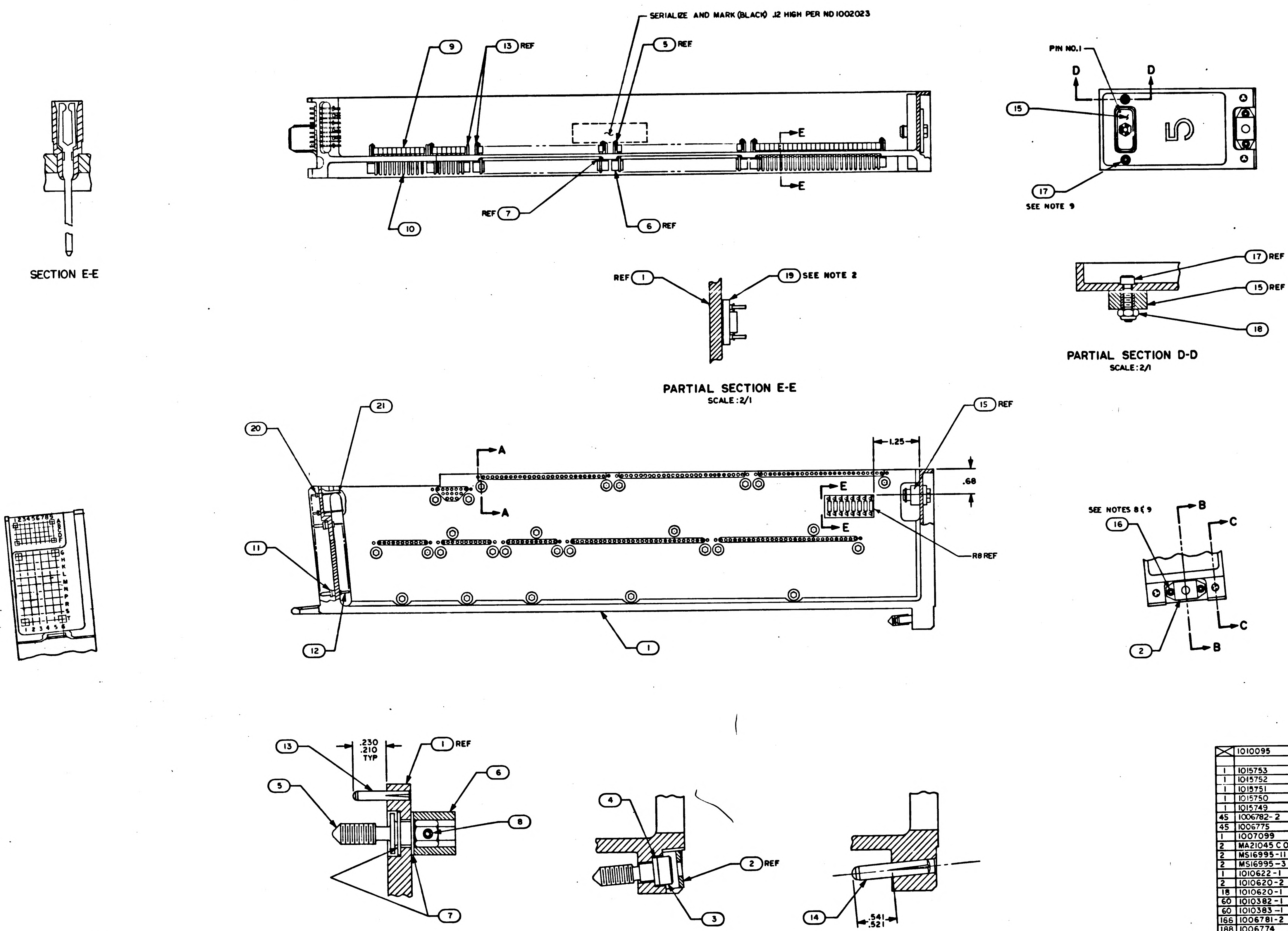
M I T
INSTRUMENTATION LAB
Cambridge Mass
Contract NAS 9-497
DRAWN L. Heahn DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007165
SCALE 1/1
WT
SHEET 2 OF 2

SYM	DESCRIPTION	DATE	APPROVAL


SERIALIZE AND MARK (BLACK) .12 HIGH PER ND 1002023
9
13 REF
5 REF
REF 7
6 REF
10
E
PIN NO. 1
D
15
17
SEE NOTE 9
5
SECTION E-E
REF 1
19 SEE NOTE 2
PARTIAL SECTION E-E
SCALE: 2/1
17 REF
15 REF
18
PARTIAL SECTION D-D
SCALE: 2/1
21
20
A
15 REF
1.25
.68
R8 REF
11
12
1
SEE NOTES 8 & 9
16
B
C
2
13
.230
.210
TYP
1 REF
5
6
8
7
4
2 REF
3
14
.541
.521
PARTIAL SECTION A-A
SCALE: 4/1
SECTION B-B
SCALE: 2/1
SECTION C-C
SCALE: 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DRAWING 1010657 AND NASA DRAWING 1010686
3. MARK PER ND1002019, WHITE
4. ASSEMBLE FIND NUMBERS 9, 10, 11 AND 12 PER ND 1002136
5. BOND FIND NOS. 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
8. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010095	WIRING DIAGRAM	REF
1	1015753	WIRE LIST AA	26
1	1015752	WIRING HARNESS D	25
1	1015751	WIRING HARNESS C	24
1	1015750	WIRING HARNESS B	23
1	1015749	WIRING HARNESS A	22
45	1006782-2	CONTACT, WRAPOST MALE MIN	21
45	1006775	INSULATOR, MALE WRAPOST MIN	20
1	1007099	BUFFER RESISTORS ASSEMBLY	19
2	MA21045 C 04	NUT, SELF-LOCKING, HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
2	MS16995-3	SCREW, CAP, SOCKET HEAD	16
1	1010622-1	CONNECTOR, RECEPTACLE	15
2	1010620-2	PIN, GUIDE	14
18	1010620-1	PIN, GUIDE	13
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	12
60	1010383-1	INSULATOR, WRAPOST, MALE	11
166	1006781-2	CONTACT, WRAPOST, FEMALE, MIN	10
188	1006774	INSULATOR, WRAPOST, FEMALE, MIN	9
27	1008145	PIN, SPRING	8
54	1004206	WASHER, THRUST	7
27	1004207	DRIVE CYLINDER	6
27	1008095	SCREW, JACK	5
1	1008099-2	WASHER,	4
1	1008098	SCREW, SOCKET HEAD	3
1	1001317	RETAINER, JACK SCREW	2
1	1008175	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007175	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO.
CONTRACT
DRAWN L. Krahn DATE 2 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007165
SCALE 1/1
WT
SHEET 1 OF 2

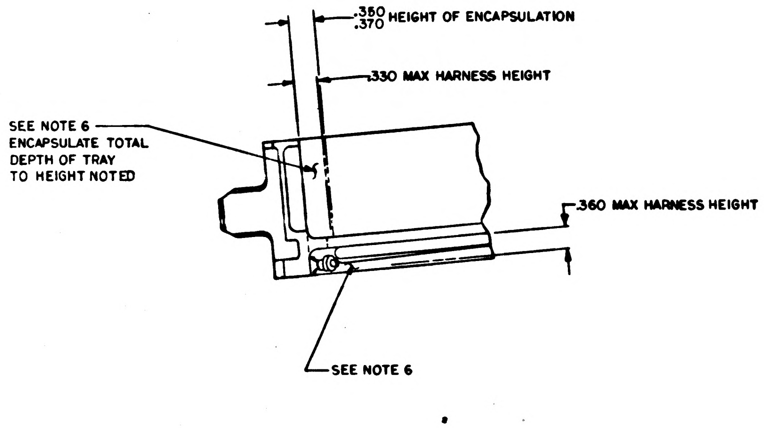
1007165

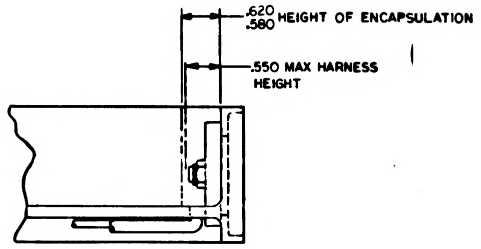
MASTER

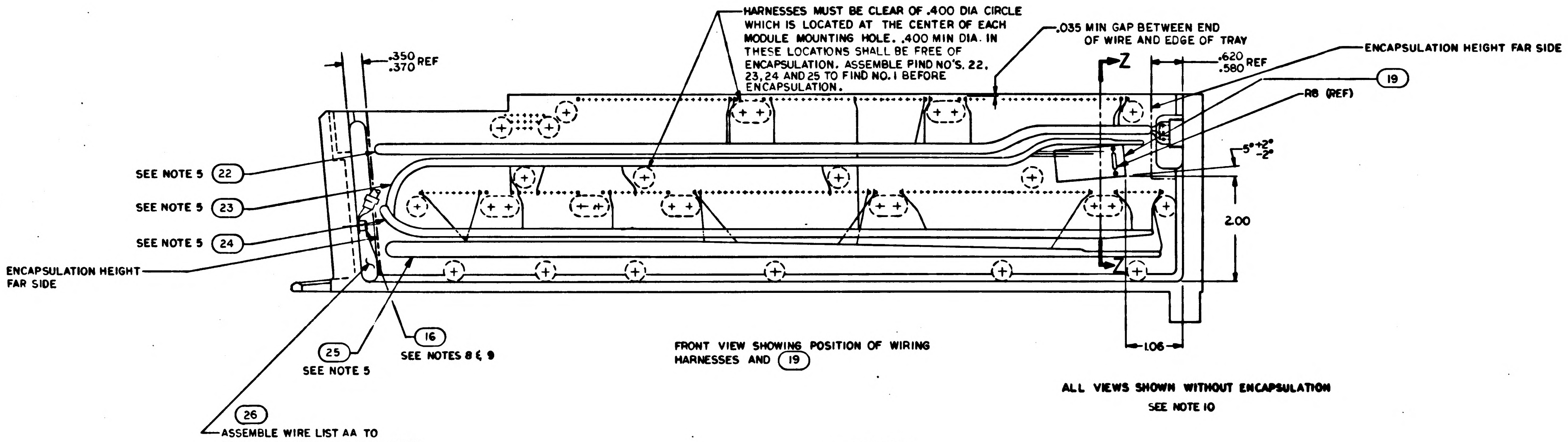
INCHES
PHOTOGRAPHIC SCALE ONLY

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 06P74			
SYM	DESCRIPTION	DATE	APPROVAL


.380
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6
ENCAPSULATE TOTAL
DEPTH OF TRAY
TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6

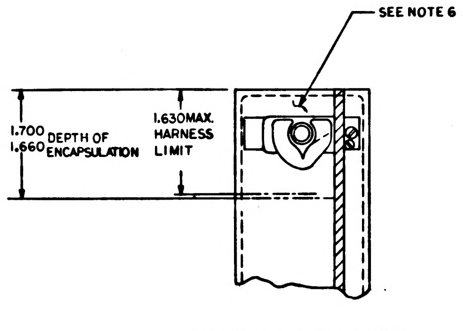

.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS
HEIGHT


HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE. .400 MIN DIA. IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO'S. 22, 23, 24 AND 25 TO FIND NO. 1 BEFORE ENCAPSULATION.
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
Z
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
19
R8 (REF)
5° +2° −2°
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
ENCAPSULATION HEIGHT FAR SIDE
2.00
Z
1.06
25
SEE NOTE 5
16
SEE NOTES 8 & 9
26
ASSEMBLE WIRE LIST AA TO FIND NO. 1 BEFORE ENCAPSULATION

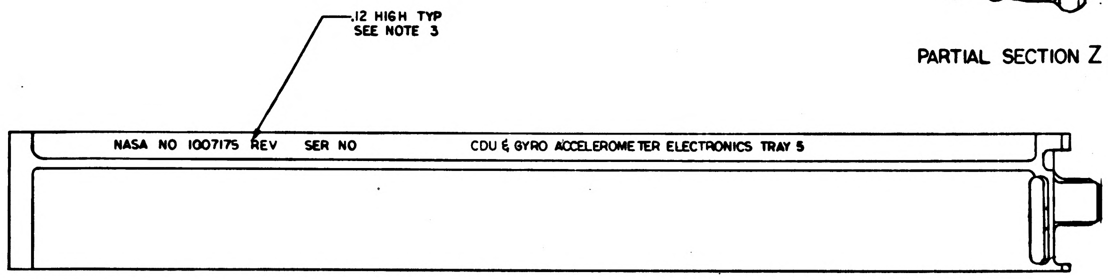
FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND (19)

ALL VIEWS SHOWN WITHOUT ENCAPSULATION

SEE NOTE 10


SEE NOTE 6
1.700
1.660 DEPTH OF ENCAPSULATION
1.630 MAX. HARNESS LIMIT

PARTIAL SECTION Z Z


.12 HIGH TYP
SEE NOTE 3
NASA NO 1007175 REV SER NO
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

1007175	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN L. Kraley DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 5

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007165
SCALE 1/1 WT SHEET 2 OF 2

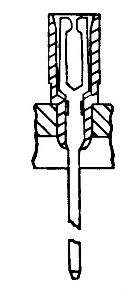
1007165

MASTER

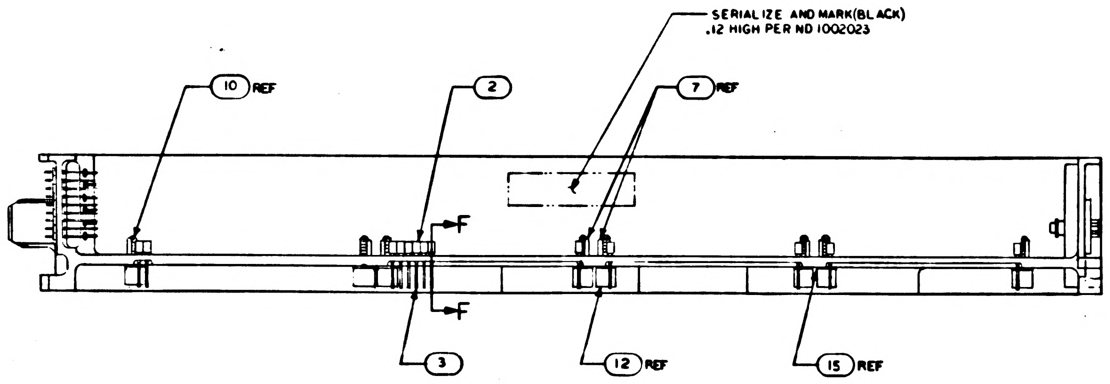
INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

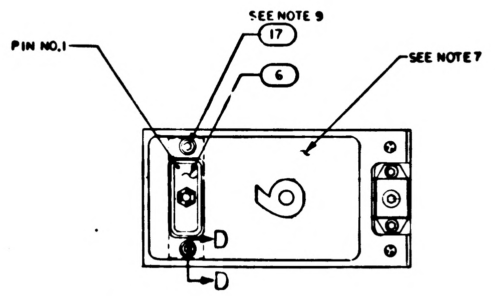
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

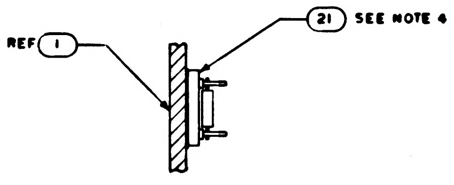
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07276	8 APR 64	



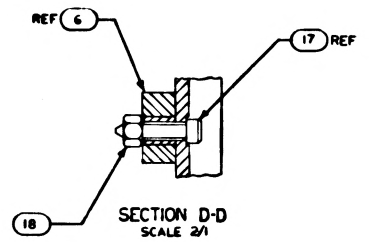
SECTION F-F
151 PLACES



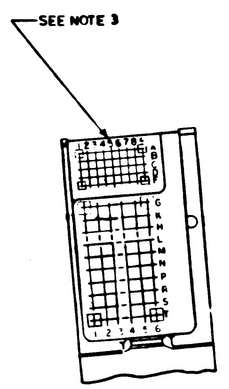


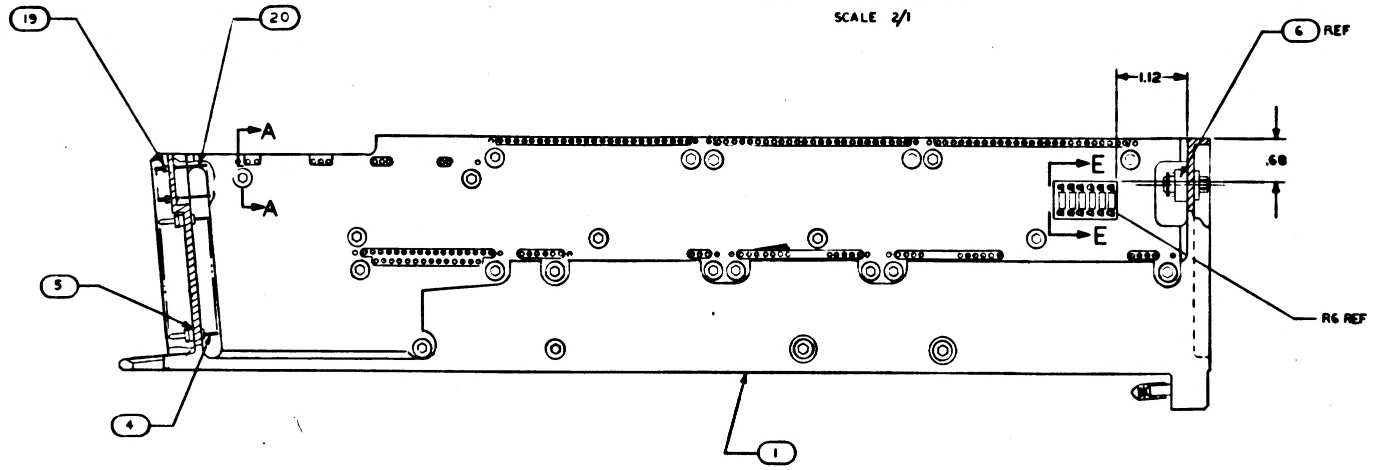


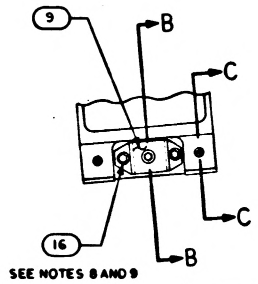
PARTIAL SECTION E-E
SCALE 2/1

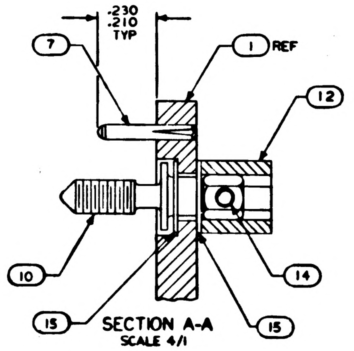


SECTION D-D
SCALE 2/1

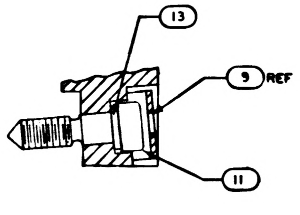




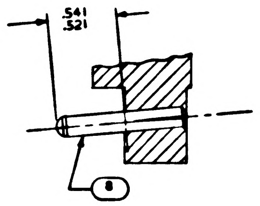




SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,19 AND 20 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO.21 TO FIND NO.1 PER ND 1002004 USING FLEXIBLE FORMULATION PER NASA DRAWING 1010657 AND NASA DRAWING 1010686
5. BOND FIND NOS 22,23,24,25, & 26 TO FIND NO.1 PER ND1002004 AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
8. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 AND 17 TO FIND NO.1 TO BE 5.0/5.5 IN LB.
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

A	–
SHEET 1	SHEET 2
REVISION STATUS OF SHEETS	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010096	WIRING DIAGRAM	REF
1	1015768	WIRE LIST AA	26
1	1015767	WIRING HARNESS D	25
1	1015766	WIRING HARNESS C	24
1	1015765	WIRING HARNESS B	23
1	1015764	WIRING HARNESS A	22
1	1007110	BUFFER RESISTORS ASSEMBLY	21
45	1006782-2	CONTACT, WRAPOST, MALE MIN	20
45	1006775	INSULATOR, WRAPOST, MALE MIN	19
2	MS21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
50	1004206	WASHER, THRUST	15
25	MS171433	PIN, SPRING	14
1	1008099-2	WASHER,	13
25	1004207	DRIVE CYLINDER	12
1	1008098	SCREW, SOCKET HEAD	11
25	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
16	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
60	1010383-1	INSULATOR, WRAPOST MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
151	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
151	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008176	FRAME	1

LIST OF MATERIALS

1007176	
NEXT ASSY	USED ON
APPLICATION	

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TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-4065
DRAWN E. Krahn DATE 4 MAR 64
CHECKED C. King
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL 3/6/64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007166
SCALE 1/1
WT
SHEET 1 OF 2

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SYM	DESCRIPTION	DATE	APPROVAL
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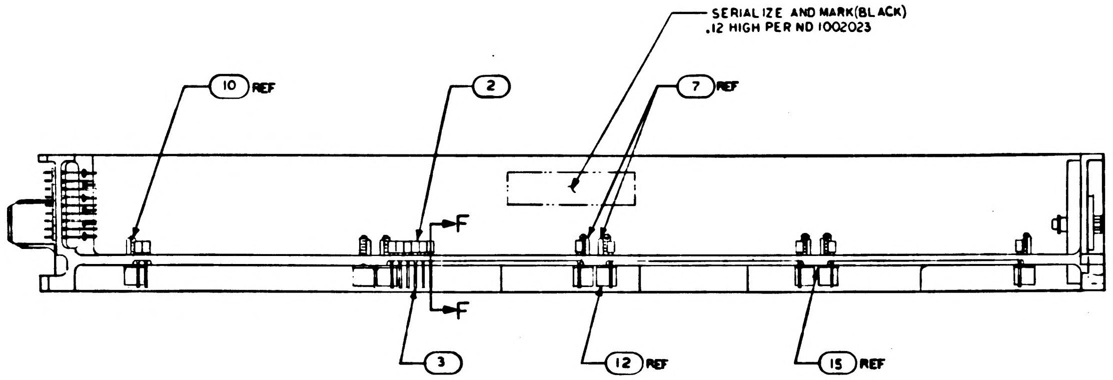
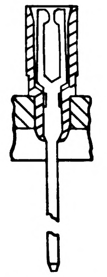
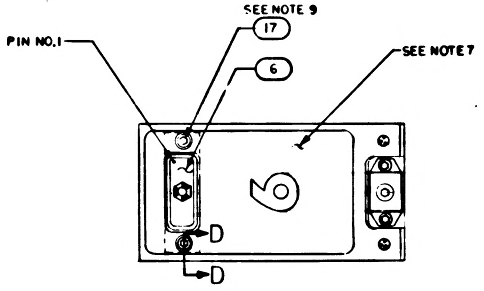
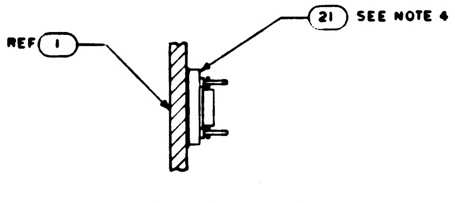
B	REVISED PER TDRR 08145	13 MAY 64	JB



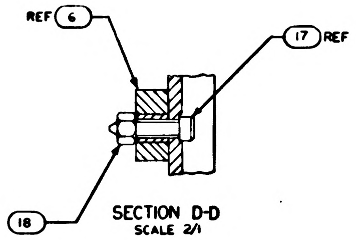


SECTION F-F
151 PLACES

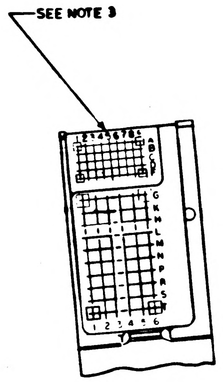


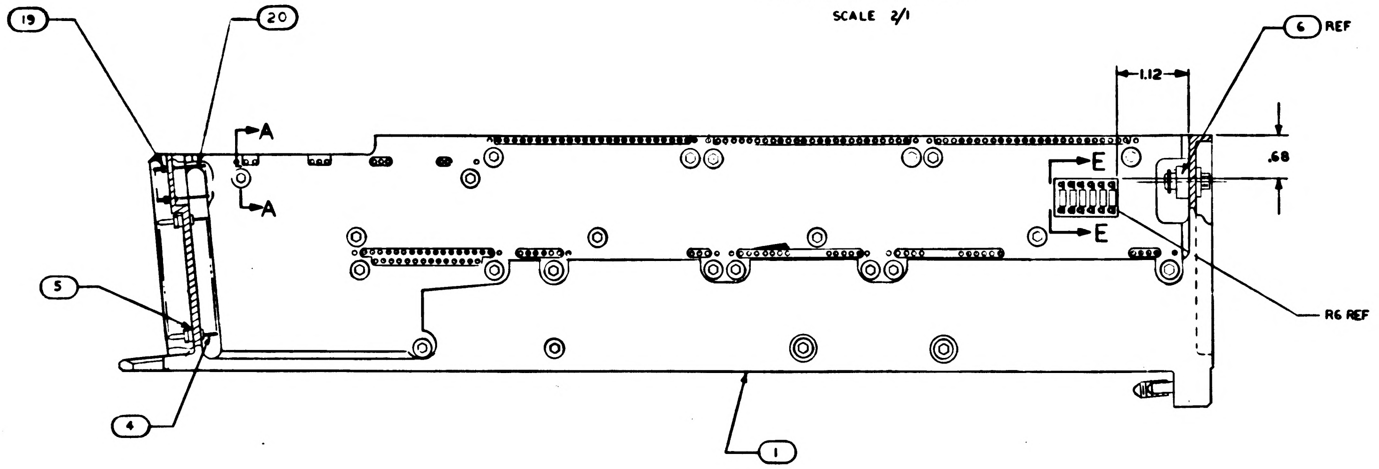


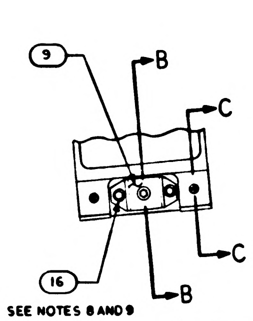
PARTIAL SECTION E-E
SCALE 2/1

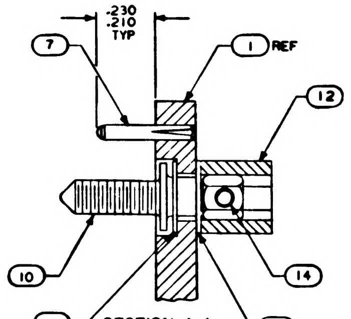


SECTION D-D
SCALE 2/1

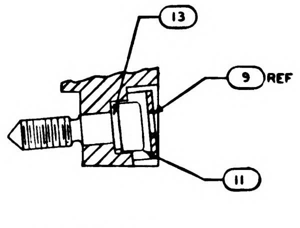




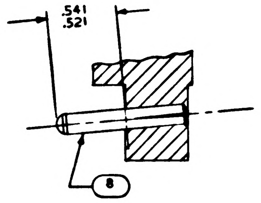




SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

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151	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008176	FRAME	1

LIST OF MATERIALS

1007176	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
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DO NOT SCALE THIS DRAWING
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FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN E. Krahn DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007166
SCALE 1/1
WT
SHEET 1 OF 2

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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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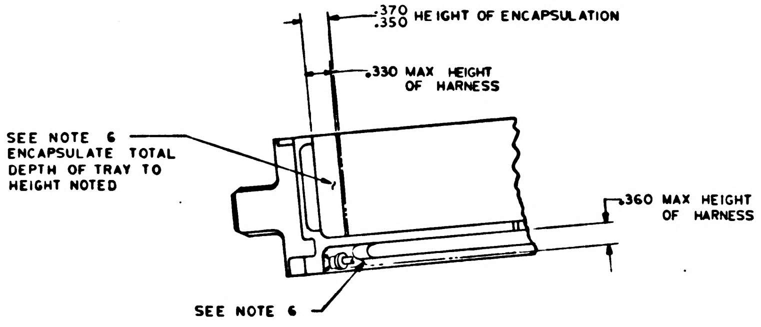
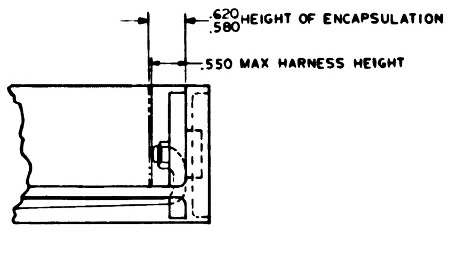
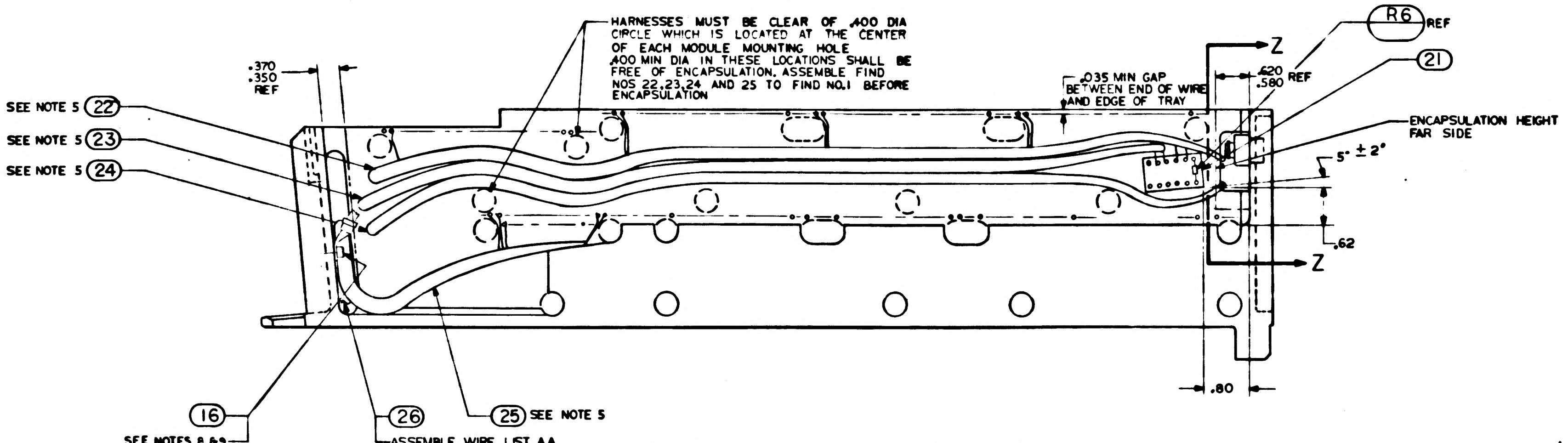
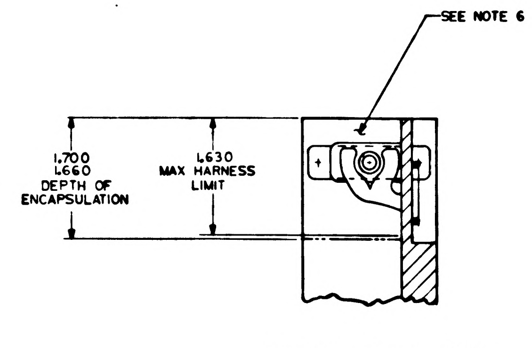

.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT

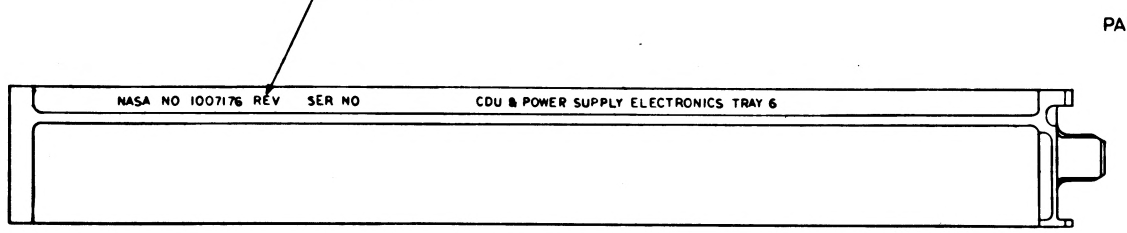

HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
.370
.350
REF
SEE NOTE 5 (22)
SEE NOTE 5 (23)
SEE NOTE 5 (24)
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
R6 REF
(21)
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
Z
.80
(16)
SEE NOTES 8 & 9
(26)
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
(25) SEE NOTE 5

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10


SEE NOTE 6
1.700
1.660
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO 1007176 REV
SER NO
CDU & POWER SUPPLY ELECTRONICS TRAY 6

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007176	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
XX ± .02 ±
DO NOT SCALE THIS DRAWING
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HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN L Krahn DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL 10 Mar 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007166
SCALE 1/1
WT
SHEET 2 OF 2

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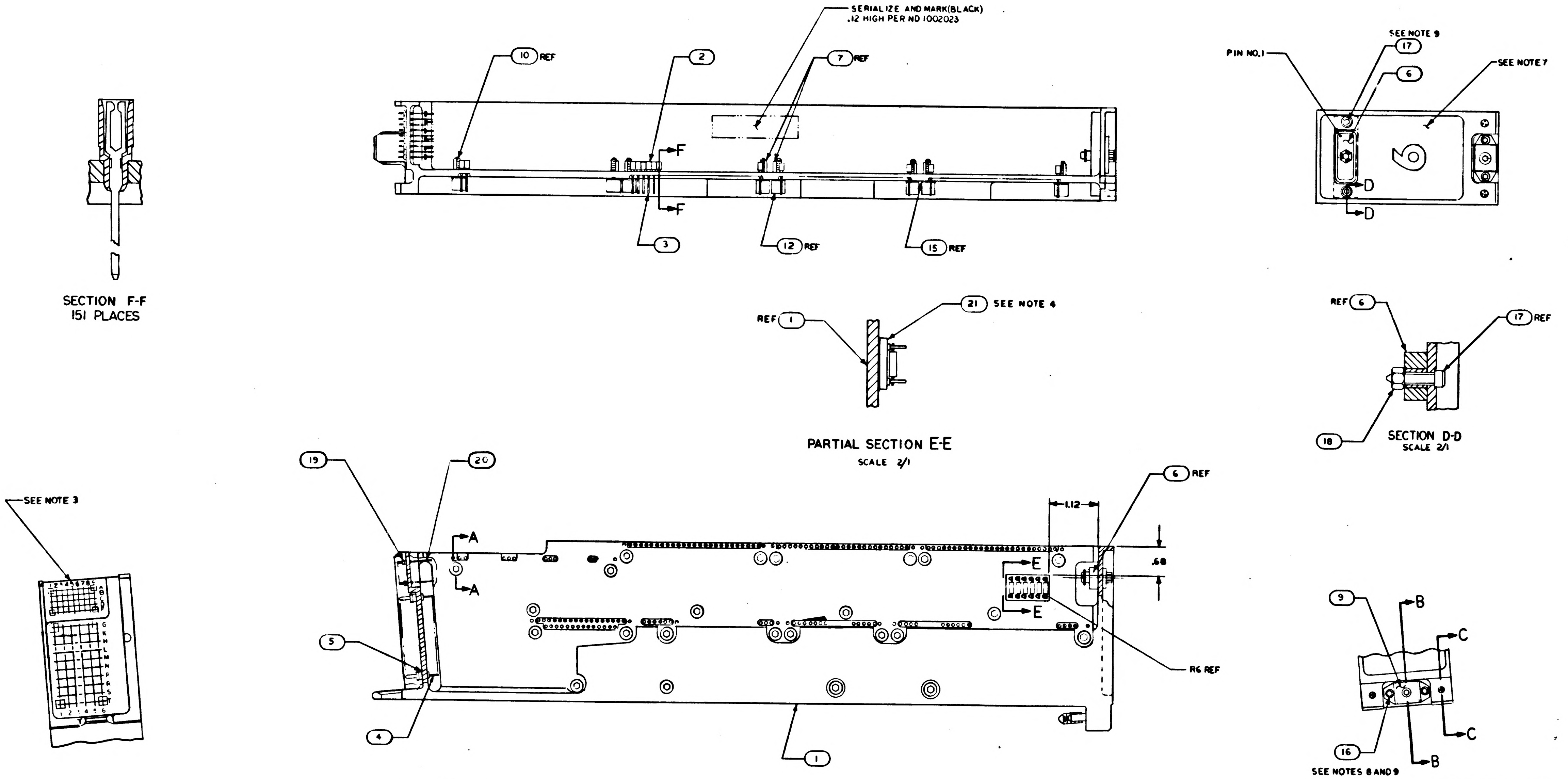
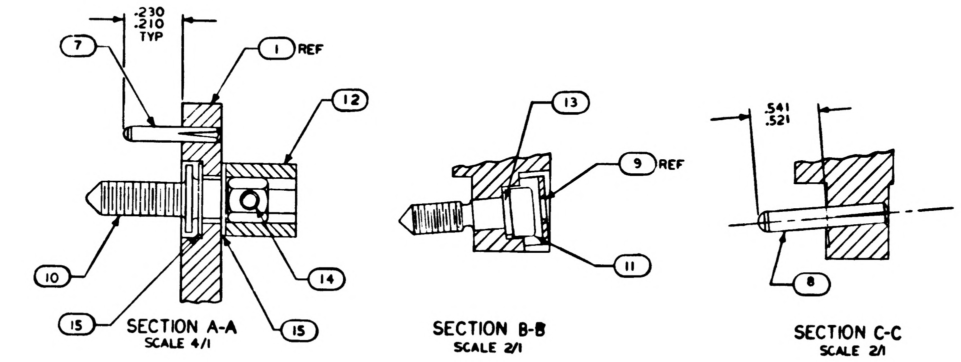
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07276	6 APR 64	JJJ
B	REVISED PER TDRR 08145	13 MAY 64	JB
C	REVISED PER TDRR 14322	23 NOV 64	





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10. PROCURE PER PS1007146.

10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1008455	WIRING DIAGRAM	REF
1	1015768	WIRE LIST AA	26
1	1015767	WIRING HARNESS D	25
1	1015766	WIRING HARNESS C	24
1	1015765	WIRING HARNESS B	23
1	1015764	WIRING HARNESS A	22
1	1007110	BUFFER RESISTORS ASSEMBLY	21
45	1006782-2	CONTACT, WRAPOST, MALE MIN	20
45	1006775	INSULATOR, WRAPOST, MALE MIN	19
2	MS21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
50	1004206	WASHER, THRUST	15
25	MS171433	PIN, SPRING	14
1	1008099-2	WASHER,	13
25	1004207	DRIVE CYLINDER	12
1	1008098	SCREW, SOCKET HEAD	11
25	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
16	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
60	1010383-1	INSULATOR, WRAPOST MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
151	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
151	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008176	FRAME	1

LIST OF MATERIALS

1007176	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
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FINAL FINISH

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Cambridge Mass
Contract NAS 9-497
DRAWN L. Krahn DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007166
SCALE 1/1
WT
SHEET 1 OF 2

1007166 C

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
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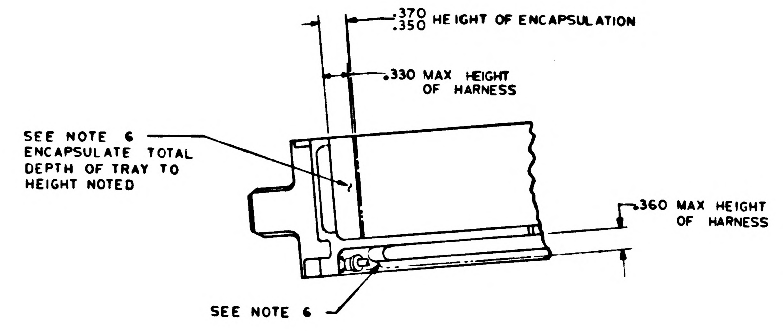
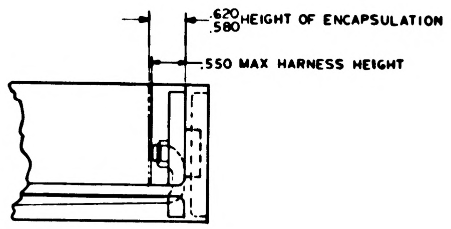
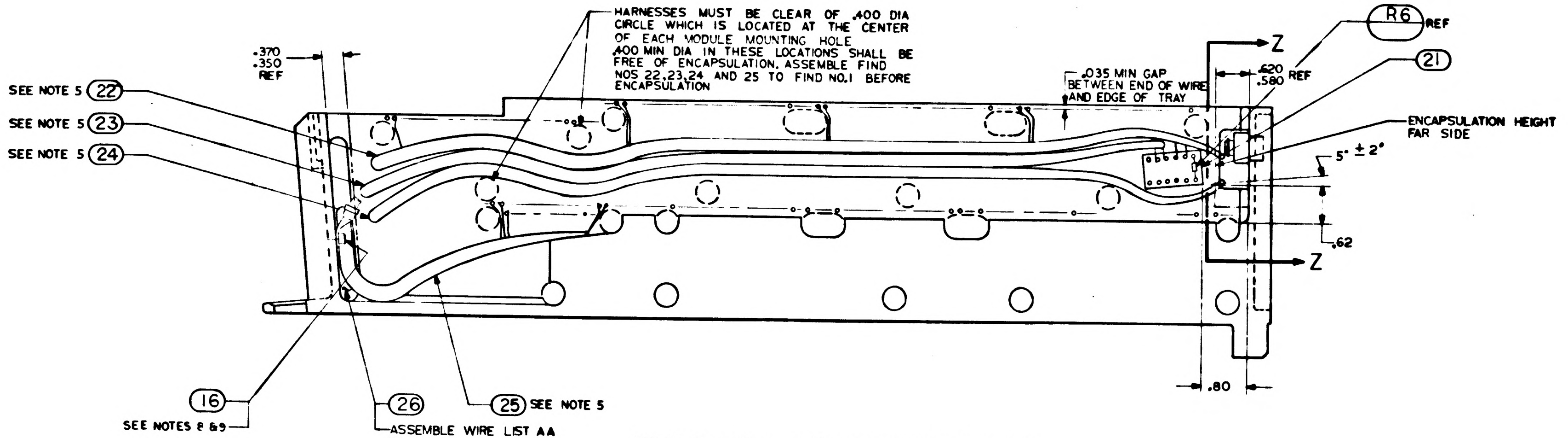
C	REVISED PER TDRR 14322	29 NOV 64	

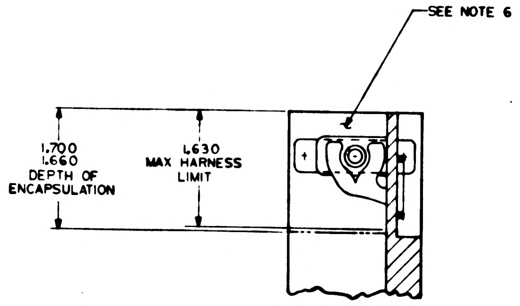

.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT

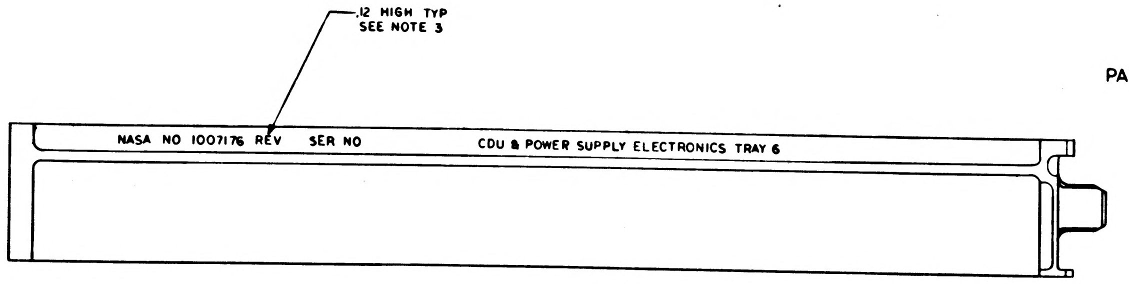

HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
.370
.350
REF
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
R6 REF
21
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
Z
.80
16
SEE NOTES 8 & 9
26
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
25 SEE NOTE 5

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10


SEE NOTE 6
1.700
1.660
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO 1007176 REV SER NO
CDU & POWER SUPPLY ELECTRONICS TRAY 6

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007176	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
XX ± .02 ±
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MATERIAL
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DRAWN F. Vrahn DATE 3 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL 10 Mar 64

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FRAME ASSEMBLY
TRAY 6

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007166
SCALE 1/1
WT
SHEET 2 OF 2

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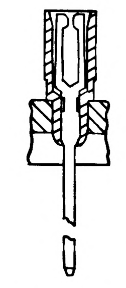
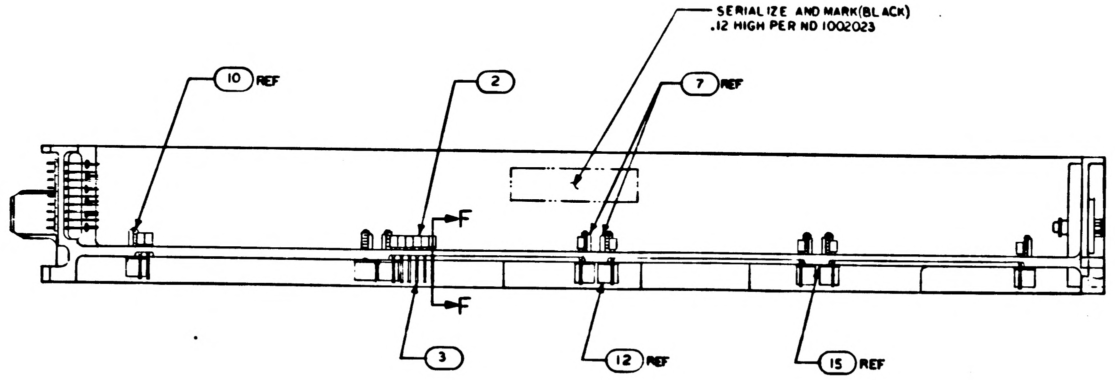
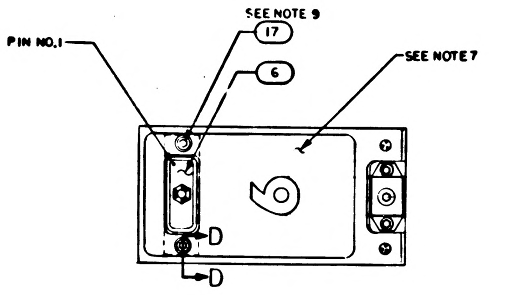
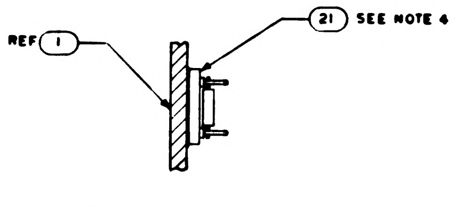
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07270	APR 64	
B	REVISED PER TDRR 08145	13 MAY 64	JB
C	REVISED PER TDRR 14322	23 [illegible]	
D	REVISED PER TDRR 6639	24-SEP-65	

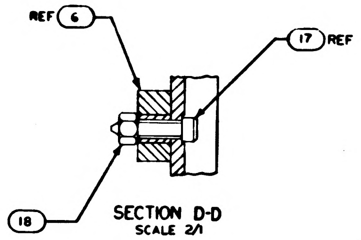

SECTION F-F
151 PLACES







PARTIAL SECTION E-E
SCALE 2/1



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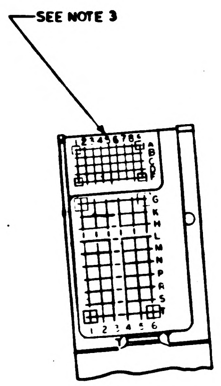
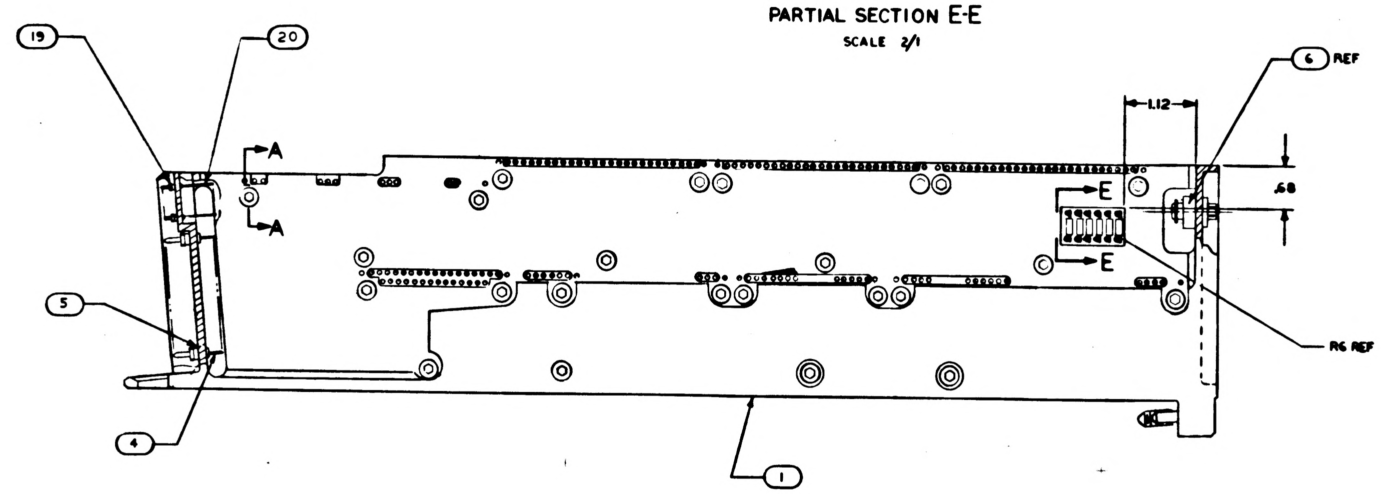
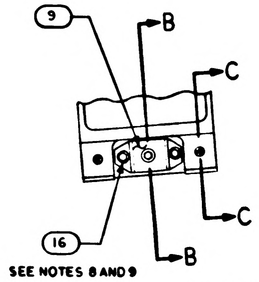
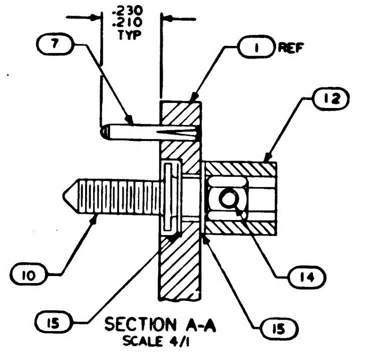
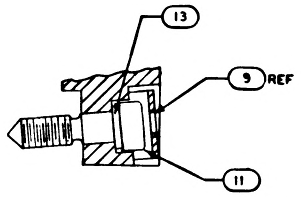




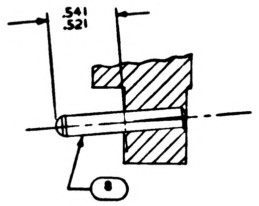




SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,19 AND 20 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO.21 TO FIND NO.1 PER ND 1002004 USING FLEXIBLE FORMULATION PER NASA DRAWING 1010657 AND NASA DRAWING 1010686
5. BOND FIND NOS 22,23,24,25, & 26 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
8. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 AND 17 TO FIND NO.1 TO BE 5.0/5.5 IN LB.
10. PROCURE PER PS1007146.

10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005.
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60.
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

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3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
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25	MS171433	PIN, SPRING	14
1	1008099-2	WASHER,	13
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1	1008098	SCREW, SOCKET HEAD	11
25	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
16	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
60	1010383-1	INSULATOR, WRAPOST MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
151	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
151	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008426	FRAME	1

LIST OF MATERIALS

1007176	
NEXT ASSY	USED ON
APPLICATION	

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APPROVAL 3/9/64
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NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007166
SCALE 1/1
WT
SHEET 1 OF 2

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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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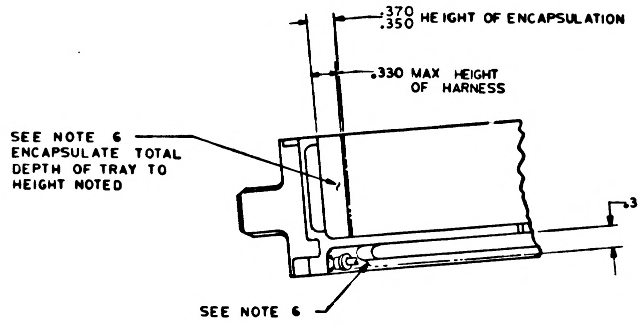
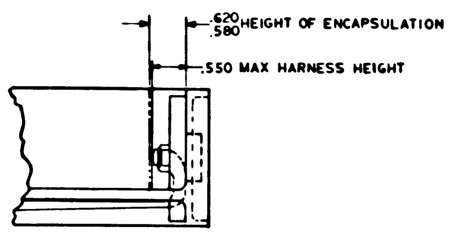
C	REVISED PER TDRR 14322	29 ... 64	
D	REVISED PER TDRR 16639	24-FEB-65	


.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6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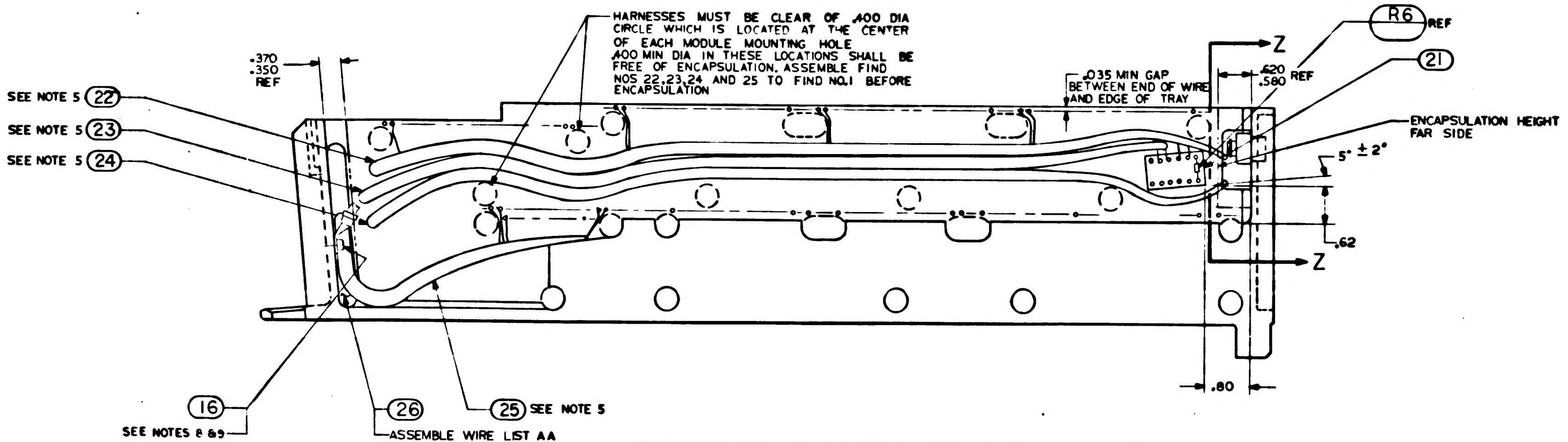
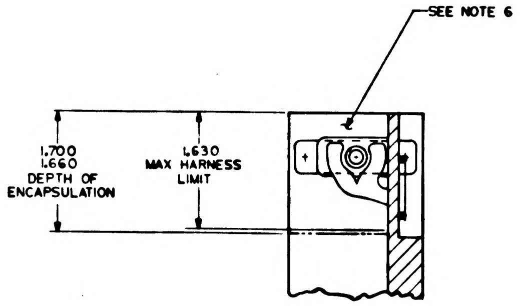
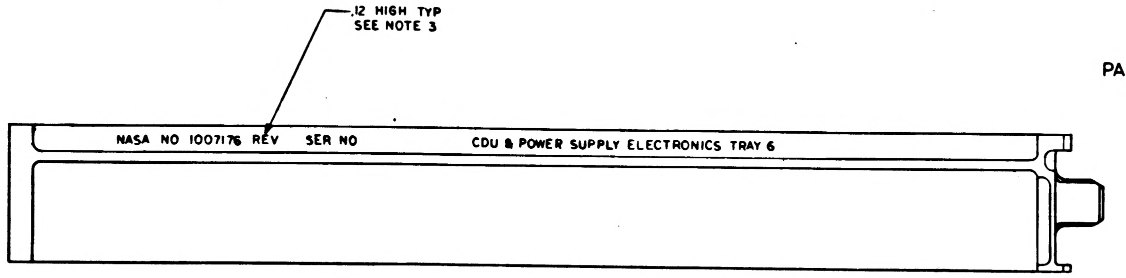

HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
.370
.350
REF
SEE NOTE 5 (22)
SEE NOTE 5 (23)
SEE NOTE 5 (24)
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
R6 REF
(21)
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
Z
.80
(16)
SEE NOTES 8 & 9
(26)
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
(25) SEE NOTE 5

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10


SEE NOTE 6
1.700
1.660
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO 1007176 REV SER NO
CDU & POWER SUPPLY ELECTRONICS TRAY 6

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007176	

APPLICATION

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APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL 10 Mar 64

MANNED SPACECRAFT CENTER
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FRAME ASSEMBLY
TRAY 6

CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007166
SCALE 1/1
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SHEET 2 OF 2

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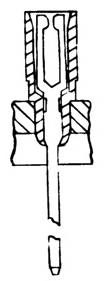
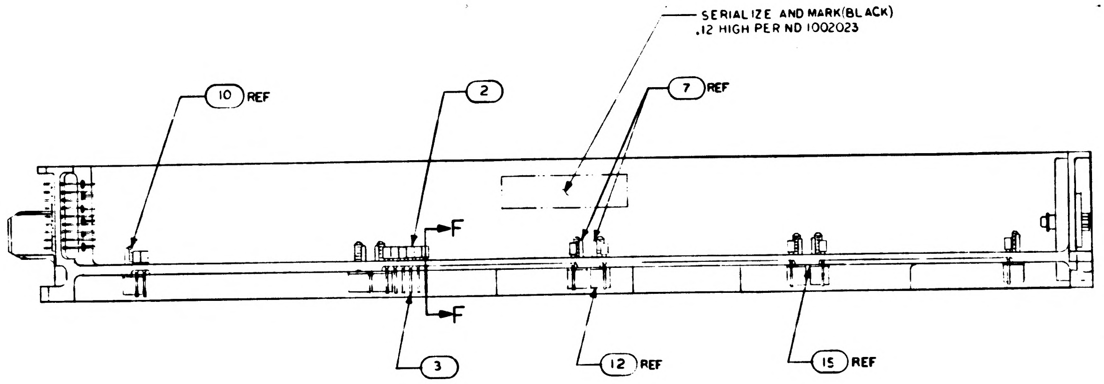
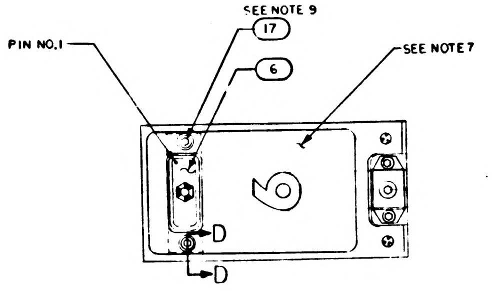
REVISIONS

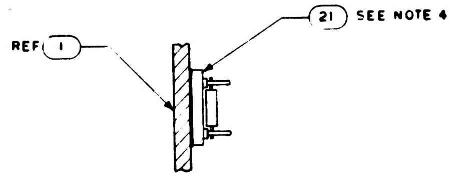
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07276	8 APR 64	JJ
B	REVISED PER TDRR 08145	13 MAY 64	JB
C	REVISED PER TDRR 14322	23 NOV 64	JK
D	REVISED PER TDRR 16639	24-FEB-65	
E	REVISED PER TDRR 20.8	21 JUN 65	DAS



SECTION F-F
151 PLACES







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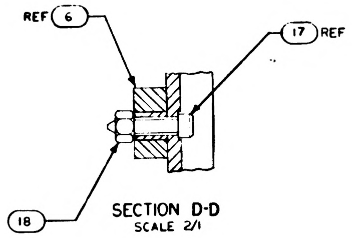

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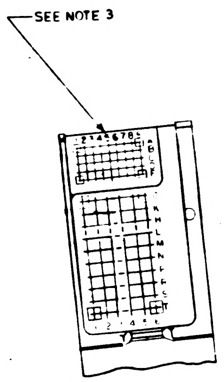
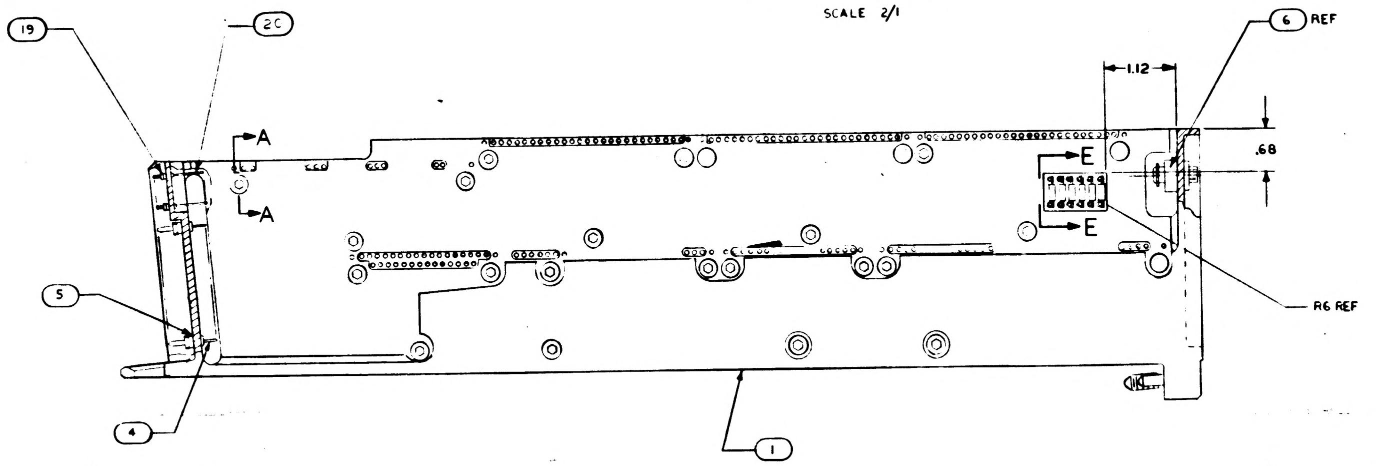
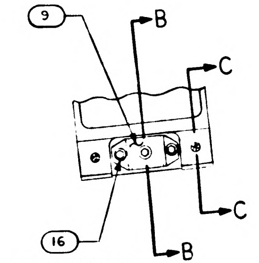
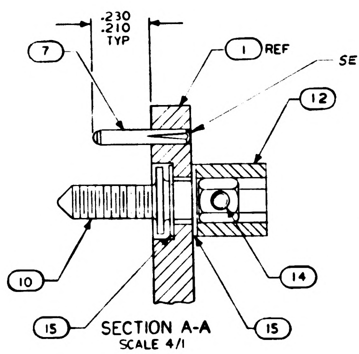






SEE NOTES 8 AND 9



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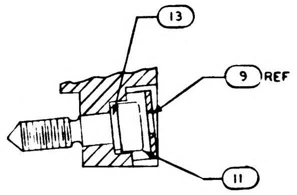
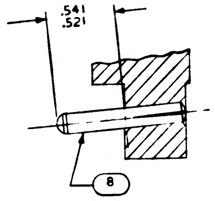


SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,19 AND 20 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO.21 TO FIND NO.1 PER ND 1002004 USING FLEXIBLE FORMULATION PER NASA DRAWING 1010657 AND NASA DRAWING 1010686
5. BOND FIND NOS 22,23,24,25,& 26 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002236 SECTION 3.6 CURE CYCLE A USING 1012503 .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
8. COAT THREADS OF FIND NO 16 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 AND 17 TO FIND NO.1 TO BE 50/55 IN LB.
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005 ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
11. PROCURE PER PS 1007146.
12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER, GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.
13. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND 1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND 002004 TYPE I.

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
	1008455	WIRING DIAGRAM	REF
1	1015768	WIRE LIST AA	26
1	1015767	WIRING HARNESS D	25
1	1015766	WIRING HARNESS C	24
1	1015765	WIRING HARNESS B	23
1	1015764	WIRING HARNESS A	22
1	1007110	BUFFER RESISTORS ASSEMBLY	21
45	1006782-2	CONTACT, WRAPOST, MALE MIN	20
45	1006775	INSULATOR, WRAPOST, MALE MIN	19
2	MS21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
50	1004206	WASHER, THRUST	15
25	MS171433	PIN, SPRING	14
1	1008099-2	WASHER,	13
25	1004207	DRIVE CYLINDER	12
1	1008098	SCREW, SOCKET HEAD	11
25	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
16	MS 16556-604	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
60	1010383-1	INSULATOR, WRAPOST MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
151	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
151	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008426	FRAME	1

LIST OF MATERIALS

1007166 E

NEXT ASSY	USED ON
1007176	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DWG NO
DRAWN L Vrabm DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

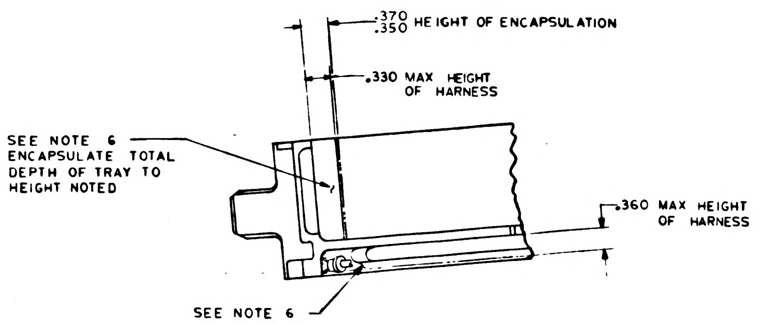
FRAME ASSEMBLY
TRAY 6

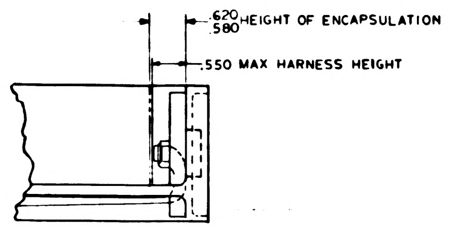
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007166
SCALE 1/1
WT
SHEET 1 OF 2

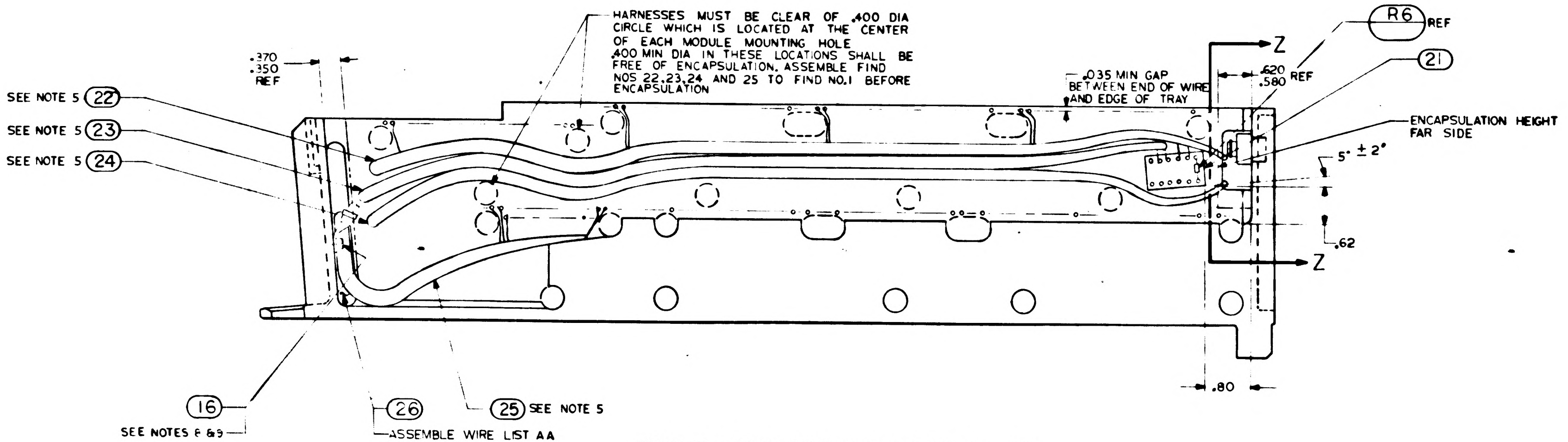
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 01F74

SYM	DESCRIPTION	DATE	APPROVAL
Ⓜ B	REVISED PER TDRR 08145	15 MAY 64	JB
C	REVISED PER TDRR 14322	23 NOV 64	JK
D	REVISED PER TDRR 16639	24-FEB -65	
E	REVISION STATUS CHANGED	21 JUN -65	DAS

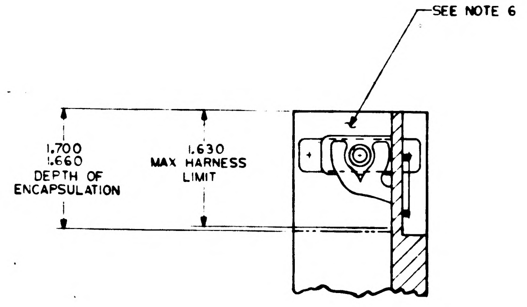

.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT

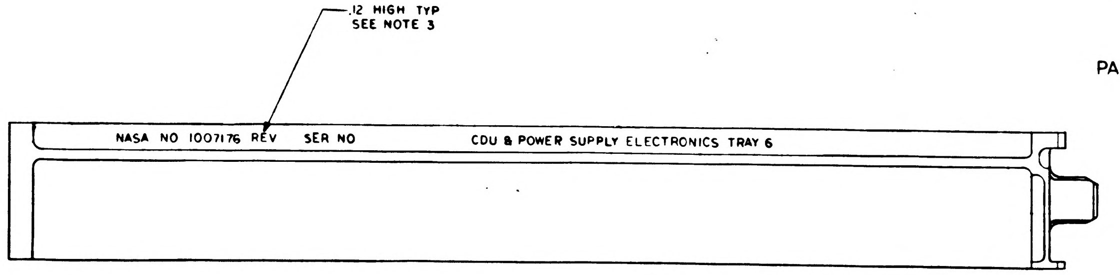

HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
.370
.350
REF
SEE NOTE 5 (22)
SEE NOTE 5 (23)
SEE NOTE 5 (24)
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
R6 REF
21
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
Z
.80
16
SEE NOTES 6 & 9
26
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
25 SEE NOTE 5

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10


SEE NOTE 6
1.700
1.660
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO 1007176 REV SER NO
CDU & POWER SUPPLY ELECTRONICS TRAY 6

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

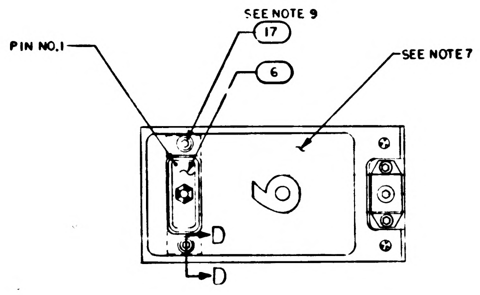
LIST OF MATERIALS

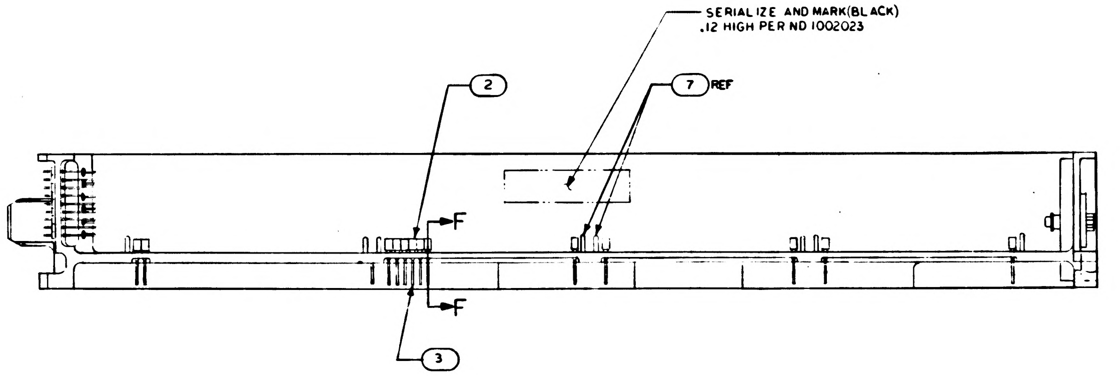
1007176		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES XX ±.02 ± DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB Cambridge Mass Contract NAS 9-497	MANNED SPACECRAFT CENTER HOUSTON TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN DATE MAR 64 CHECKED APPROVAL 3/9/64 APPROVAL	FRAME ASSEMBLY TRAY 6
APPLICATION		HEAT TREATMENT	NASA APPROVAL	CODE IDENT NO 80230 · SIZE E · NASA DRAWING NO 1007166
		FINAL FINISH	MIT APPROVAL 10 Mar 64	SCALE 1/1 · WT · SHEET 2 OF 2

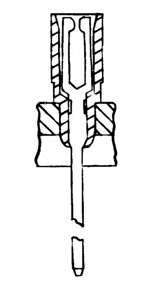
1007166 E

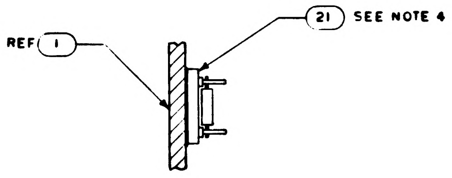
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 0727[illegible]	[illegible]	[illegible]
B	REVISED PER TDRR 08145	13 [illegible]	[illegible]
C	REVISED PER TDRR 14322	23 [illegible]	[illegible]
D	REVISED PER TDRR [illegible]39	24-[illegible]	[illegible]
E	REVISED PER TDRR [illegible]5	[illegible] 65	[illegible]
F	REVISED PER TDRR 20[illegible]	29-JUN-65	[illegible]

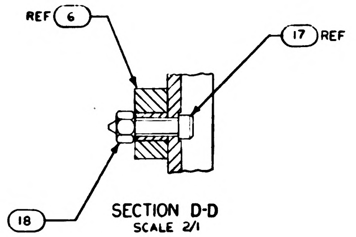




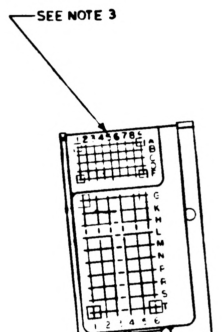

SECTION F-F
151 PLACES

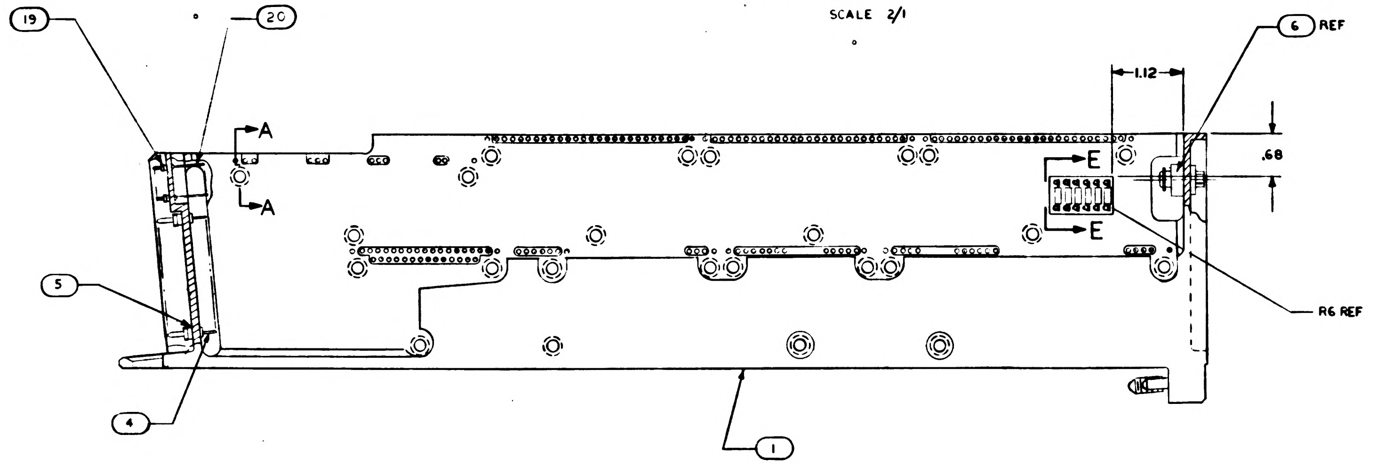


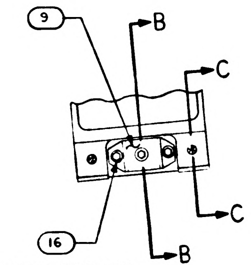
PARTIAL SECTION E-E
SCALE 2/1

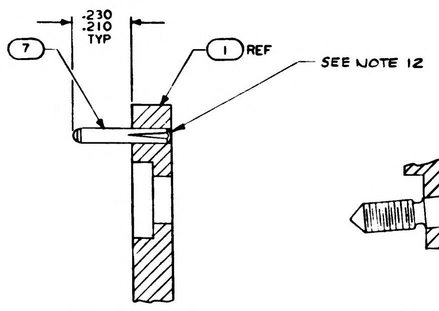


SECTION D-D
SCALE 2/1

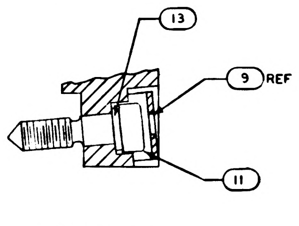




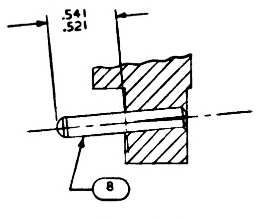




SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,19 AND 20 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO.21 TO FIND NO.1 PER ND 1002004 USING FLEXIBLE FORMULATION PER NASA DRAWING 1010657 AND NASA DRAWING 1010686
5. BOND FIND NOS 22,23,24,25,& 26 TO FIND NO.1 PER ND1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002236 SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
8. COAT THREADS OF FIND NO 16 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 AND 17 TO FIND NO.1 TO BE 5.0/5.5 IN LB.
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
11. PROCURE PER PS 1007146.
12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER, GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.
13. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND 1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND 1002004 TYPE I.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1008455	WIRING DIAGRAM	REF
1	1015768	WIRE LIST AA	26
1	1015767	WIRING HARNESS D	25
1	1015766	WIRING HARNESS C	24
1	1015765	WIRING HARNESS B	23
1	1015764	WIRING HARNESS A	22
1	1007110	BUFFER RESISTORS ASSEMBLY	21
45	1006782-2	CONTACT, WRAPOST, MALE MIN	20
45	1006775	INSULATOR, WRAPOST, MALE MIN	19
2	MS21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
~~50~~	~~1004206~~	~~WASHER, THRUST~~	15
~~25~~	~~MS171433~~	~~PIN, SPRING~~	14
1	1008099-2	WASHER,	13
~~25~~	~~1004207~~	~~DRIVE CYLINDER~~	12
1	1008098	SCREW, SOCKET HEAD	11
~~25~~	~~1008172~~	~~SCREW, JACK~~	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
16	MS 16556-604	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
60	1010383-1	INSULATOR, WRAPOST MALE	
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	
151	1006781-2	CONTACT, WRAPOST, FEMALE MIN	
151	1006774	INSULATOR, WRAPOST, FEMALE MIN	
1	1008426	FRAME	

LIST OF MATERIALS

1007176	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DWG NO
DRAWN L. Kraken DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY TRAY 6

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007166
SCALE 1/1
WT
SHEET 1 OF 2

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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
B	REVISED PER TDRR 08145	15 [illegible] 64	[illegible]
C	REVISED PER TDRR 14322	29 [illegible]	[illegible]
D	REVISED PER TDRR 663[illegible]	24-[illegible]-65	[illegible]
E	REVISION STATUS CHANGED	2[illegible]	[illegible]
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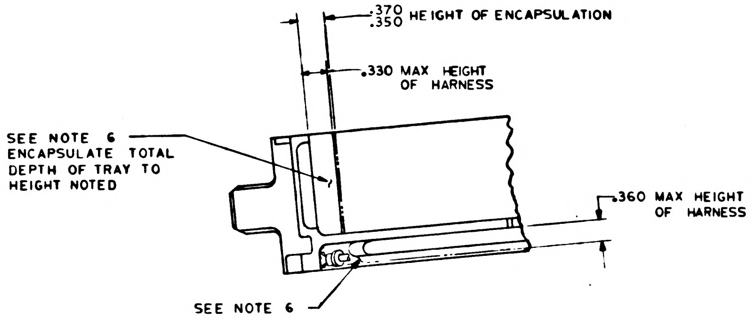
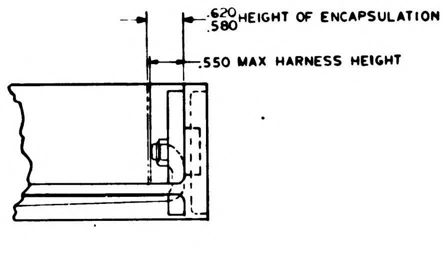
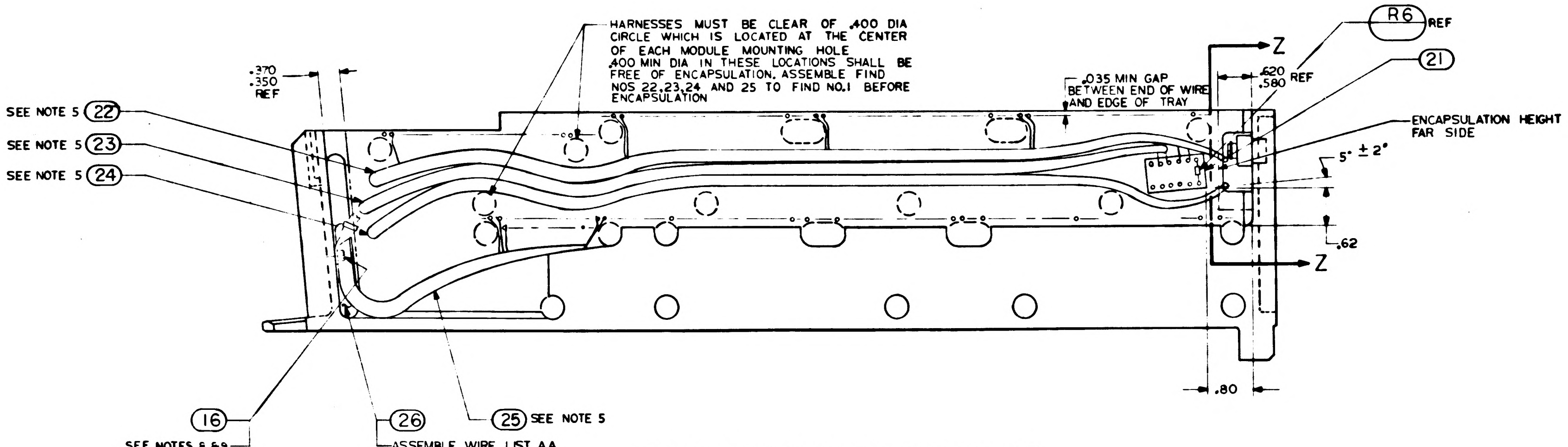


.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6



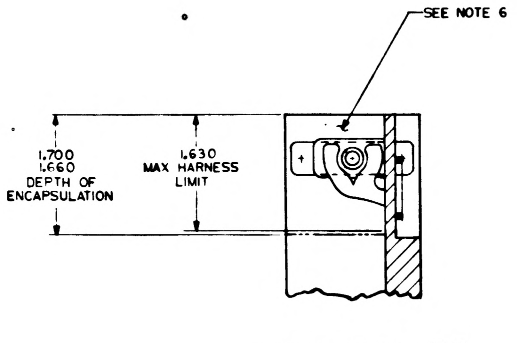
.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT



HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
R6 REF
Z
21
.370
.350
REF
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
5° ± 2°
.62
Z
.80
16
SEE NOTES 8 & 9
26
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
25 SEE NOTE 5

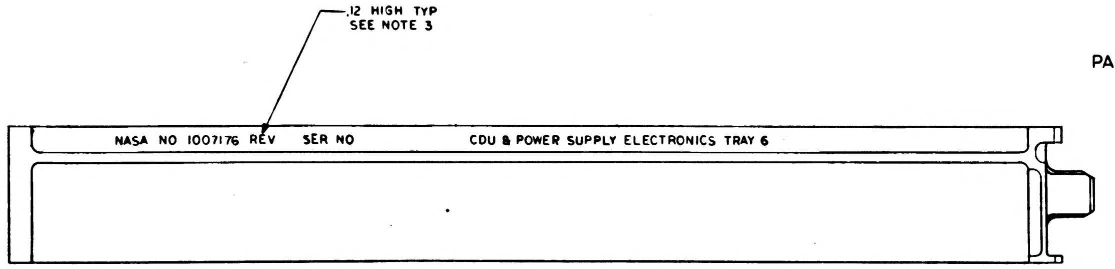
FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10



SEE NOTE 6
1.700
1.660
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z



.12 HIGH TYP
SEE NOTE 3
NASA NO 1007176 REV SER NO
CDU & POWER SUPPLY ELECTRONICS TRAY 6

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007176	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
XX ±.02 ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN [illegible] DATE 3 MAR [illegible]
CHECKED [illegible]
APPROVAL [illegible] 3/9/64
APPROVAL
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007166
SCALE 1/1
WT
SHEET 2 OF 2

1007166

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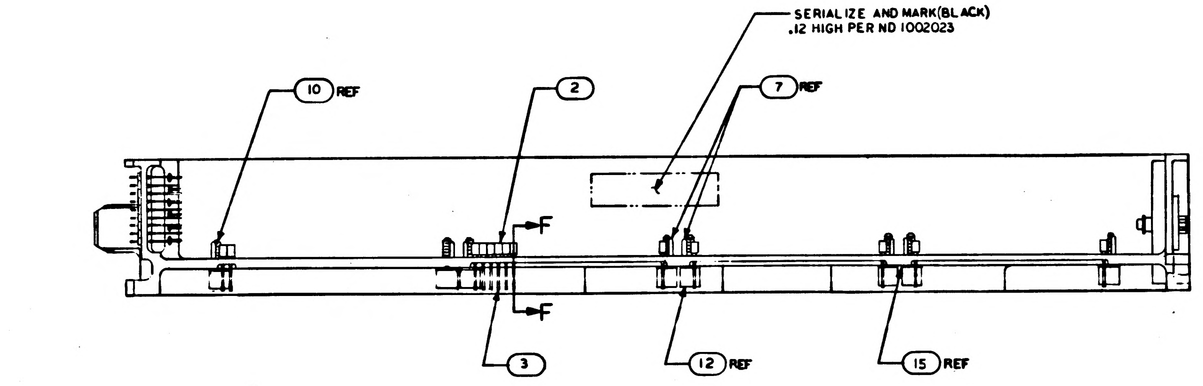
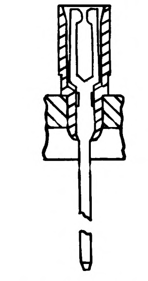
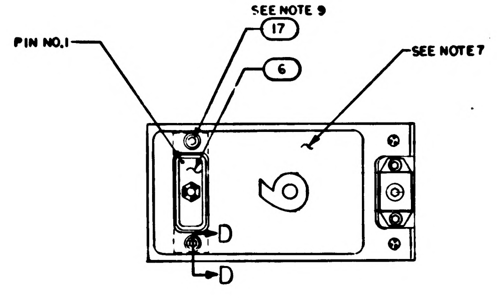
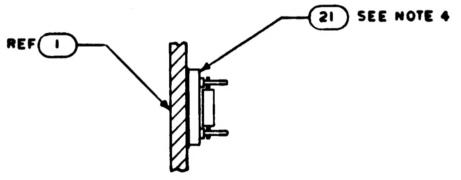
REVISIONS 0 8 74			
SYM	DESCRIPTION	DATE	APPROVAL

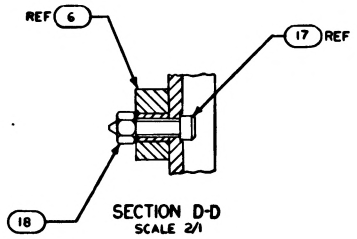



SECTION F-F
151 PLACES

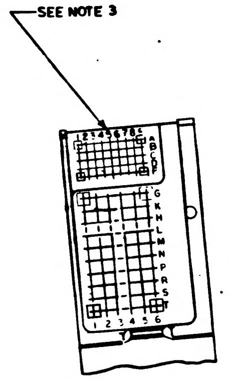


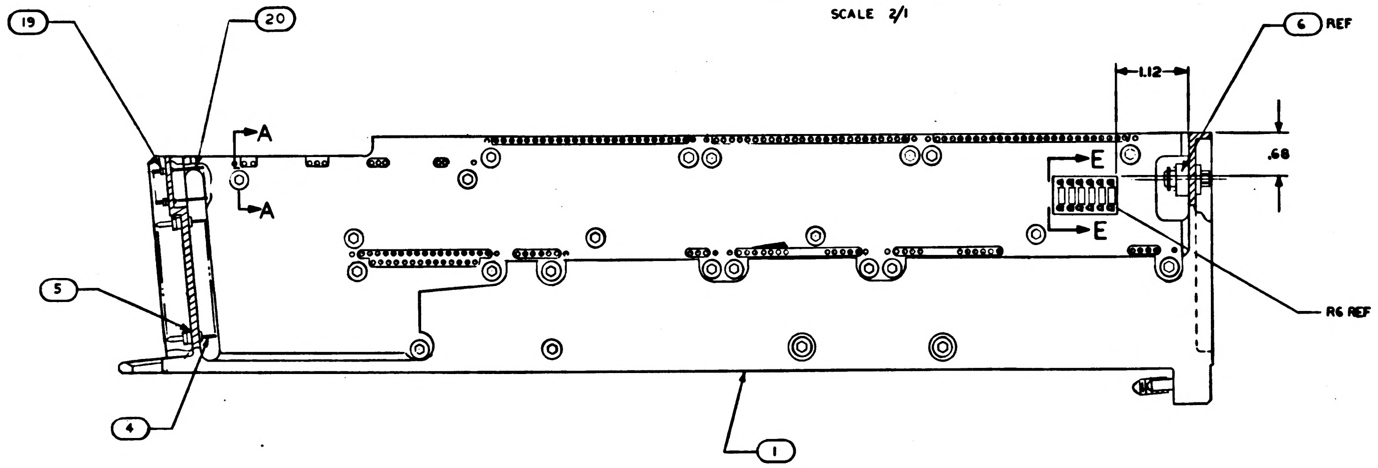


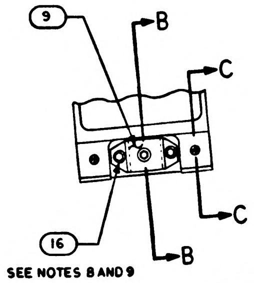
PARTIAL SECTION E-E
SCALE 2/1

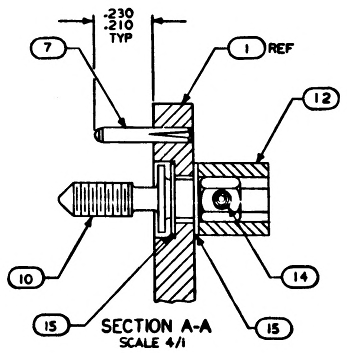


SECTION D-D
SCALE 2/1

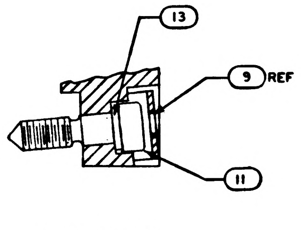




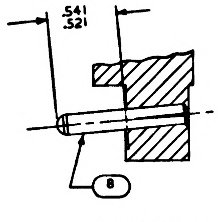




SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,19 AND 20 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO.21 TO FIND NO.1 PER ND 1002004 USING FLEXIBLE FORMULATION PER NASA DRAWING 1010657 AND NASA DRAWING 1010686
5. BOND FIND NOS 22,23,24,25, & 26 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
8. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 AND 17 TO FIND NO.1 TO BE 5.0/5.5 IN LB.
10. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010096	WIRING DIAGRAM	REF
1	1015768	WIRE LIST A A	26
1	1015767	WIRING HARNESS D	25
1	1015766	WIRING HARNESS C	24
1	1015765	WIRING HARNESS B	23
1	1015764	WIRING HARNESS A	22
1	1007110	BUFFER RESISTORS ASSEMBLY	21
45	1006782-2	CONTACT, WRAPOST, MALE MIN	20
45	1006775	INSULATOR, WRAPOST, MALE MIN	19
2	MS21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
50	1004206	WASHER, THRUST	15
25	1008145	PIN, SPRING	14
1	1008099-2	WASHER,	13
25	1004207	DRIVE CYLINDER	12
1	1008098	SCREW, SOCKET HEAD	11
25	1008095	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-2	PIN, GUIDE	8
16	1010620-1	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
60	1010383-1	INSULATOR, WRAPOST MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
151	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
151	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008176	FRAME	1

LIST OF MATERIALS

1007166

1007176	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

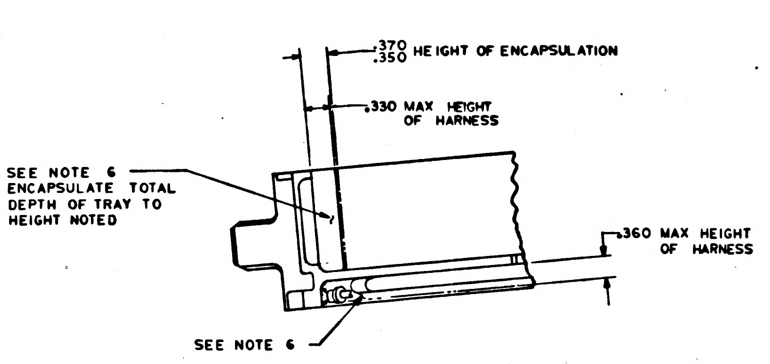
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG NO
CONTRACT
DRAWN E. Krahn DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

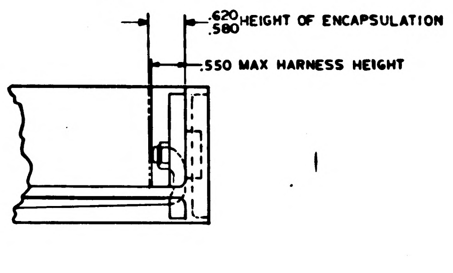
FRAME ASSEMBLY
TRAY 6

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007166
SCALE 1/1
WT
SHEET 1 OF 2

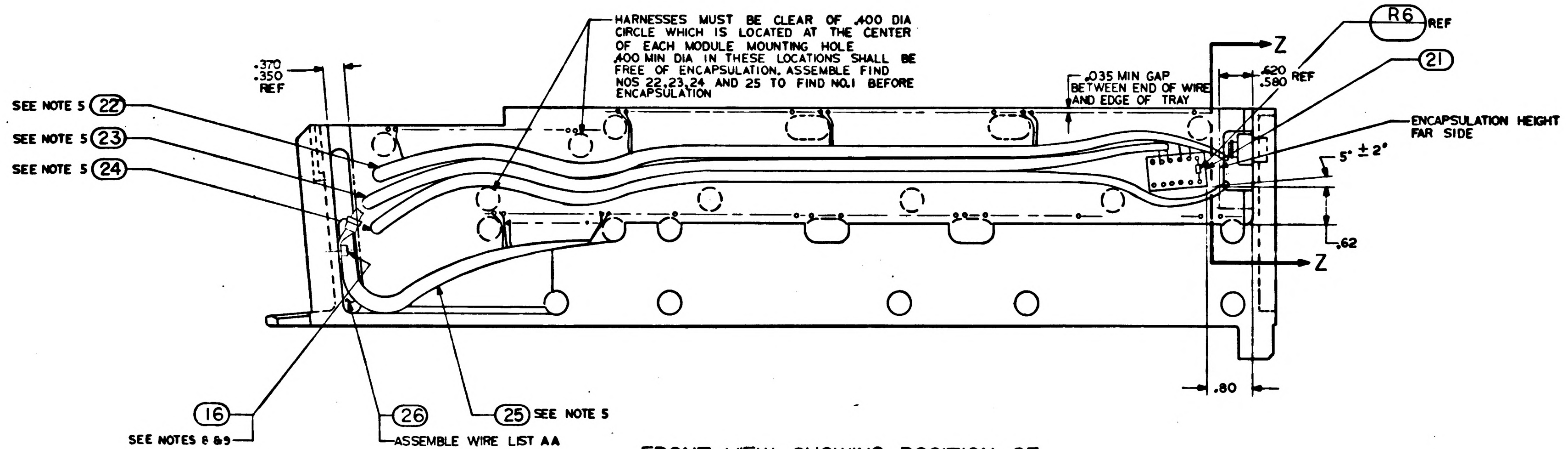
SYM	DESCRIPTION	DATE	APPROVAL



.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6



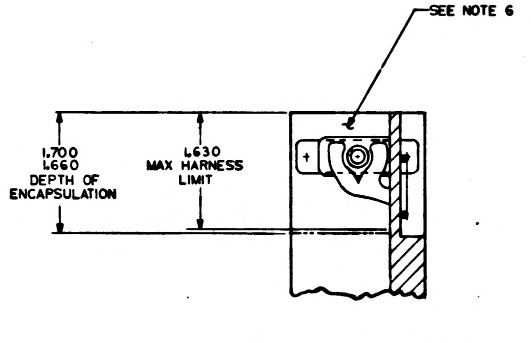
.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT



HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
.370
.350
REF
SEE NOTE 5 (22)
SEE NOTE 5 (23)
SEE NOTE 5 (24)
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
R6 REF
(21)
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
Z
.80
(16)
SEE NOTES 8 & 9
(26)
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
(25) SEE NOTE 5

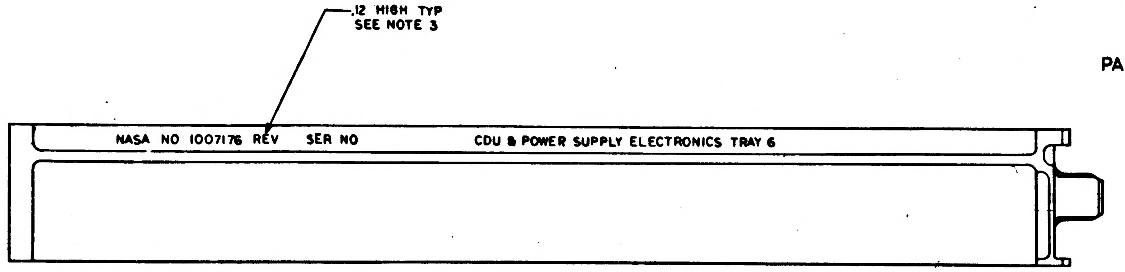
FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10



SEE NOTE 6
1.700
1.660
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z



.12 HIGH TYP
SEE NOTE 3
NASA NO 1007176 REV SER NO
CDU & POWER SUPPLY ELECTRONICS TRAY 6

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007176	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
XX ±.02 ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT NAS 9-497
DRAWN L. Krahn DATE 3 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL 10 Mar 64

MANNED SPACFCRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007166
SCALE 1/1
WT
SHEET 2 OF 2

1007166

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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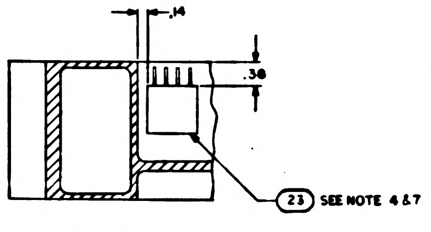
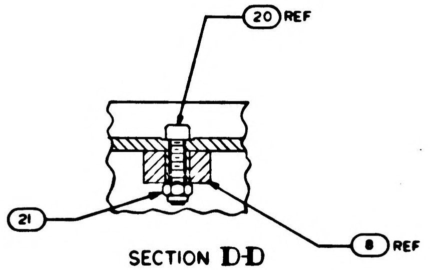
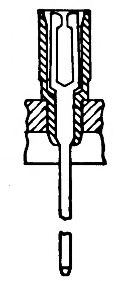


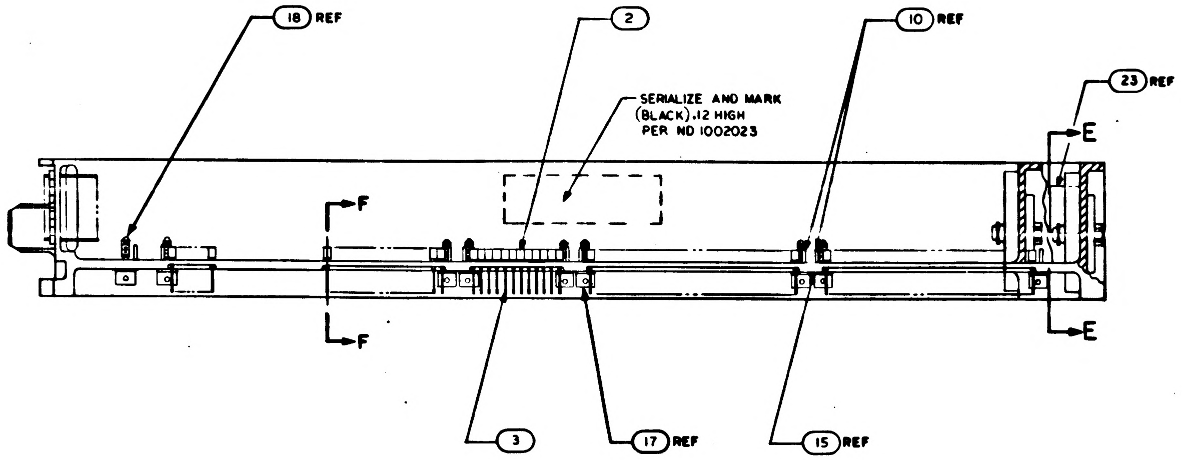
PARTIAL SECTION E-E

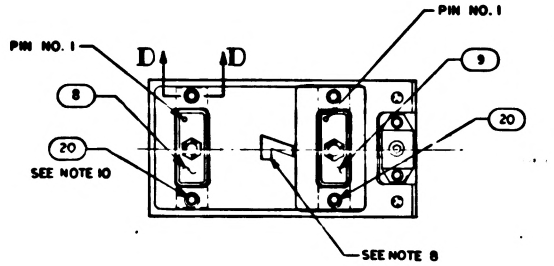


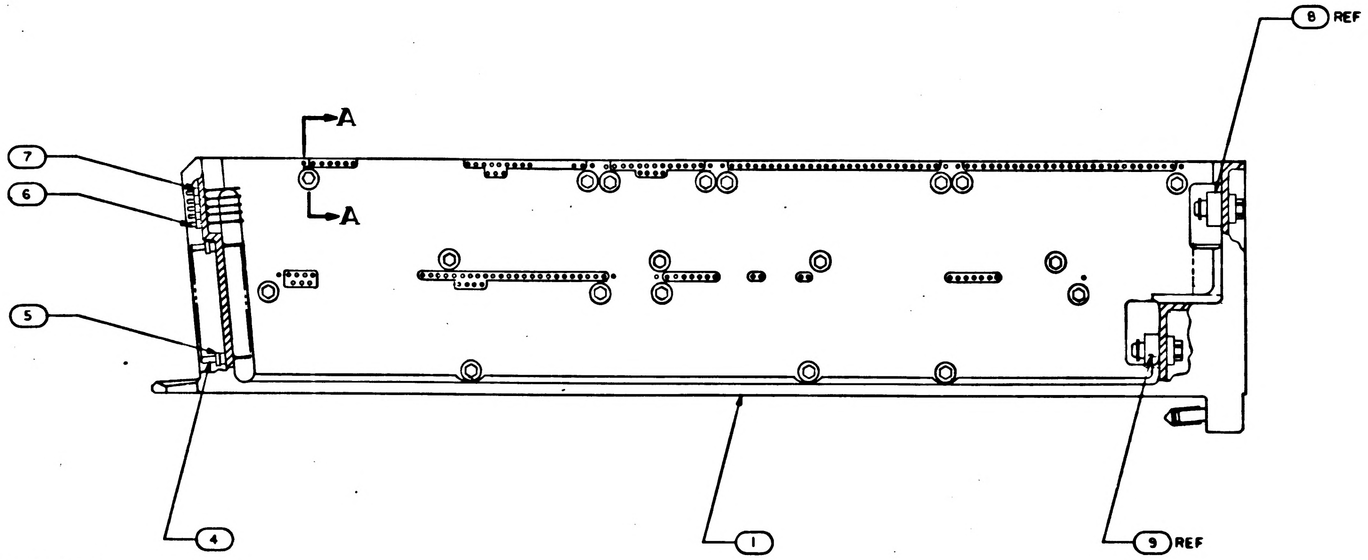
SECTION D-D
SCALE 2/1

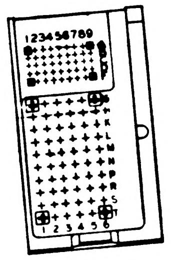


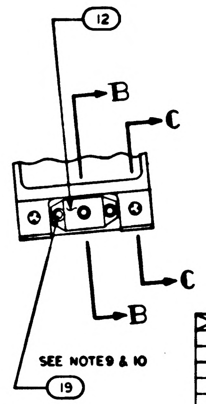
PARTIAL SECTION F-F
143 PLACES





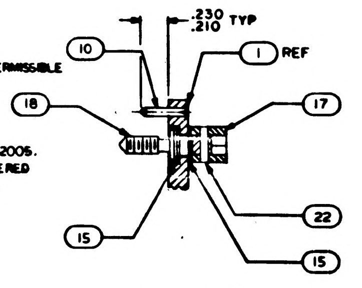




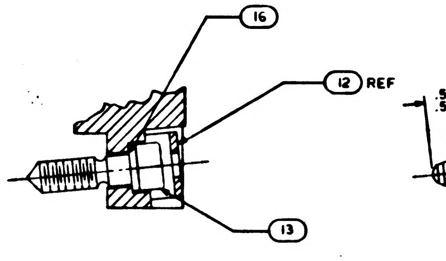


NOTES:

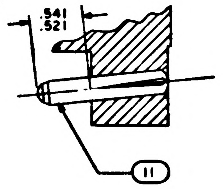
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NO.23 TO FIND NO.1 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND NASA DWG 1010686
5. BOND FIND NUMBERS 24 25 26 27 AND 28 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO.23
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO.19 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NOS. 19 & 20 TO FIND NO.1 TO BE 5.0/5.5 IN LB
11. ALL NICKEL WIRE HARNESS TERMINATION TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A7 E 9	45A7J1—35
E 10	—2
E 11	—1
E 12	—14
E 13	—7
E 14	—20
E 15	—27
E 22	—22
E 23	—38

A	—
SHEET 1	SHEET 2
REVISION STATUS OF SHEETS	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010097	WIRING DIAGRAM	REF
1	1015758	WIRE LIST A A	28
1	1015757	WIRING HARNESS D	27
1	1015756	WIRING HARNESS C	26
1	1015755	WIRING HARNESS B	25
1	1015754	WIRING HARNESS A	24
1	1007092	BUFFER RESISTOR MODULE ASSY	23
19	MS171433	PIN, SPRING	22
4	MS 21045 C 04	NUT, SELF-LOCKING HEX	21
4	MS 16995-11	SCREW, CAP, SOCKET HEAD	20
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	19
19	1008095	SCREW, JACK	18
19	1004207	DRIVE CYLINDER	17
1	1008099-2	WASHER	16
38	1004206	WASHER THRUST	15
			14
1	1008098	SCREW, SOCKET HEAD	13
1	1001317	RETAINER, JACK SCREW	12
2	1010620-2	PIN, GUIDE	11
12	1010620-1	PIN, GUIDE	10
1	1010622-2	CONNECTOR, RECEPTACLE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
45	1006775	INSULATOR, WRAPOST, MALE MIN	7
45	1006782-2	CONTACT, WRAPOST, MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
143	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
143	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008177	FRAME	1

LIST OF MATERIALS

1007177	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
Cambridge, Mass.
Contract NAS 9-497

DRAWN R Kraher DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL 3/11/64
MIT APPROVAL 10 Mar 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007167
SCALE 1/1 WT SHEET 1 OF 2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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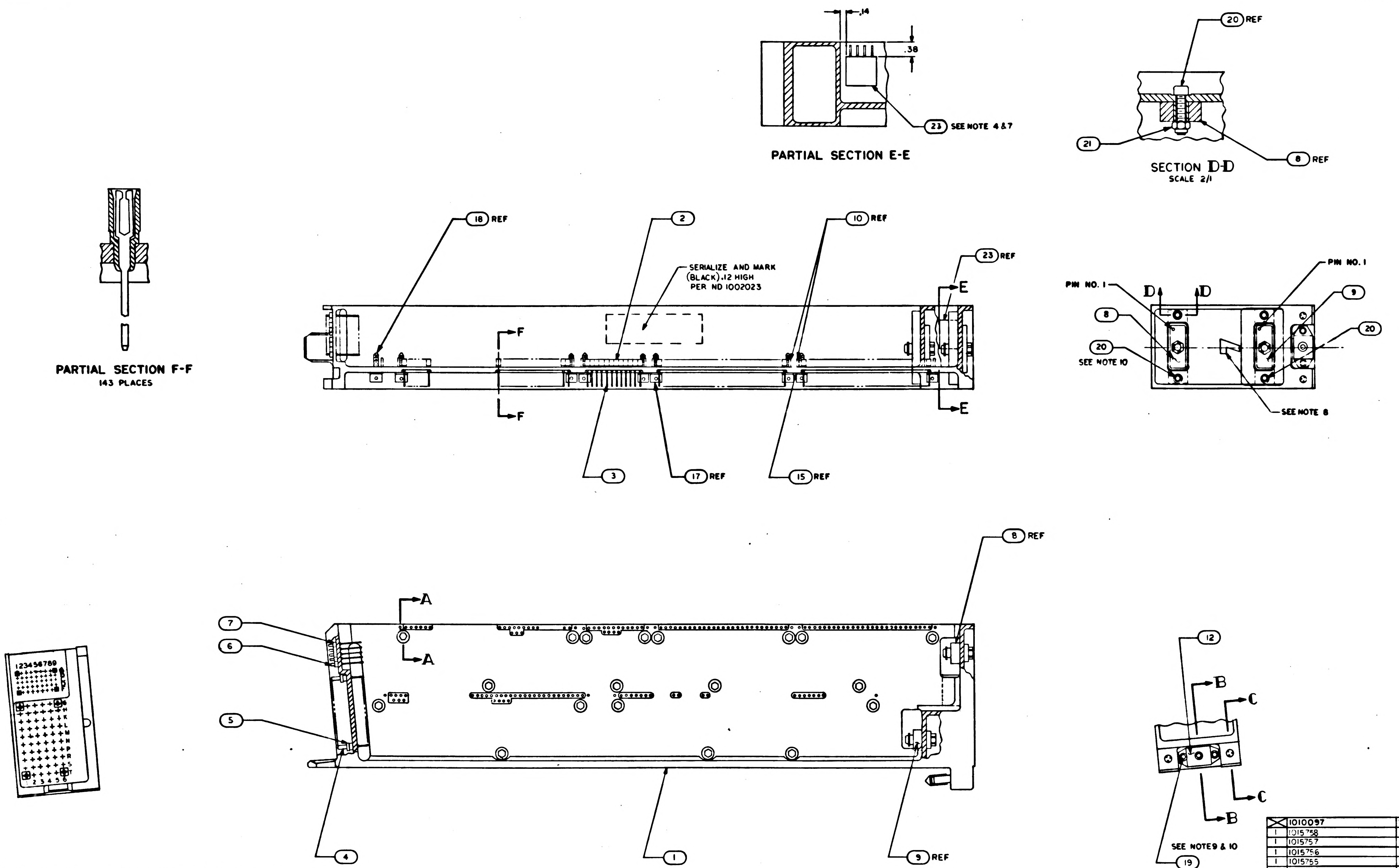
B	REVISED PER TDRR 08145	13 MAY 64	



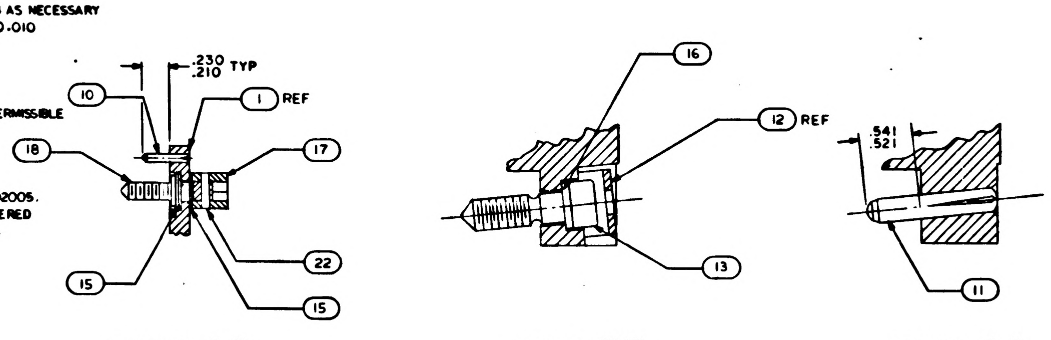
PARTIAL SECTION E-E

SECTION D-D
SCALE 2/1

PARTIAL SECTION F-F
143 PLACES

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NO.23 TO FIND NO.1 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND NASA DWG 1010686
5. BOND FIND NUMBERS 24 25 26 27 AND 28 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO.23
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO.19 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NOS. 19 & 20 TO FIND NO.1 TO BE 5.0/5.5 IN LB
11. ALL NICKEL WIRE HARNESS TERMINATION TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT
12. PROCURE PER PS1007147



SECTION A-A
SCALE 2/1

SECTION B-B
SCALE 2/1

SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A7 E9	45A7J1-35
E10	-2
E11	-1
E12	-14
E13	-7
E14	-20
E15	-27
E22	-22
E23	-38

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010097	WIRING DIAGRAM	REF
1	1015758	WIRE LIST A A	28
1	1015757	WIRING HARNESS D	27
1	1015756	WIRING HARNESS C	26
1	1015755	WIRING HARNESS B	25
1	1015754	WIRING HARNESS A	24
1	1007092	BUFFER RESISTOR MODULE ASSY	23
19	MS171433	PIN, SPRING	22
4	MS 21045 C 04	NUT, SELF-LOCKING HEX	21
4	MS 16995-11	SCREW, CAP, SOCKET HEAD	20
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	19
19	1008172	SCREW, JACK	18
19	1004207	DRIVE CYLINDER	17
1	1008099-2	WASHER	16
38	1004206	WASHER THRUST	15
			14
1	1008098	SCREW. SOCKET HEAD	13
1	1001317	RETAINER, JACK SCREW	12
2	1010620-5	PIN, GUIDE	11
12	1010620-4	PIN, GUIDE	10
1	1010622-2	CONNECTOR, RECEPTACLE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
45	1006775	INSULATOR, WRAPOST, MALE MIN	7
45	1006782-2	CONTACT, WRAPOST, MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
143	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
143	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008177	FRAME	1

LIST OF MATERIALS

1007177		
NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN L Kralj DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL 3/11/64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007167
SCALE 1/1
WT
SHEET 1 OF 2

1007167 B

SYM	DESCRIPTION	DATE	APPROVAL
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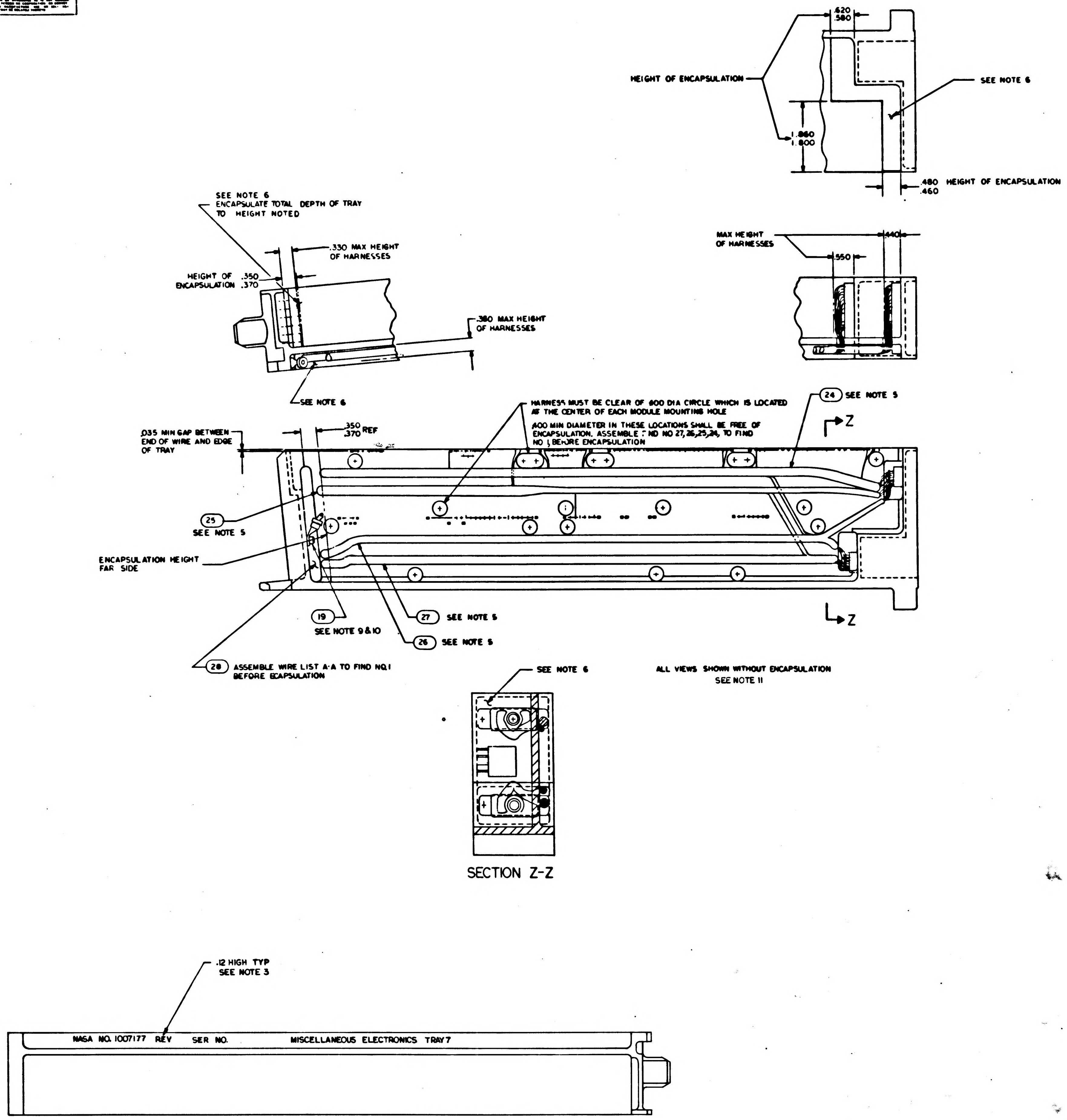

HEIGHT OF ENCAPSULATION
.420
.380
SEE NOTE 6
1.860
1.800
.480
.460
HEIGHT OF ENCAPSULATION
SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY
TO HEIGHT NOTED
.330 MAX HEIGHT
OF HARNESSES
HEIGHT OF ENCAPSULATION .350 .370
.380 MAX HEIGHT
OF HARNESSES
MAX HEIGHT
OF HARNESSES
.550
.440
SEE NOTE 6
HARNESS MUST BE CLEAR OF .600 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.600 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 27, 26, 25, 24, TO FIND NO 1 BEFORE ENCAPSULATION
24 SEE NOTE 5
Z
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
25
SEE NOTE 5
ENCAPSULATION HEIGHT FAR SIDE
19
SEE NOTE 9 & 10
27 SEE NOTE 5
26 SEE NOTE 5
Z
28 ASSEMBLE WIRE LIST A-A TO FIND NO. 1 BEFORE ECAPSULATION
SEE NOTE 6
ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11
SECTION Z-Z
.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007177 REV SER NO. MISCELLANEOUS ELECTRONICS TRAY 7

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007177	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN E. Kristin DATE 3 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL 64

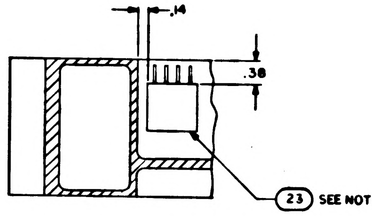
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

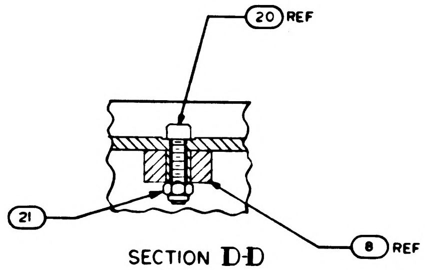
CODE IDENT NO
SIZE E
NASA DRAWING NO. 1007167
SCALE FULL
WT
SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

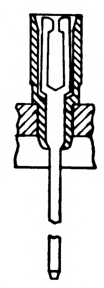
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07276	[illegible]	[illegible]
B	REVISED PER TDRR 08145	13 MAY 64	[illegible]
C	REVISED PER TDRR 14322	23 [illegible]	[illegible]



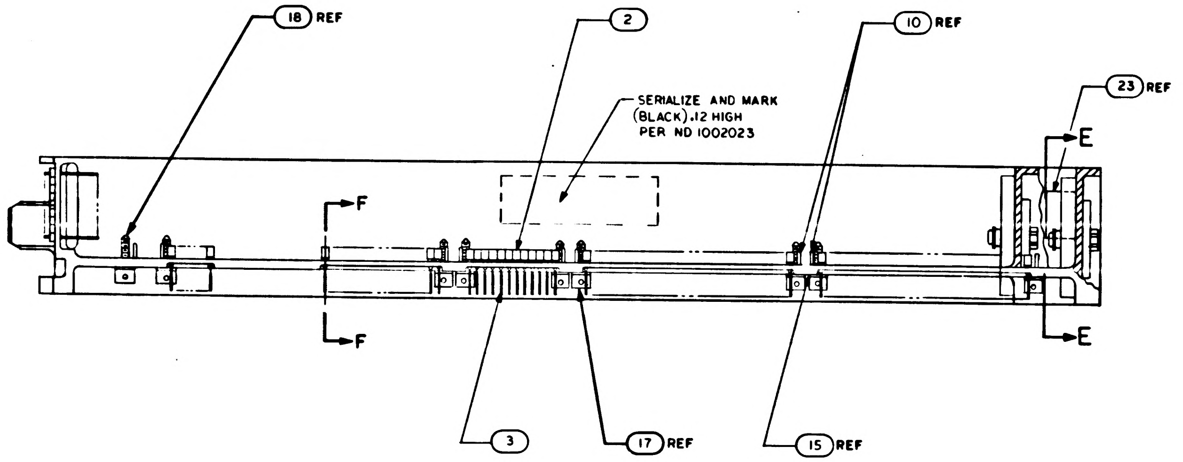
PARTIAL SECTION E-E

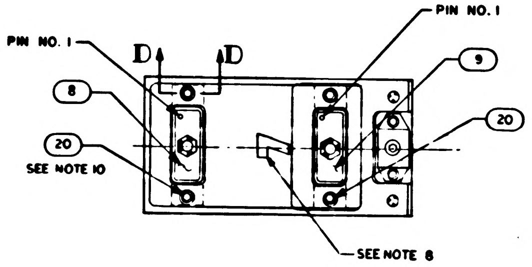


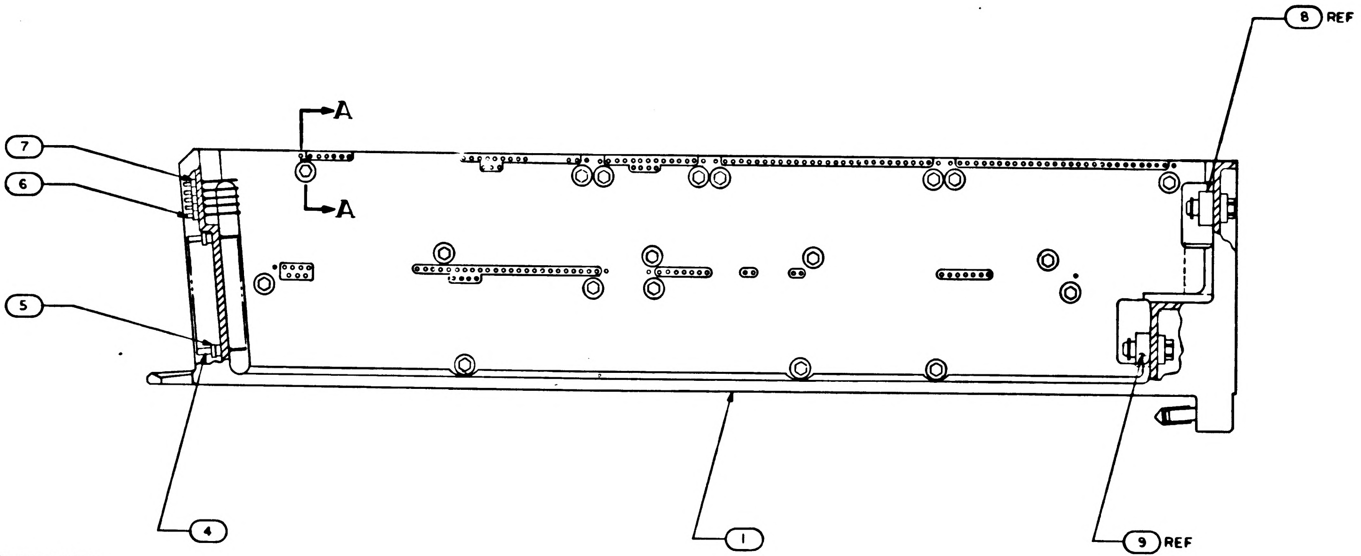
SECTION D-D
SCALE 2/1

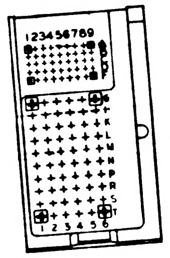


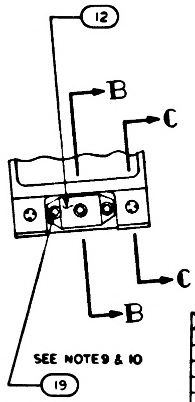
PARTIAL SECTION F-F
143 PLACES





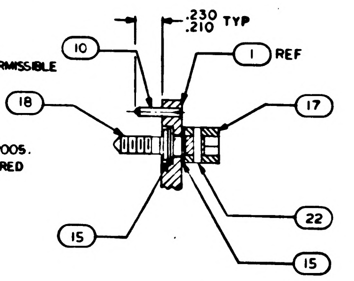




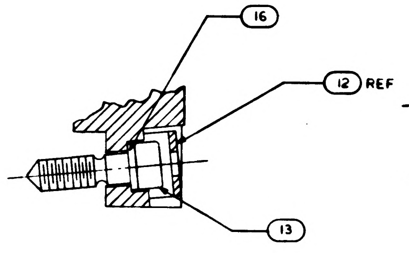


NOTES:

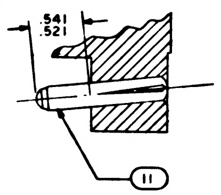
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NO.23 TO FIND NO.1 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND NASA DWG 1010686
5. BOND FIND NUMBERS 24 25 26 27 AND 28 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO.23
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO.19 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NOS. 19 & 20 TO FIND NO.1 TO BE 5.0/5.5 IN LB
11. ALL NICKEL WIRE HARNESS TERMINATION TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT
12. PROCURE PER PS1007147



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A7 E9	45A7J1—35
E10	—2
E11	—1
E12	—14
E13	—7
E14	—20
E15	—27
E22	—22
E23	—38

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1008456	WIRING DIAGRAM	REF
1	1015758	WIRE LIST A A	28
1	1015757	WIRING HARNESS D	27
1	1015756	WIRING HARNESS C	26
1	1015755	WIRING HARNESS B	25
1	1015754	WIRING HARNESS A	24
1	1007092	BUFFER RESISTOR MODULE ASSY	23
19	MS171433	PIN, SPRING	22
4	MS 21045 C 04	NUT, SELF-LOCKING HEX	21
4	MS 16995-11	SCREW, CAP, SOCKET HEAD	20
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	19
19	1008172	SCREW, JACK	18
19	1004207	DRIVE CYLINDER	17
1	1008099-2	WASHER	16
38	1004206	WASHER THRUST	15
			14
1	1008098	SCREW. SOCKET HEAD	13
1	1001317	RETAINER, JACK SCREW	12
2	1010620-5	PIN, GUIDE	11
12	1010620-4	PIN, GUIDE	10
1	1010622-2	CONNECTOR, RECEPTACLE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
45	1006775	INSULATOR, WRAPOST, MALE MIN	7
45	1006782-2	CONTACT, WRAPOST, MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
143	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
143	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008177	FRAME	1

LIST OF MATERIALS

1007177	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN L Krahn DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL 3/11/64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

CODE IDENT NO
SIZE E
NASA DRAWING NO. 1007167
SCALE 1/1 WT SHEET 1 OF 2

[illegible]

SYM	DESCRIPTION	DATE	APPROVAL
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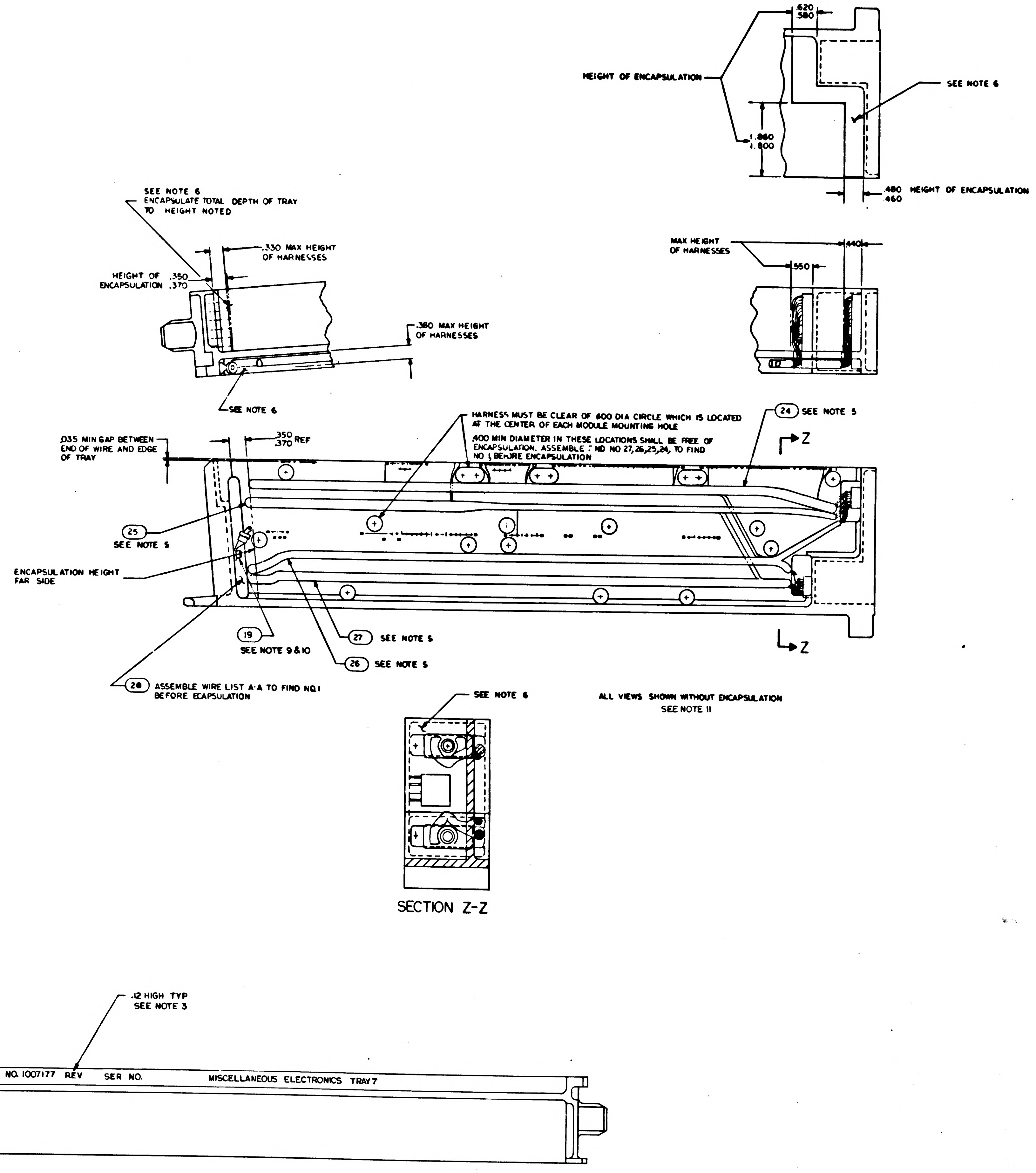
C	REVISED PER TDRR 14322	23 NOV 64	


.620
.580
HEIGHT OF ENCAPSULATION
SEE NOTE 6
1.860
1.800
.480 HEIGHT OF ENCAPSULATION
.460
SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.330 MAX HEIGHT OF HARNESSES
HEIGHT OF ENCAPSULATION .350 .370
.380 MAX HEIGHT OF HARNESSES
SEE NOTE 6
MAX HEIGHT OF HARNESSES
.440
.550
HARNESS MUST BE CLEAR OF .600 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.600 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 27, 26, 25, 24, TO FIND NO 1, BEFORE ENCAPSULATION
24 SEE NOTE 5
Z
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
25
SEE NOTE 5
ENCAPSULATION HEIGHT FAR SIDE
19
SEE NOTE 9 & 10
27 SEE NOTE 5
26 SEE NOTE 5
Z
28 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ECAPSULATION
SEE NOTE 6
ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11
SECTION Z-Z
.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007177 REV SER NO. MISCELLANEOUS ELECTRONICS TRAY 7
MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007177	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN F. Hogan DATE 3 MAR 64
CHECKED 6 MAR 64
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

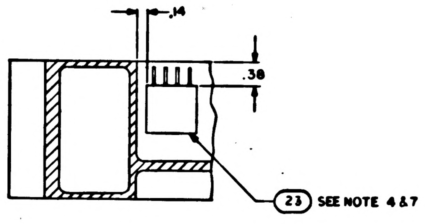
FRAME ASSEMBLY
TRAY 7

CODE IDENT NO
SIZE E
NASA DRAWING NO. 1007167
SCALE FULL
WT
SHEET 2 OF 2

1007167 C

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07276	8 APR 64	
B	REVISED PER TDRR 08145	13 MAY 64	
C	REVISED PER TDRR 14322	23 NOV 64	
D	REVISED PER TDRR 1 3º	24 FEB 65	



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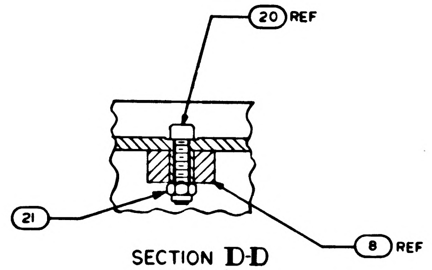
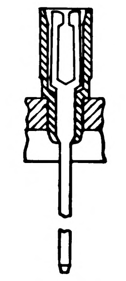
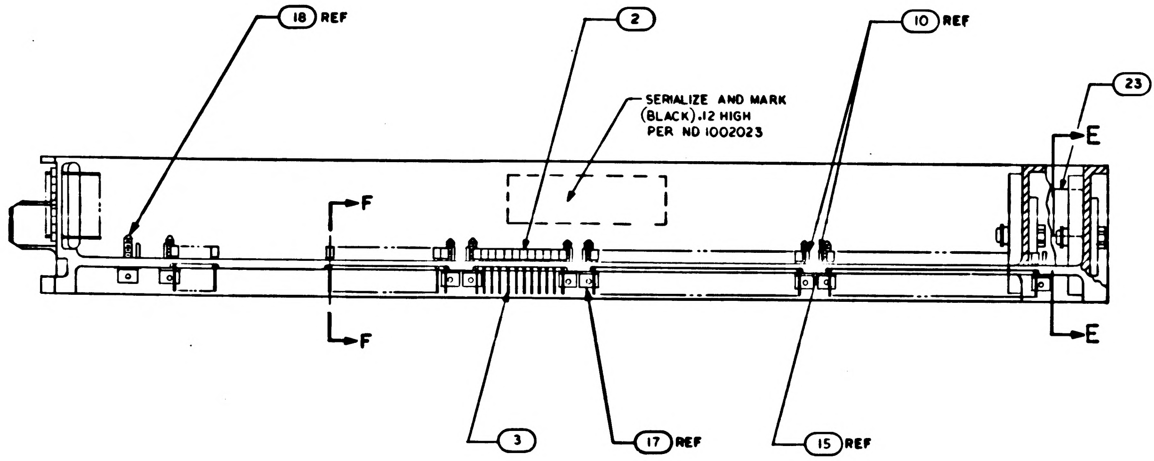
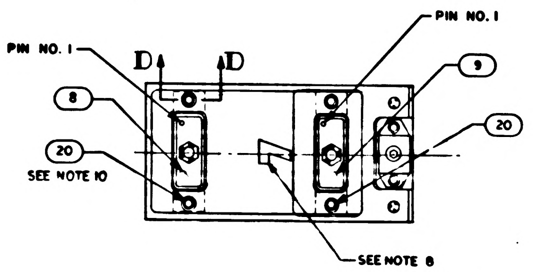


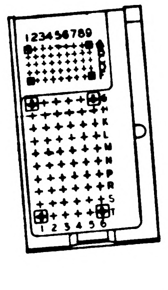
SECTION D-D
SCALE 2/1

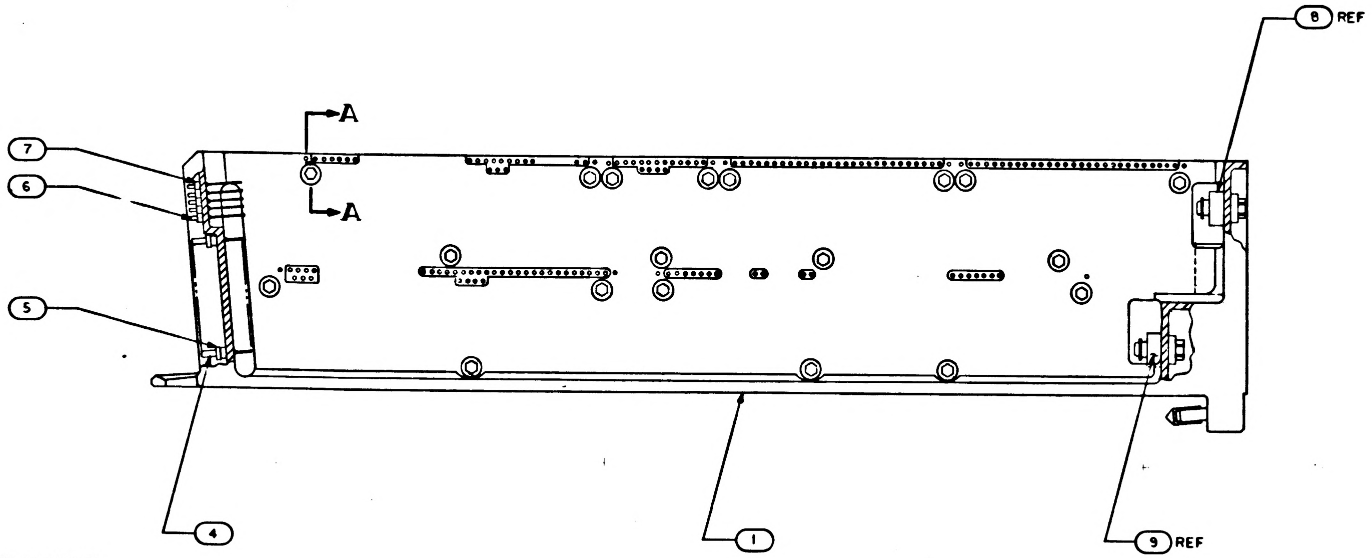


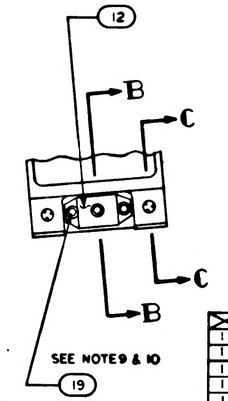
PARTIAL SECTION F-F
143 PLACES







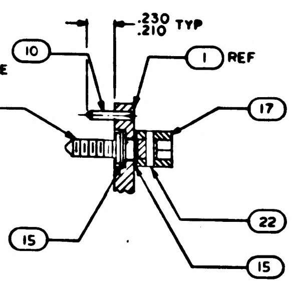




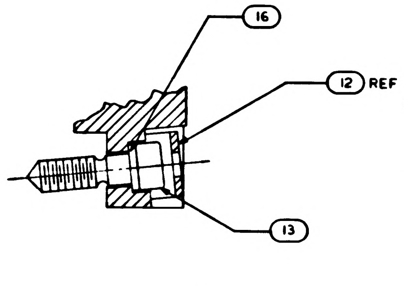
TERMINATION CHART	
FROM	TO
45A7 E 9	45A7J1—35
E 10	—2
E 11	—1
E 12	—14
E 13	—7
E 14	—20
E 15	—27
E 22	—22
E 23	—38

NOTES:

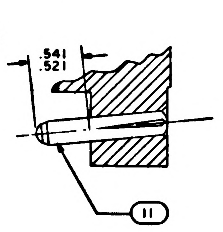
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NO.23 TO FIND NO.1 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND NASA DWG 1010686
5. BOND FIND NUMBERS 24 25 26 27 AND 28 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO.23
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO.19 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NOS. 19 & 20 TO FIND NO.1 TO BE 5.0/5.5 IN LB
11. ALL NICKEL WIRE HARNESS TERMINATION TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT
12. PROCURE PER PS1007147



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1008456	WIRING DIAGRAM	REF
1	1015758	WIRE LIST A A	28
1	1015757	WIRING HARNESS D	27
1	1015756	WIRING HARNESS C	26
1	1015755	WIRING HARNESS B	25
1	1015754	WIRING HARNESS A	24
1	1007092	BUFFER RESISTOR MODULE ASSY	23
19	MS171433	PIN, SPRING	22
4	MS 21045 C 04	NUT, SELF-LOCKING HEX	21
4	MS 16995-11	SCREW, CAP, SOCKET HEAD	20
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	19
19	1008172	SCREW, JACK	18
19	1004207	DRIVE CYLINDER	17
1	1008099-2	WASHER	16
38	1004206	WASHER THRUST	15
			14
1	1008098	SCREW, SOCKET HEAD	13
1	1001317	RETAINER, JACK SCREW	12
2	1010620-5	PIN, GUIDE	11
12	1010620-4	PIN, GUIDE	10
1	1010622-2	CONNECTOR, RECEPTACLE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
45	1006775	INSULATOR, WRAPOST, MALE MIN	7
45	1006782-2	CONTACT, WRAPOST, MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
143	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
143	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008527	FRAME	1

LIST OF MATERIALS

1007177	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

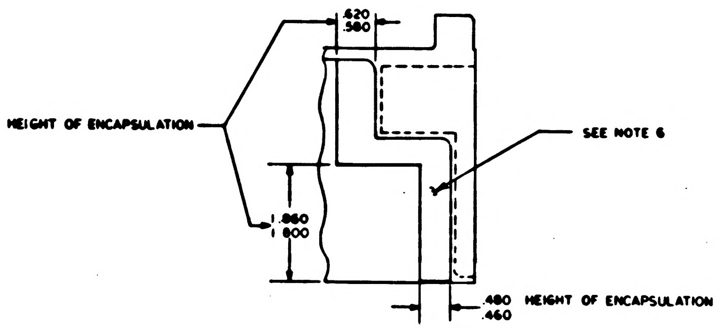
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN L Krahn DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL 3/17/64
MIT APPROVAL 10 Mar 64

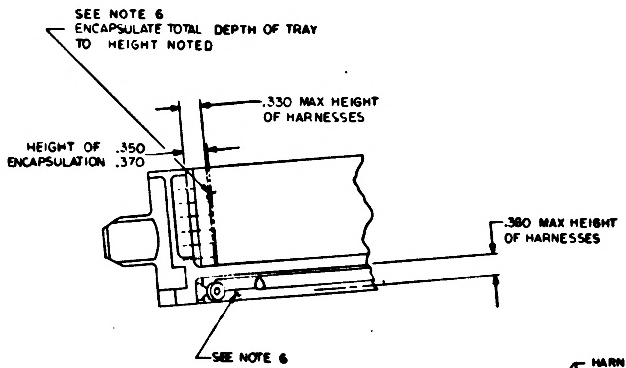
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

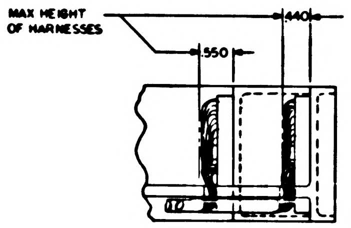
FRAME ASSEMBLY
TRAY 7

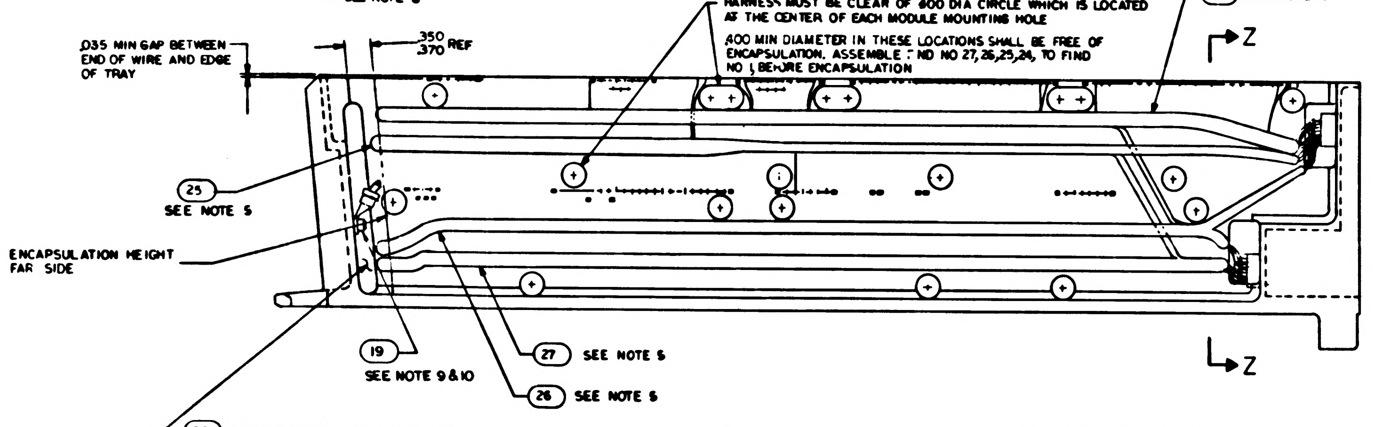
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007167
SCALE 1/1
WT
SHEET 1 OF 2

SYM	DESCRIPTION	DATE	APPROVAL
B	REVISED PER TDRR 08145	15 MAY 64	JB
C	REVISED PER TDRR 14322	23 NOV 64	
D	REVISED PER TDRR 16639	-FEB 66	

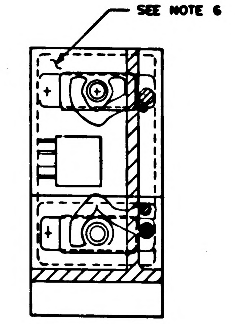

.620
.580
HEIGHT OF ENCAPSULATION
SEE NOTE 6
1.860
1.800
.480
.460
HEIGHT OF ENCAPSULATION


SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.330 MAX HEIGHT OF HARNESSES
HEIGHT OF ENCAPSULATION .350 .370
.380 MAX HEIGHT OF HARNESSES
SEE NOTE 6

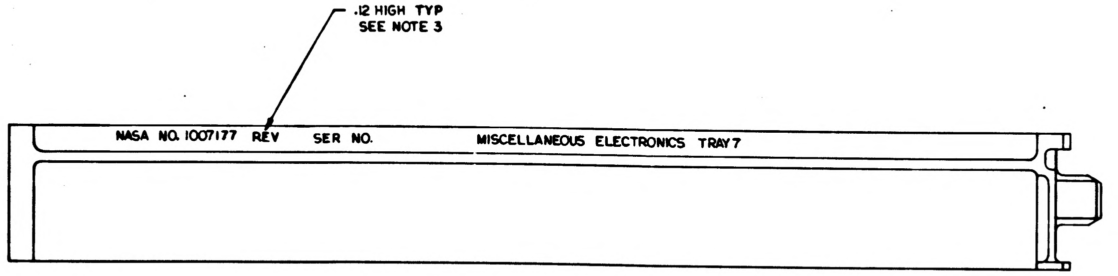

MAX HEIGHT OF HARNESSES
.440
.550


HARNESS MUST BE CLEAR OF .600 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 27, 26, 25, 24, TO FIND NO 1 BEFORE ENCAPSULATION
24 SEE NOTE 5
Z
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350 .370 REF
25 SEE NOTE 5
ENCAPSULATION HEIGHT FAR SIDE
19 SEE NOTE 9 & 10
27 SEE NOTE 5
26 SEE NOTE 5
Z
28 ASSEMBLE WIRE LIST A-A TO FIND NO. 1 BEFORE ECAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007177 REV SER NO. MISCELLANEOUS ELECTRONICS TRAY 7

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007177	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

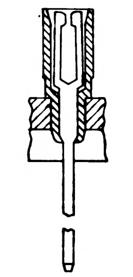
M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Brown DATE MAR 64
CHECKED 6/4/64
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL 6.64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

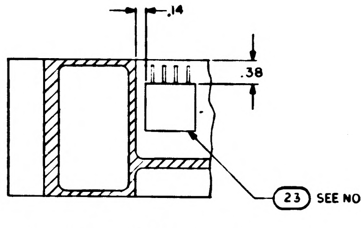
FRAME ASSEMBLY
TRAY 7

CODE IDENT NO
SIZE E
NASA DRAWING NO. 1007167
SCALE FULL
WT
SHEET 2 OF 2

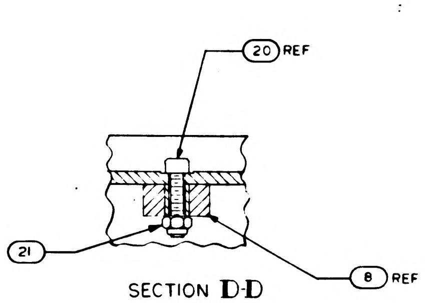
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDPR 07276	8 APR 64	
B	REVISED PER TDRR 08145	13 MAY 64	JB
C	REVISED PER TDRR 14322	23 NOV 64	
D	REVISED PER TDRR 16639	24 FEB 65	
E	REVISED PER TDRR 20118	21 JUN 65	



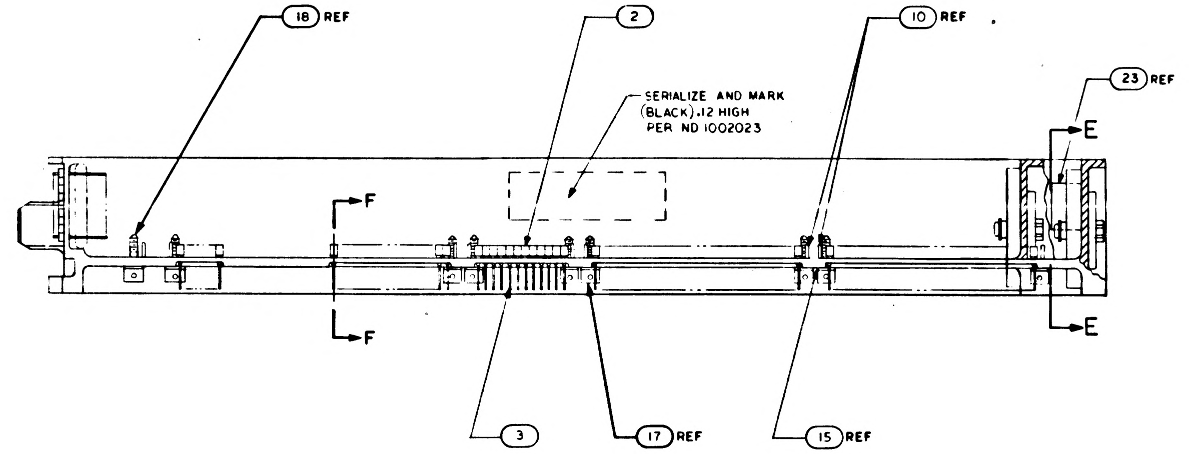
PARTIAL SECTION F-F
143 PLACES

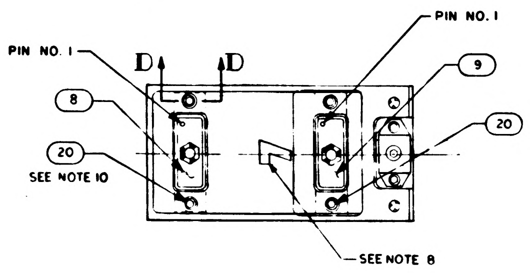


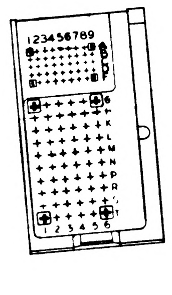
PARTIAL SECTION E-E

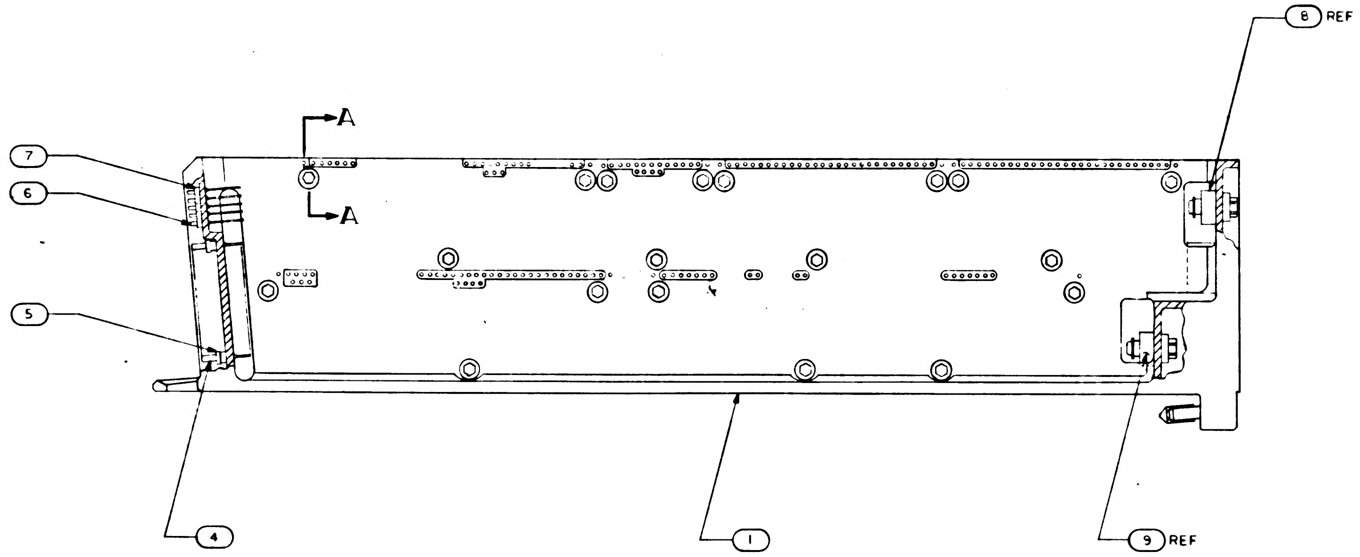


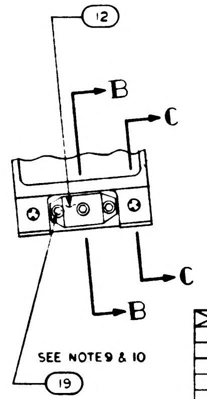
SECTION D-D
SCALE 2/1





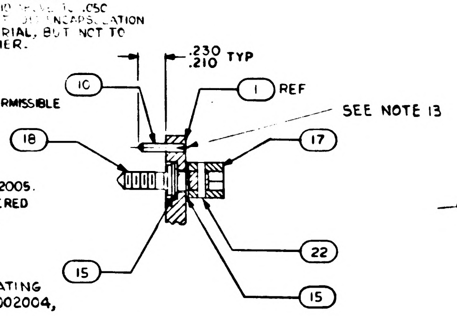




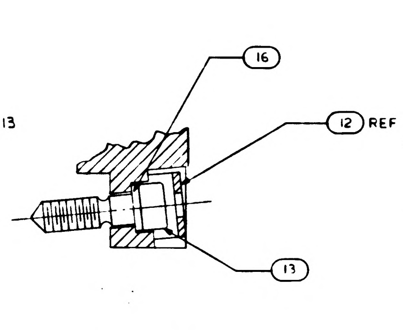


NOTES:

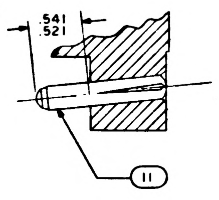
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NO.23 TO FIND NO.1 USING FLEXIBLE FORMULATION OF NASA DWG [illegible] AND NASA DWG [illegible]
5. [illegible] FIND NO.1 PER ND[illegible] AS NECESSARY
6. [illegible] 1012505, .010 [illegible] .050 [illegible] PERIPHERAL [illegible] OF TRAY FRAME [illegible] MINIMUM [illegible] ENCAPSULATION OVER ANY COMPONENT [illegible] TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .068 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. [illegible]
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO.19 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NOS. 19 & 20 TO FIND NO.1 TO BE 5.0/5.5 IN LB
11. ALL NICKEL WIRE HARNESS TERMINATION TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT
12. PROCURE PER PS1007147.
13. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER, GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
14. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004 TYPE 1.



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A7 E9	45A7J1-35
E10	-2
E11	-1
E12	-14
E13	-7
E14	-20
E15	-27
E22	-22
E23	-38

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1008456	WIRING DIAGRAM	REF
1	1015758	WIRE LIST A A	28
1	1015757	WIRING HARNESS D	27
1	1015756	WIRING HARNESS C	26
1	1015755	WIRING HARNESS B	25
1	1015754	WIRING HARNESS A	24
1	1007092	BUFFER RESISTOR MODULE ASSY	23
19	MS171433	PIN, SPRING	22
4	MS 21045 C 04	NUT, SELF-LOCKING HEX	21
4	MS 16995-11	SCREW, CAP, SOCKET HEAD	20
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	19
19	1008172	SCREW, JACK	18
19	1004207	DRIVE CYLINDER	17
1	1008099-2	WASHER	16
38	1004206	WASHER THRUST	15
			14
1	1008098	SCREW, SOCKET HEAD	13
1	1001317	RETAINER, JACK SCREW	12
2	1010620-5	PIN, GUIDE	11
12	MS[illegible]	PIN, GUIDE	10
1	1010622-2	CONNECTOR, RECEPTACLE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
45	1006775	INSULATOR, WRAPOST, MALE MIN	7
45	1006782-2	CONTACT, WRAPOST, MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
143	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
143	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008527	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007177	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DWG NO
DRAWN L Kirlin DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

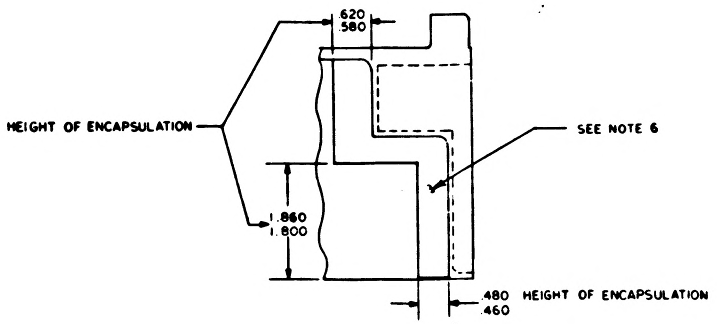
FRAME ASSEMBLY
TRAY 7

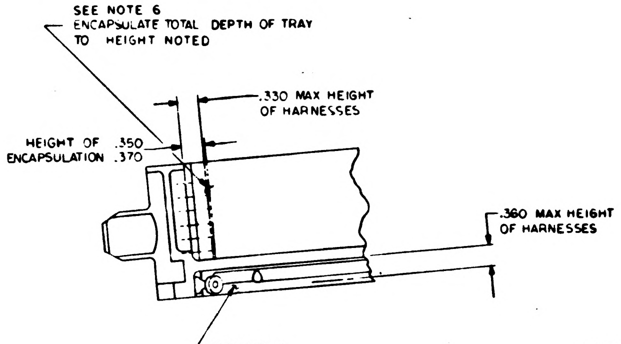
CODE IDENT NO
SIZE E
NASA DRAWING NO 1007167
SCALE 1/1 WT SHEET 1 OF 2

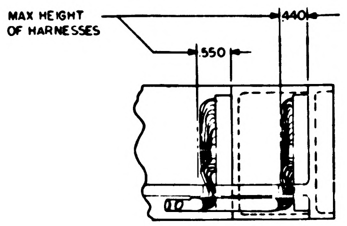
1007167 E

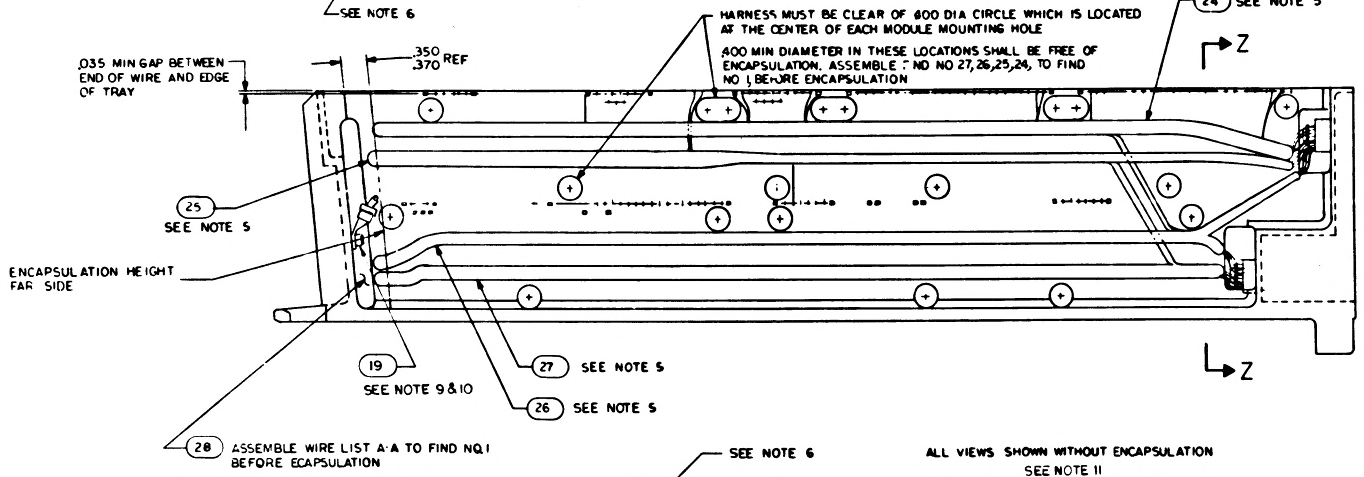
[illegible]

SYM	DESCRIPTION	DATE	APPROVAL
B	REVISED PER TDRR 08145	15 MAY 64	JB
C	REVISED PER TDRR 14322	23 NOV 64	
D	REVISED PER TDRR 16639	24 FEB 65	
E	REVISION STATUS CHANGED	21 JUN 65	

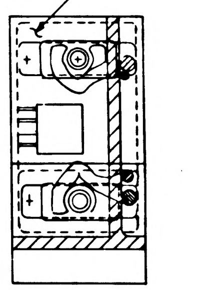

.620
.580
HEIGHT OF ENCAPSULATION
SEE NOTE 6
1.860
1.800
.480 HEIGHT OF ENCAPSULATION
.460


SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY
TO HEIGHT NOTED
.330 MAX HEIGHT
OF HARNESSES
HEIGHT OF .350
ENCAPSULATION .370
.360 MAX HEIGHT
OF HARNESSES
SEE NOTE 6

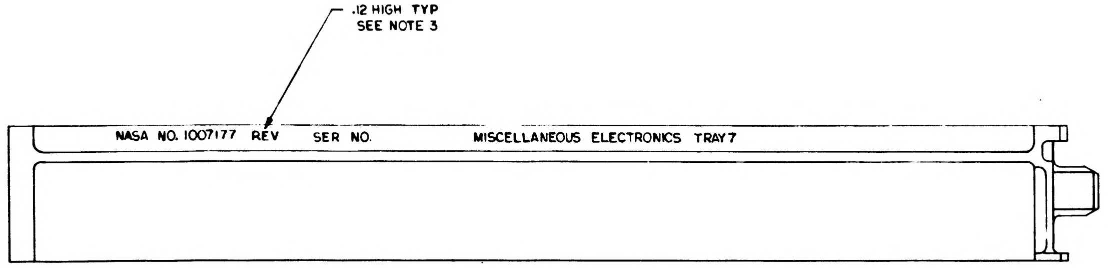

MAX HEIGHT
OF HARNESSES
.440
.550


HARNESS MUST BE CLEAR OF .600 DIA CIRCLE WHICH IS LOCATED
AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF
ENCAPSULATION. ASSEMBLE FIND NO 27, 26, 25, 24, TO FIND
NO 1 BEFORE ENCAPSULATION
24 SEE NOTE 5
Z
.035 MIN GAP BETWEEN
END OF WIRE AND EDGE
OF TRAY
.350
.370 REF
25
SEE NOTE 5
ENCAPSULATION HEIGHT
FAR SIDE
19
SEE NOTE 9 & 10
27 SEE NOTE 5
26 SEE NOTE 5
Z
28 ASSEMBLE WIRE LIST A-A TO FIND NO.1
BEFORE ECAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007177 REV SER NO. MISCELLANEOUS ELECTRONICS TRAY 7

MARKING VIEW AFTER ENCAPSULATION

1007167 E

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007177	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT NAS 9-4065
DRAWN DATE MAR 4
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

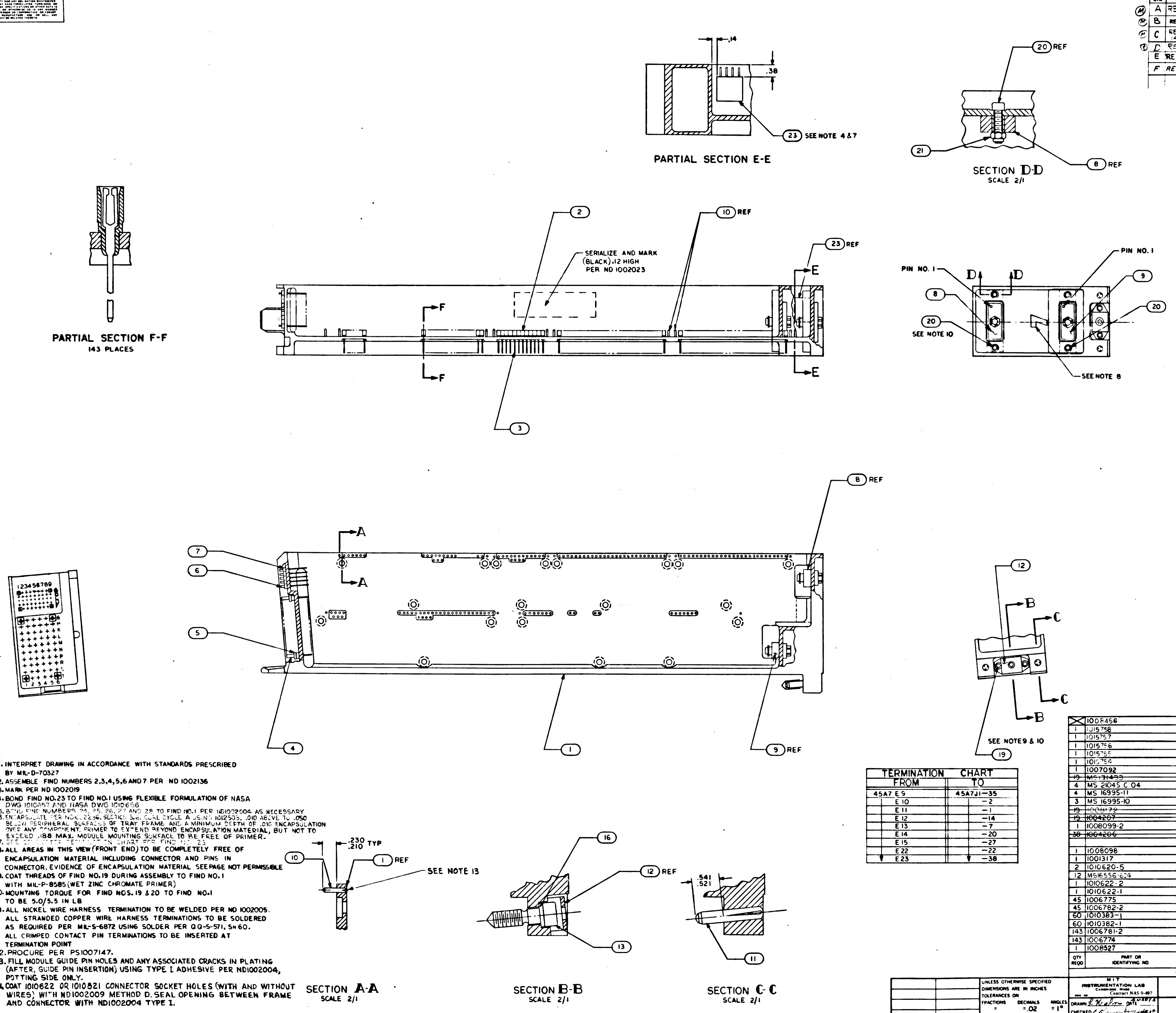
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

CODE IDENT NO	SIZE	NASA DRAWING NO
	E	1007167

SCALE FULL WT SHEET 2 OF 2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR [illegible]	8-	
B	REVISED PER TDRR 08145	13 [illegible] 64	
C	REVISED PER TDRR 14322	23 [illegible]	
D	REVISED PER TDRR [illegible]39	24-FE -65	
E	REVISED PER TDRR 20[illegible]8	21 JUN 65	
F	REVISED PER TDRR-20[illegible]	23-JUN-65	



PARTIAL SECTION E-E

SECTION D-D
SCALE 2/1

PARTIAL SECTION F-F
143 PLACES

SECTION A-A
SCALE 2/1

SECTION B-B
SCALE 2/1

SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NO. 23 TO FIND NO. 1 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND NASA DWG 1010686
5. BOND FIND NUMBERS 24, 25, 26, 27 AND 28 TO FIND NO. 1 PER ND1002004 AS NECESSARY
6. ENCAPSULATE PER ND1002236, SECTION 5.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. SEE CONNECTOR TERMINATION CHART FOR FIND NO. 23
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO. 19 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NOS. 19 & 20 TO FIND NO. 1 TO BE 5.0/5.5 IN LB
11. ALL NICKEL WIRE HARNESS TERMINATION TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT
12. PROCURE PER PS1007147.
13. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER, GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
14. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004 TYPE I.

TERMINATION CHART	
FROM	TO
45A7 E 9	45A7J1-35
E 10	-2
E 11	-1
E 12	-14
E 13	-7
E 14	-20
E 15	-27
E 22	-22
E 23	-38

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1008456	WIRING DIAGRAM	REF
1	1015758	WIRE LIST A A	28
1	1015757	WIRING HARNESS D	27
1	1015756	WIRING HARNESS C	26
1	1015755	WIRING HARNESS B	25
1	1015754	WIRING HARNESS A	24
1	1007092	BUFFER RESISTOR MODULE ASSY	23
~~19~~	~~MS171433~~	~~PIN, SPRING~~	~~22~~
4	MS 21045 C 04	NUT, SELF-LOCKING HEX	21
4	MS 16995-11	SCREW, CAP, SOCKET HEAD	20
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	19
~~19~~	~~1008172~~	~~SCREW, JACK~~	~~18~~
~~19~~	~~1004207~~	~~DRIVE CYLINDER~~	~~17~~
1	1008099-2	WASHER	16
~~38~~	~~1004206~~	~~WASHER THRUST~~	~~15~~
			14
1	1008098	SCREW, SOCKET HEAD	13
1	1001317	RETAINER, JACK SCREW	12
2	1010620-5	PIN, GUIDE	11
12	MS16556-604	PIN, GUIDE	10
1	1010622-2	CONNECTOR, RECEPTACLE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
45	1006775	INSULATOR, WRAPOST, MALE MIN	7
45	1006782-2	CONTACT, WRAPOST, MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
143	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
143	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008527	FRAME	1

LIST OF MATERIALS

1007177	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DWG NO
DRAWN E. Kralin DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL 3/11/64
MIT APPROVAL

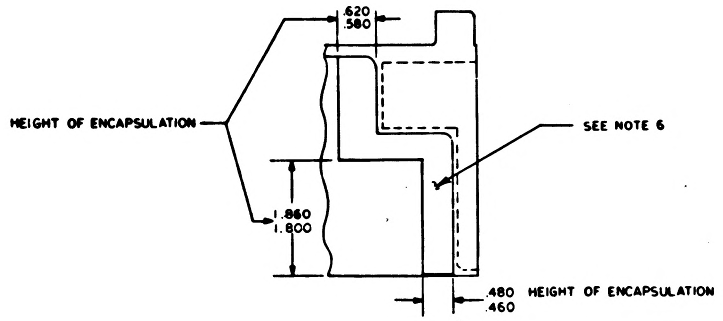
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

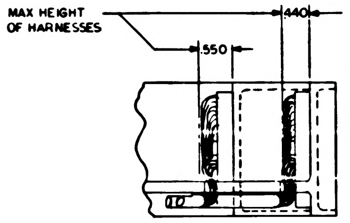
FRAME ASSEMBLY
TRAY 7

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007167
SCALE 1/1
WT
SHEET 1 OF 2

1007167 F

SYM	DESCRIPTION	DATE	APPROVAL
B	REVISED PER TDRR [illegible]	15 MAY 64	[illegible]
C	REVISED PER [illegible] 14322	23 NOV 64	
D	REVISED PER [illegible] 39	[illegible] FEB 65	[illegible]
E	REVISION STATUS [illegible]ED	21 JUN 65	[illegible]
F	REVISION STATUS [illegible]D	[illegible]	B.


.620
.580
HEIGHT OF ENCAPSULATION
SEE NOTE 6
1.860
1.800
.480
.460
HEIGHT OF ENCAPSULATION


MAX HEIGHT OF HARNESSES
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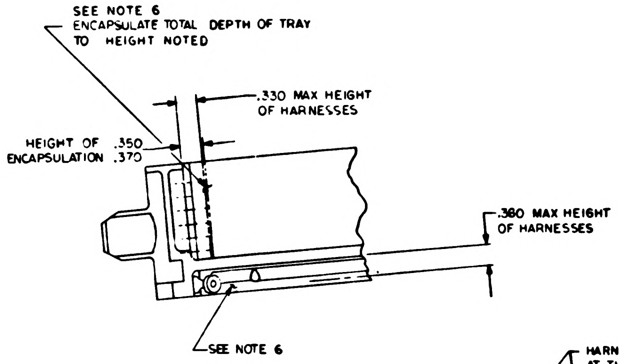
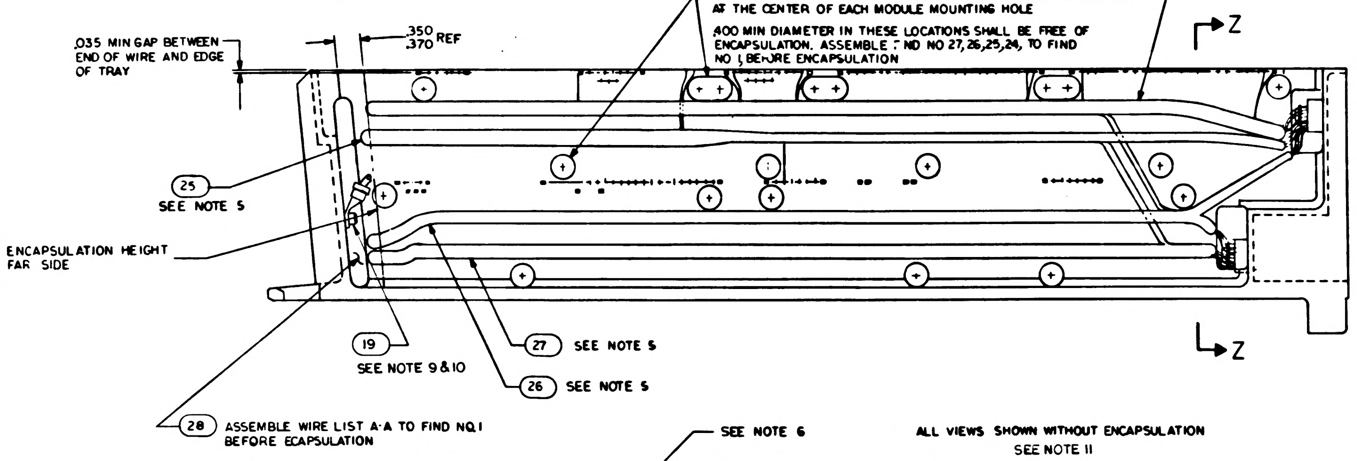
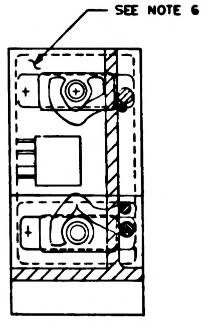
.550

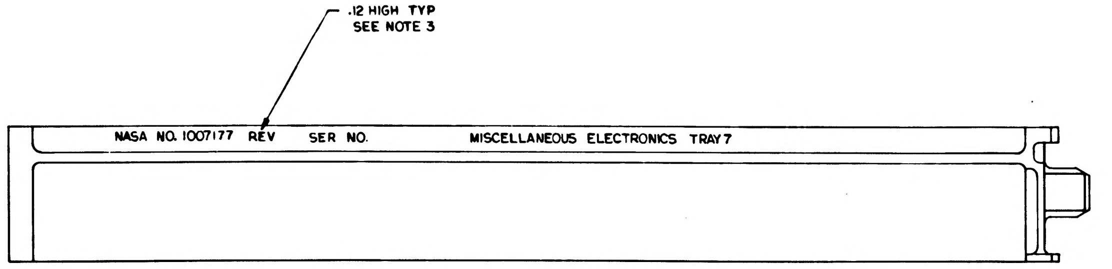

SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.330 MAX HEIGHT OF HARNESSES
HEIGHT OF ENCAPSULATION .350 .370
.380 MAX HEIGHT OF HARNESSES
SEE NOTE 6


HARNESS MUST BE CLEAR OF .600 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.600 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 27, 26, 25, 24, TO FIND NO 1 BEFORE ENCAPSULATION
24 SEE NOTE 5
Z
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF
25
SEE NOTE 5
ENCAPSULATION HEIGHT FAR SIDE
19
SEE NOTE 9 & 10
27 SEE NOTE 5
26 SEE NOTE 5
Z
28 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ECAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007177 REV SER NO. MISCELLANEOUS ELECTRONICS TRAY 7

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007177	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
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MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN [illegible] DATE [illegible] MAR 64
CHECKED [illegible] 64
APPROVAL [illegible] 3/9/64
APPROVAL
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 64

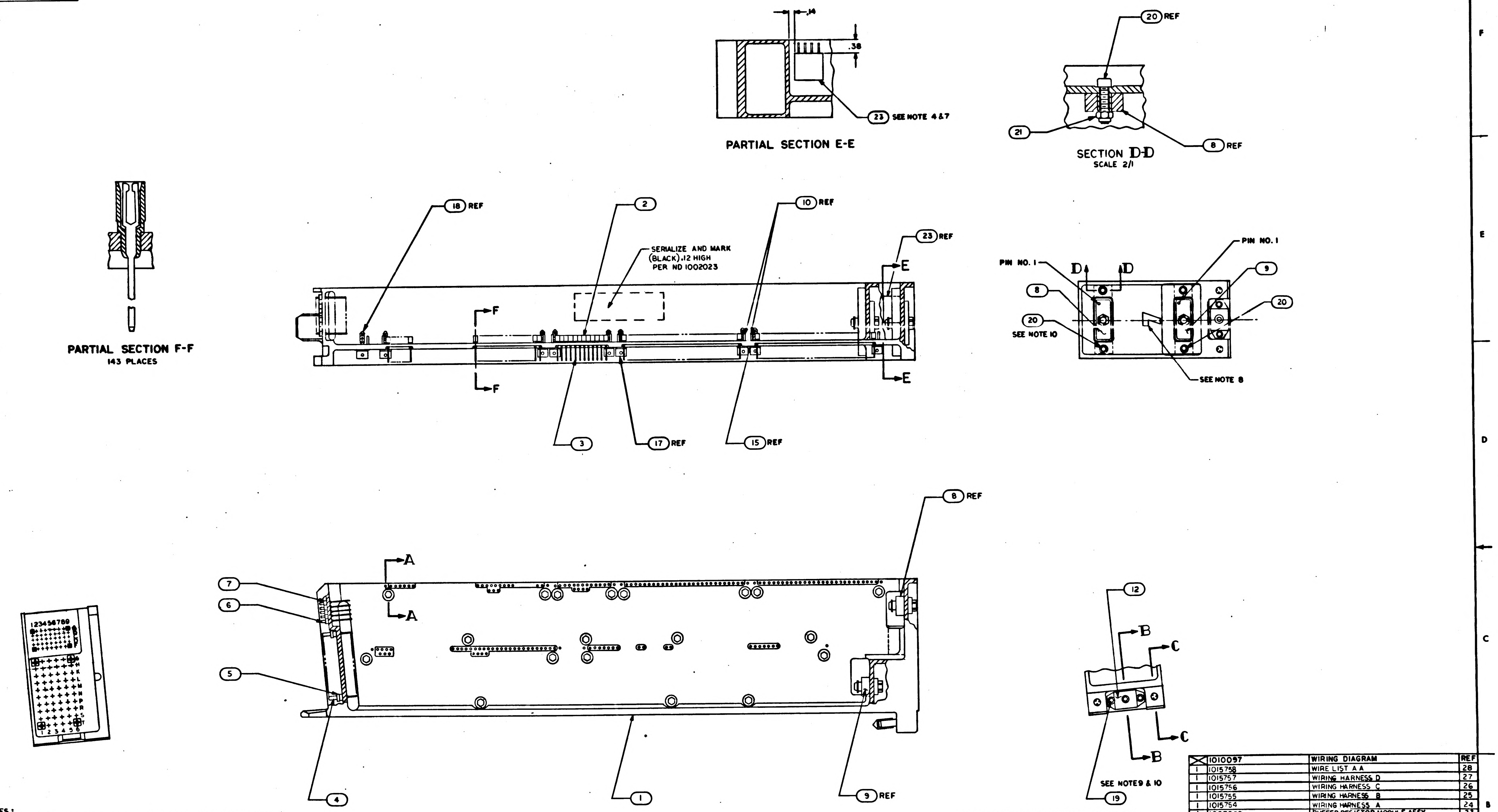
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

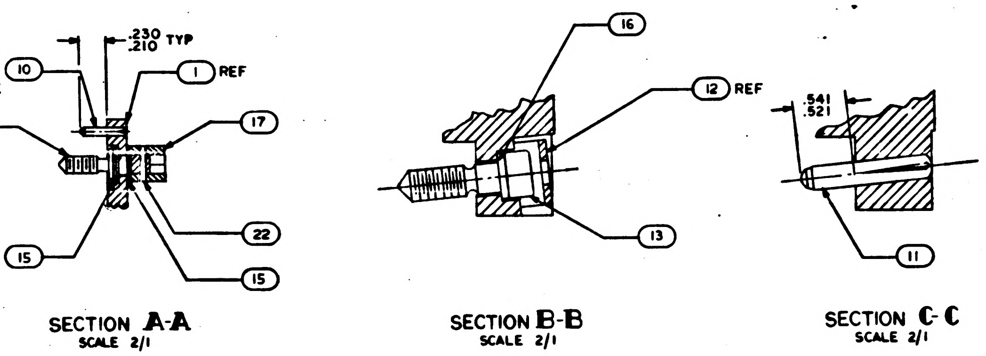
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO. 1007167
SCALE FULL
WT
SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NO.23 TO FIND NO.1 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND NASA DWG 1010686
5. BOND FIND NUMBERS 24 25 26 27 AND 28 TO FIND NO.1 PER ND 1002004 AS NECESSARY
6. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO.23
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
9. COAT THREADS OF FIND NO.19 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NOS. 19 & 20 TO FIND NO.1 TO BE 5.0/5.5 IN LB
11. ALL NICKEL WIRE HARNESS TERMINATION TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT



SECTION A-A
SCALE 2/1

SECTION B-B
SCALE 2/1

SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A7 E 9	45A7J1—35
E 10	—2
E 11	—1
E 12	—14
E 13	—7
E 14	—20
E 15	—27
E 22	—22
E 23	—38

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010097	WIRING DIAGRAM	REF
1	1015758	WIRE LIST A A	28
1	1015757	WIRING HARNESS D	27
1	1015756	WIRING HARNESS C	26
1	1015755	WIRING HARNESS B	25
1	1015754	WIRING HARNESS A	24
1	1007092	BUFFER RESISTOR MODULE ASSY	23
19	1008145	PIN, SPRING	22
4	MS 21045 C 04	NUT, SELF-LOCKING HEX	21
4	MS 16995-11	SCREW, CAP, SOCKET HEAD	20
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	19
19	1008095	SCREW, JACK	18
19	1004207	DRIVE CYLINDER	17
1	1008099-2	WASHER	16
38	1004206	WASHER THRUST	15
			14
1	1008098	SCREW, SOCKET HEAD	13
1	1001317	RETAINER, JACK SCREW	12
2	1010620-2	PIN, GUIDE	11
12	1010620-1	PIN, GUIDE	10
1	1010622-2	CONNECTOR, RECEPTACLE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
45	1006775	INSULATOR, WRAPOST, MALE MIN	7
45	1006782-2	CONTACT, WRAPOST, MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
143	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
143	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008177	FRAME	1

LIST OF MATERIALS

1007167

1007177	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN L Krahn DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL 3/16/64
MIT APPROVAL 10 Mar 64

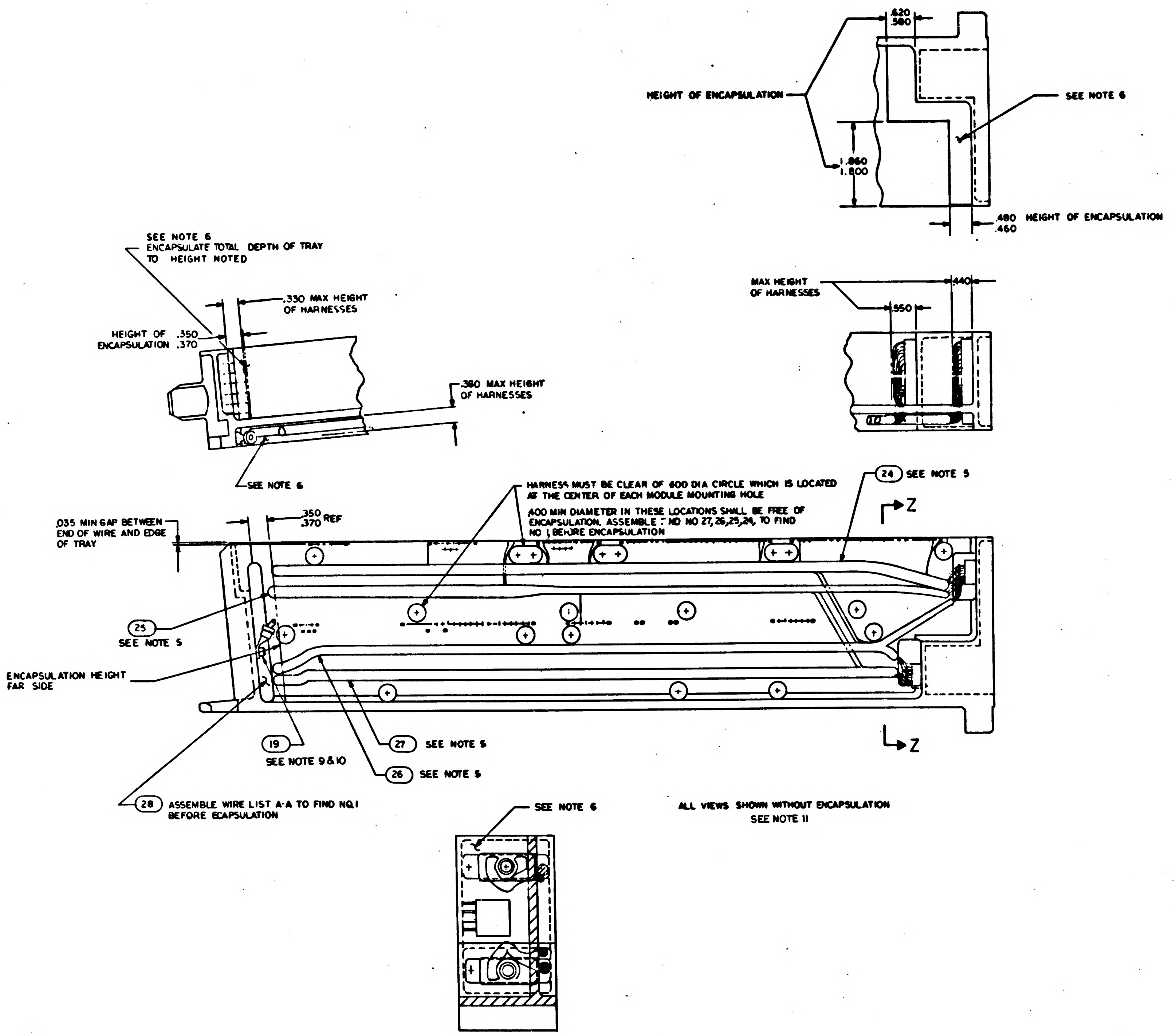
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

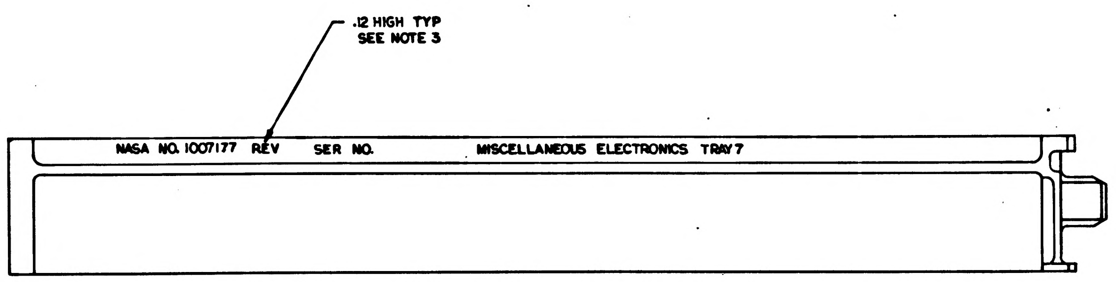
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007167
SCALE 1/1
WT
SHEET 1 OF 2

MASTER

INCHES
PHOTOGRAPHIC SCALE ONLY


HEIGHT OF ENCAPSULATION
.420
.380
SEE NOTE 6
1.860
1.800
.480
.460
HEIGHT OF ENCAPSULATION
SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY
TO HEIGHT NOTED
.330 MAX HEIGHT
OF HARNESSES
HEIGHT OF .350
ENCAPSULATION .370
.380 MAX HEIGHT
OF HARNESSES
SEE NOTE 6
MAX HEIGHT
OF HARNESSES
.440
.550
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED
AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF
ENCAPSULATION. ASSEMBLE FIND NO 27,26,25,24, TO FIND
NO 1 BEFORE ENCAPSULATION
24 SEE NOTE 5
Z
.035 MIN GAP BETWEEN
END OF WIRE AND EDGE
OF TRAY
.350
.370 REF
25
SEE NOTE 5
ENCAPSULATION HEIGHT
FAR SIDE
19
SEE NOTE 9 & 10
27 SEE NOTE 5
26 SEE NOTE 5
Z
28 ASSEMBLE WIRE LIST A-A TO FIND NO.1
BEFORE ECAPSULATION
SEE NOTE 6
ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11

SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007177 REV SER NO. MISCELLANEOUS ELECTRONICS TRAY 7

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

1007177
NEXT ASSY | USED ON
APPLICATION

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN L. Krahn DATE MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 7

CODE IDENT NO. | SIZE E | NASA DRAWING NO. 1007167
SCALE FULL | WT | SHEET 2 OF 2

1007167

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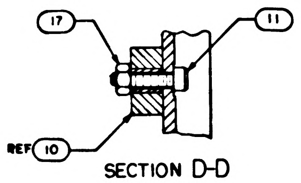
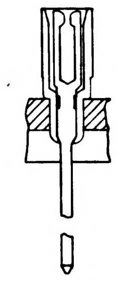
REVISIONS

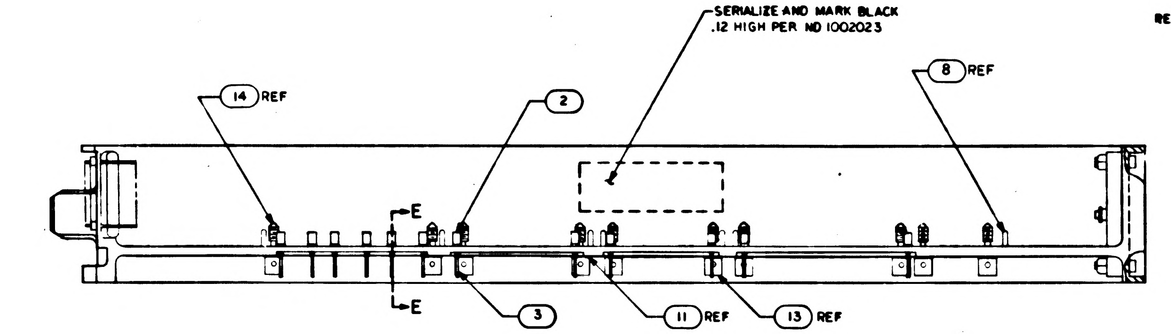
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07276	5 APR 64	J J J

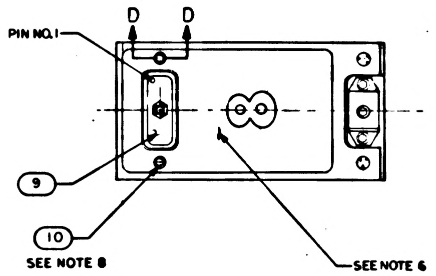


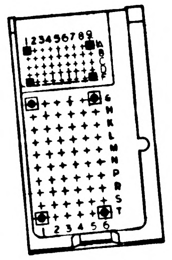
SECTION D-D
SCALE 2/1

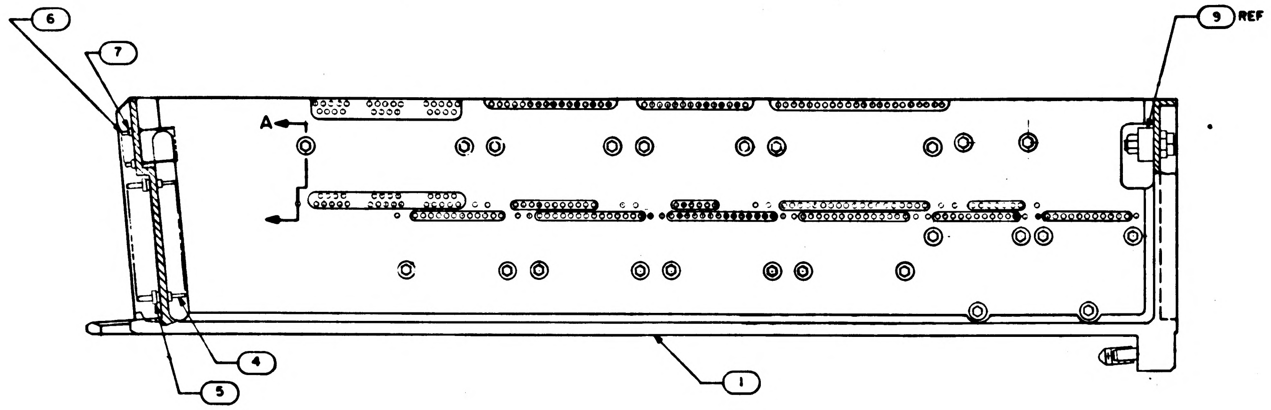


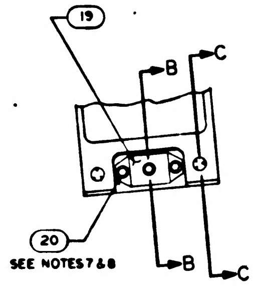
PARTIAL SECTION E-E
226 PLACES

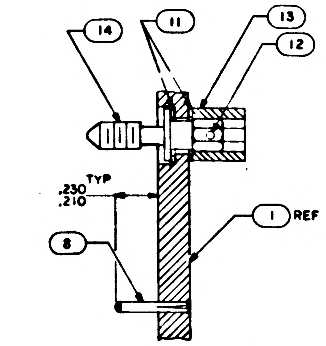




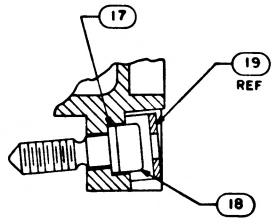




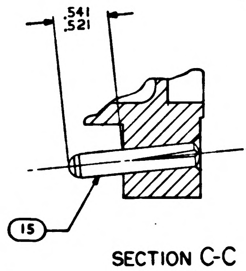




SECTION A-A
SCALE 3/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2 3 4 5 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FPRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO. 20 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO. 10 AND 20 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005.
   ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn 60
   ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.

A	—
SHEET 1	SHEET 2
REVISION STATUS OF SHEETS	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010098	WIRING DIAGRAM	REF
1	1015748	WIRE LIST A A	26
1	1015747	WIRING HARNESS E	25
1	1015746	WIRING HARNESS D	24
1	1015745	WIRING HARNESS C	23
1	1015744	WIRING HARNESS B	22
1	1015743	WIRING HARNESS A	21
3	MS16995-10	SCREW CAP SOCKET HEAD	20
1	1001317	RETAINER, JACK SCREW	19
1	1008098	SCREW, SOCKET HEAD	18
1	1008099-2	WASHER	17
2	MS 21045 C 04	NUT SELF-LOCKING HEX	16
2	1010620-2	PIN, GUIDE	15
24	1008095	SCREW, JACK	14
24	1004207	DRIVE CYLINDER	13
24	MS171433	PIN SPRING	12
48	1004206	WASHER, THRUST	11
2	MS16995-11	SCREW, CAP, SOCKET HEAD	10
1	1010622-1	CONNECTOR RECEPTACLE	9
22	1010620-1	PIN GUIDE	8
45	1006775	INSULATOR, WRAPOST MALE MIN	7
45	1006782-2	CONTACT WRAPOST MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT BLADE EDGE CONN	4
226	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
226	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008178	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007178	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
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FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN L Krahn DATE 2 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 8

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007168
SCALE 1/1
WT
SHEET 1 OF 2

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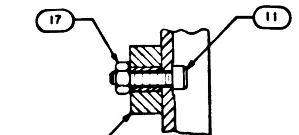
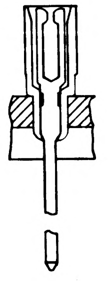
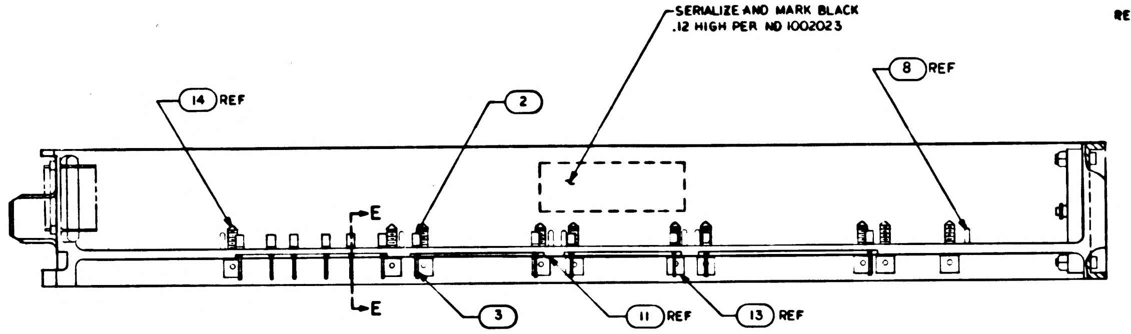
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07276	5 APR 64	JJJ
B	REVISED PER TDRR 08145	13 MAY 64	JB

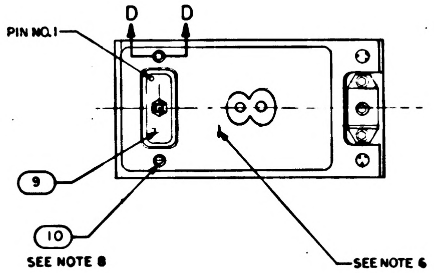


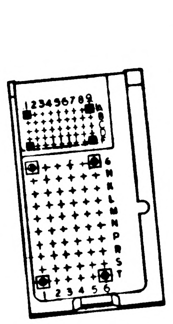
SECTION D-D
SCALE 2/1

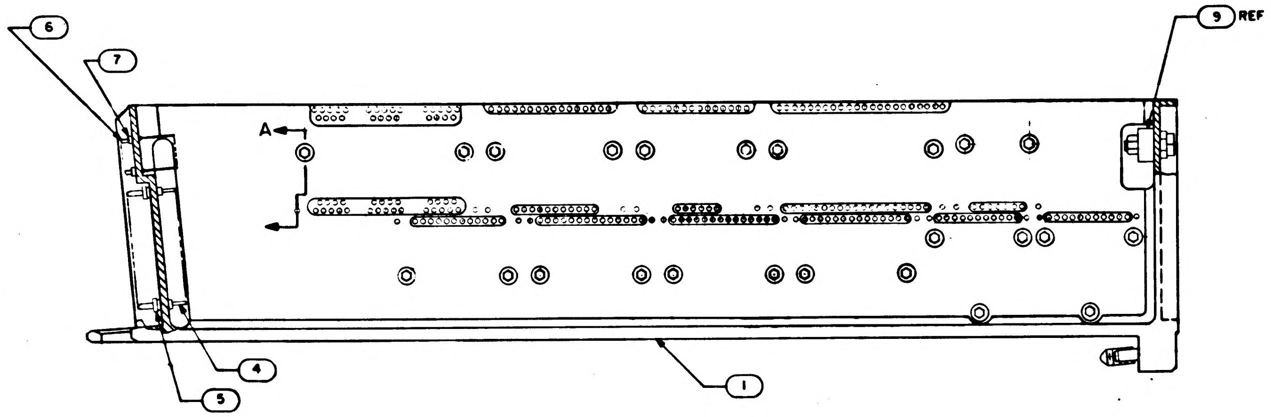


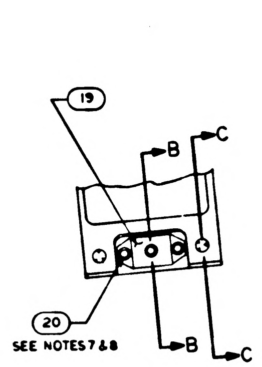
PARTIAL SECTION E-E
226 PLACES

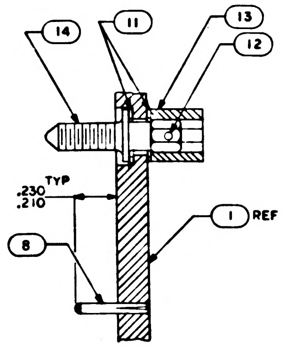




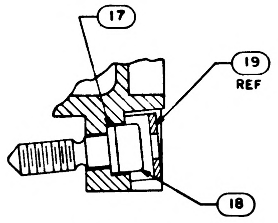




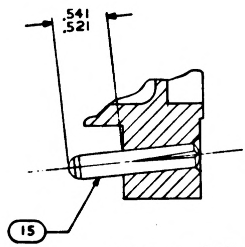




SECTION A-A
SCALE 3/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2 3 4 5 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO. 20 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO. 10 AND 20 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005.
   ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn 60
   ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.
10. ~~PROCURE PER PS 1007148.~~

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010098	WIRING DIAGRAM	REF
1	1015748	WIRE LIST A A	26
1	1015747	WIRING HARNESS E	25
1	1015746	WIRING HARNESS D	24
1	1015745	WIRING HARNESS C	23
1	1015744	WIRING HARNESS B	22
1	1015743	WIRING HARNESS A	21
3	MS16995-10	SCREW CAP SOCKET HEAD	20
1	1001317	RETAINER, JACK SCREW	19
1	1008098	SCREW, SOCKET HEAD	18
1	1008099-2	WASHER	17
2	MS 21045 C 04	NUT SELF-LOCKING HEX	16
2	1010620-5	PIN, GUIDE	15
24	1008172	SCREW, JACK	14
24	1004207	DRIVE CYLINDER	13
24	MS171433	PIN SPRING	12
48	1004206	WASHER, THRUST	11
2	MS16995-11	SCREW, CAP, SOCKET HEAD	10
1	1010622-1	CONNECTOR RECEPTACLE	9
22	1010620-4	PIN GUIDE	8
45	1006775	INSULATOR, WRAPOST MALE MIN	7
45	1006782-2	CONTACT WRAPOST MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT BLADE EDGE CONN	4
226	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
226	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008178	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007178	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497

DRAWN L. Kashan DATE 2 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

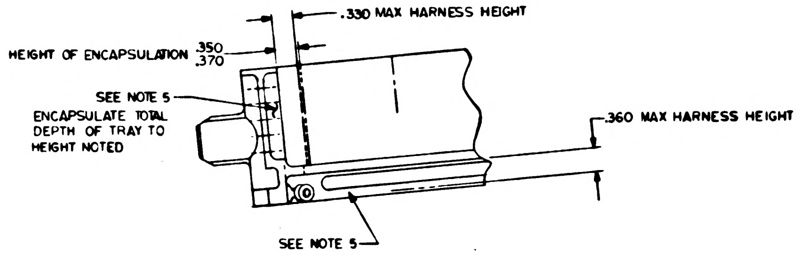
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

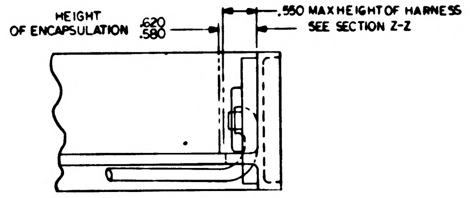
FRAME ASSEMBLY
TRAY 8

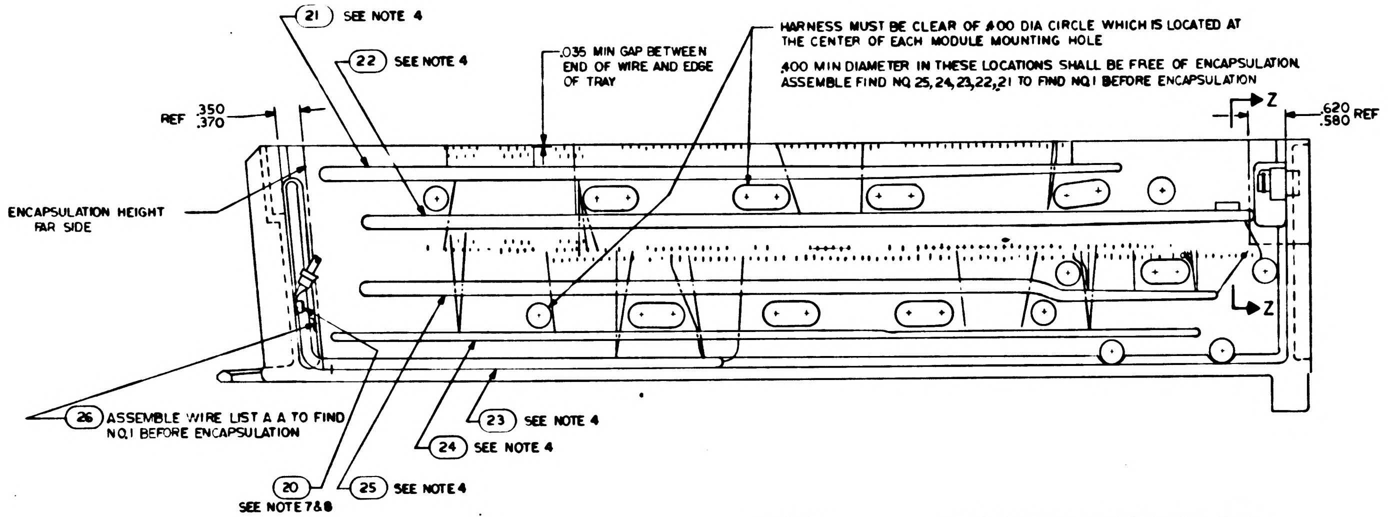
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007168
SCALE 1/1
WT
SHEET 1 OF 2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

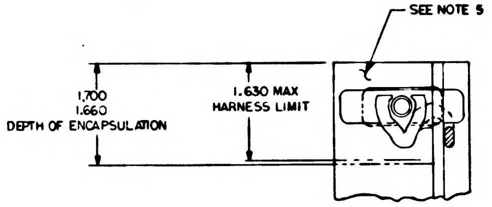
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
B	REVISED PER TDR 08145	15 MAY 64	JB


.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5

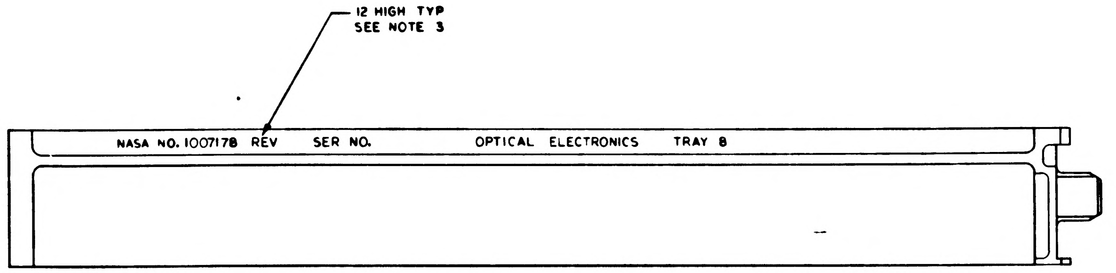

HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS
SEE SECTION Z-Z


21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO. 25,24,23,22,21 TO FIND NO.1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO.1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z


12 HIGH TYP SEE NOTE 3
NASA NO. 1007178 REV SER NO. OPTICAL ELECTRONICS TRAY 8

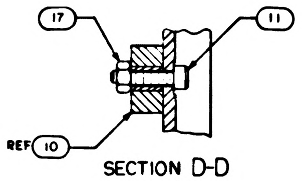
MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

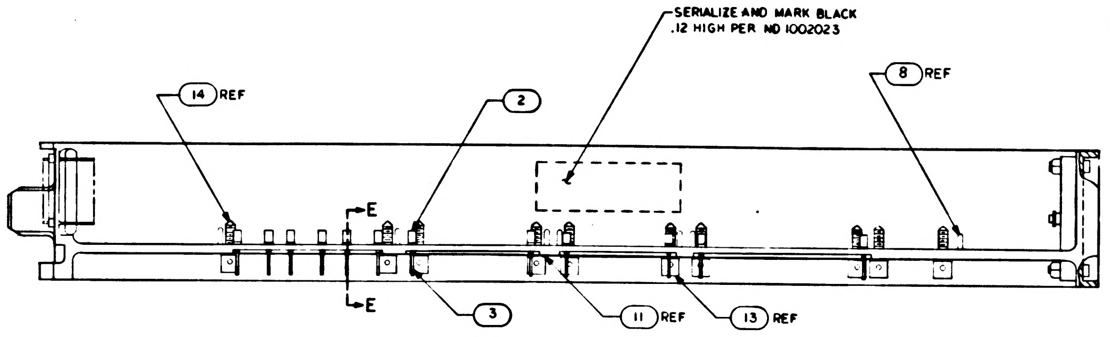
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB Cambridge Mass Contract NAS 9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
		MATERIAL	DRAWN L Krahn DATE 3 MAR 64 CHECKED APPROVAL 3/9/64 APPROVAL	FRAME ASSEMBLY TRAY 8
1007178		HEAT TREATMENT	NASA APPROVAL 3/10/64	CODE IDENT NO. SIZE E NASA DRAWING NO 1007168
NEXT ASSY	USED ON	FINAL FINISH	MIT APPROVAL 10 Apr 64	SCALE 1/1 WT SHEET 2 OF 2
APPLICATION				

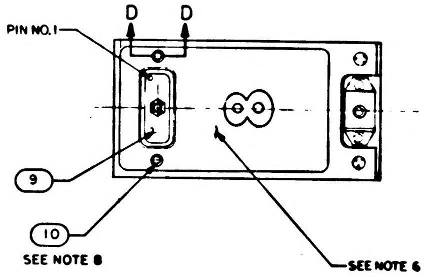
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

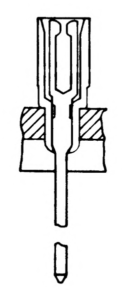
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07276	8 APR 64	
B	REVISED PER TDRR 08145	13 MAY 64	
C	REVISED PER TDRR 14328	23 NOV 64	



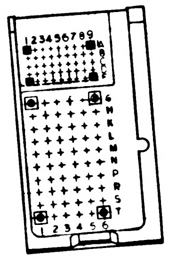
SECTION D-D
SCALE 2/1

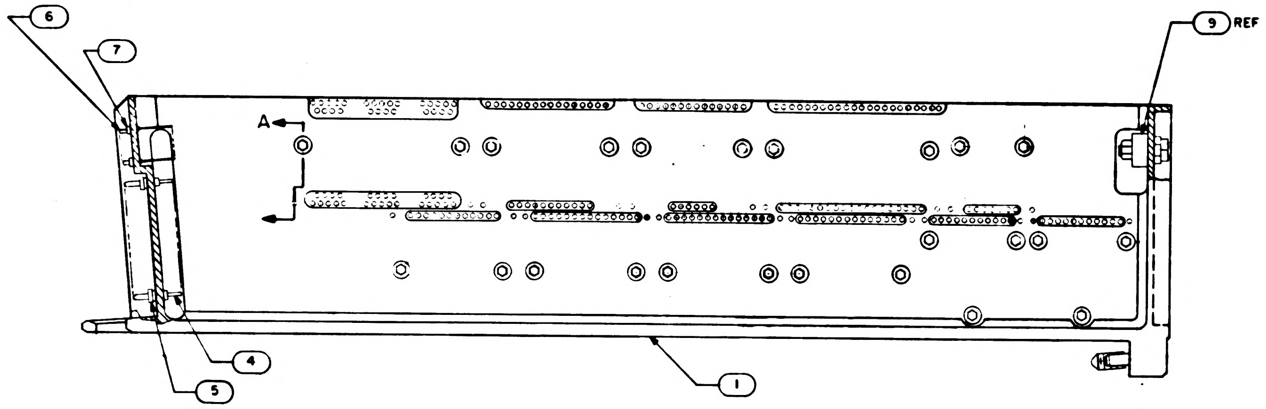


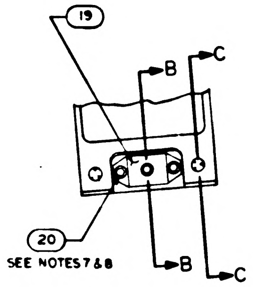


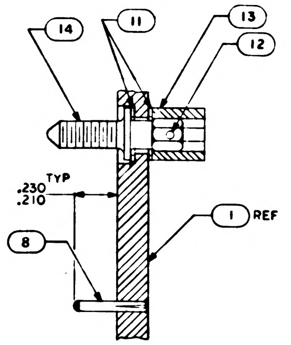


PARTIAL SECTION E-E
226 PLACES

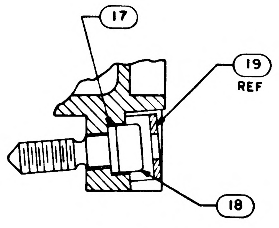




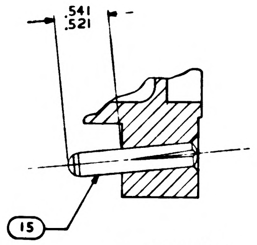




SECTION A-A
SCALE 3/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2 3 4 5 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 20 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO. 10 AND 20 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005.
   ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn 60
   ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.
10. PROCURE PER PS 1007148.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010230	WIRING DIAGRAM	REF
1	1015748	WIRE LIST A A	26
1	1015747	WIRING HARNESS E	25
1	1015746	WIRING HARNESS D	24
1	1015745	WIRING HARNESS C	23
1	1015744	WIRING HARNESS B	22
1	1015743	WIRING HARNESS A	21
3	MS16995-10	SCREW CAP SOCKET HEAD	20
1	1001317	RETAINER, JACK SCREW	19
1	1008098	SCREW, SOCKET HEAD	18
1	1008099-2	WASHER	17
2	MS21045C04	NUT SELF-LOCKING HEX	16
2	1010620-5	PIN, GUIDE	15
24	1008172	SCREW, JACK	14
24	1004207	DRIVE CYLINDER	13
24	MS171433	PIN SPRING	12
48	1004206	WASHER, THRUST	11
2	MS16995-11	SCREW, CAP, SOCKET HEAD	10
1	1010622-1	CONNECTOR RECEPTACLE	9
22	1010620-4	PIN GUIDE	8
45	1006775	INSULATOR, WRAPOST MALE MIN	7
45	1006782-2	CONTACT WRAPOST MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT BLADE EDGE CONN	4
226	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
226	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008178	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007178	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
Cambridge, Mass.
Contract NAS 9-497
DRAWN DATE 2 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

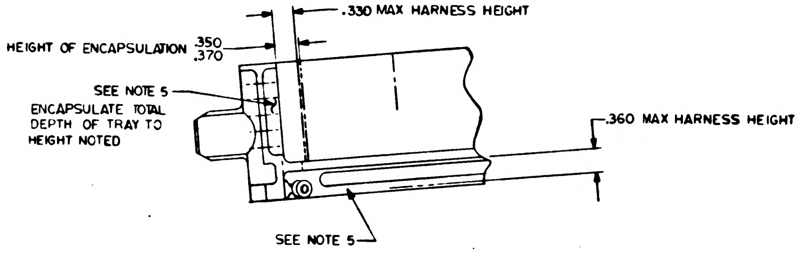
FRAME ASSEMBLY
TRAY 8

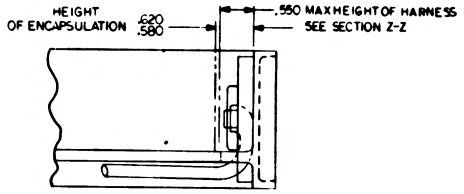
CODE IDENT NO
SIZE E
NASA DRAWING NO 1007168
SCALE 1/1
WT
SHEET 1 OF 2

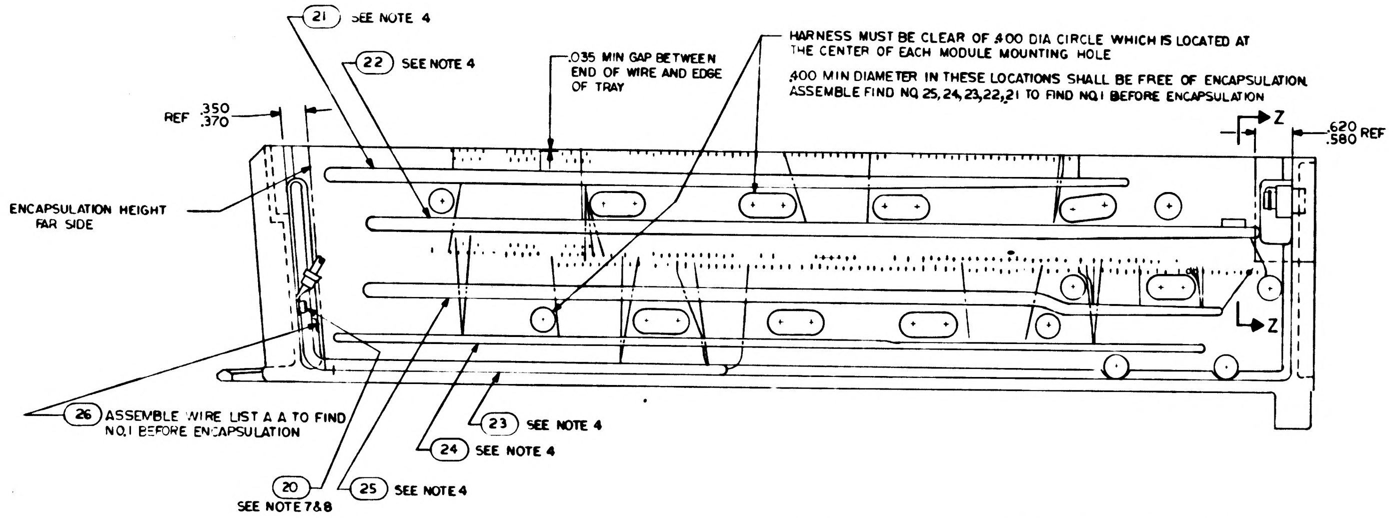
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

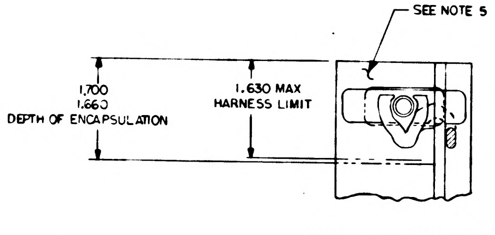
SYM	DESCRIPTION	DATE	APPROVAL
B	REVISED PER TDR 08145	15 MAY 64	JB
C	REVISED PER TDRR 14822	23 [illegible] 64	


.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5

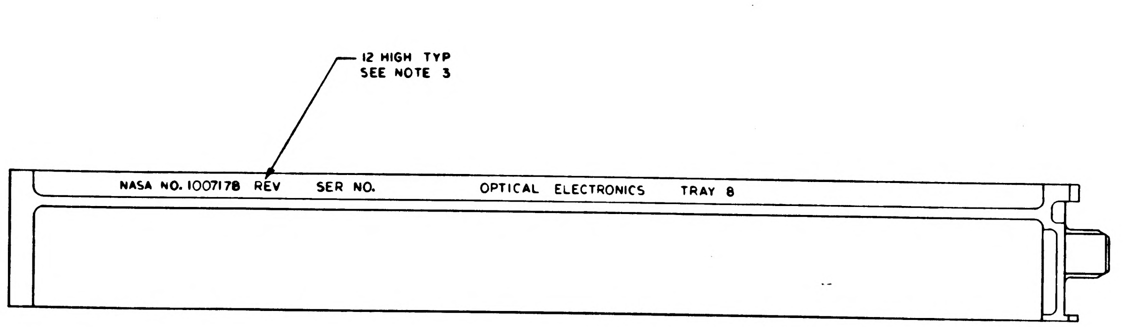

HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z


21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION
ASSEMBLE FIND NO. 25, 24, 23, 22, 21 TO FIND NO. 1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z


12 HIGH TYP SEE NOTE 3
NASA NO. 1007178 REV SER NO. OPTICAL ELECTRONICS TRAY 8

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007178		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ± DO NOT SCALE THIS DRAWING	M I T INSTRUMENTATION LAB Cambridge Mass Contract NAS 9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN J. Krahn DATE 4 MAR 64 CHECKED [illegible] 6 MAR 64 APPROVAL [illegible] 3/9/64 APPROVAL	FRAME ASSEMBLY TRAY 8
APPLICATION		HEAT TREATMENT	NASA APPROVAL [illegible] 3/10/64	CODE IDENT NO. / SIZE E / NASA DRAWING NO 1007168
		FINAL FINISH	MIT APPROVAL [illegible]	SCALE 1/1 / WT / SHEET 2 OF 2

1007168 C

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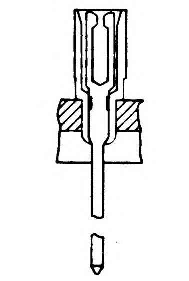
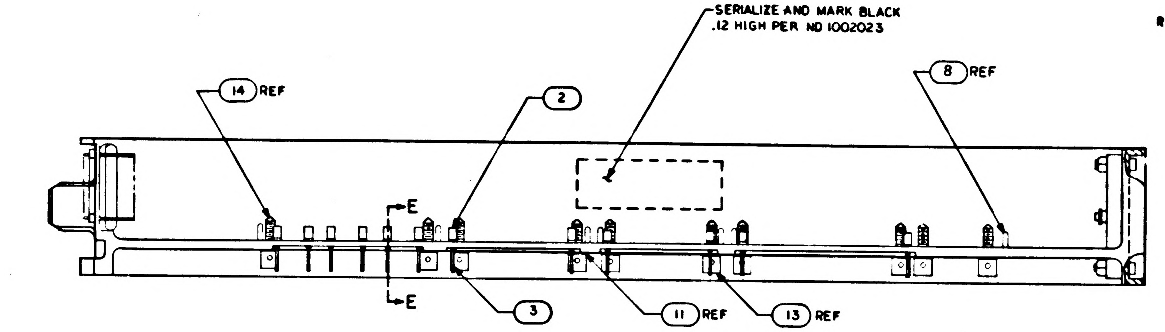
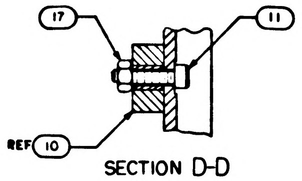
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07276	8 APR 64	
B	REVISED PER TDRR 08145	13 MAY 64	
C	REVISED PER TDRR 14322	23 NOV 64	JK
D	REVISED PER TDRR 16339	22 FEB 65	

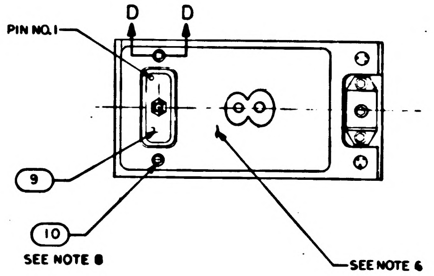


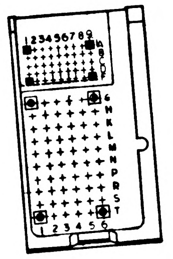
PARTIAL SECTION E-E
226 PLACES

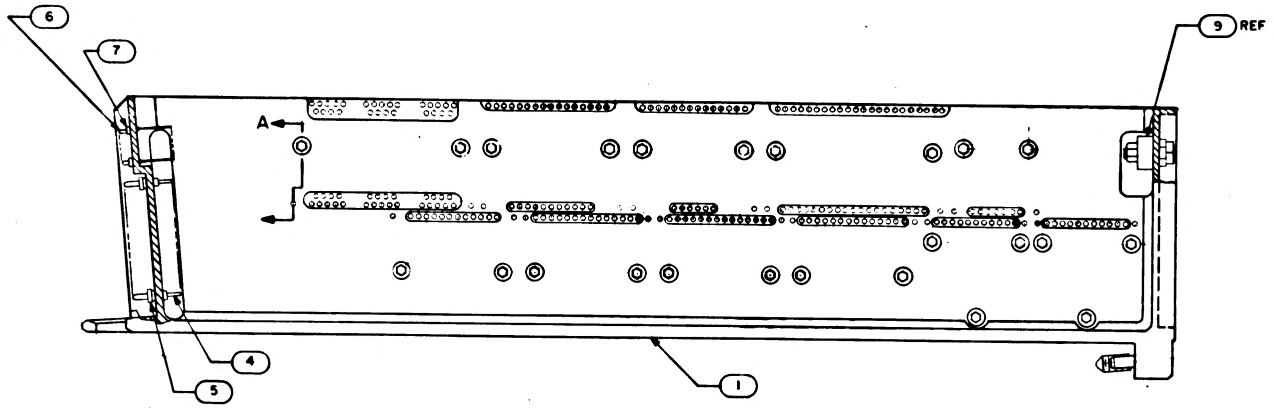


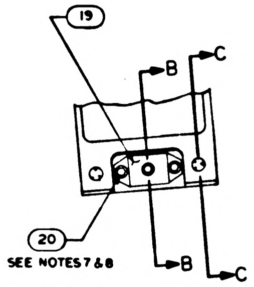


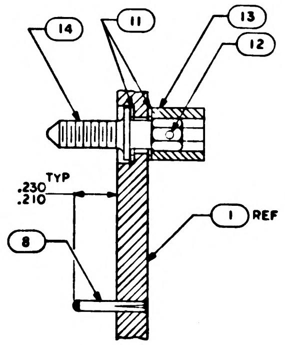
SECTION D-D
SCALE 2/1



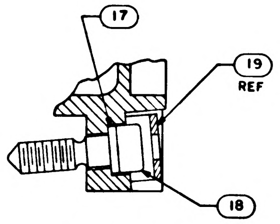




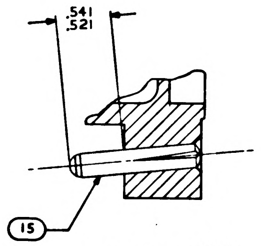




SECTION A-A
SCALE 3/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2 3 4 5 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO.1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FPRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO.20 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO. 10 AND 20 TO FIND NO. 1 TO BE 5.0/5.5 IN.LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005.
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn60
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.
10. PROCURE PER PS1007148.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010230	WIRING DIAGRAM	REF
1	1015748	WIRE LIST A A	26
1	1015747	WIRING HARNESS E	25
1	1015746	WIRING HARNESS D	24
1	1015745	WIRING HARNESS C	23
1	1015744	WIRING HARNESS B	22
1	1015743	WIRING HARNESS A	21
3	MS16995-10	SCREW CAP SOCKET HEAD	20
1	1001317	RETAINER, JACK SCREW	19
1	1008098	SCREW, SOCKET HEAD	18
1	1008099-2	WASHER	17
2	MS 21045 C 04	NUT SELF-LOCKING HEX	16
2	1010620-5	PIN, GUIDE	15
24	1008172	SCREW, JACK	14
24	1004207	DRIVE CYLINDER	13
24	MS171433	PIN SPRING	12
48	1004206	WASHER, THRUST	11
2	MS16995-11	SCREW, CAP, SOCKET HEAD	10
1	1010622-1	CONNECTOR RECEPTACLE	9
22	1010620-4	PIN GUIDE	8
45	1006775	INSULATOR, WRAPOST MALE MIN	7
45	1006782-2	CONTACT WRAPOST MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT BLADE EDGE CONN	4
226	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
226	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008408	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007178	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN L. Vrahn DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

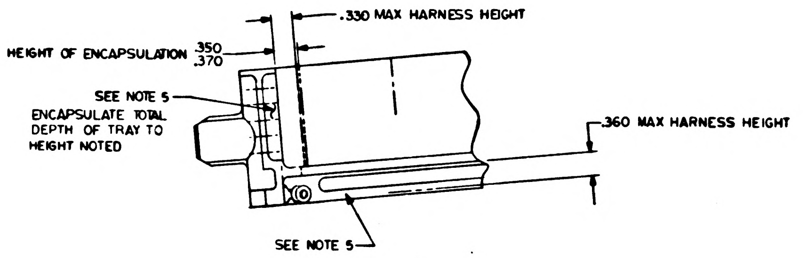
FRAME ASSEMBLY
TRAY 8

CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007168
SCALE 1/1
WT
SHEET 1 OF 2

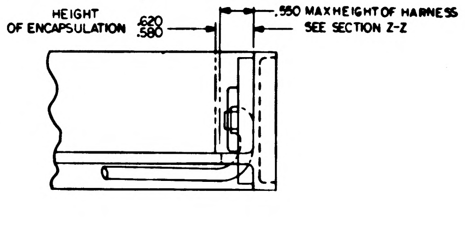
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

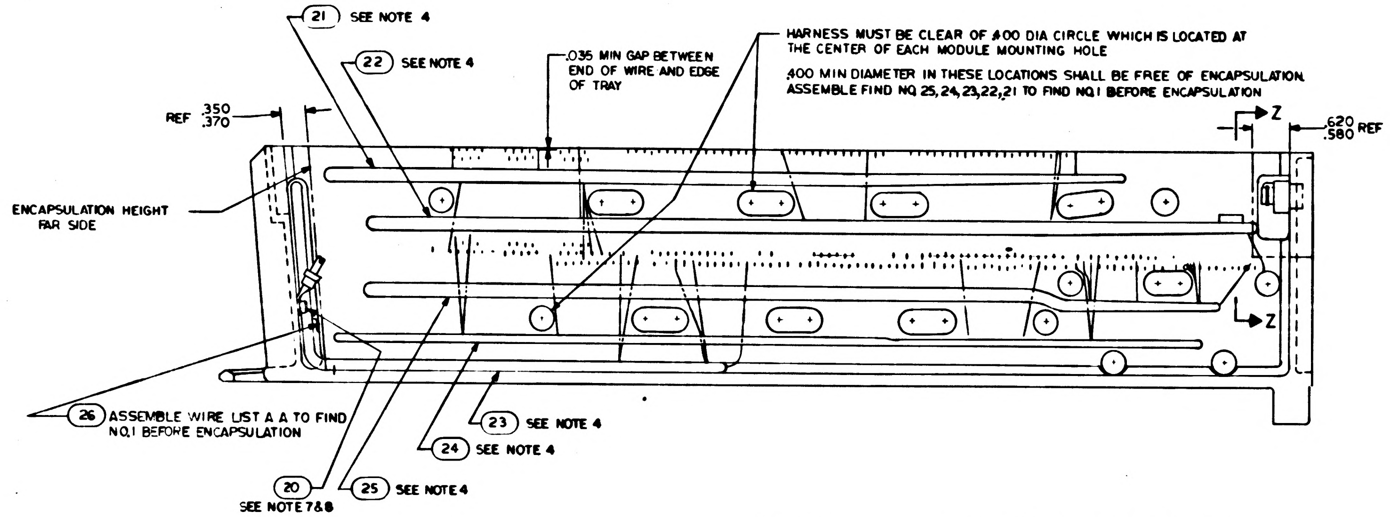
SYM	DESCRIPTION	DATE	APPROVAL
B	REVISED PER TDR 08145	15 MAY 64	JB
C	REVISED PER TDRR 14822	23 NOV 64	
D	REVISED PER TDRR 16639	24-FEB-65	



.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5

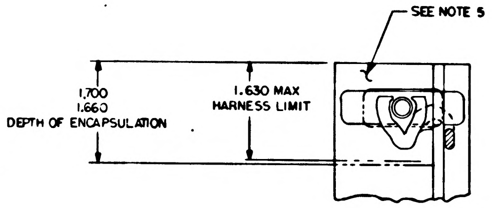


HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z



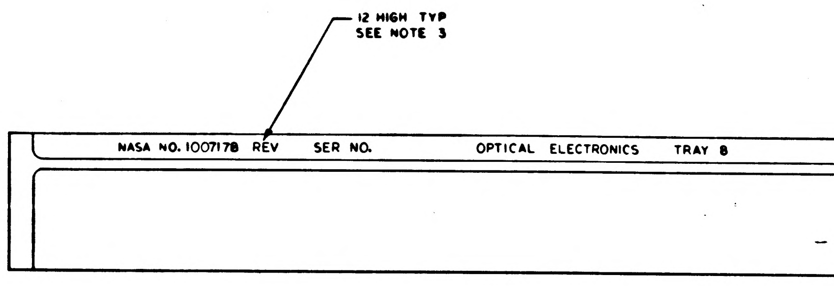
21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO. 25, 24, 23, 22, 21 TO FIND NO. 1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO.1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7 & 8
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9



SEE NOTE 5
1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z



12 HIGH TYP SEE NOTE 3
NASA NO. 1007178 REV SER NO. OPTICAL ELECTRONICS TRAY 8

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007178	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS . ANGLES .
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
Cambridge Mass
Contract NAS 9-497
DRAWN L Krahn DATE 3 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL 3/10/64
MIT APPROVAL 10 Mar 64

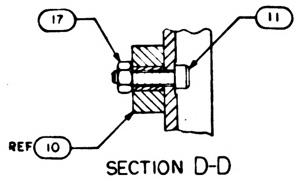
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 8

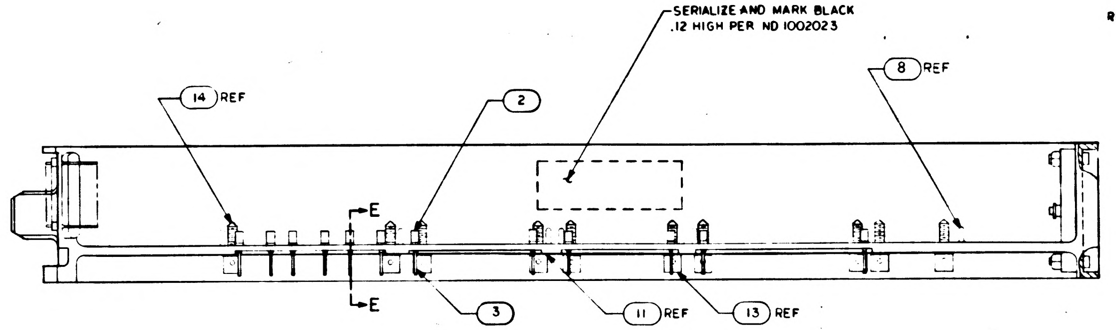
CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007168
SCALE 1/1
WT
SHEET 2 OF 2

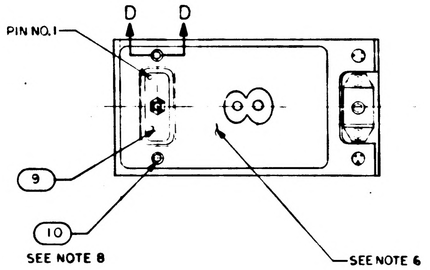
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

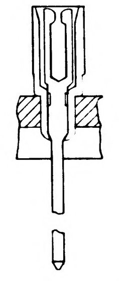
REVISIONS				
	SYM	DESCRIPTION	DATE	APPROVAL
Ⓜ	A	REVISED PER TDRR 07276	8 APR 64	J J
Ⓜ	B	REVISED PER TDRR 08145	13 MAY 64	JB
Ⓜ	C	REVISED PER TDRR 14322	23 NOV 64	J.K
Ⓔ	D	REVISED PER TDRR 16639	24 FEB 65	
	E	REVISED PER TDRR 20118	2 JUN 65	J J



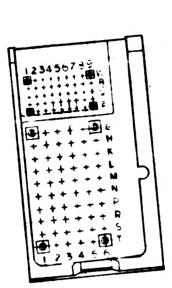
SECTION D-D
SCALE 2/1

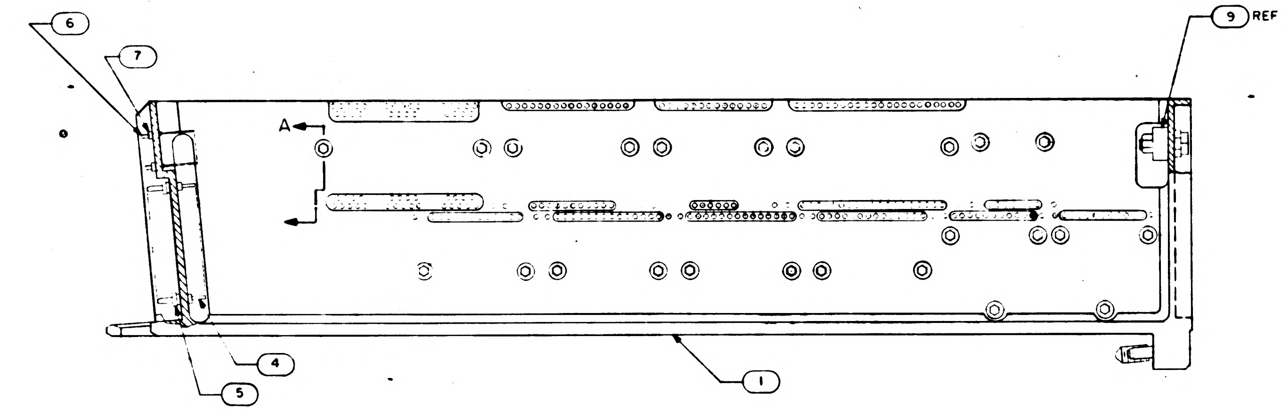


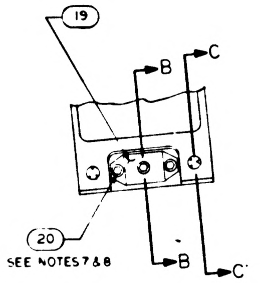


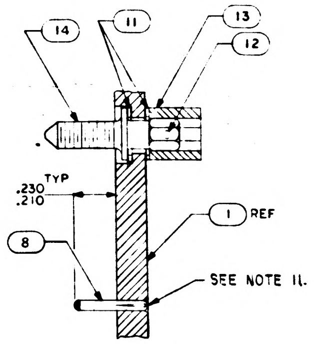


PARTIAL SECTION E-E
226 PLACES

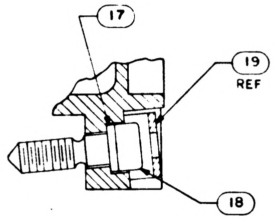




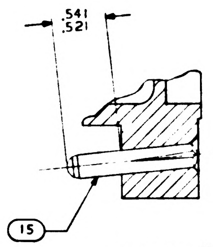




SECTION A-A
SCALE 3/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2 3 4 5 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 20 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO. 10 AND 20 TO FIND NO. 1 TO BE 5.0/5.5 IN LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60.
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.
10. PROCURE PER PS 1007148.
11. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER, GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY
12. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND 1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND 1002004 TYPE I.

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010230	WIRING DIAGRAM	REF
1	1015748	WIRE LIST A A	26
1	1015747	WIRING HARNESS E	25
1	1015746	WIRING HARNESS D	24
1	1015745	WIRING HARNESS C	23
1	1015744	WIRING HARNESS B	22
1	1015743	WIRING HARNESS A	21
3	MS16995-10	SCREW CAP SOCKET HEAD	20
1	1001317	RETAINER, JACK SCREW	19
1	1008098	SCREW, SOCKET HEAD	18
1	1008099-2	WASHER	17
2	MS 21045 C 04	NUT SELF-LOCKING HEX	16
2	1010620-5	PIN, GUIDE	15
24	1008172	SCREW, JACK	14
24	1004207	DRIVE CYLINDER	13
24	MS171433	PIN SPRING	12
48	1004206	WASHER, THRUST	11
2	MS16995-11	SCREW, CAP, SOCKET HEAD	10
1	1010622-1	CONNECTOR RECEPTACLE	9
22	MS 16556-604	PIN GUIDE	8
45	1006775	INSULATOR WRAPOST MALE MIN	7
45	1006782-2	CONTACT WRAPOST MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT BLADE EDGE CONN	4
226	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
226	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008408	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007178	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DWG NO
DRAWN DATE 3 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

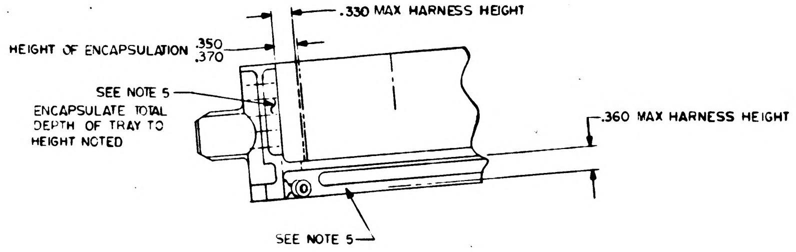
FRAME ASSEMBLY
TRAY 8

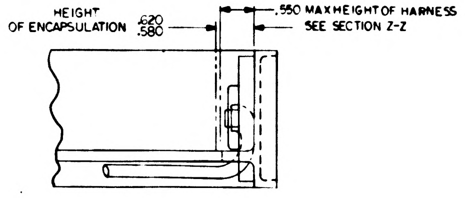
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007168
SCALE 1/1
WT
SHEET 1 OF 2

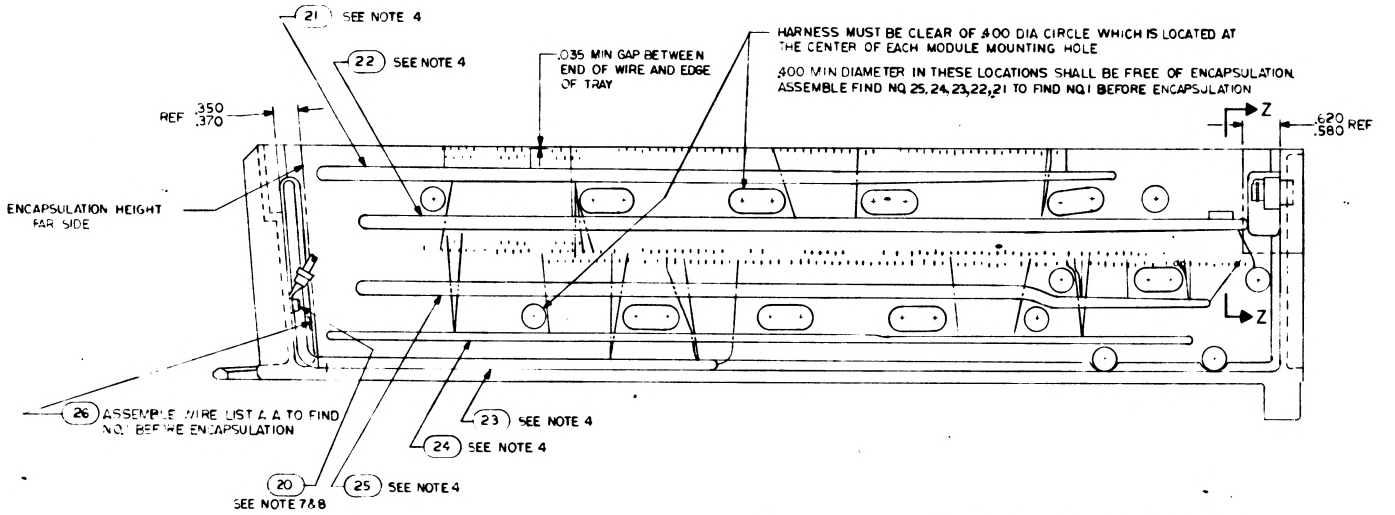
1007168 E

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

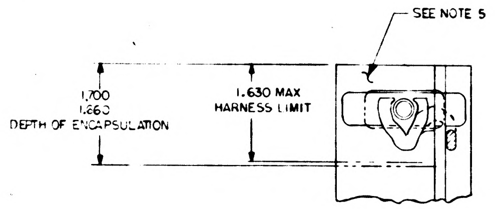
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
(M) B	REVISED PER TDR 08145	15 MAY 64	JB
(N) C	REVISED PER TDRR 14822	23 NOV 64	JK
(E) D	REVISED PER TDRR16639	24-FEB-65	
E	REVISION STATUS CHANGED	21 JUN 65	JJJ


.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5

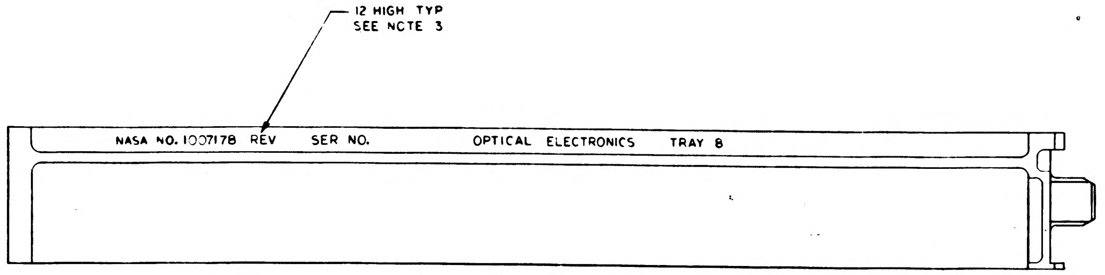

HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z


21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION.
ASSEMBLE FIND NO. 25, 24, 23, 22, 21 TO FIND NO. 1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z


.12 HIGH TYP SEE NOTE 3
NASA NO. 1007178 REV SER NO. OPTICAL ELECTRONICS TRAY 8

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

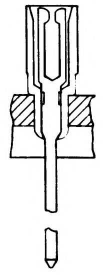
LIST OF MATERIALS

1007178		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB Cambridge Mass Contract NAS 9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN DATE CHECKED APPROVAL 3/9/64 APPROVAL	FRAME ASSEMBLY TRAY 8
APPLICATION		HEAT TREATMENT FINAL FINISH	NASA APPROVAL MIT APPROVAL	CODE IDENT NO 80230 · SIZE E · NASA DRAWING NO 1007168
				SCALE 1/1 · WT · SHEET 2 OF 2

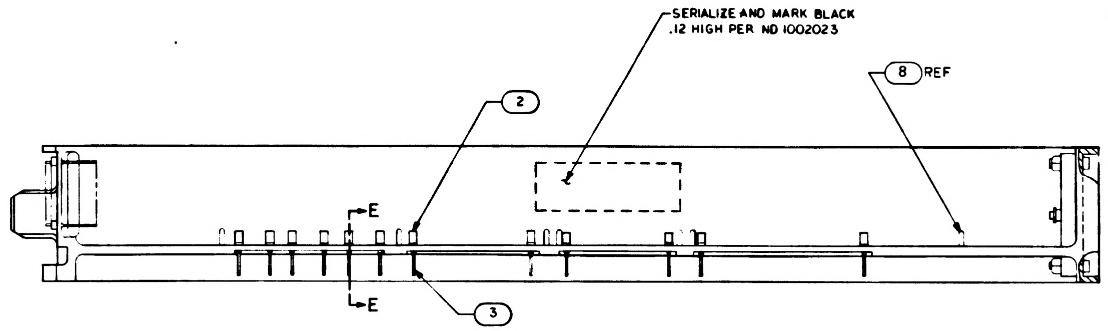
1007168 E

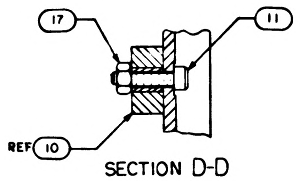
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
Ⓜ A	REVISED PER TDRR [illegible]	APR 64	[illegible]
Ⓜ B	REVISED PER TDRR 08145	13 MAY 64	JB
C	REVISED PER TDRR 14322	NOV 64	JK
D	REVISED PER TDRR [illegible]	[illegible]	[illegible]
E	REVISED PER TDRR 2[illegible]	[illegible]	[illegible]
F	REVISED PER TDRR- 2[illegible]	[illegible]	[illegible]

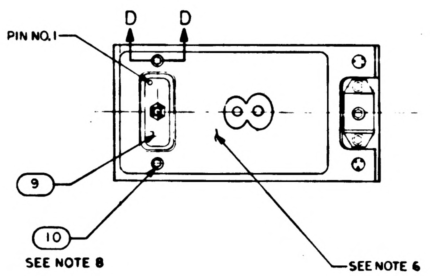


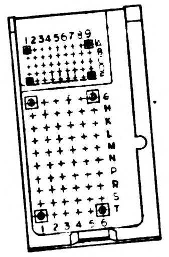
PARTIAL SECTION E-E
226 PLACES

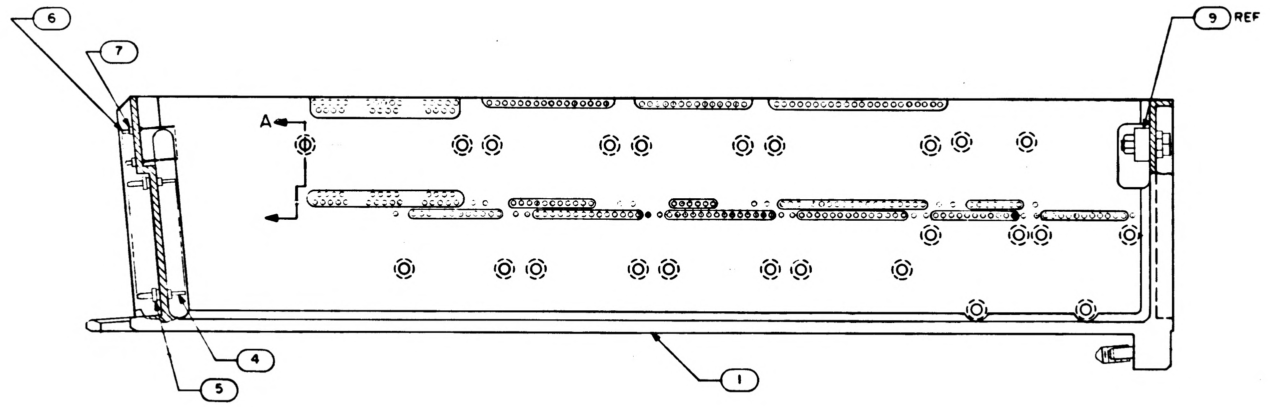


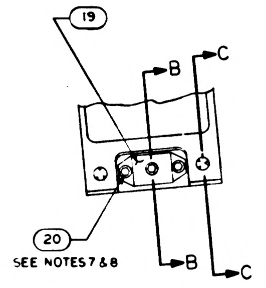


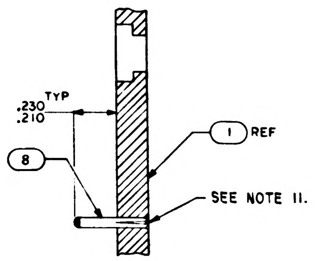
SECTION D-D
SCALE 2/1



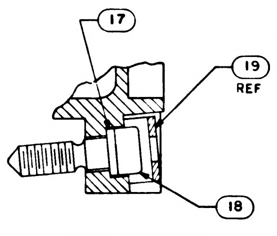




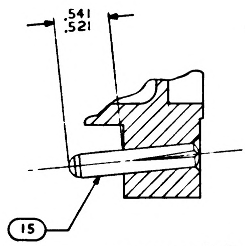




SECTION A-A
SCALE 3/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2 3 4 5 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 20 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO. 10 AND 20 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005.
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60.
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.
10. [illegible] PER PS 1007148.
11. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER, GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY
12. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND 1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND 1002004 TYPE I.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010230	WIRING DIAGRAM	REF
1	1015748	WIRE LIST A A	26
1	1015747	WIRING HARNESS E	25
1	1015746	WIRING HARNESS D	24
1	1015745	WIRING HARNESS C	23
1	1015744	WIRING HARNESS B	22
1	1015743	WIRING HARNESS A	21
3	MS16995-10	SCREW CAP SOCKET HEAD	20
1	1001317	RETAINER, JACK SCREW	19
1	1008098	SCREW, SOCKET HEAD	18
1	1008099-2	WASHER	17
2	MS 21045 C 04	NUT SELF-LOCKING HEX	16
2	1010620-5	PIN, GUIDE	15
~~24~~	~~1008172~~	~~SCREW, JACK~~	~~14~~
~~24~~	~~1004207~~	~~DRIVE CYLINDER~~	~~13~~
~~24~~	~~MS171-33~~	~~PIN SPRING~~	~~12~~
~~48~~	~~1004206~~	~~WASHER, THRUST~~	~~11~~
2	MS16995-11	SCREW, CAP, SOCKET HEAD	10
1	1010622-1	CONNECTOR RECEPTACLE	9
22	MS 16556-604	PIN GUIDE	8
45	1006775	INSULATOR, WRAPOST MALE MI	7
45	1006782-2	CONTACT WRAPOST MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	
60	1010382-1	CONTACT BLADE EDGE CONN	4
226	1006781-2	CONTACT, WRAPOST, FEMALE [illegible]N	3
226	1006774	INSULATOR, WRAPOST, FEMAL[illegible] MIN	2
1	1008408	FRAME	1

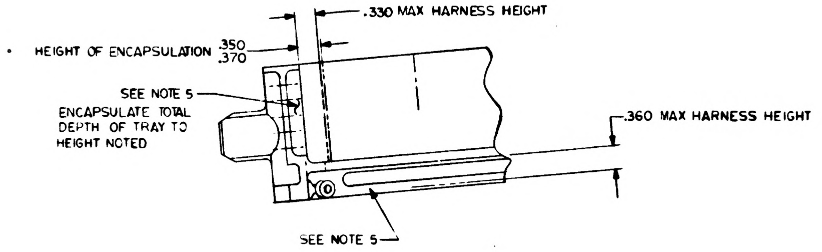
LIST OF MATERIALS

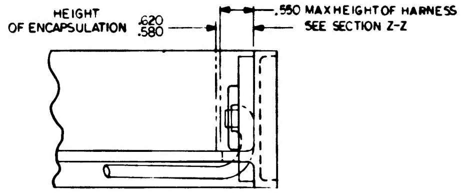
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.02 ANGLES ± 1° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB Cambridge, Mass Contract NAS 9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
		MATERIAL	DRAWN P. V[illegible] DATE 3 MAR 64 CHECKED [illegible] APPROVAL [illegible] 3/9/64 APPROVAL	FRAME ASSEMBLY TRAY 8	
1007178		HEAT TREATMENT	NASA APPROVAL [illegible]	CODE IDENT NO 80230	SIZE E
NEXT ASSY	USED ON	FINAL FINISH	MIT APPROVAL [illegible]	NASA DRAWING NO. 1007168	
APPLICATION				SCALE 1/1 WT	SHEET 1 OF 2

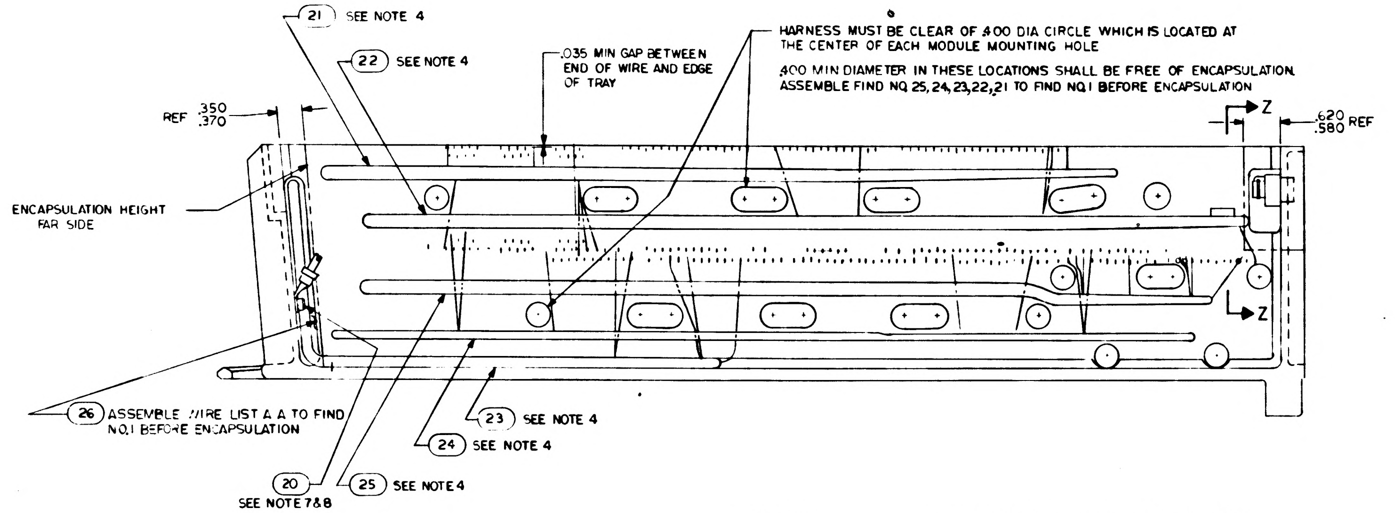
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

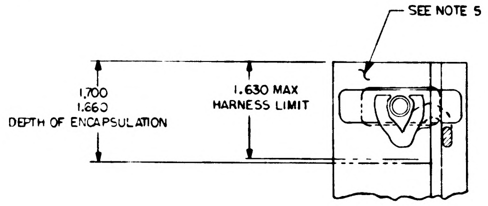
SYM	DESCRIPTION	DATE	APPROVAL
B	REVISED PER TDR 08145	15 MAY 64	JB
C	REVISED PER TDRR 14822	23 N [illegible] 64	[illegible]
D	REVISED PER TDRR 16339	24 FEB 65	[illegible]
E	REVISION STATUS CHANGED	2 [illegible] 65	[illegible]
F	REVISION STATUS CHANGED	23 JA[illegible] 65	[illegible]


.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5

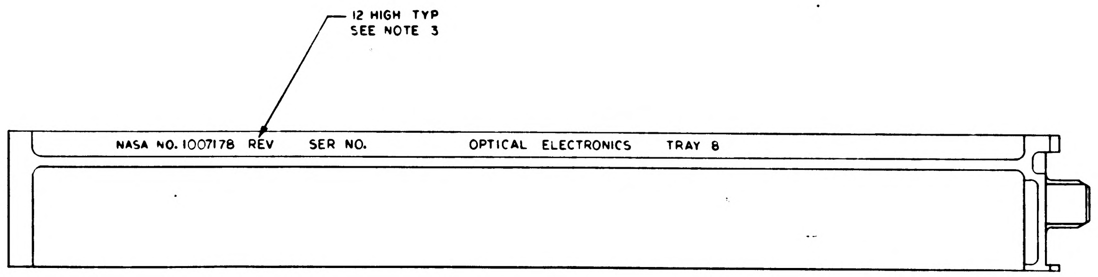

HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z


21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO. 25, 24, 23, 22, 21 TO FIND NO. 1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z


12 HIGH TYP SEE NOTE 3
NASA NO. 1007178 REV SER NO. OPTICAL ELECTRONICS TRAY 8

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007178	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN J. Kr[illegible] DATE 3 MAR 64
CHECKED [illegible] 6 MAR 64
APPROVAL [illegible] 3/9/64
APPROVAL
NASA APPROVAL [illegible] 3/11/64
MIT APPROVAL [illegible] 11 Mar 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

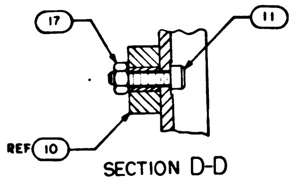
FRAME ASSEMBLY
TRAY 8

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007168
SCALE 1/1
WT
SHEET 2 OF 2

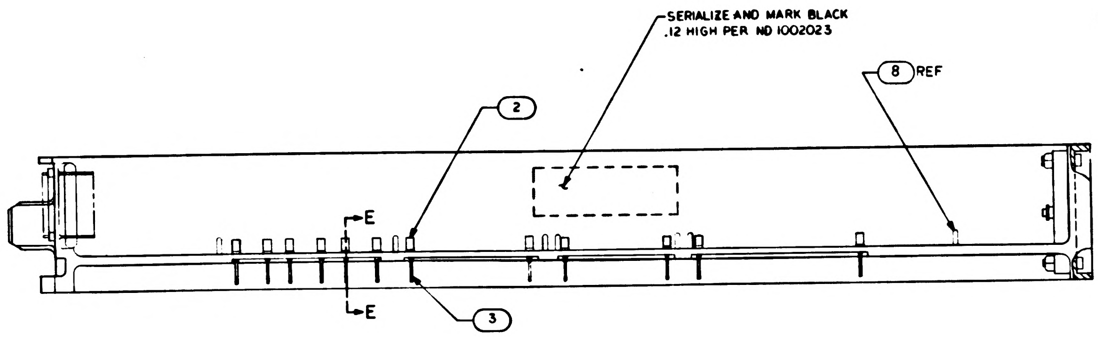
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

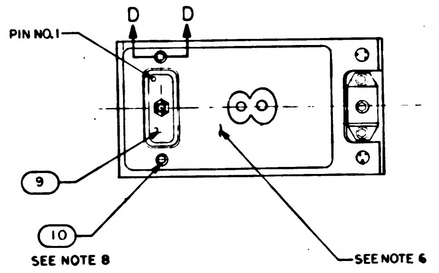
REVISIONS

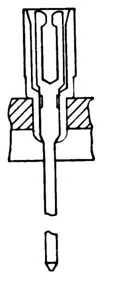
SYM	DESCRIPTION	DATE	APPROVAL
Ⓜ A	REVISED PER TDRR 0727G	5 APR 64	JJJ
Ⓜ B	REVISED PER TDRR 08145	13 MAY 64	JB
Ⓜ C	REVISED PER TDRR 14322	25 NOV 64	JK
Ⓔ D	REVISED PER TDRR 16339	FEB 65	
E	REVISED PER TDRR 20113	65	
Ⓜ F	REVISED PER TDRR-2	65	
G	REVISED PER TDRR-2		



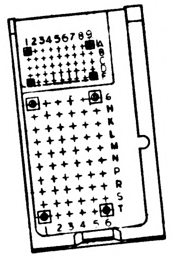
SECTION D-D
SCALE 2/1

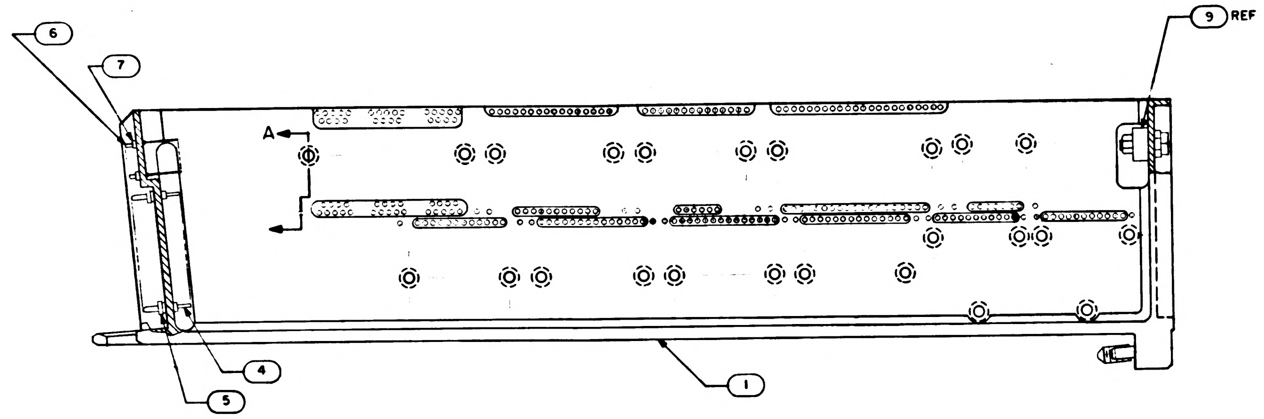


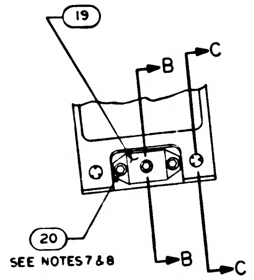


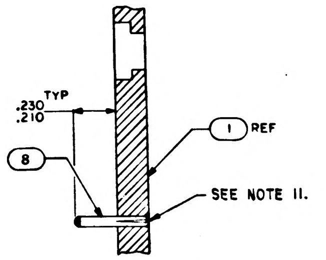


PARTIAL SECTION E-E
226 PLACES

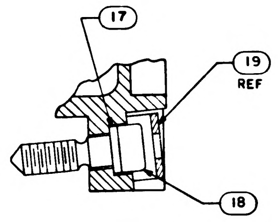




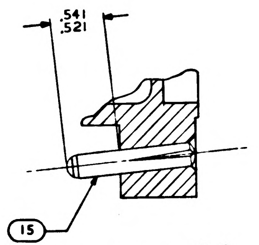




SECTION A-A
SCALE 3/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2 3 4 5 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 20 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO. 10 AND 20 TO FIND NO. 1 TO BE 5.0/5.5 IN.LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT. [illegible] URE PER PS 1007148.
11. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER, GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY
12. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH A FORMULATION CONSISTING OF 40 PARTS BY WT. 1010959-1, 100 PARTS BY WT. 1010959-2, AND 7 PARTS BY WT. 1006277 AND CURE AT ROOM TEMPERATURE FOR THREE HOURS OR ONE HOUR AT 140°F. LIMITED AMOUNT ALLOWED TO CONTACT TRAY FRAME. SEAL OPENING BETWEEN FRAME AND CONNECTOR USING ND1002004 TYPE I.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010230	WIRING DIAGRAM	REF
1	1015748	WIRE LIST A A	26
1	1015747	WIRING HARNESS E	25
1	1015746	WIRING HARNESS D	24
1	1015745	WIRING HARNESS C	23
1	1015744	WIRING HARNESS B	22
1	1015743	WIRING HARNESS A	21
3	MS16995-10	SCREW CAP SOCKET HEAD	20
1	1001317	RETAINER, JACK SCREW	19
1	1008098	SCREW, SOCKET HEAD	18
1	1008099-2	WASHER	17
2	MS 21045 C 04	NUT SELF-LOCKING HEX	16
2	1010620-5	PIN, GUIDE	15
~~24~~	~~1008172~~	~~SCREW, JACK~~	~~14~~
~~24~~	~~1004207~~	~~DRIVE CYLINDER~~	~~13~~
~~24~~	~~MS171433~~	~~PIN SPRING~~	~~12~~
~~48~~	~~1004206~~	~~WASHER, THRUST~~	~~11~~
2	MS16995-11	SCREW, CAP, SOCKET HEAD	10
1	1010622-1	CONNECTOR RECEPTACLE	9
22	MS 16556-604	PIN GUIDE	8
45	1006775	INSULATOR, WRAPOST MALE MI	7
45	1006782-2	CONTACT WRAPOST MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	
60	1010382-1	CONTACT BLADE EDGE CONN	4
226	1006781-2	CONTACT, WRAPOST, FEMALE N	3
226	1006774	INSULATOR, WRAPOST, FEMAL M N	2
1	1008408	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007178	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

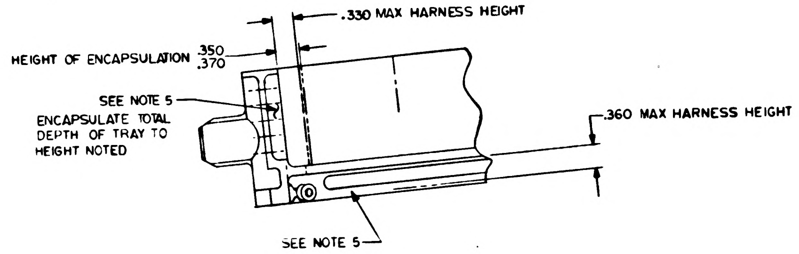
FRAME ASSEMBLY
TRAY 8

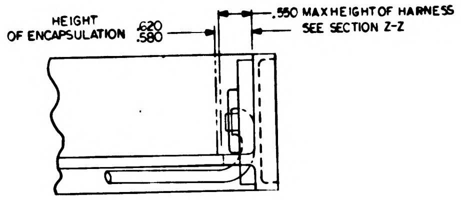
CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 1007168
SCALE 1/1
WT
SHEET 1 OF 2

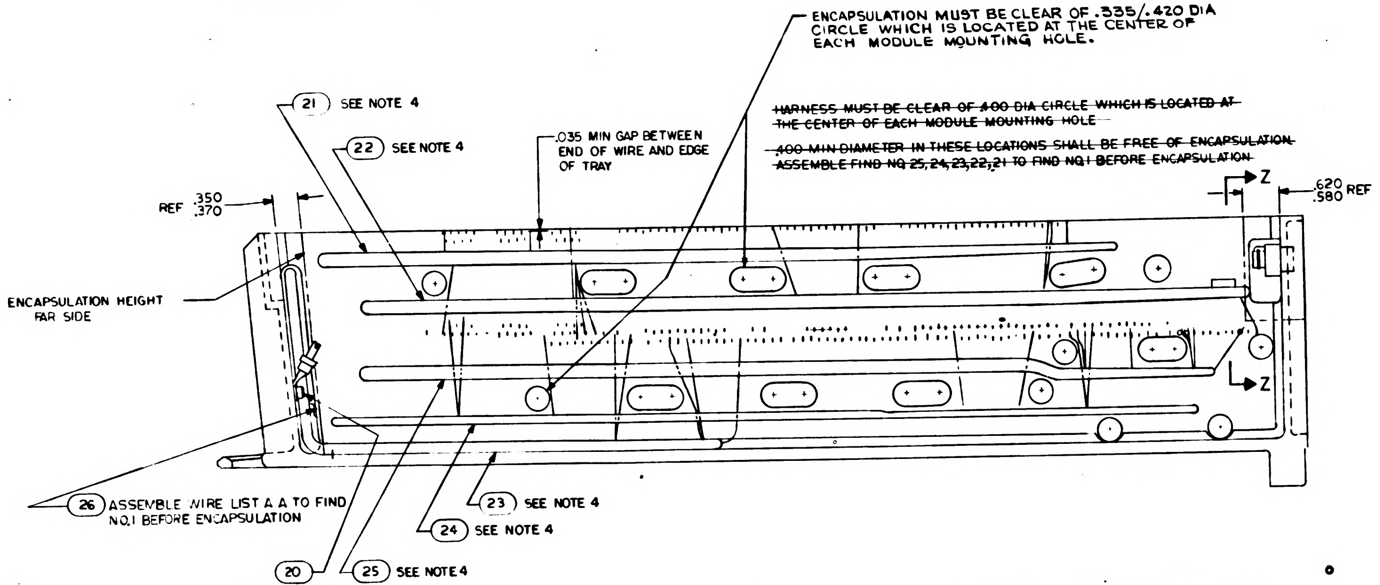
1007168

NOTICE — WHEN GOVERNMENT DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

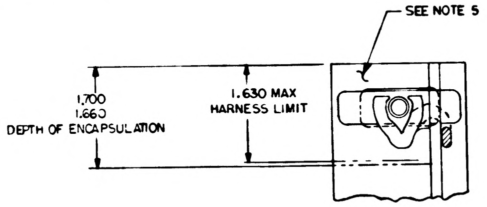
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
B	REVISED PER TDR 08145	15 MAY 64	JB
C	REVISED PER TDRR 14822	23 NOV 64	
D	REVISED PER TDRR 16539	24 FEB 65	
E	REVISION STATUS CHANGED	21 JUN 65	
F	REVISION STATUS CHANGED	23 JUL 65	
G	REVISED PER TDRR 21785	22 JUL 65	


.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5


HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z


ENCAPSULATION MUST BE CLEAR OF .335/.420 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE.
~~HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE~~
~~.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION.~~
~~ASSEMBLE FIND NO 25,24,23,22,21 TO FIND NO 1 BEFORE ENCAPSULATION~~
21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO.1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9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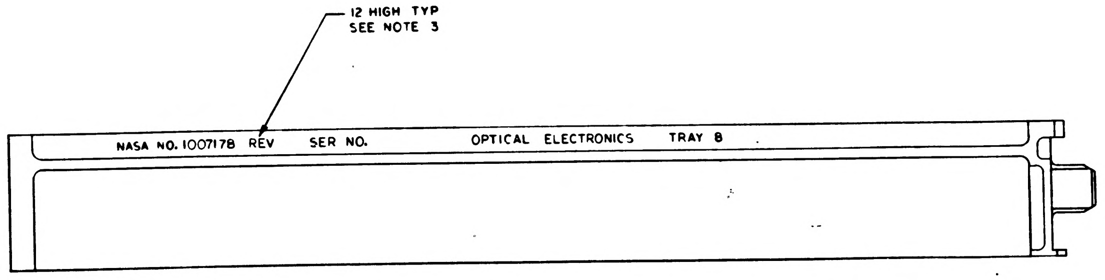
1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z


12 HIGH TYP SEE NOTE 3
NASA NO. 1007178 REV SER NO. OPTICAL ELECTRONICS TRAY 8

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007178	
NEXT ASSY	USED ON
APPLICATION	

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TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
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INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN I. Kahn DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

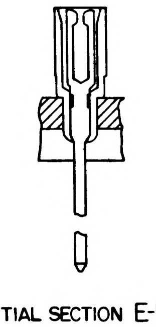
FRAME ASSEMBLY
TRAY 8

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007168
SCALE 1/1
WT
SHEET 2 OF 2

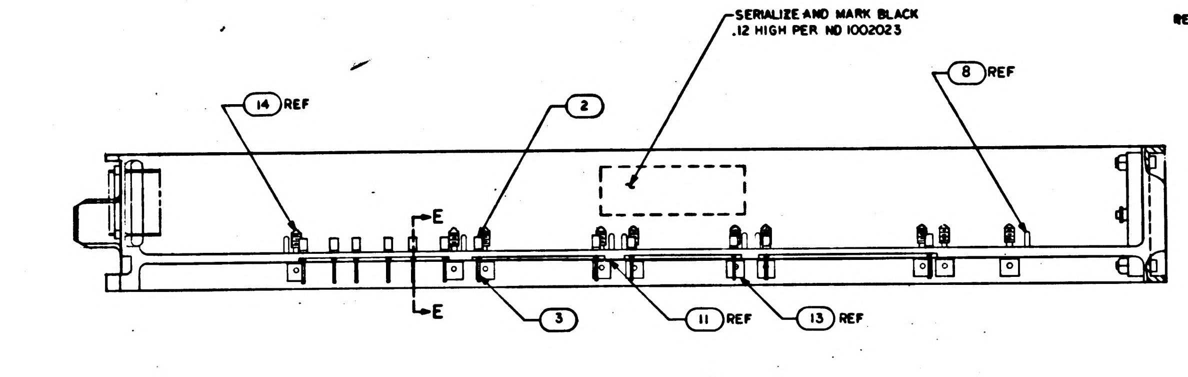
1007168 G

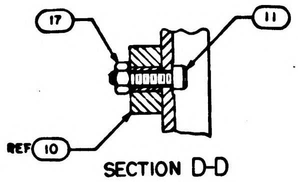
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 26874			
SYM	DESCRIPTION	DATE	APPROVAL

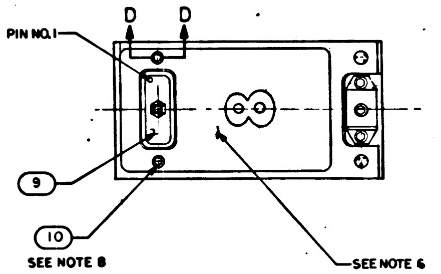


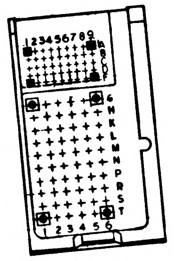
PARTIAL SECTION E-E
226 PLACES

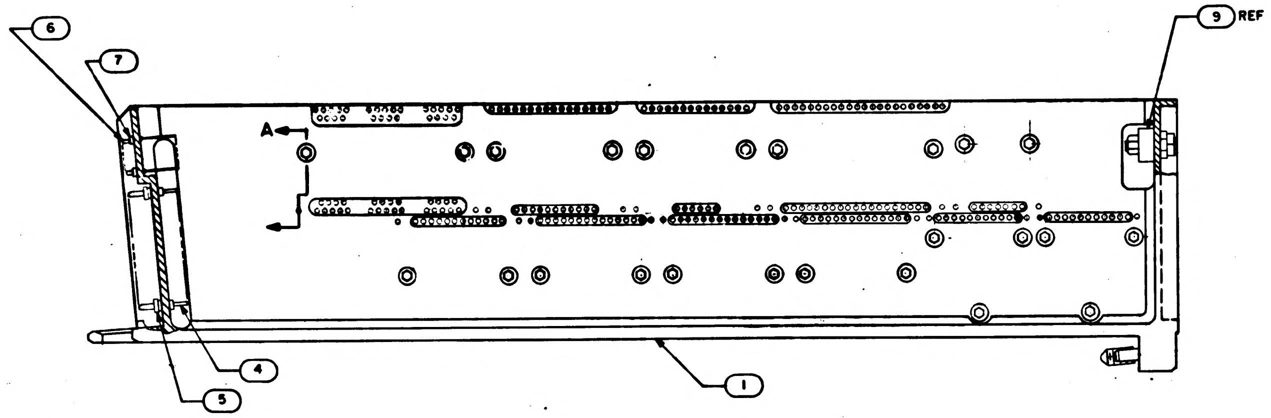


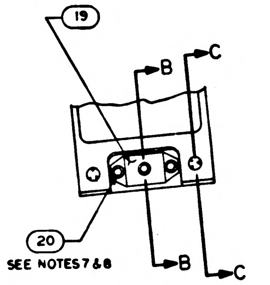


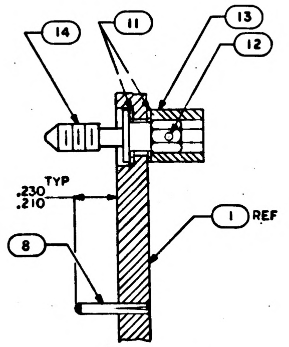
SECTION D-D
SCALE 2/1



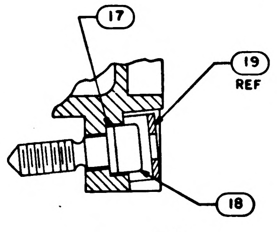








SECTION A-A
SCALE 3/1



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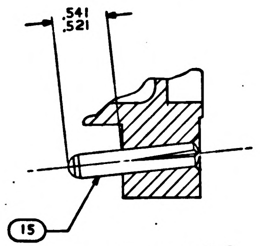
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2 3 4 5 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 WHITE
4. BOND FIND NO.21,22,23,24,25 AND 26 TO FIND NO.1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FPRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO.20 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO.10 AND 20 TO FIND NO.1 TO BE 5.0/5.5 IN.LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005.
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, Sn 60
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010098	WIRING DIAGRAM	REF
1	1015748	WIRE LIST A A	26
1	1015747	WIRING HARNESS E	25
1	1015746	WIRING HARNESS D	24
1	1015745	WIRING HARNESS C	23
1	1015744	WIRING HARNESS B	22
1	1015743	WIRING HARNESS A	21
3	MS16995-10	SCREW CAP SOCKET HEAD	20
1	1001317	RETAINER, JACK SCREW	19
1	1008098	SCREW, SOCKET HEAD	18
1	1008099-2	WASHER	17
2	MS 21045 C 04	NUT SELF-LOCKING HEX	16
2	1010620-2	PIN, GUIDE	15
24	1008095	SCREW, JACK	14
24	1004207	DRIVE CYLINDER	13
24	1008145	PIN SPRING	12
48	1004206	WASHER, THRUST	11
2	MS16995-11	SCREW, CAP, SOCKET HEAD	10
1	1010622-1	CONNECTOR RECEPTACLE	9
22	1010620-1	PIN GUIDE	8
45	1006775	INSULATOR, WRAPOST MALE MIN	7
45	1006782-2	CONTACT WRAPOST MALE MIN	6
60	1010383-1	INSULATOR, WRAPOST, MALE	5
60	1010382-1	CONTACT BLADE EDGE CONN	4
226	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
226	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008178	FRAME	1

LIST OF MATERIALS

1007168

NEXT ASSY	USED ON
1007178	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN L. Krahn DATE 2 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL W. Ruffer 10 Apr 64

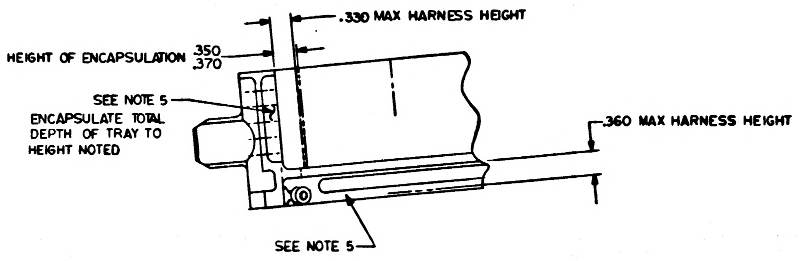
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

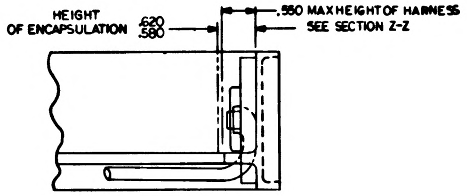
FRAME ASSEMBLY
TRAY 8

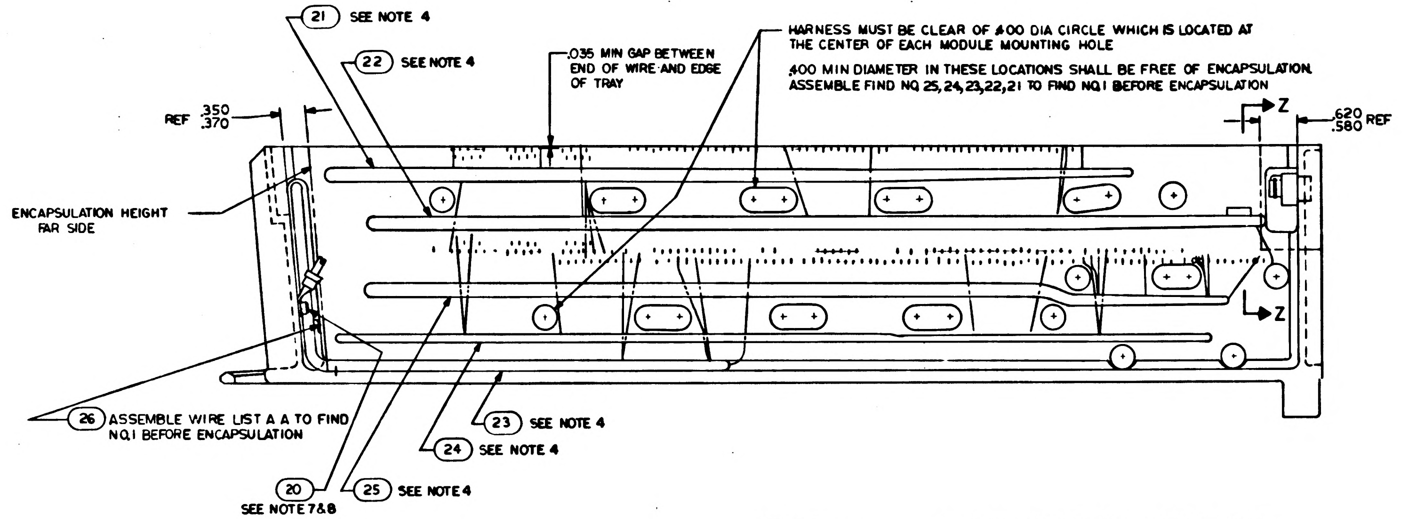
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007168
SCALE 1/1
WT
SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

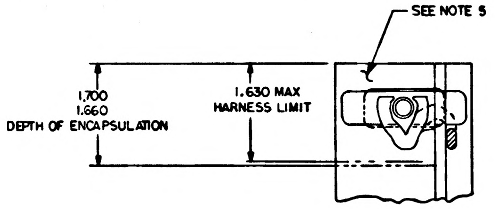
REVISIONS 36274			
SYM	DESCRIPTION	DATE	APPROVAL


.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5

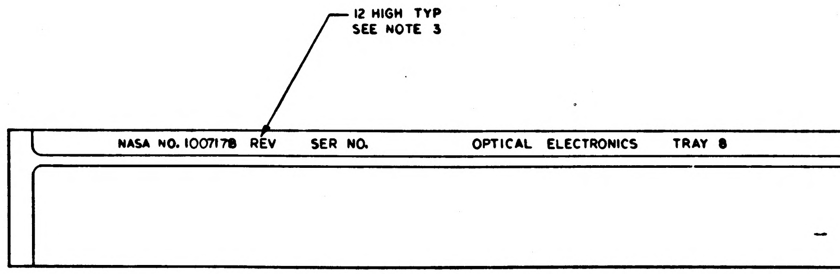

HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z


21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO. 25, 24, 23, 22, 21 TO FIND NO. 1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z


12 HIGH TYP SEE NOTE 3
NASA NO. 1007178 REV SER NO. OPTICAL ELECTRONICS TRAY 8

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

1007178		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS . ANGLES . DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS DOC NO CONTRACT NAS 9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN L. Krahn DATE 5 MAR 64 CHECKED APPROVAL 3/9/64 APPROVAL	FRAME ASSEMBLY TRAY 8
APPLICATION		HEAT TREATMENT FINAL FINISH	NASA APPROVAL 3/11/64 MIT APPROVAL 10 Mar 64	CODE IDENT NO. SIZE E NASA DRAWING NO. 1007168 SCALE 1/1 WT SHEET 2 OF 2

1007168

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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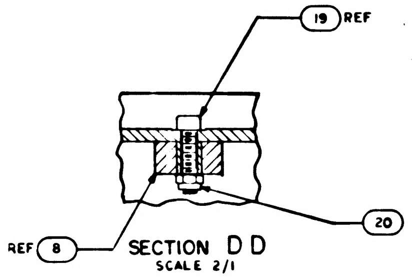
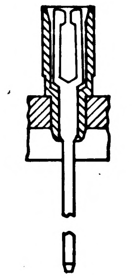
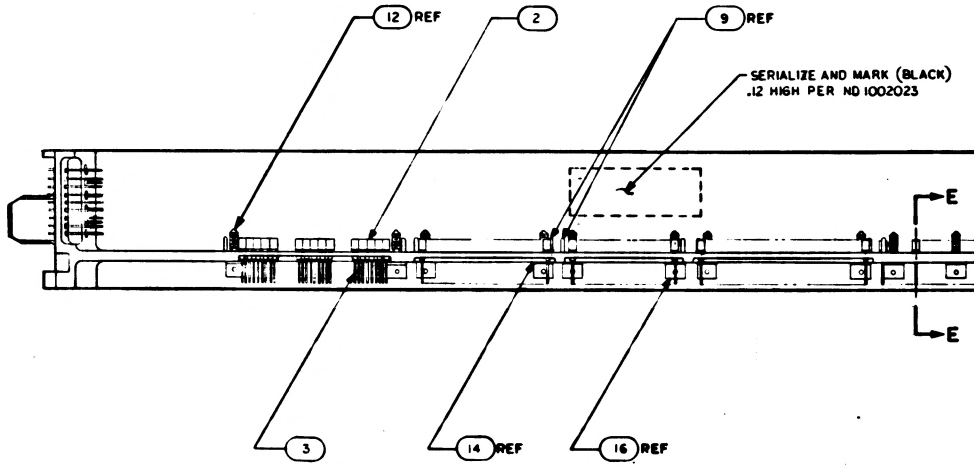
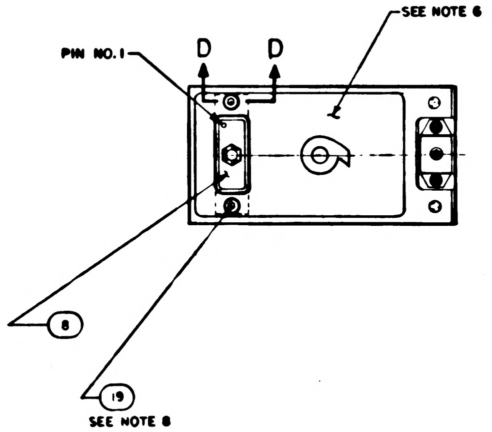


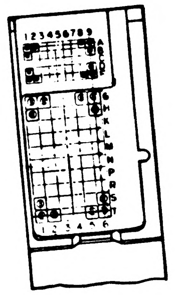
SECTION D D
SCALE 2/1

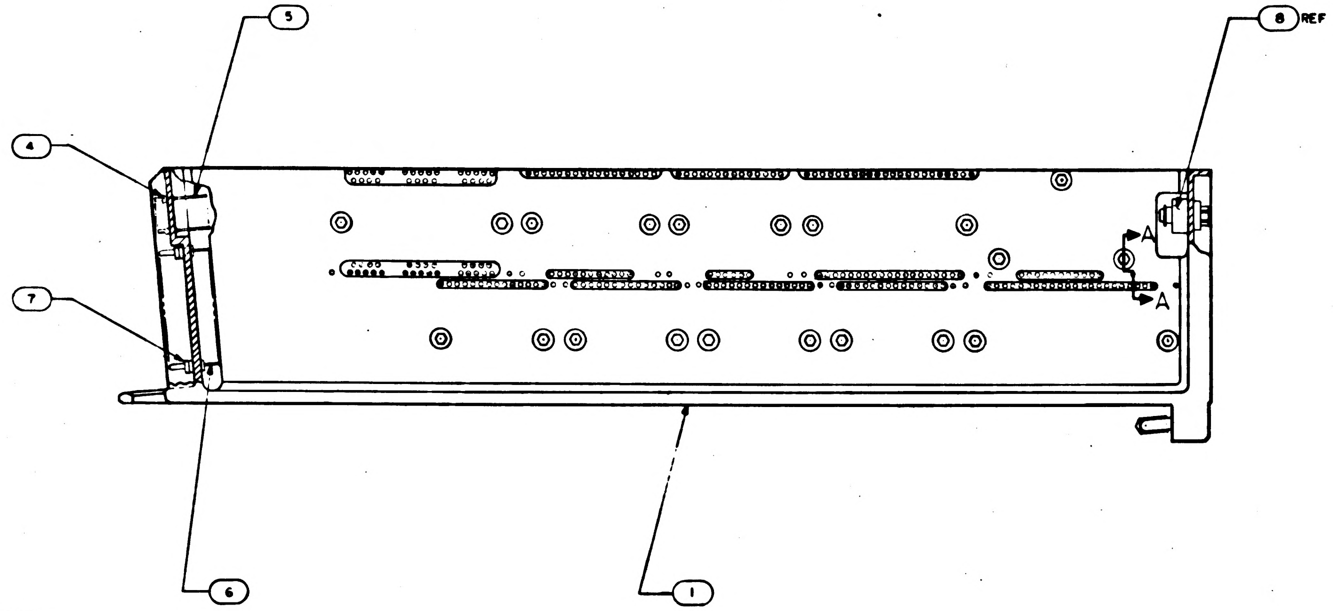


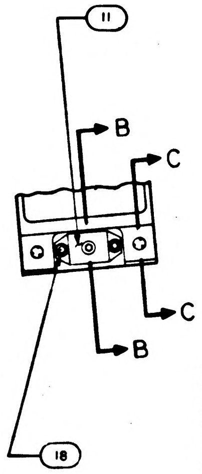
PARTIAL SECTION E-E
232 PLACES





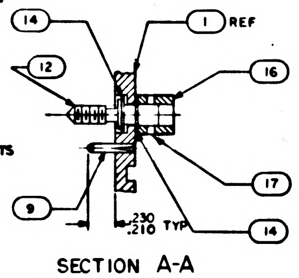




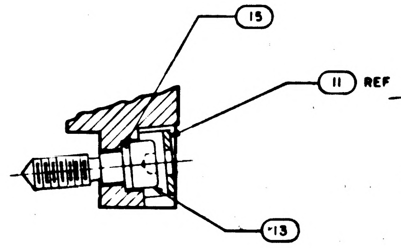


NOTES:

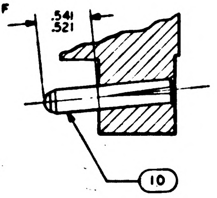
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NOS 21,22,23,24 AND 25 TO FIND NO.1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO.18 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS. 18 & 19 TO FIND NO.1 TO BE 5.0/5.5 IN LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

A	–
SHEET 1	SHEET 2
REVISION STATUS OF SHEETS	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010099	WIRING DIAGRAM	REF
1	1015759	WIRE LIST AA	25
1	1015763	WIRING HARNESS D	24
1	1015762	WIRING HARNESS C	23
1	1015761	WIRING HARNESS B	22
1	1015760	WIRING HARNESS A	21
2	MS 21045 C 04	NUT, SELF LOCKING HEX	20
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	19
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	18
21	MS 171433	PIN SPRING	17
21	1004207	DRIVE CYLINDER	16
1	1008099-2	WASHER	15
42	1004206	WASHER THRUST	14
1	1008098	SCREW, SOCKET HEAD	13
21	1008095	SCREW, JACK	12
1	1001317	RETAINER, JACK SCREW	11
2	1010620-2	PIN, GUIDE	10
20	1010620-1	PIN, GUIDE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
60	1010383	INSULATOR, WRAPOST MALE	7
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
45	1006782-2	CONTACT, WRAPOST MALE MIN	5
45	1006775	INSULATOR, WRAPOST MALE MIN	4
232	1006781-2	CONTACT, WRAPOST FEMALE MIN	3
232	1006774	INSULATOR, WRAPOST FEMALE MIN	2
1	1008179	FRAME	1

LIST OF MATERIALS

1007179		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ±.02 ANGLES ±1°	MIT INSTRUMENTATION LAB Cambridge Mass Contract NAS 9-497
NEXT. ASSY	USED ON	DO NOT SCALE THIS DRAWING	DRAWN L Krahn DATE 24 MAR 64
APPLICATION		MATERIAL	CHECKED
		HEAT TREATMENT	APPROVAL 3/9/64
		FINAL FINISH	APPROVAL
			NASA APPROVAL
			MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO.	SIZE	NASA DRAWING NO.
	E	1007169
SCALE 1/1	WT	SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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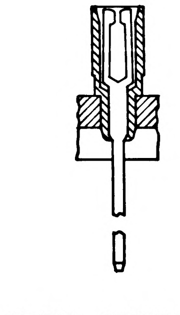
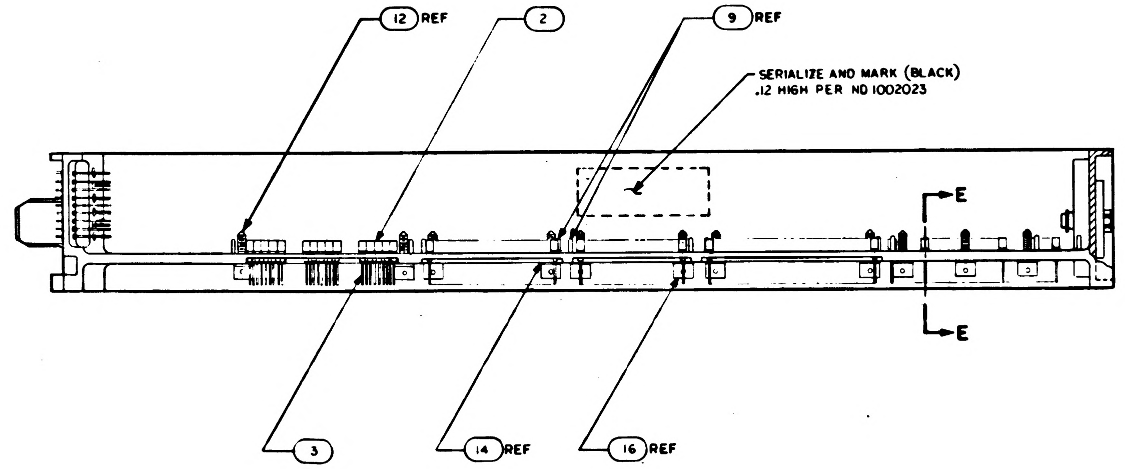
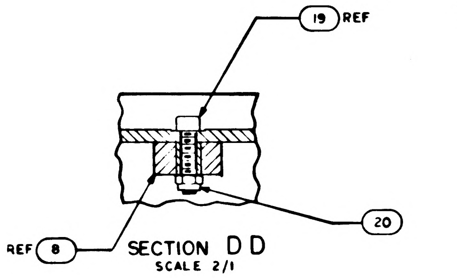
B	REVISED PER TDRR 08145	13 MAY 64	



PARTIAL SECTION E-E

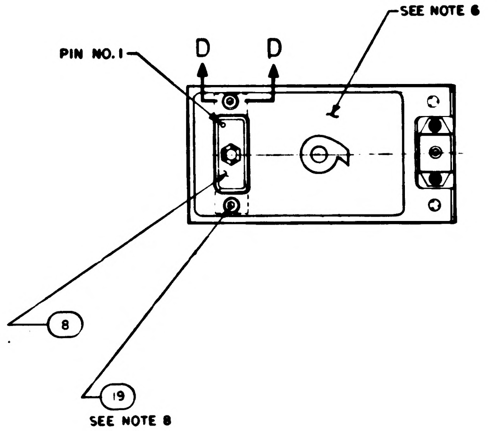
232 PLACES

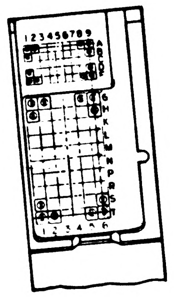


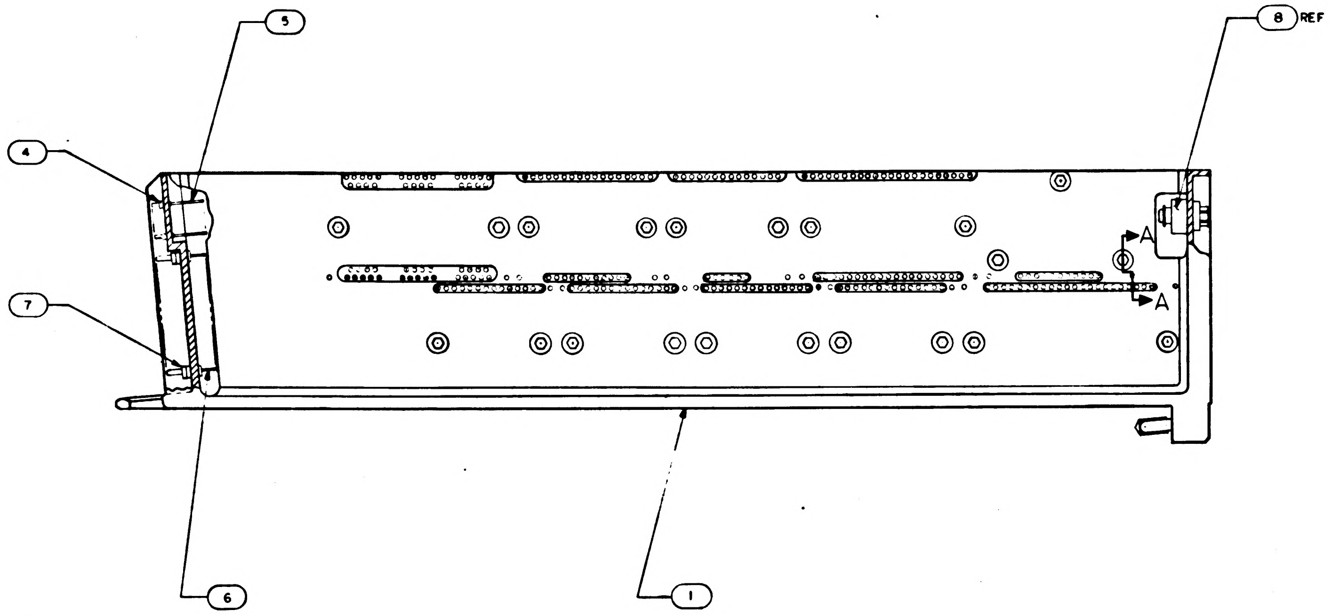


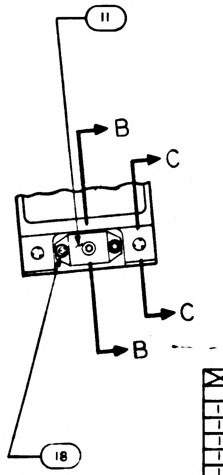
SECTION D D

SCALE 2/1



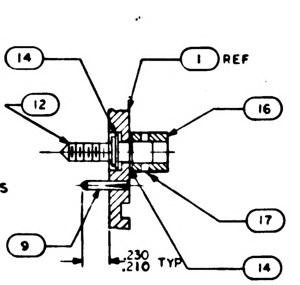






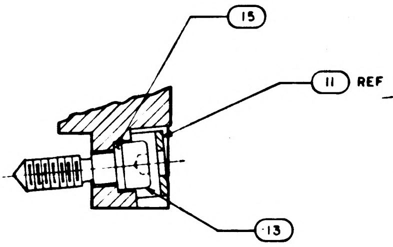
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NOS 21,22,23,24 AND 25 TO FIND NO.1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO.18 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS. 18 & 19 TO FIND NO.1 TO BE 5.0/5.5 IN LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS
10. PROCURE PER PS1007149.



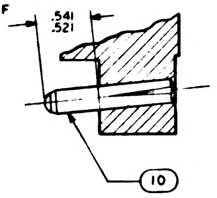
SECTION A-A

SCALE 2/1



SECTION B-B

SCALE 2/1



SECTION C-C

SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010099	WIRING DIAGRAM	REF
1	1015759	WIRE LIST AA	25
1	1015763	WIRING HARNESS D	24
1	1015762	WIRING HARNESS C	23
1	1015761	WIRING HARNESS B	22
1	1015760	WIRING HARNESS A	21
2	MS 21045 C 04	NUT, SELF LOCKING HEX	20
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	19
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	18
21	MS 171433	PIN SPRING	17
21	1004207	DRIVE CYLINDER	16
1	1008099-2	WASHER	15
42	1004206	WASHER THRUST	14
1	1008098	SCREW, SOCKET HEAD	13
21	1008172	SCREW, JACK	12
1	1001317	RETAINER, JACK SCREW	11
2	1010620-5	PIN, GUIDE	10
20	1010620-4	PIN, GUIDE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
60	1010383	INSULATOR, WRAPOST MALE	7
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
45	1006782-2	CONTACT, WRAPOST MALE MIN	5
45	1006775	INSULATOR, WRAPOST MALE MIN	4
232	1006781-2	CONTACT, WRAPOST FEMALE MIN	3
232	1006774	INSULATOR, WRAPOST FEMALE MIN	2
1	1008179	FRAME	1

LIST OF MATERIALS

1007179	
NEXT. ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497

DRAWN L Krahn DATE MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO. | SIZE E | NASA DRAWING NO. 1007169
SCALE 1/1 | WT | SHEET 1 OF 2

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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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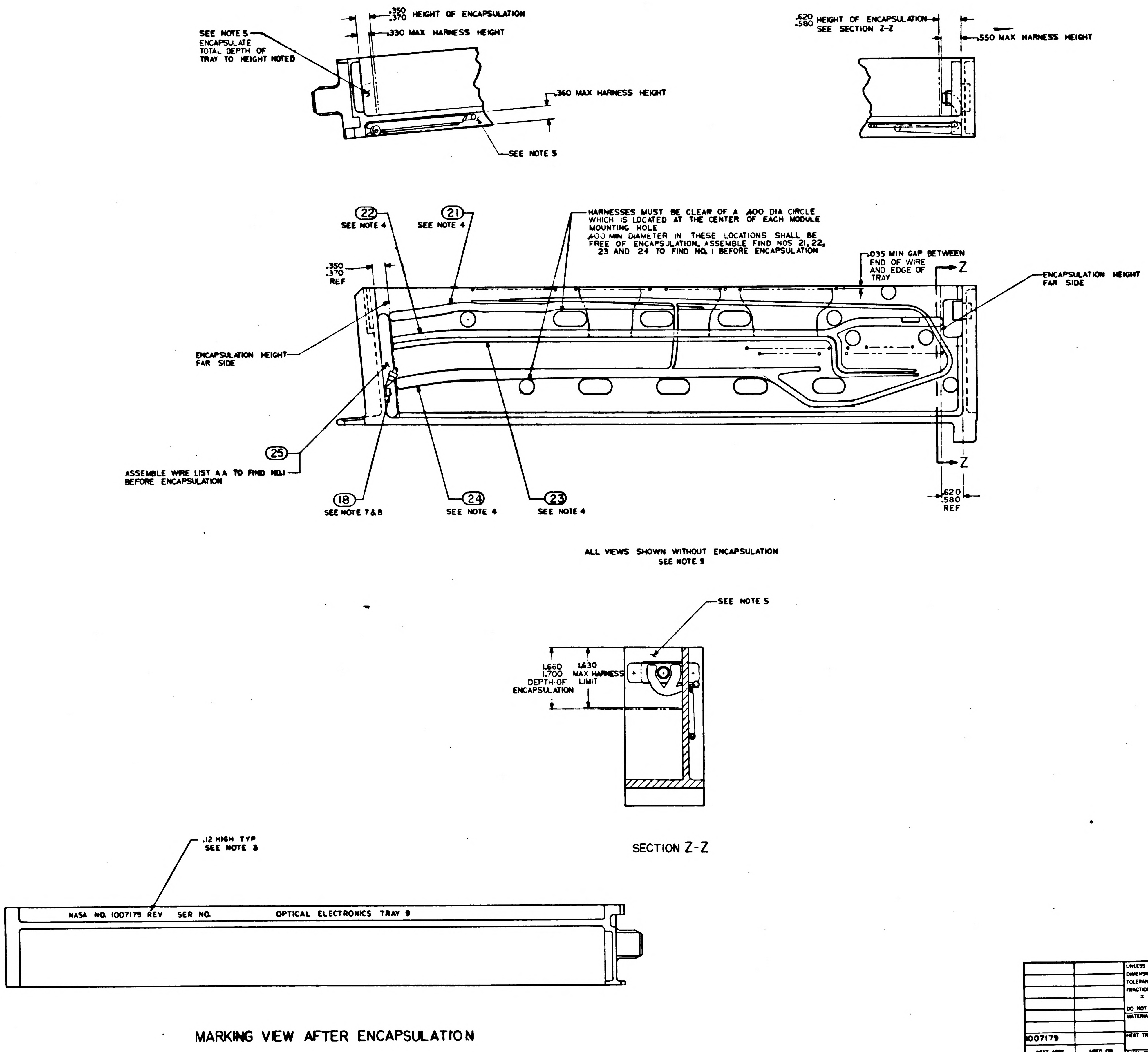

.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5
.620
.580 HEIGHT OF ENCAPSULATION
SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT
22 SEE NOTE 4
21 SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.350
.370
REF
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
Z
18 SEE NOTE 7&8
24 SEE NOTE 4
23 SEE NOTE 4
.620
.580
REF
ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9
SEE NOTE 5
1.660
1.700
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT
SECTION Z-Z
.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007179 REV SER NO. OPTICAL ELECTRONICS TRAY 9
MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007179	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN DATE MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL 3/20/64
MIT APPROVAL

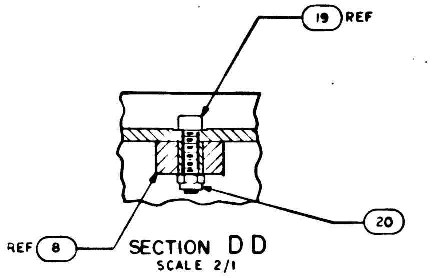
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

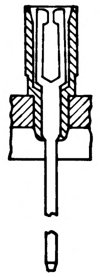
CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007169
SCALE 1/1
WT
SHEET 2 OF 2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

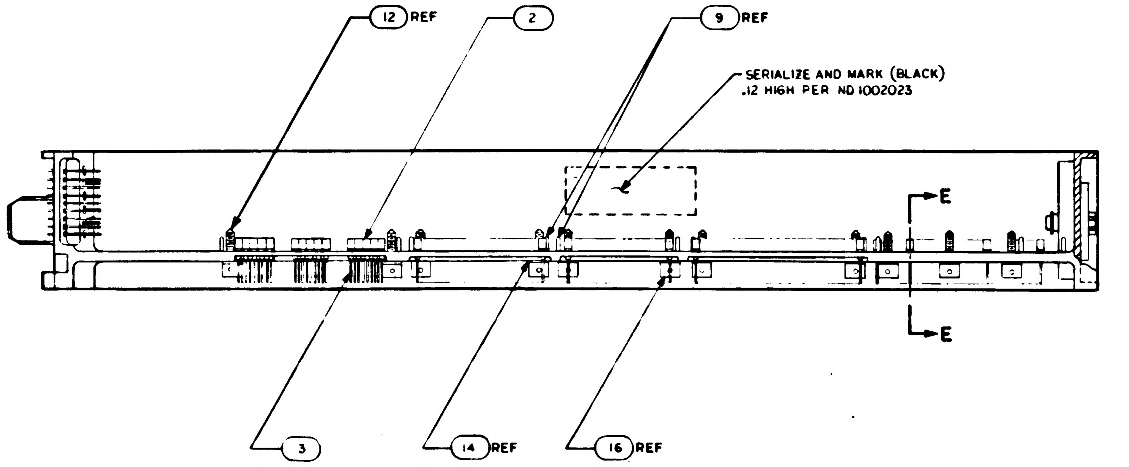
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07276	8 APR 64	
B	REVISED PER TDRR 08145	13 MAY 64	
C	REVISED PER TDRR 14322	23 NOV	

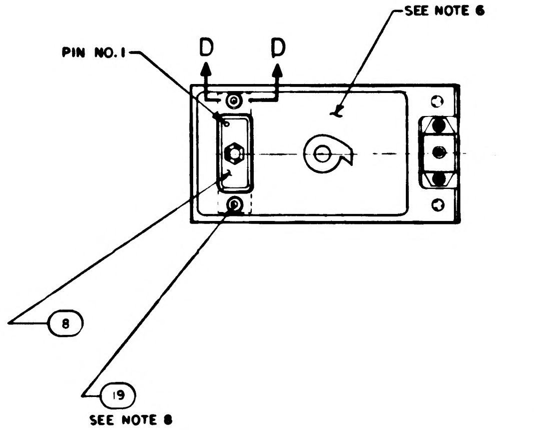


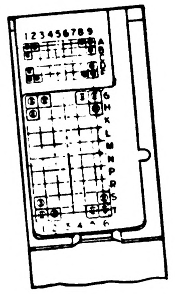
SECTION D D
SCALE 2/1

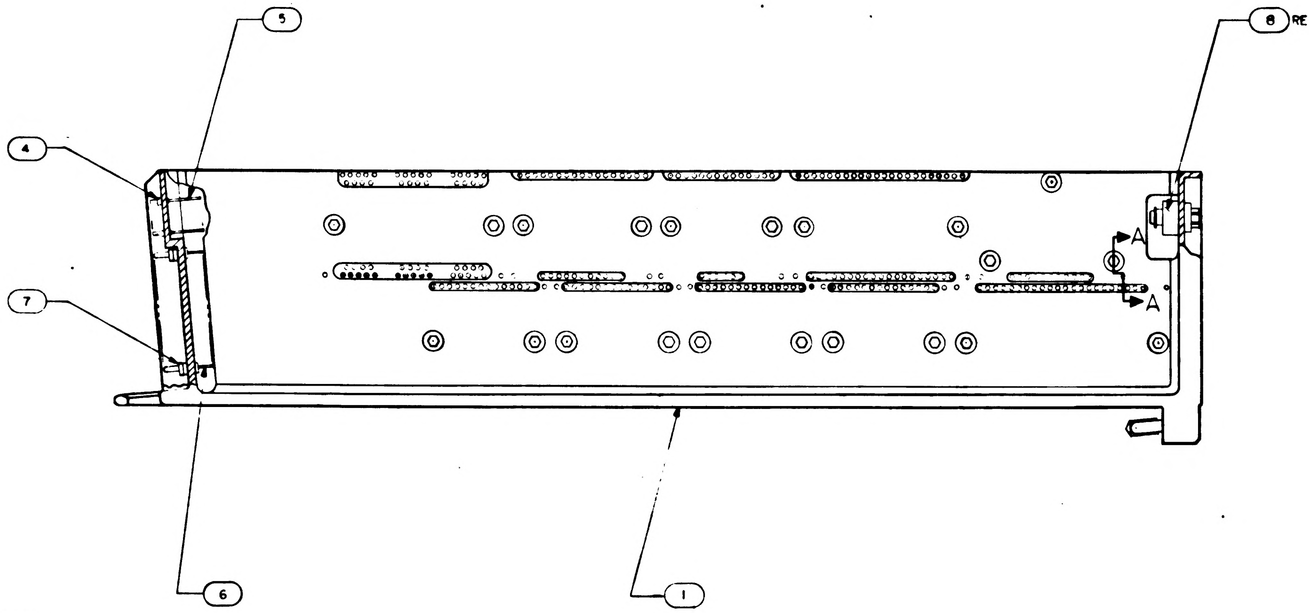


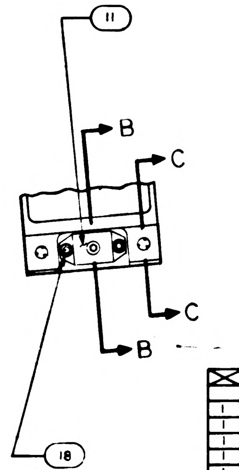
PARTIAL SECTION E-E
232 PLACES





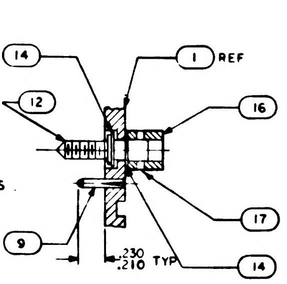




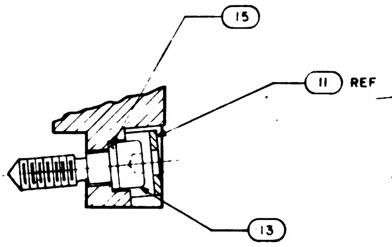


NOTES:

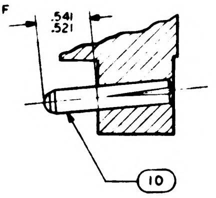
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NOS 21,22,23,24 AND 25 TO FIND NO.1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO.18 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS. 18 & 19 TO FIND NO.1 TO BE 5.0/5.5 IN LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005.
   ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 Sn 60.
   ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
10. PROCURE PER PS1007149.



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

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☒	1010231	WIRING DIAGRAM	REF
1	1015759	WIRE LIST A A	25
1	1015763	WIRING HARNESS D	24
1	1015762	WIRING HARNESS C	23
1	1015761	WIRING HARNESS B	22
1	1015760	WIRING HARNESS A	21
2	MS 21045 C 04	NUT, SELF LOCKING HEX	20
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	19
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	18
21	MS 171433	PIN SPRING	17
21	1004207	DRIVE CYLINDER	16
1	1008099-2	WASHER	15
42	1004206	WASHER THRUST	14
1	1008098	SCREW, SOCKET HEAD	13
21	1008172	SCREW, JACK	12
1	1001317	RETAINER, JACK SCREW	11
2	1010620-5	PIN, GUIDE	10
20	1010620-4	PIN, GUIDE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
60	1010383	INSULATOR, WRAPOST MALE	7
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
45	1006782-2	CONTACT, WRAPOST MALE MIN	5
45	1006775	INSULATOR, WRAPOST MALE MIN	4
232	1006781-2	CONTACT, WRAPOST FEMALE MIN	3
232	1006774	INSULATOR, WRAPOST FEMALE MIN	2
1	1008179	FRAME	1

LIST OF MATERIALS

1007179	
NEXT. ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN L. Krahn DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO | SIZE E | NASA DRAWING NO. 1007169
SCALE 1/1 | WT | SHEET 1 OF 2

1007169 C

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

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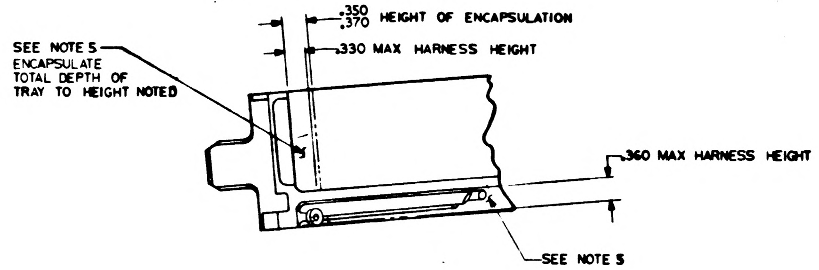
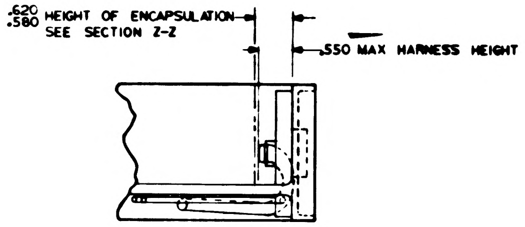
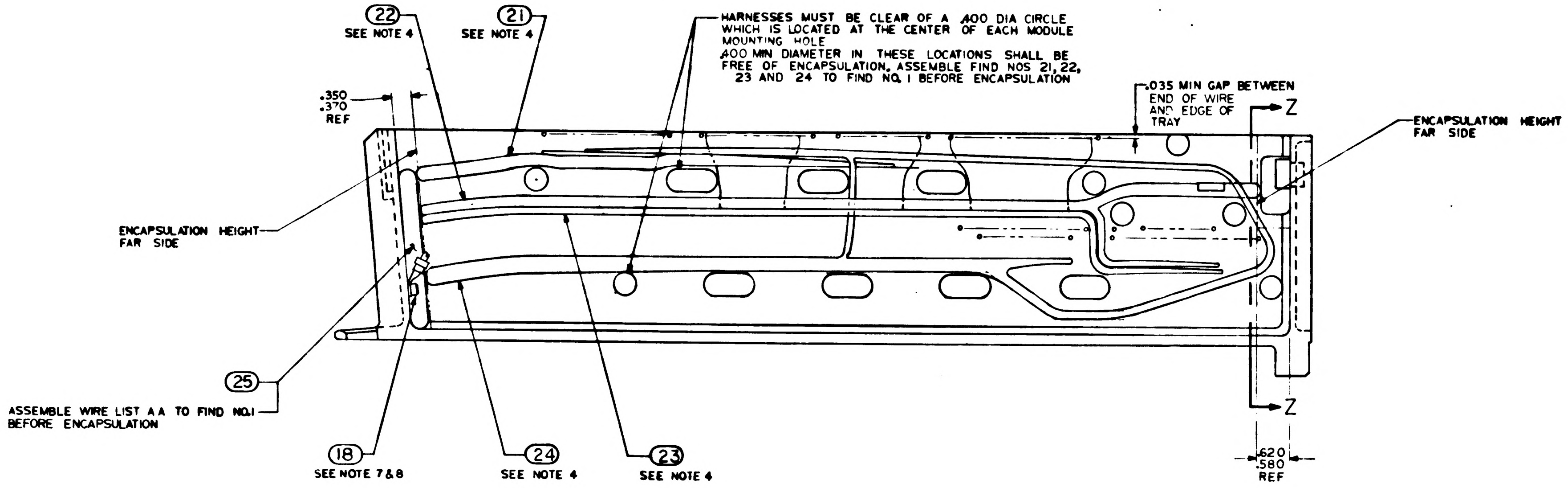
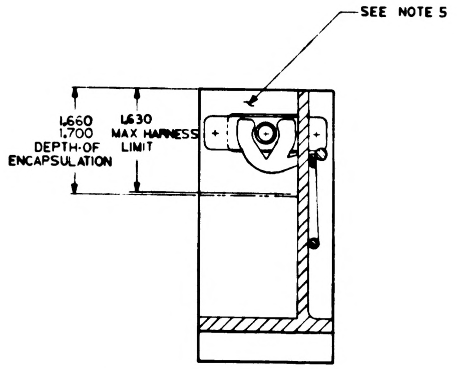
C	REVISED PER TDRP 14322	23 NOV 64	


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5

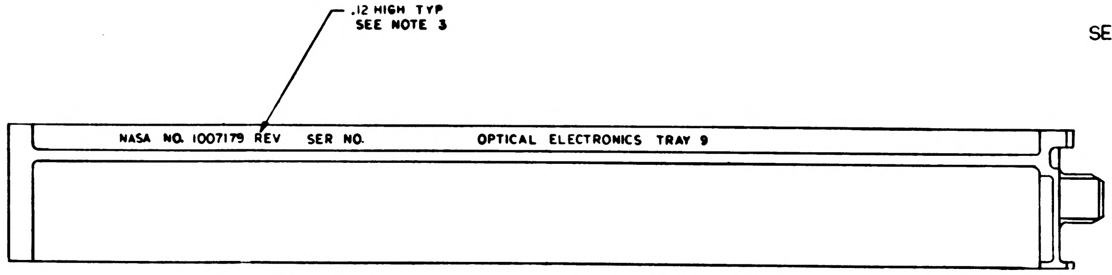

.620
.580 HEIGHT OF ENCAPSULATION
SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT


22
SEE NOTE 4
21
SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.350
.370
REF
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
18
SEE NOTE 7 & 8
24
SEE NOTE 4
23
SEE NOTE 4
Z
.620
.580
REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.660
1.700
DEPTH-OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007179 REV SER NO. OPTICAL ELECTRONICS TRAY 9

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007179	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

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INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN [illegible] DATE 4 MAR 64
CHECKED [illegible]
APPROVAL [illegible] 3/9/64
APPROVAL
NASA APPROVAL [illegible] 3/[illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO	SIZE	NASA DRAWING NO
	E	1007169
SCALE 1/1	WT	SHEET 2 OF 2

1007169 C

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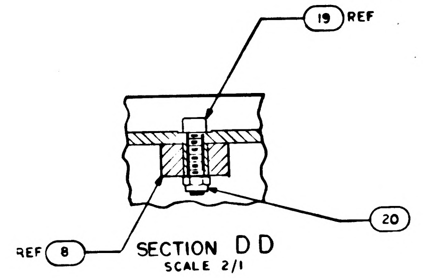
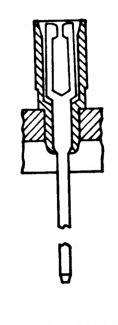
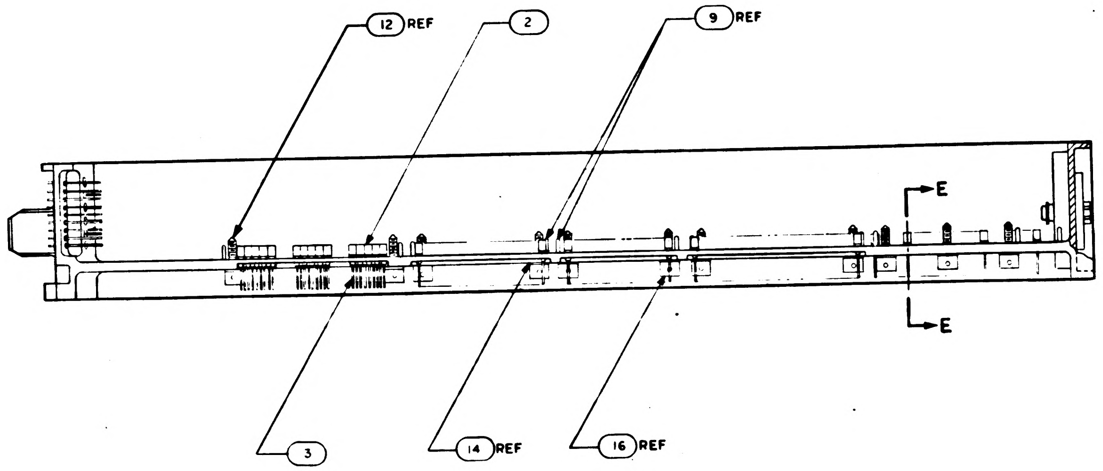
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07276	8 APR 64	
B	REVISED PER TDRR 08145	13 MAY 64	
C	REVISED PER TDRR 14322	23 NOV	
D	REVISED PER TDRR 14579	8 DEC 64	

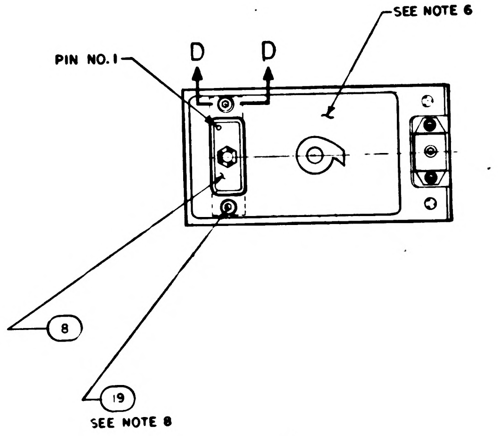


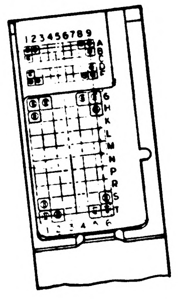
SECTION D D
SCALE 2/1

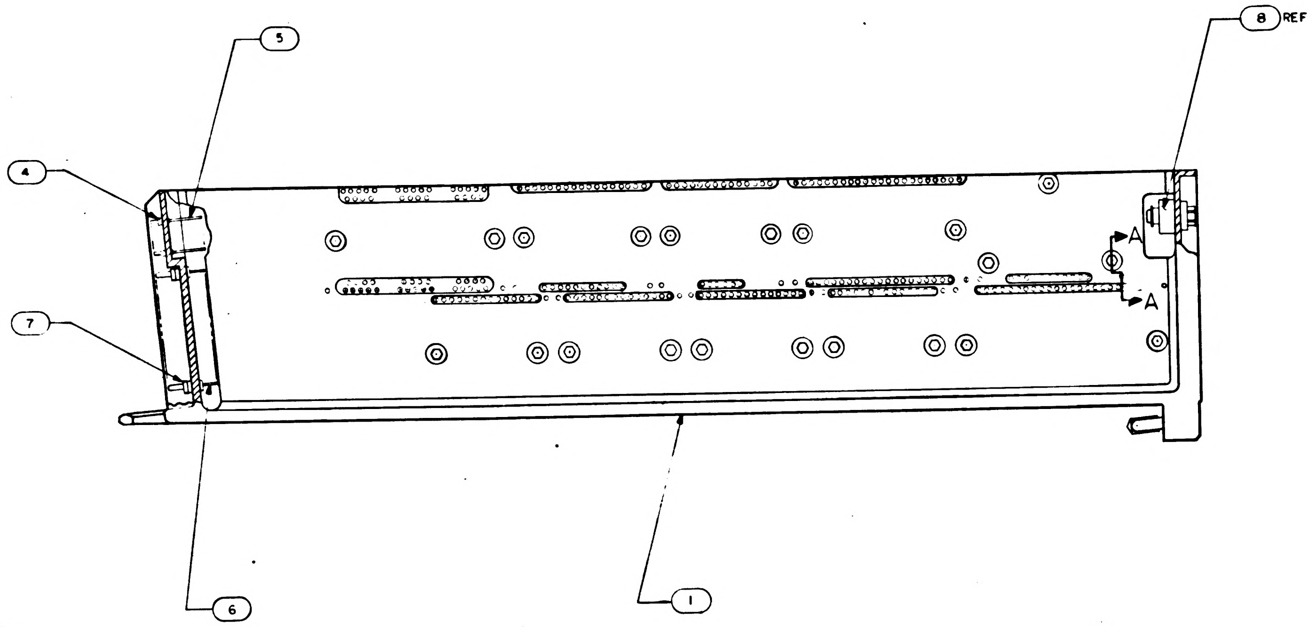


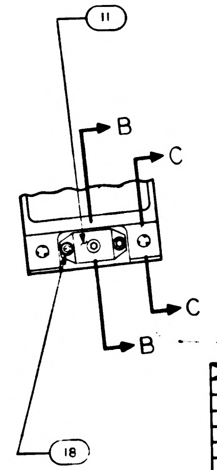
PARTIAL SECTION E-E
232 PLACES





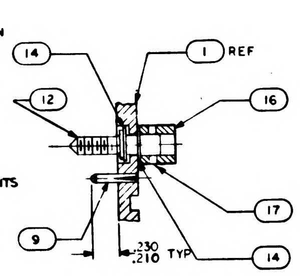




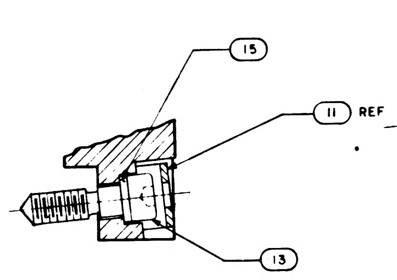


NOTES:

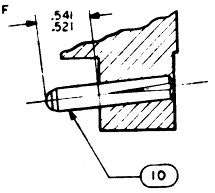
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 & 7 PER ND 1002136.
3. MARK .140/.100 HIGH BLACK CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
4. BOND FIND NOS 21,22,23,24 AND 25 TO FIND NO.1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO.18 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS. 18 & 19 TO FIND NO.1 TO BE 5.0/5.5IN LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS
10. PROCURE PER PS1007149.



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010231	WIRING DIAGRAM	REF
1	1015759	WIRE LIST AA	25
1	1015763	WIRING HARNESS D	24
1	1015762	WIRING HARNESS C	23
1	1015761	WIRING HARNESS B	22
1	1015760	WIRING HARNESS A	21
2	MS 21045 C 04	NUT, SELF LOCKING HEX	20
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	19
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	18
21	MS 171433	PIN SPRING	17
21	1004207	DRIVE CYLINDER	16
1	1008099-2	WASHER	15
42	1004206	WASHER THRUST	14
1	1008098	SCREW, SOCKET HEAD	13
21	1008172	SCREW, JACK	12
1	1001317	RETAINER, JACK SCREW	11
2	1010620-5	PIN, GUIDE	10
20	1010620-4	PIN, GUIDE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
60	1010383	INSULATOR, WRAPOST MALE	7
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
45	1006782-2	CONTACT, WRAPOST MALE MIN	5
45	1006775	INSULATOR, WRAPOST MALE MIN	4
232	1006781-2	CONTACT, WRAPOST FEMALE MIN	3
232	1006774	INSULATOR, WRAPOST FEMALE MIN	2
1	1008179	FRAME	1

LIST OF MATERIALS

1007179	
NEXT. ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
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FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DWG NO
DRAWN L. Krahn DATE 4/14/64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007169
SCALE 1/1
WT
SHEET 1 OF 2

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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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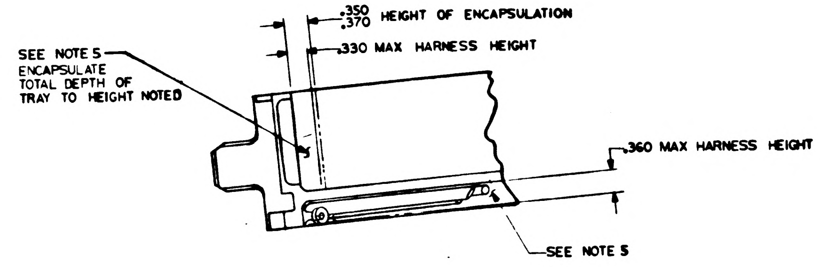
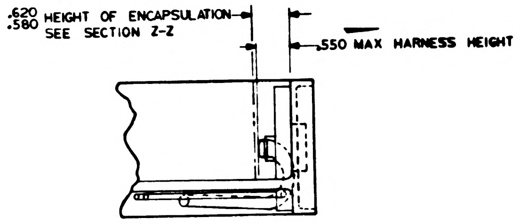
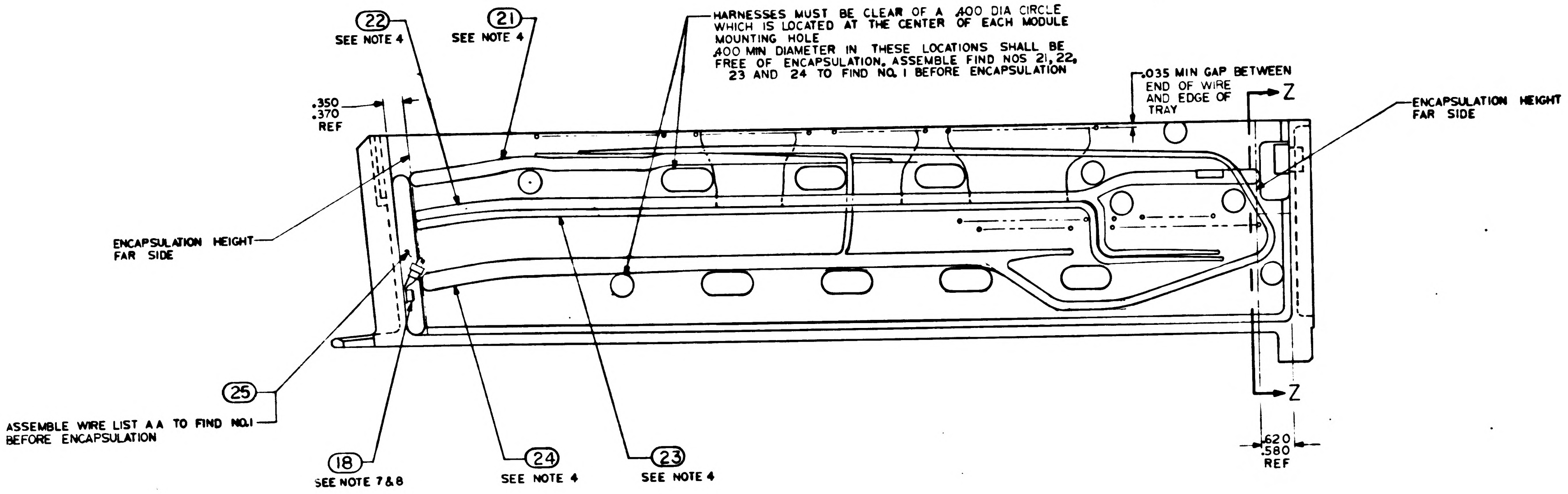
C	REVISED PER TDRR 14322	23 NOV 63	
D	REVISED PER TDRR 14579	8 DEC 64	


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5


.620
.580 HEIGHT OF ENCAPSULATION
SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT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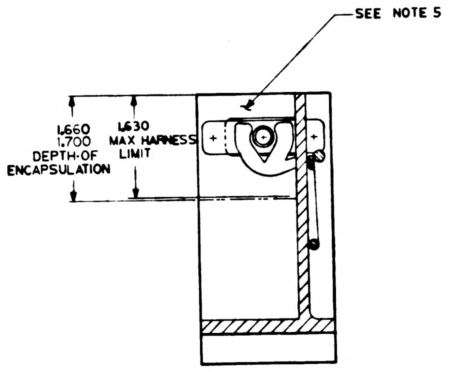
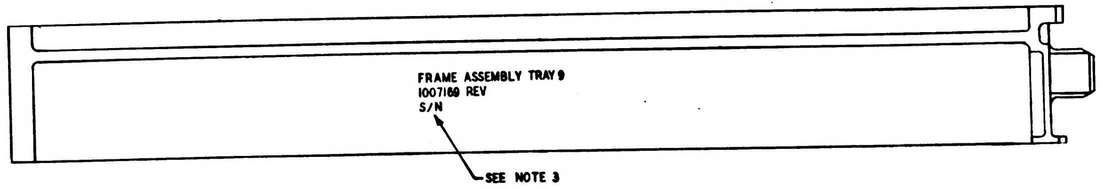
SEE NOTE 4
21
SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
.350
.370
REF
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO. 1 BEFORE ENCAPSULATION
18
SEE NOTE 7 & 8
24
SEE NOTE 4
23
SEE NOTE 4
Z
.620
.580
REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.660
1.700
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

SECTION Z-Z


FRAME ASSEMBLY TRAY 9
1007169 REV
S/N
SEE NOTE 3

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1007179	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
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MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN DATE
CHECKED
APPROVAL 2/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

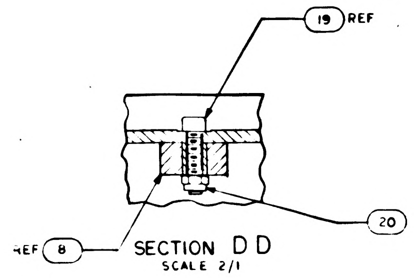
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

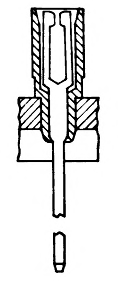
CODE IDENT NO
SIZE E
NASA DRAWING NO 1007169
SCALE 1/1
WT
SHEET 2 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

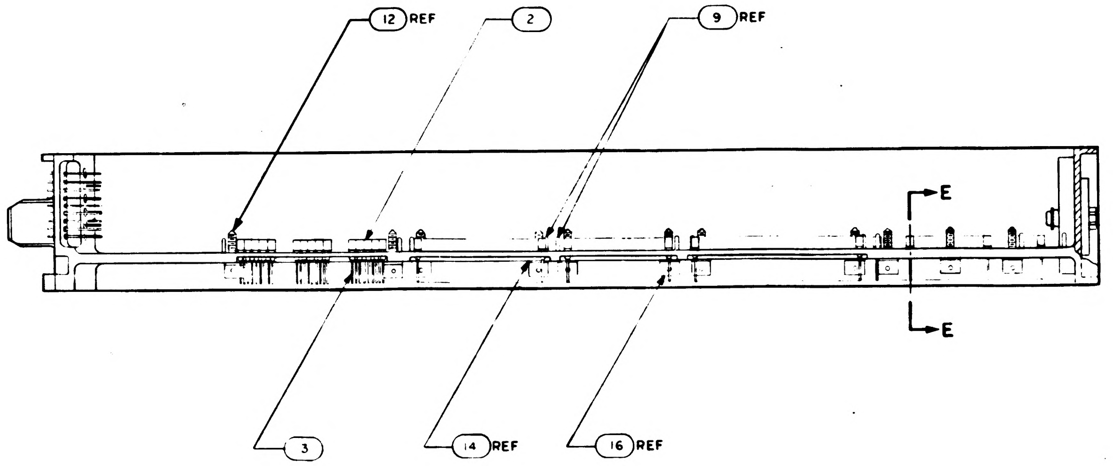
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 07276	8 APR 64	JJJ
B	REVISED PER TDRR 08145	13 MAY 64	
C	REVISED PER TDRR 14322	23 NOV 64	K
D	REVISED PER TDRR 14579	8 DEC 64	JJJ
E	REVISED PER TDRR 20118	21 JUN 65	JW

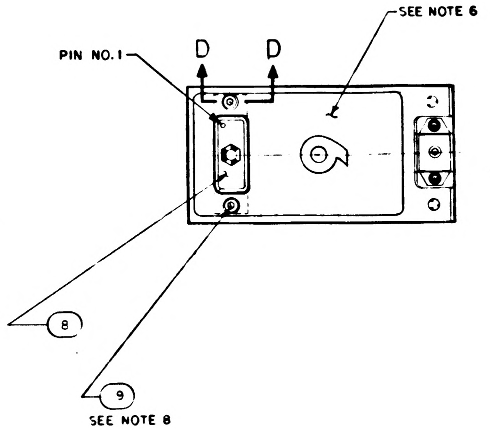


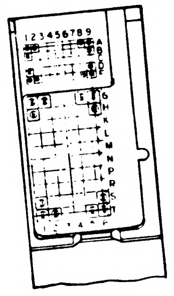
SECTION D D
SCALE 2/1

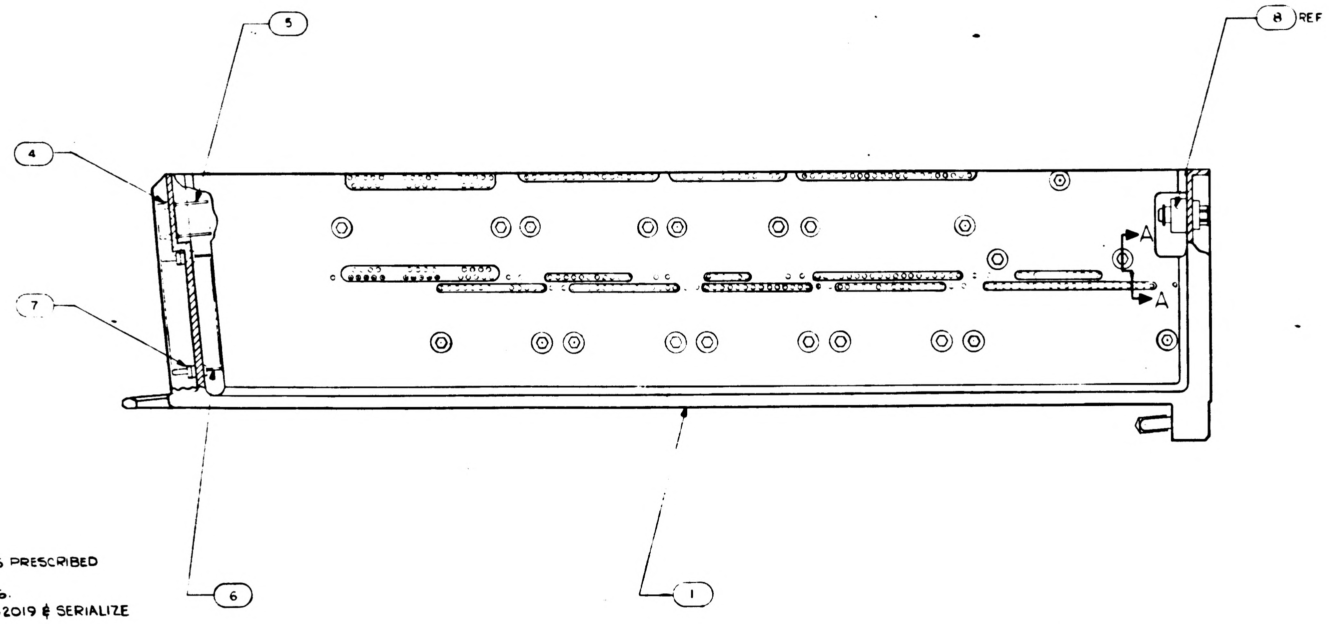


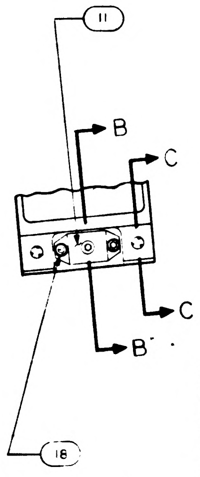
PARTIAL SECTION E-E
232 PLACES





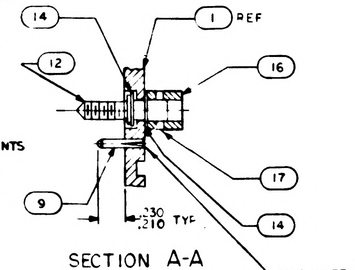




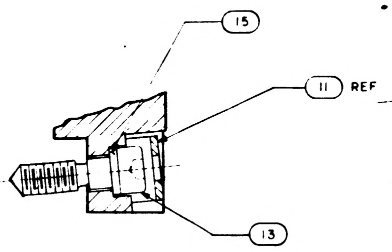


NOTES

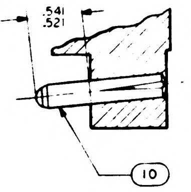
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 & 7 PER ND 1002136.
3. MARK .140/.100 HIGH BLACK CHARACTERS PER ND 1002019 & SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
4. BOND FIND NOS. 21, 22, 23, 24 & 25 TO FIND NO. 1 PER ND1002004 AS NECESSARY.
5. ENCAPSULATE PER ND 1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME & A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO. 18 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS. 18 & 19 TO FIND NO. 1 TO BE 5.0/5.5 IN LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS
10. PROCURE PER PS1007149.
11. FILL MODULE GUIDE PIN HOLES & ANY ASSOCIATED CRACKS IN PLATING (AFTER, GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
12. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH & WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME & CONNECTOR WITH ND1002004 TYPE I.



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

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1	1015759	WIRE LIST AA	25
1	1015763	WIRING HARNESS D	24
1	1015762	WIRING HARNESS C	23
1	1015761	WIRING HARNESS B	22
1	1015760	WIRING HARNESS A	21
2	MS 21045 C 04	NUT, SELF LOCKING HEX	20
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	19
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	18
21	MS 171433	PIN SPRING	17
21	1004207	DRIVE CYLINDER	16
1	1008099-2	WASHER	15
42	1004206	WASHER THRUST	14
1	1009098	SCREW, SOCKET HEAD	13
21	1008172	SCREW, JACK	12
1	1001317	RETAINER, JACK SCREW	11
2	1010620-5	PIN, GUIDE	10
20	MS16556-604	PIN, GUIDE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
60	1010383	INSULATOR, WRAPOST MALE	7
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
45	1006782-2	CONTACT, WRAPOST MALE MIN	5
45	1006775	INSULATOR, WRAPOST MALE MIN	4
232	1006781-2	CONTACT, WRAPOST FEMALE MIN	3
232	1006774	INSULATOR, WRAPOST FEMALE MIN	2
1	1008179	FRAME	1

LIST OF MATERIALS

NEXT ASSY	1007179
USED ON	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ±1°
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CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

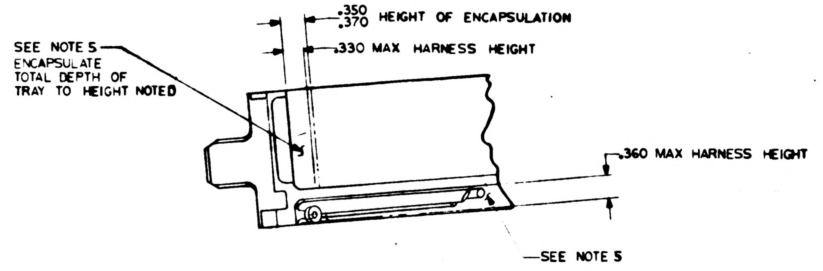
FRAME ASSEMBLY
TRAY 9

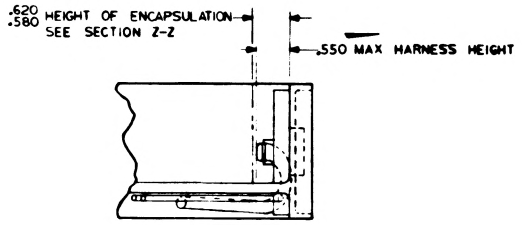
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007169
SCALE 1/1
WT
SHEET 1 OF 2

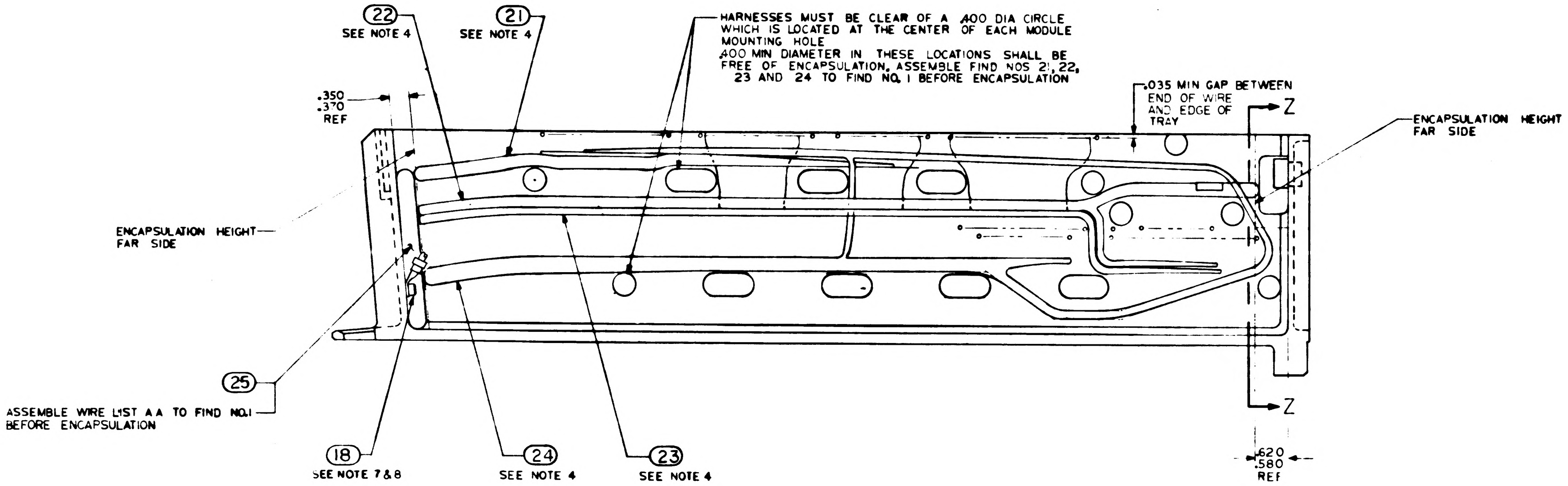
1007169 E

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

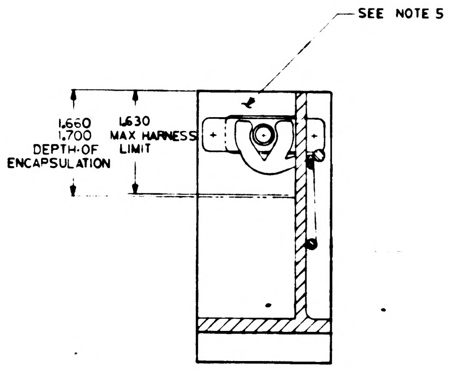
REVISIONS			
SYM	DESCRIPTION	DATE	
(M) B	REVISED PER TDR 08145	15 MAY 64	
(M) C	REVISED PER TDRR 14322	2? NOV [illegible]	
(M) D	REVISED PER TDRR 4579	8 DEC 64	
E	REVISION STATUS CHANGED	2 JUN 65	


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE
TOTAL DEPTH OF
TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5

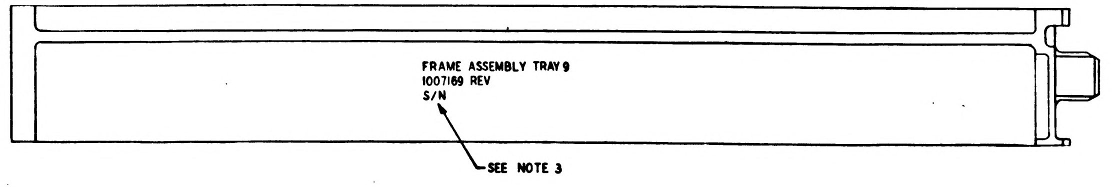

.620
.580 HEIGHT OF ENCAPSULATION
SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT


22
SEE NOTE 4
21
SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.350
.370
REF
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO. 1 BEFORE ENCAPSULATION
18
SEE NOTE 7 & 8
24
SEE NOTE 4
23
SEE NOTE 4
Z
.620
.580
REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.660
1.700
DEPTH OF
ENCAPSULATION
1.630
MAX HARNESS
LIMIT

SECTION Z-Z


FRAME ASSEMBLY TRAY 9
1007169 REV
S/N
SEE NOTE 3

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

1007179	
NEXT ASSY	USED ON
APPLICATION	

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DRAWN [illegible] DATE 6 MAR 64
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NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

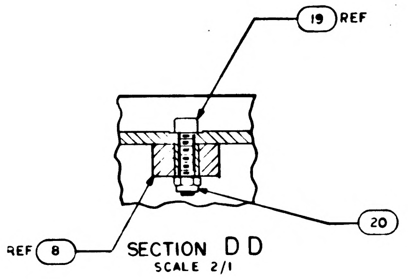
FRAME ASSEMBLY
TRAY 9

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007169
SCALE 1/1
WT
SHEET 2 OF 2

1007169 E

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR [illegible]	[illegible]	[illegible]
B	REVISED PER TDRR 08145	MAY	[illegible]
C	REVISED PER TDRR 14322	[illegible]	[illegible]
D	REVISED PER TDRR 14579	[illegible]	[illegible]
E	REVISED PER TDRR 20118	[illegible]	[illegible]
F	REVISED PER TDRR 20119	23	[illegible]



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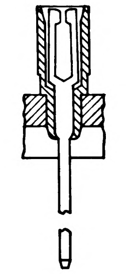
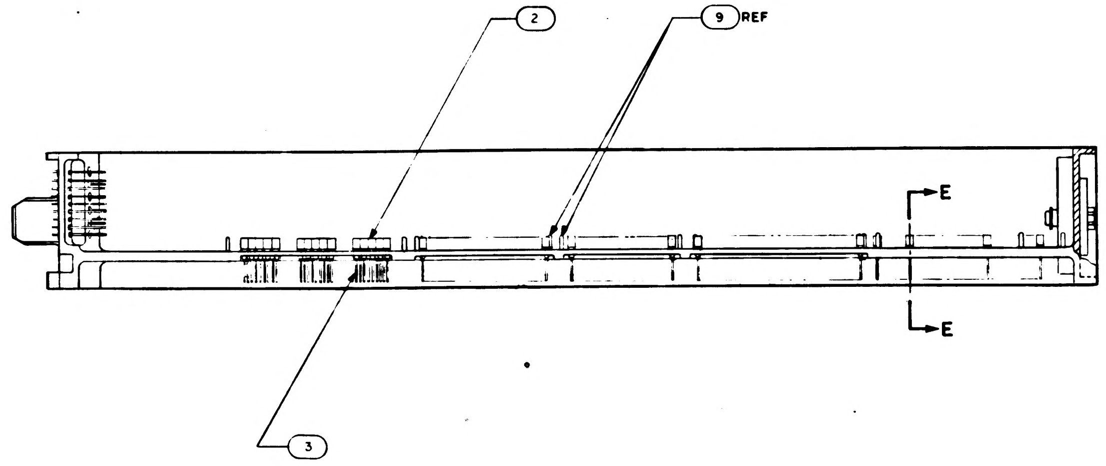
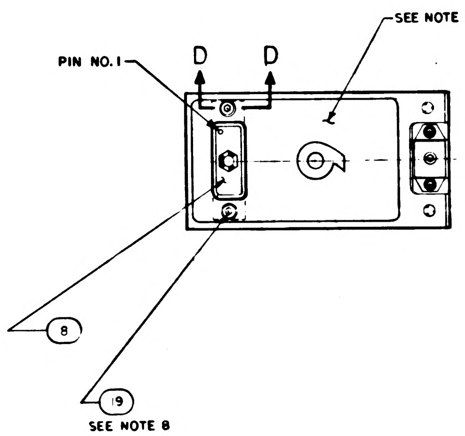
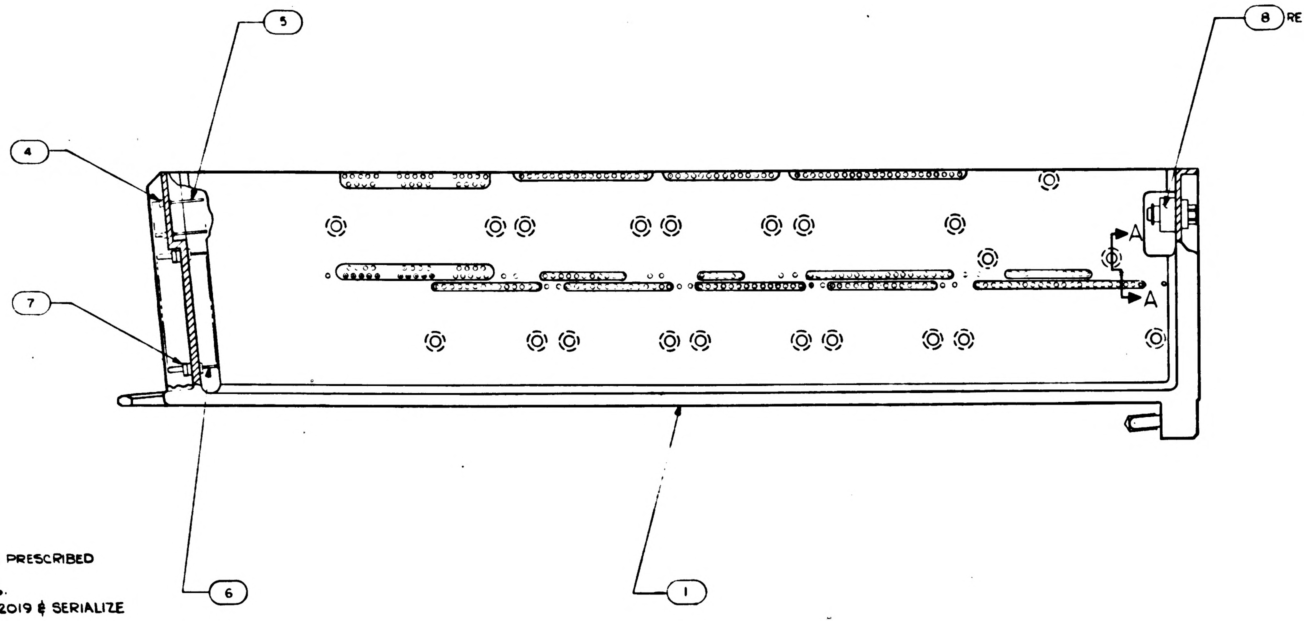
SCALE 2/1

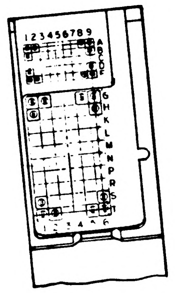


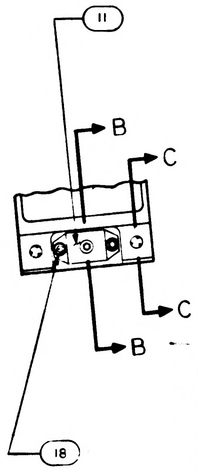
PARTIAL SECTION E-E
232 PLACES











NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 & 7 PER ND 1002136.
3 MARK .140/.100 HIGH BLACK CHARACTERS PER ND 1002019 & SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
4. BOND FIND NOS. 21, 22, 23, 24 & 25 TO FIND NO. 1 PER ND1002004 AS NECESSARY.
5. ENCAPSULATE PER ND 1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME & A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO.18 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS. 18 & 19 TO FIND NO.1 TO BE 5.0/5.5IN LB
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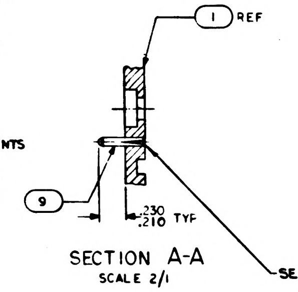
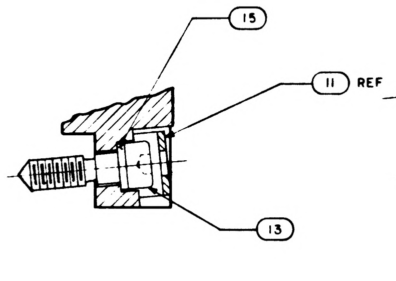
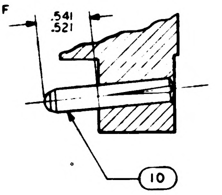
11. FILL MODULE GUIDE PIN HOLES & ANY ASSOCIATED CRACKS IN PLATING (AFTER, GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
12. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH & WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME & CONNECTOR WITH ND1002004 TYPE I.



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010231	WIRING DIAGRAM	REF
1	1015759	WIRE LIST AA	25
1	1015763	WIRING HARNESS D	24
1	1015762	WIRING HARNESS C	23
1	1015761	WIRING HARNESS B	22
1	1015760	WIRING HARNESS A	21
2	MS 21045 C 04	NUT, SELF LOCKING HEX	20
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	19
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	18
~~21~~	~~MS171433~~	~~PIN SPRING~~	~~17~~
~~21~~	~~1004207~~	~~DRIVE CYLINDER~~	~~16~~
1	1008099-2	WASHER	15
~~42~~	~~1004206~~	~~WASHER THRUST~~	~~14~~
1	1008098	SCREW, SOCKET HEAD	13
~~21~~	~~1008172~~	~~SCREW, JACK~~	~~12~~
1	1001317	RETAINER, JACK SCREW	11
2	1010620-5	PIN, GUIDE	10
20	MS16556-604	PIN, GUIDE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
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60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
45	1006782-2	CONTACT, WRAPOST MALE MIN	5
45	1006775	INSULATOR, WRAPOST MALE MIN	4
232	1006781-2	CONTACT, WRAPOST FEMALE MIN	3
232	1006774	INSULATOR, WRAPOST FEMALE MIN	2
1	1008173	FRAME	1

LIST OF MATERIALS

1007179	
NEXT. ASSY	USED ON
APPLICATION	

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FRACTIONS ± — DECIMALS ±.02 ANGLES ±1°
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FINAL FINISH

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CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN L. Krahn DATE 4 MAR 64
CHECKED [illegible]
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APPROVAL
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 1007169
SCALE 1/1
WT
SHEET 1 OF 2

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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
B	REVISED PER TDR 08145	5 MAY 64	B
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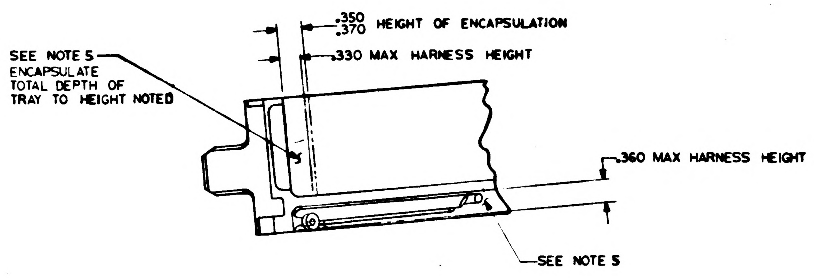
D	REVISED PER TDRR 14579	EC	
E	REVISION STATUS CHANGED		
F	REVISION STATUS CHANGED		JRS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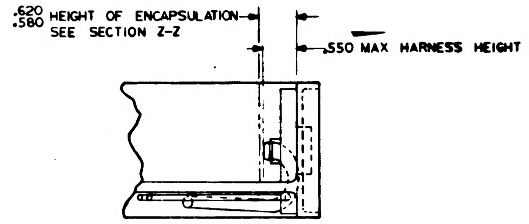
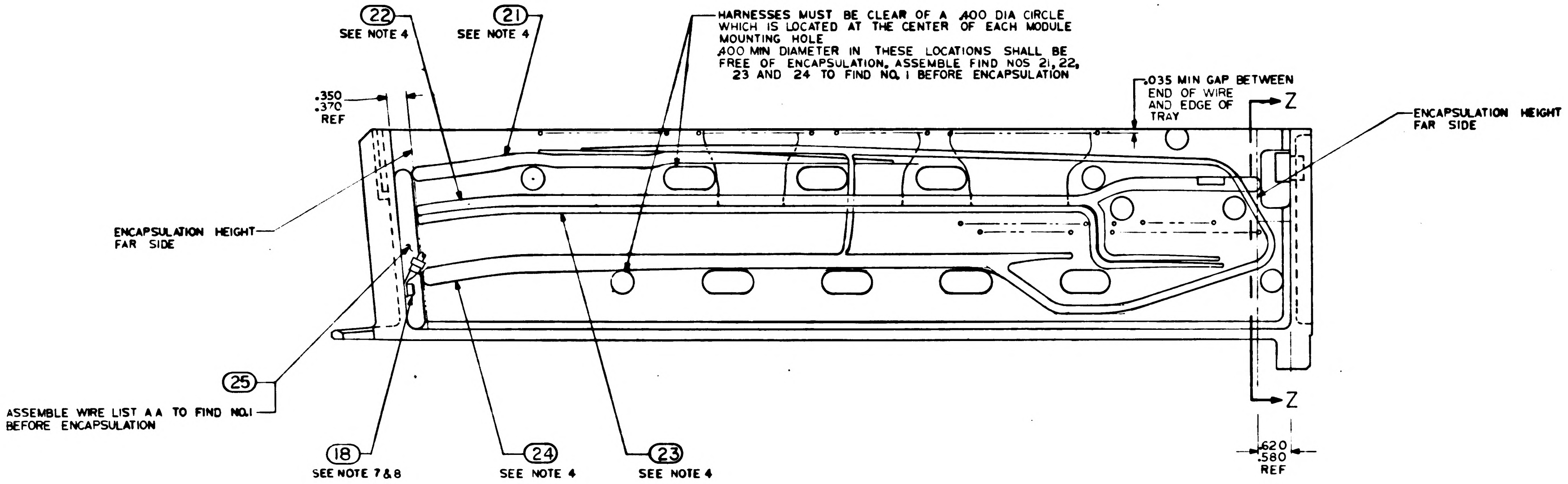
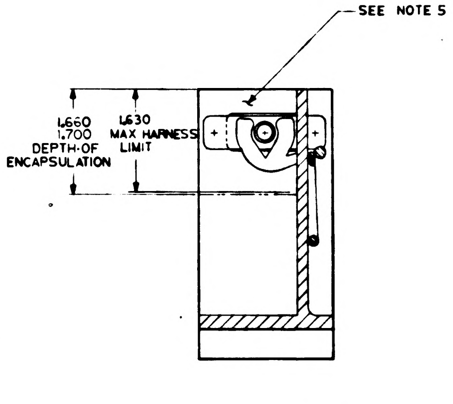
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE
TOTAL DEPTH OF
TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5

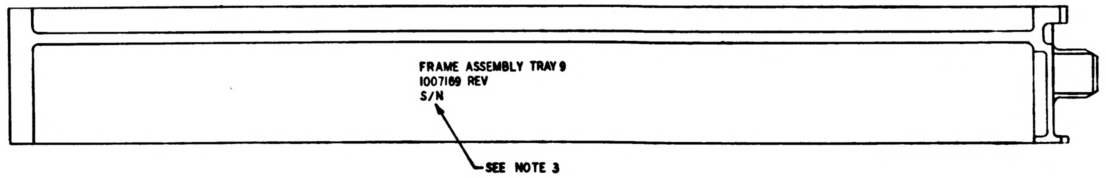

.620
.580 HEIGHT OF ENCAPSULATION
SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT


22
SEE NOTE 4
21
SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
.350
.370
REF
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
18
SEE NOTE 7 & 8
24
SEE NOTE 4
23
SEE NOTE 4
Z
.620
.580
REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.660
1.700
DEPTH OF
ENCAPSULATION
1.630
MAX HARNESS
LIMIT

SECTION Z-Z


FRAME ASSEMBLY TRAY 9
1007169 REV
S/N
SEE NOTE 3

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY: 1007179	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ± DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS Contract NAS 9-497
APPLICATION		MATERIAL	DRAWN DATE CHECKED APPROVAL 3/9/64 APPROVAL
		HEAT TREATMENT	NASA APPROVAL
		FINAL FINISH	MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

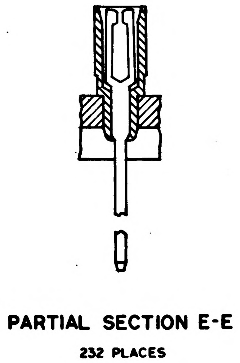
FRAME ASSEMBLY
TRAY 9

CODE IDENT NO	SIZE	NASA DRAWING NO
80230	E	1007169
SCALE 1/1	WT	SHEET 2 OF 2

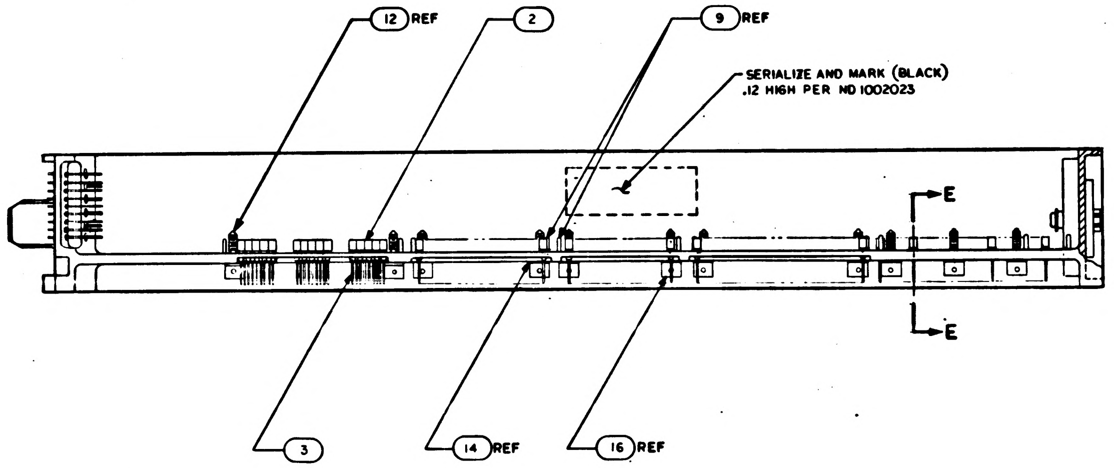
1007169 E

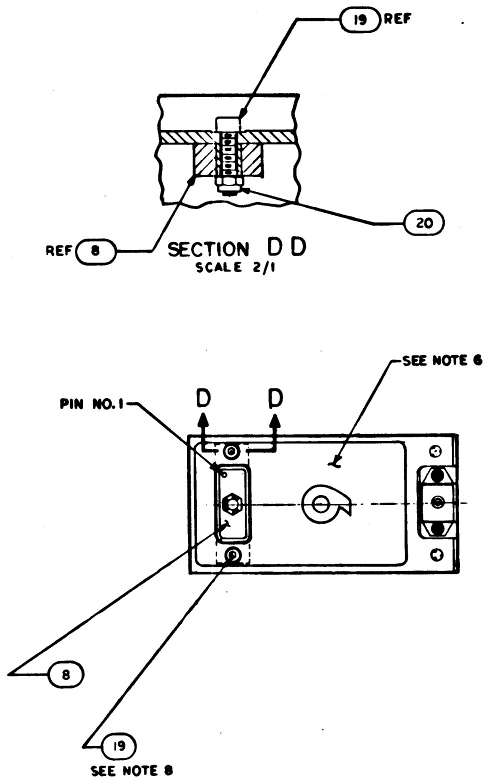
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

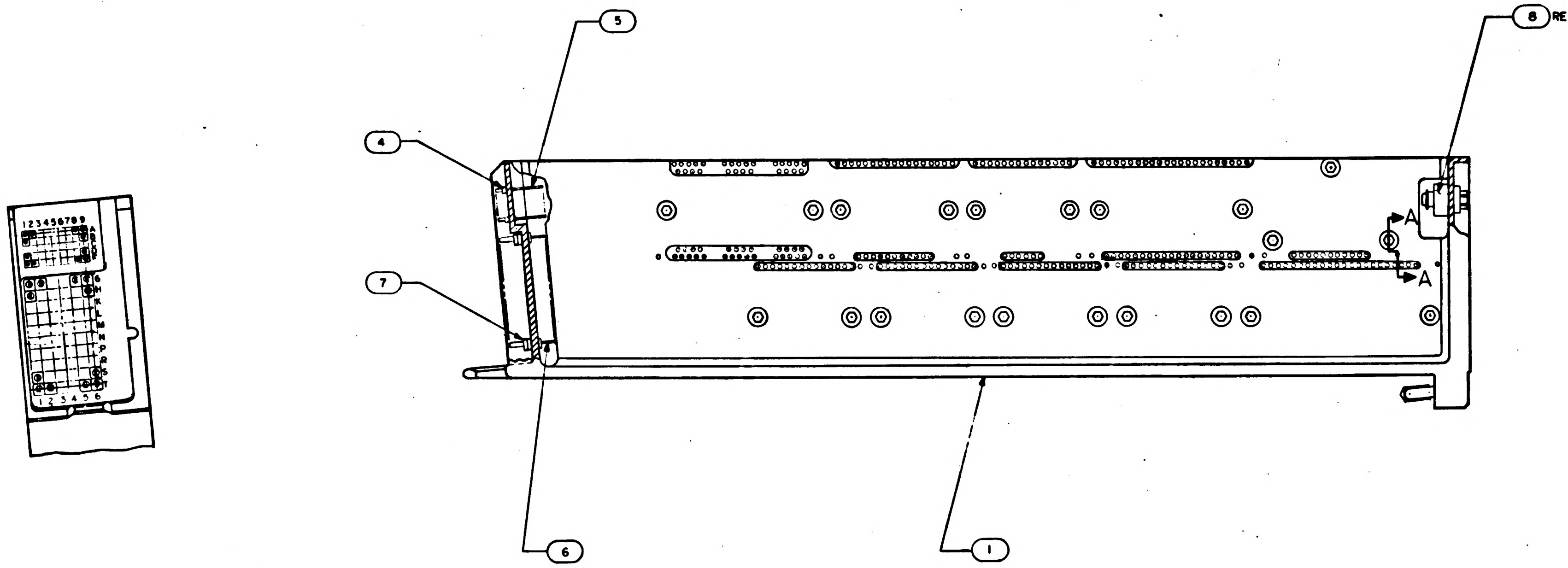
REVISIONS 56879			
SYM	DESCRIPTION	DATE	APPROVAL

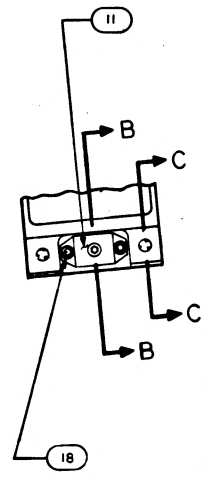


PARTIAL SECTION E-E
232 PLACES



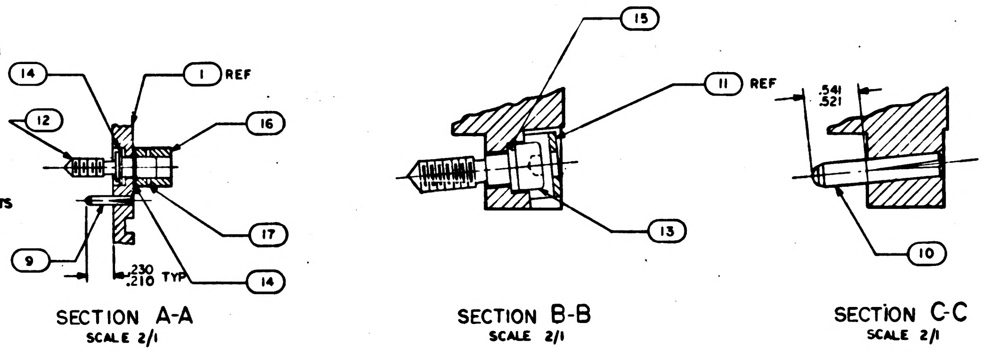






NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019
4. BOND FIND NOS 21,22,23,24 AND 25 TO FIND NO. 1 PER ND 1002004 AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO.18 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS. 18 & 19 TO FIND NO.1 TO BE 5.0/5.5 IN LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571 Sn 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS



QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010099	WIRING DIAGRAM	REF
1	1015759	WIRE LIST AA	25
1	1015763	WIRING HARNESS D	24
1	1015762	WIRING HARNESS C	23
1	1015761	WIRING HARNESS B	22
1	1015760	WIRING HARNESS A	21
2	MS 21045 C 04	NUT, SELF LOCKING HEX	20
2	MS 16995-11	SCREW, CAP, SOCKET HEAD	19
2	MS 16995-10	SCREW, CAP, SOCKET HEAD	18
21	1008145	SPRING, SPIRAL	17
21	1004207	DRIVE CYLINDER	16
1	1008099-2	WASHER	15
42	1004206	WASHER THRUST	14
1	1008098	SCREW, SOCKET HEAD	13
21	1008095	SCREW, JACK	12
1	1001317	RETAINER, JACK SCREW	11
2	1010620-2	PIN, GUIDE	10
20	1010620-1	PIN, GUIDE	9
1	1010622-1	CONNECTOR, RECEPTACLE	8
60	1010383	INSULATOR, WRAPOST MALE	7
60	1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
45	1006782-2	CONTACT, WRAPOST MALE - MIN	5
45	1006775	INSULATOR, WRAPOST MALE MIN	4
232	1006781-2	CONTACT, WRAPOST FEMALE MIN	3
232	1006774	INSULATOR, WRAPOST FEMALE MIN	2
1	1008179	FRAME	1

LIST OF MATERIALS

1007169

1007179	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG. NO. CONTRACT
DRAWN L Krahn DATE 4MAR64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

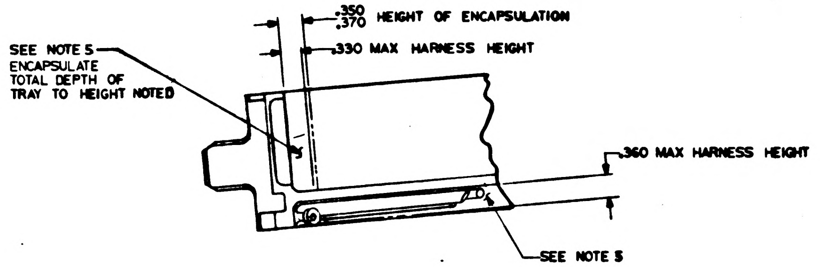
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007169
SCALE 1/1
WT
SHEET 1 OF 2

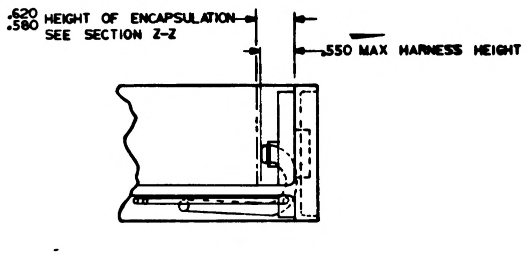
MASTER

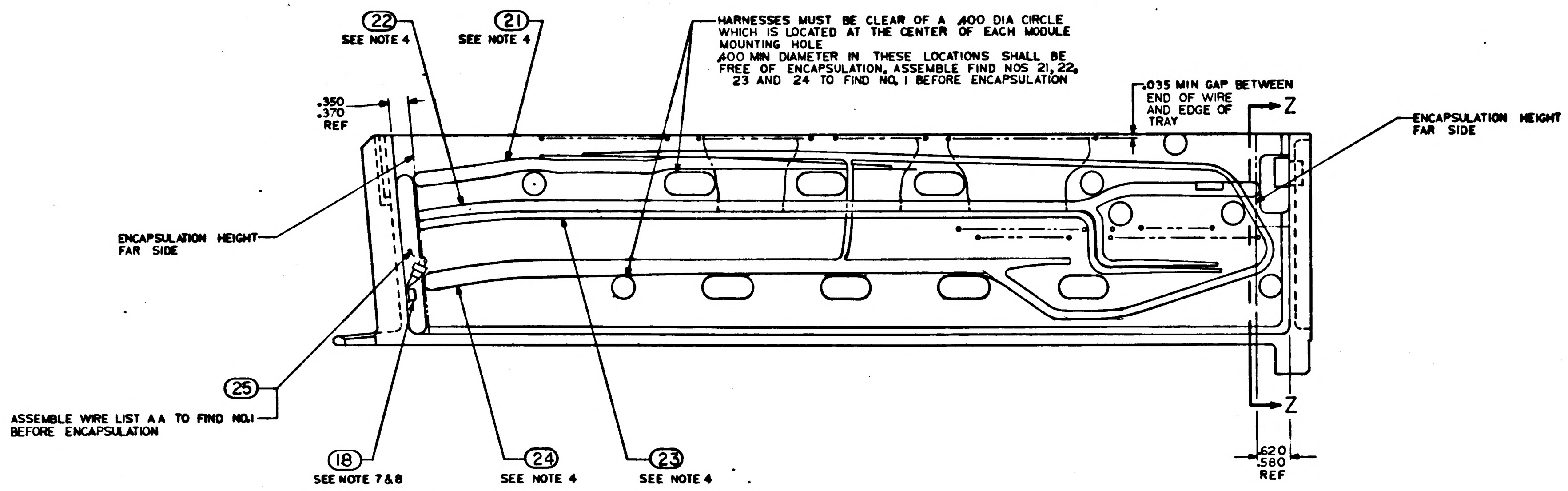
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 06874

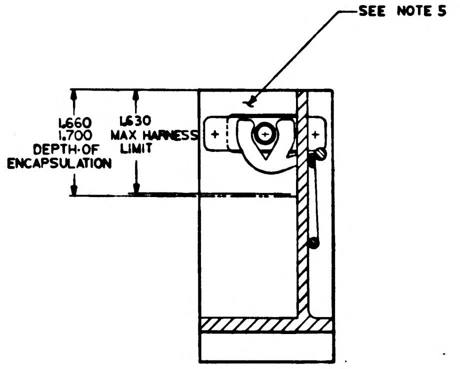
SYM	DESCRIPTION	DATE	APPROVAL


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5

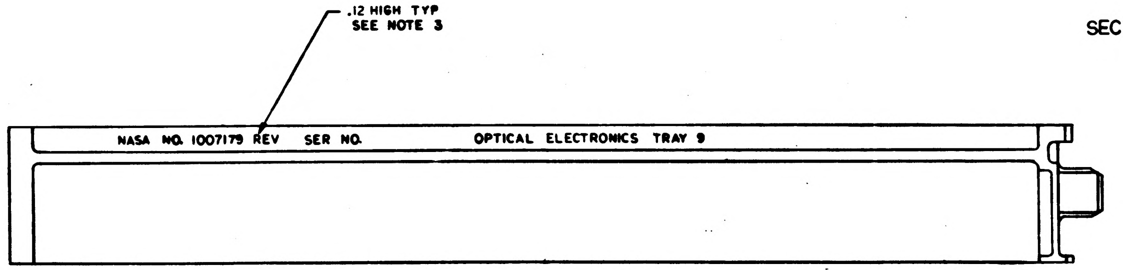

.620
.580 HEIGHT OF ENCAPSULATION
SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT


22
SEE NOTE 4
21
SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
.350
.370
REF
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
18
SEE NOTE 7 & 8
24
SEE NOTE 4
23
SEE NOTE 4
Z
.620
.580
REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.660
1.700
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

SECTION Z-Z


.12 HIGH TYP
SEE NOTE 3
NASA NO. 1007179 REV SER NO. OPTICAL ELECTRONICS TRAY 9

MARKING VIEW AFTER ENCAPSULATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007179	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
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FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN E Krahn DATE MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL 3/20/64
MIT APPROVAL 10 Mar 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007169
SCALE 1/1 WT SHEET 2 OF 2

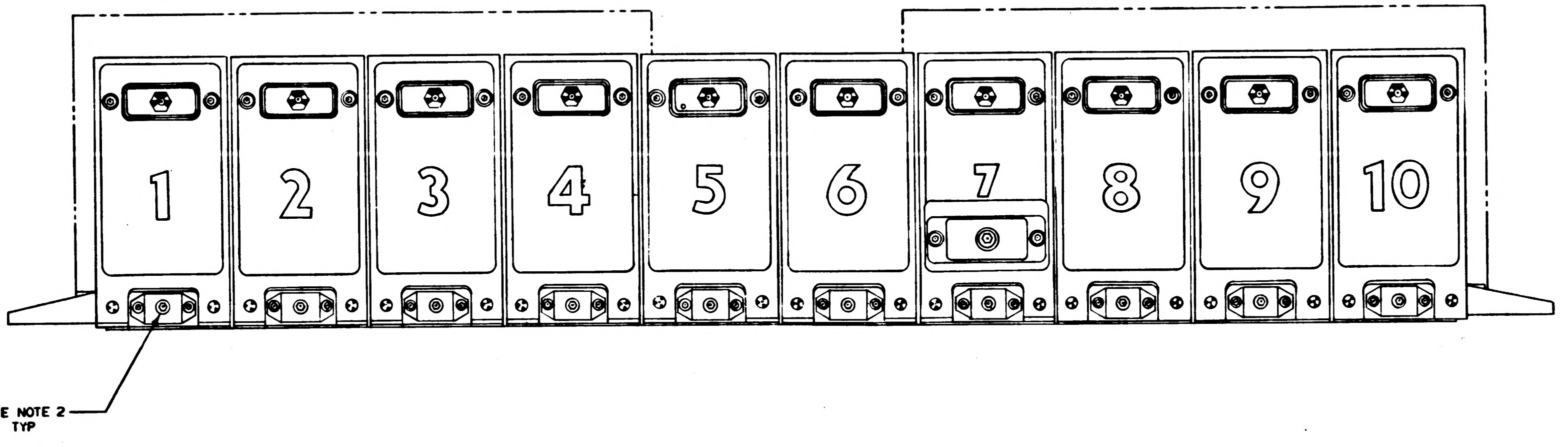
1007169

MASTER

INCHES
PHOTOGRAPHIC SCALE ONLY

1007170 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 10531	6-4-64	EL



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1	1008135	TOE CAP POWER & SERVO ASSY	11
1	1007160	PWR DIOS & SIG COND ELEC ASSY TRAY 10	10
1	1007179	OPTICAL ELECTRONICS ASSY, TRAY 9	9
1	1007178	OPTICAL ELECTRONICS ASSY, TRAY 8	8
1	1007177	MISC ELECTRONICS ASSY, TRAY 7	7
1	1007176	CDU & PWR SUPP ELECTRONICS ASSY, TRAY 6	6
1	1007175	CDU & GYRO ACCEL ELECTRONICS ASSY, TRAY 5	5
1	1007154	GYRO ACCEL ELECTRONICS ASSY, TRAY 4	4
1	1007153	GYRO ACCEL ELECTRONICS ASSY, TRAY 3	3
1	1007152	PWR SUPP ELECTRONICS ASSY, TRAY 2	2
1	1007151	GIMBAL SERVO ELECT. ASSY, TRAY 1	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1015000	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS ± // ANGLES ± //
DO NOT SCALE THIS DRAWING
MATERIAL //
HEAT TREATMENT //
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CAMBRIDGE, MASS

DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL
APPROVAL [illegible] 3/30/64
NASA APPROVAL [illegible] 3/31/64
MIT APPROVAL [illegible] 3/16/64

MANNED SPACECRAFT CENTER
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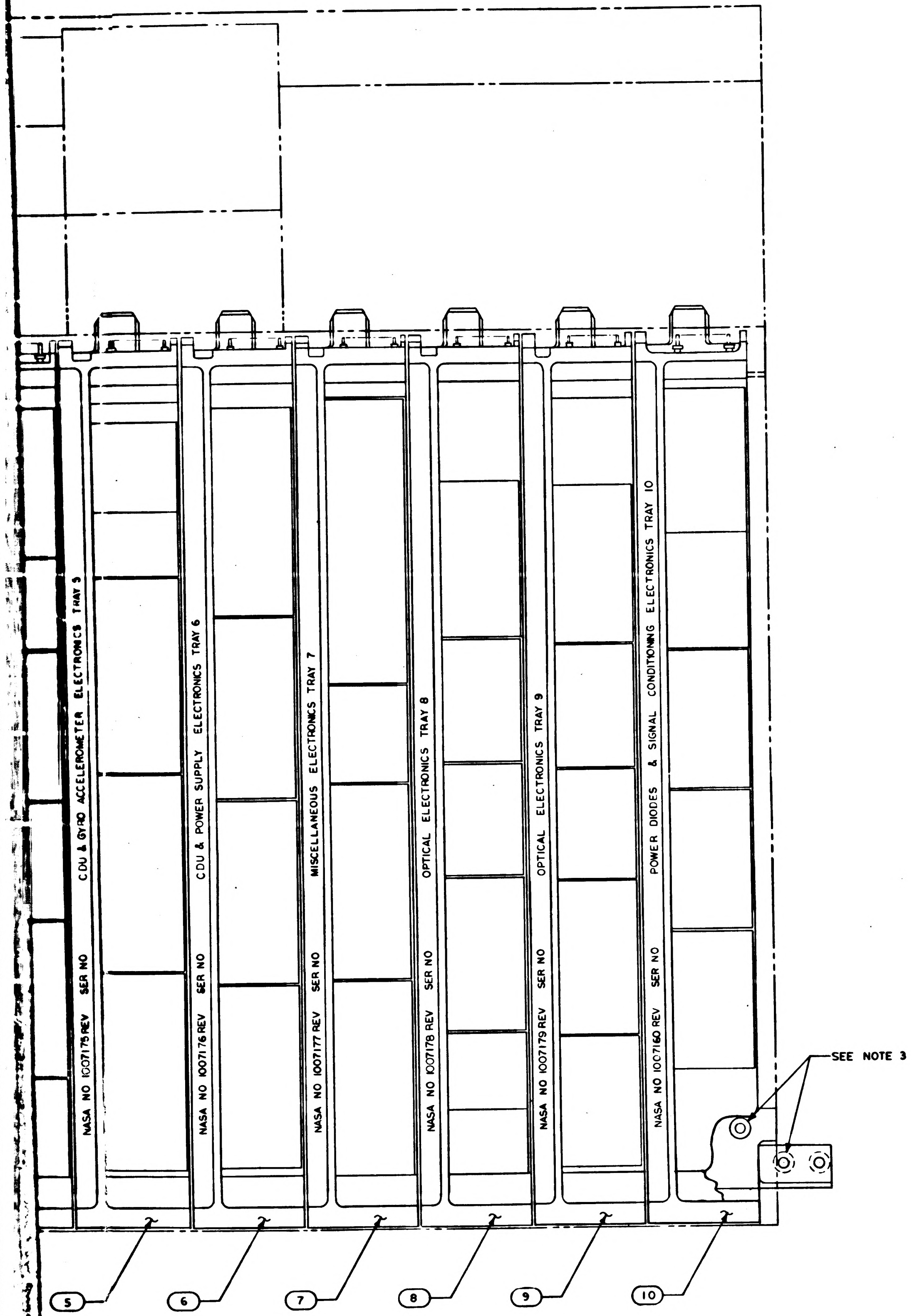
POWER AND SERVO
ASSEMBLY

CODE IDENT NO. | SIZE J | NASA DRAWING NO 1007170
SCALE 1/1 | WT | SHEET 1 OF 1

1007170

37 1007170


NASA NO 1007175 REV SER NO CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
NASA NO 1007176 REV SER NO CDU & POWER SUPPLY ELECTRONICS TRAY 6
NASA NO 1007177 REV SER NO MISCELLANEOUS ELECTRONICS TRAY 7
NASA NO 1007178 REV SER NO OPTICAL ELECTRONICS TRAY 8
NASA NO 1007179 REV SER NO OPTICAL ELECTRONICS TRAY 9
NASA NO 1007160 REV SER NO POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
SEE NOTE 3
5
6
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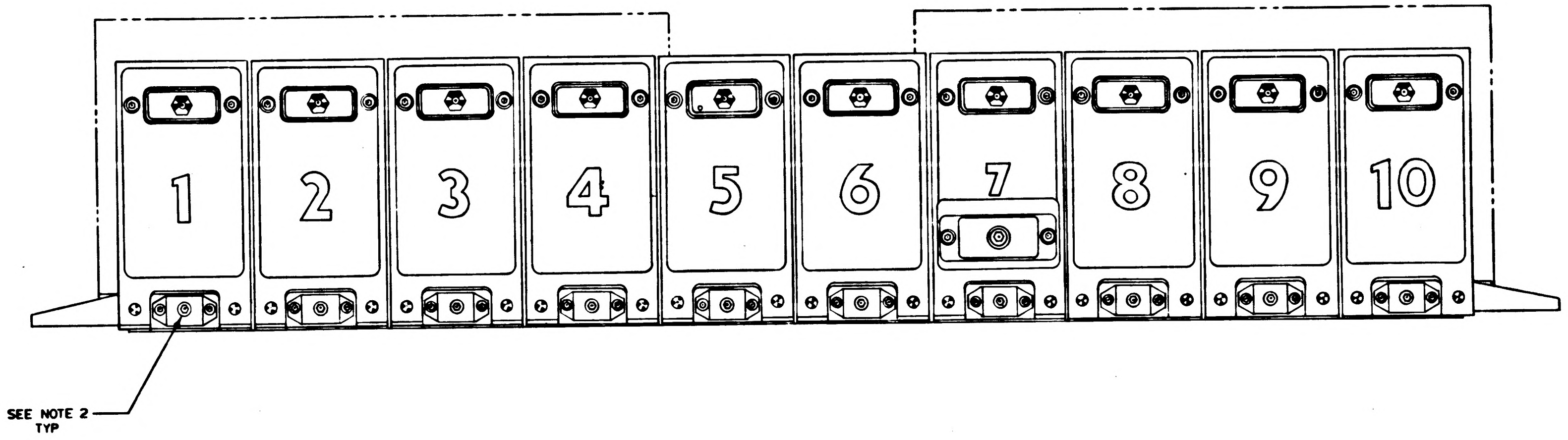
10


1
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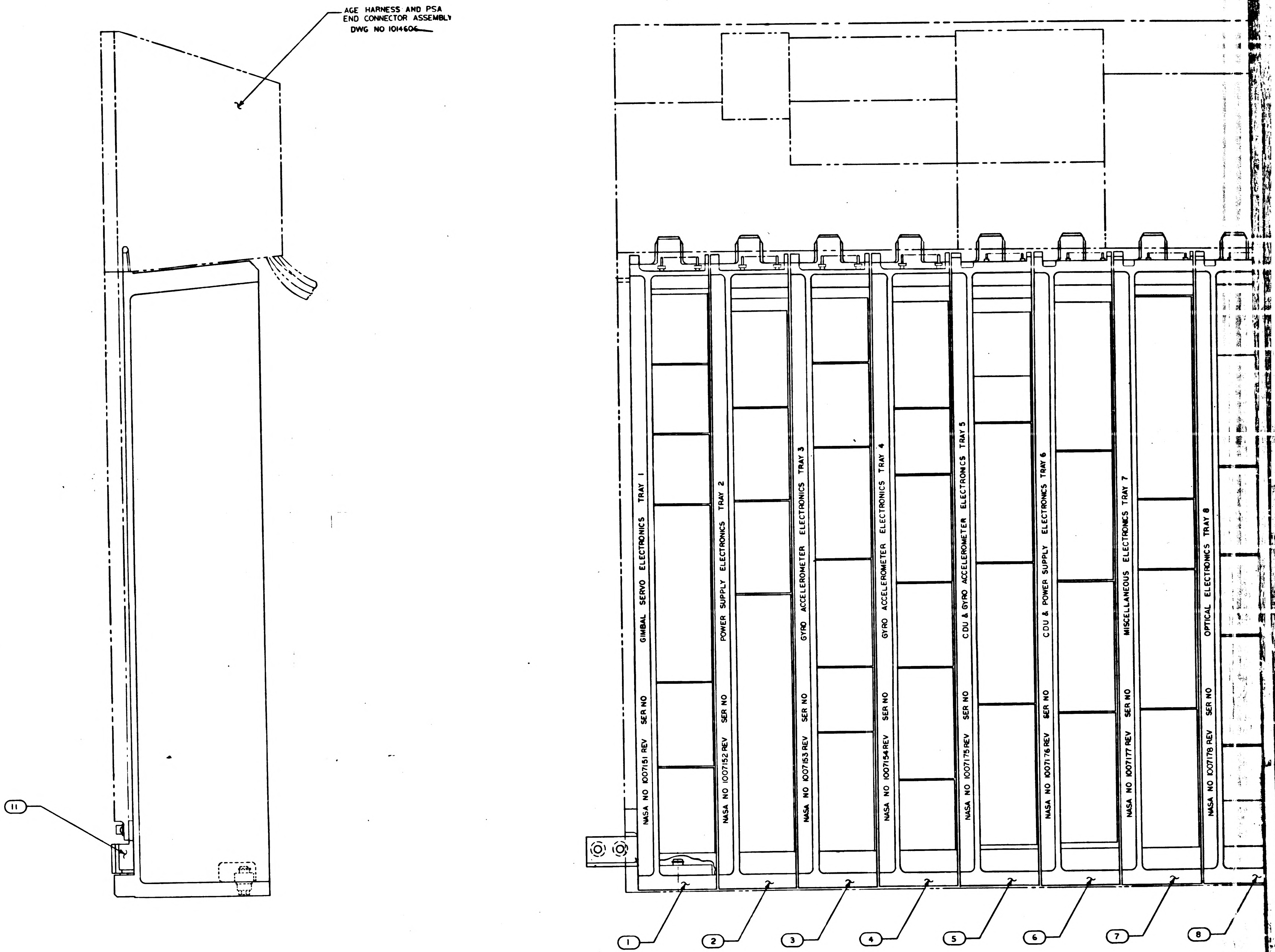
SEE NOTE 2
TYP

1007170

2/1007170

1007170

NOTICE — [illegible]


AGE HARNESS AND PSA
END CONNECTOR ASSEMBLY
DWG NO 1014606
11
NASA NO 1007151 REV SER NO GIMBAL SERVO ELECTRONICS TRAY 1
NASA NO 1007152 REV SER NO POWER SUPPLY ELECTRONICS TRAY 2
NASA NO 1007153 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY 3
NASA NO 1007154 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY 4
NASA NO 1007175 REV SER NO CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
NASA NO 1007176 REV SER NO CDU & POWER SUPPLY ELECTRONICS TRAY 6
NASA NO 1007177 REV SER NO MISCELLANEOUS ELECTRONICS TRAY 7
NASA NO 1007178 REV SER NO OPTICAL ELECTRONICS TRAY 8
1
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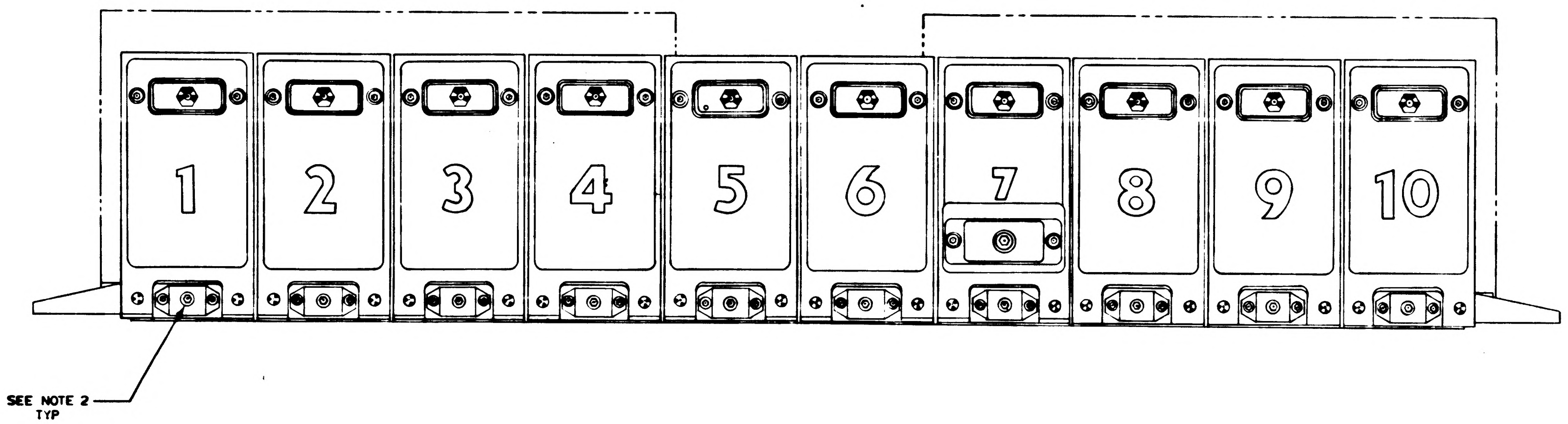
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TRAY ASSEMBLY TORQUE TO FIND NO.11 TO BE 25-30 IN-LBS.
3. TOE CAP HARDWARE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC.
4. PSA COLDPLATE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC. REF PART NO V16-614047
5. SERIALIZE WITH TAG PER ND 1002023. ~~REF PARA 8.2.~~
6. TEST PER ATP 1007100.

3H

1007170

1/1007170

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 10531	6 JUL 64	FL
B	REVISED PER TDRR 13414	2 NOV 64	JJJ



TE 7

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
6	1010630-54	SCREW, FLAT HEAD,100° HEX SOCKET	12
1	1008135	TOE CAP POWER & SERVO ASSY	11
1	1007160	PWR DIOS & SIG COND ELEC ASSY TRAY 10	10
1	1007179	OPTICAL ELECTRONICS ASSY, TRAY 9	9
1	1007178	OPTICAL ELECTRONICS ASSY, TRAY 8	8
1	1007177	MISC ELECTRONICS ASSY, TRAY 7	7
1	1007176	CDU & PWR SUPP ELECTRONICS ASSY, TRAY 6	6
1	1007175	CDU & GYRO ACCEL ELECTRONICS ASSY, TRAY 5	5
1	1007154	GYRO ACCEL ELECTRONICS ASSY, TRAY 4	4
1	1007153	GYRO ACCEL ELECTRONICS ASSY, TRAY 3	3
1	1007152	PWR SUPP ELECTRONICS ASSY, TRAY 2	2
1	1007151	GIMBAL SERVO ELECT. ASSY, TRAY 1	1

LIST OF MATERIALS

1015000	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS ± // ANGLES ± //
DO NOT SCALE THIS DRAWING
MATERIAL //
HEAT TREATMENT //
FINAL FINISH //

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE
CHECKED
APPROVAL
APPROVAL 3/20/64
NASA APPROVAL
MIT APPROVAL 3/14/64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

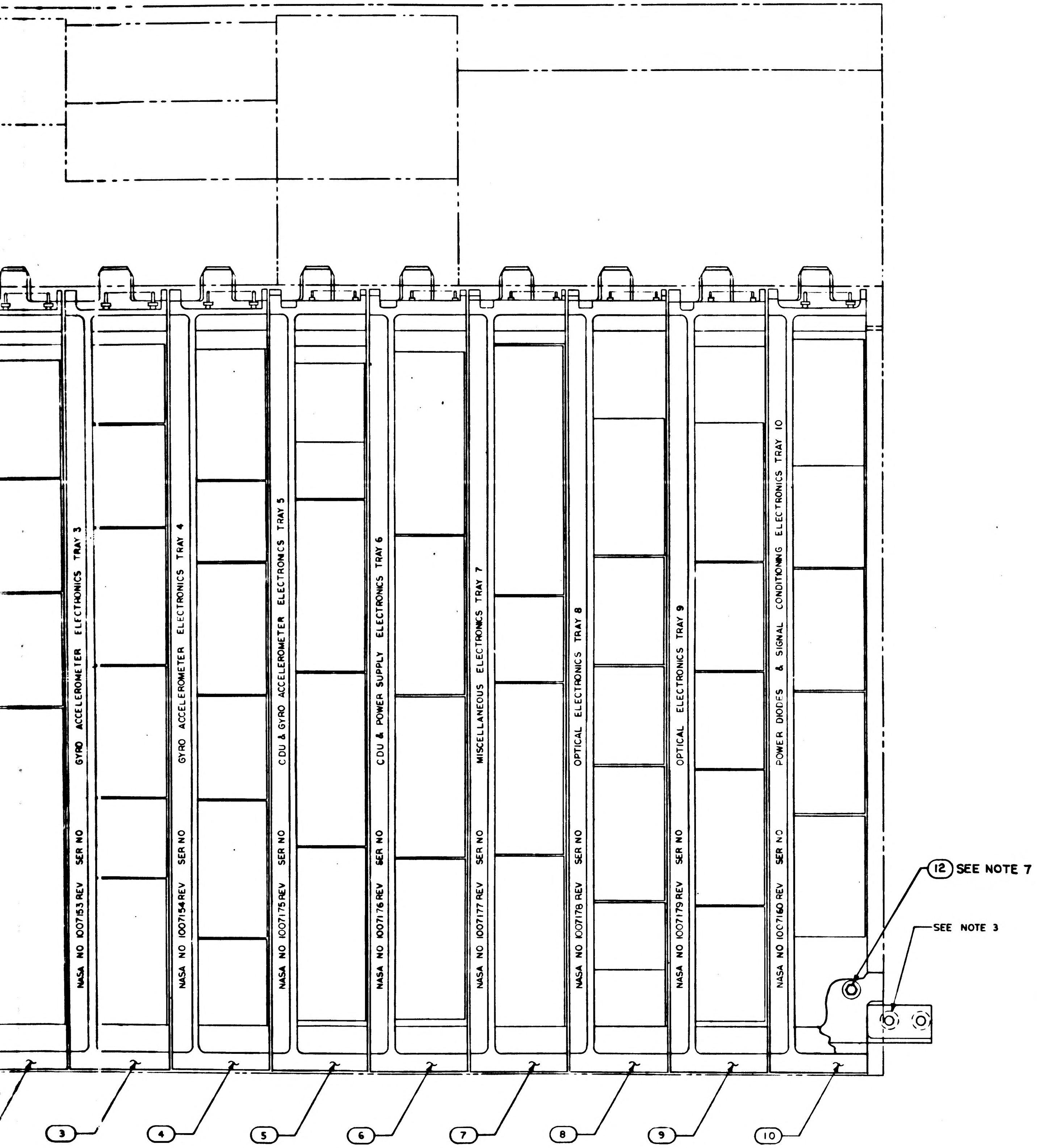
POWER AND SERVO ASSEMBLY

CODE IDENT NO.
SIZE J
NASA DRAWING NO 1007170
SCALE 1/1
WT
SHEET 1 OF 1

1007170 B

(3H)

3/1007170



GYRO ACCELEROMETER ELECTRONICS TRAY 3
NASA NO 1007153 REV SER NO
GYRO ACCELEROMETER ELECTRONICS TRAY 4
NASA NO 1007154 REV SER NO
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
NASA NO 1007175 REV SER NO
CDU & POWER SUPPLY ELECTRONICS TRAY 6
NASA NO 1007176 REV SER NO
MISCELLANEOUS ELECTRONICS TRAY 7
NASA NO 1007177 REV SER NO
OPTICAL ELECTRONICS TRAY 8
NASA NO 1007178 REV SER NO
OPTICAL ELECTRONICS TRAY 9
NASA NO 1007179 REV SER NO
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
NASA NO 1007160 REV SER NO
12 SEE NOTE 7
SEE NOTE 3
2
3
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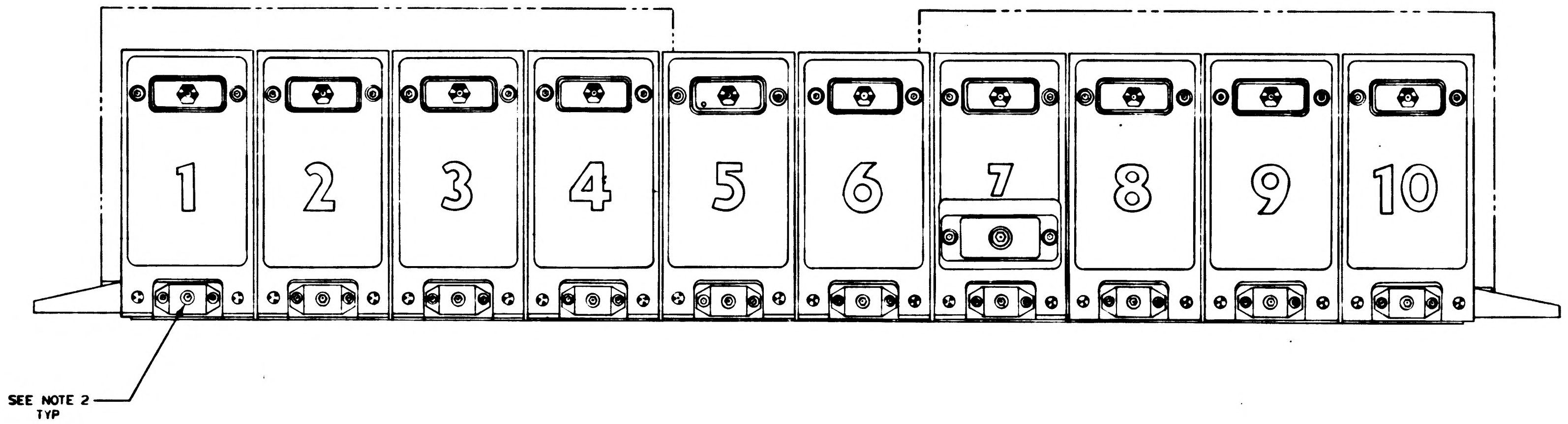
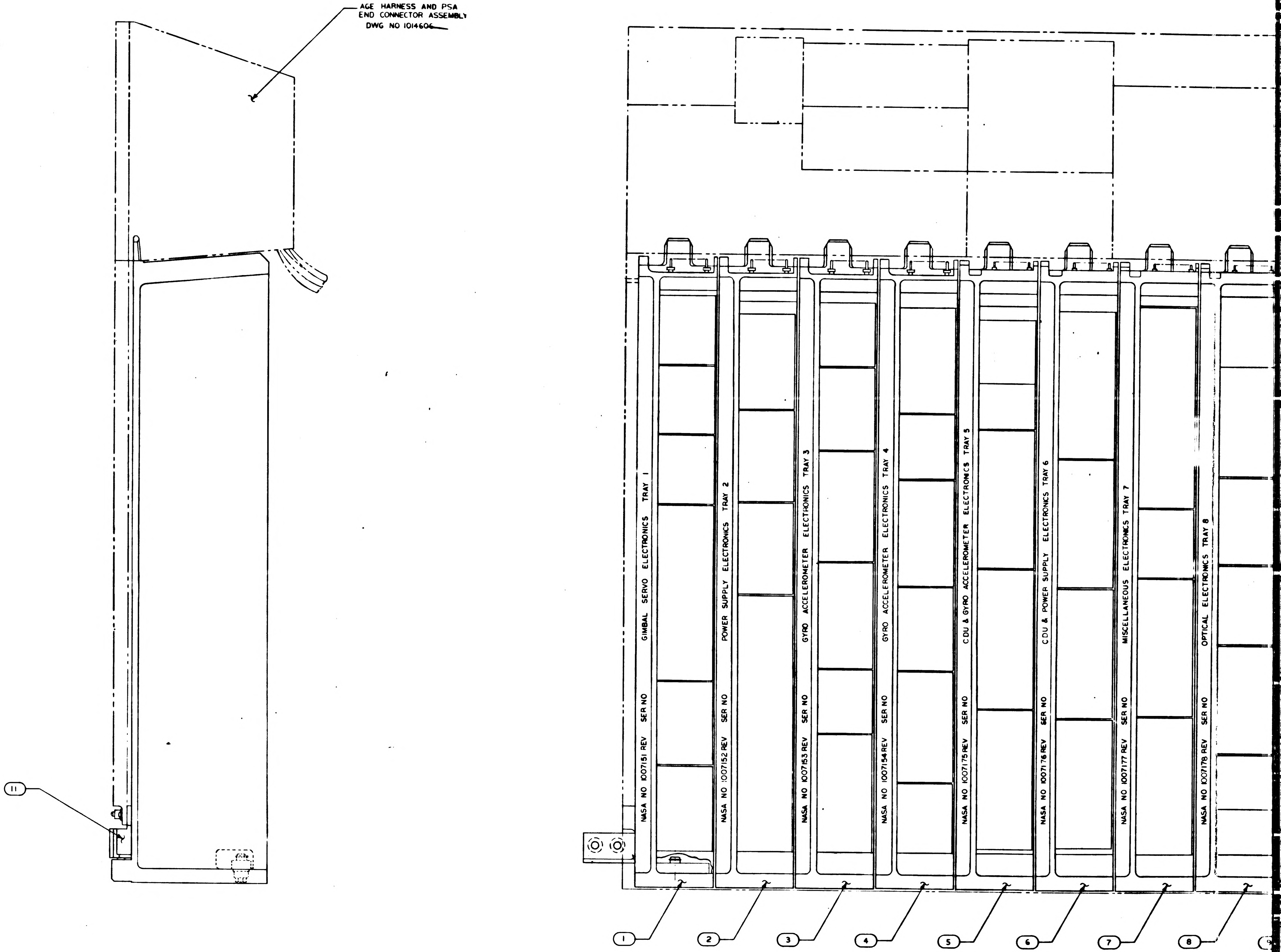


SEE NOTE 2 TYP

1007170 B

[illegible]


AGE HARNESS AND PSA END CONNECTOR ASSEMBLY DWG NO 1014606
11
NASA NO 1007151 REV SER NO GIMBAL SERVO ELECTRONICS TRAY 1
NASA NO 1007152 REV SER NO POWER SUPPLY ELECTRONICS TRAY 2
NASA NO 1007153 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY 3
NASA NO 1007154 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY 4
NASA NO 1007175 REV SER NO CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
NASA NO 1007176 REV SER NO CDU & POWER SUPPLY ELECTRONICS TRAY 6
NASA NO 1007177 REV SER NO MISCELLANEOUS ELECTRONICS TRAY 7
NASA NO 1007178 REV SER NO OPTICAL ELECTRONICS TRAY 8
1
2
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8

NOTES:

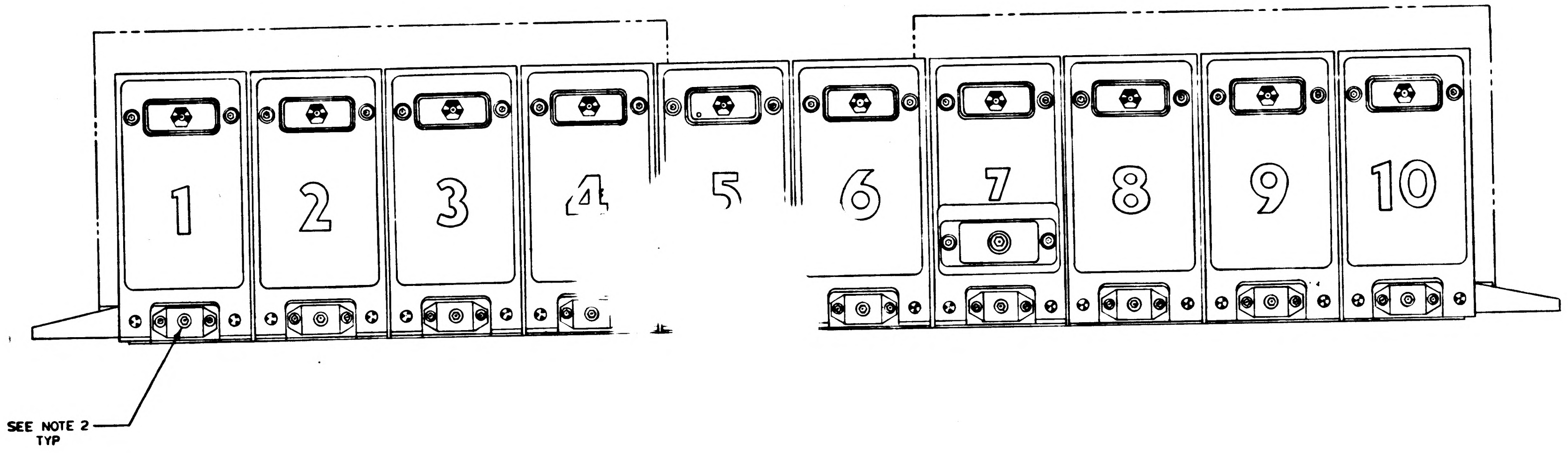
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TRAY ASSEMBLY TORQUE TO FIND NO.11 TO BE 25-30 IN-LBS.
3. TOE CAP HARDWARE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC.
4. PSA COLDPLATE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC. REF PART NO V16-614047
5. SERIALIZE WITH TAG PER ND 1002023. ~~REF PARA 3.2~~.
6. TEST PER ATP 1007100.
7. TOE CAP ASSEMBLY TORQUE TO NAA COLDPLATE TO BE 30-35 IN. LBS.

3H

1003150

1/1007170

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 10531		FL
B	REVISED PER TDRR 13414	2 NOV 64	JJJ
C	REVISED PER TDRR 14694	22 DEC 64	JJJ



6	1008591	SCREW REWORKED	12
1	1008135	TOE CAP POWER & SERVO ASSY	11
1	1007160	PWR DIOS & SIG COND ELEC ASSY TRAY 10	10
1	1007179	OPTICAL ELECTRONICS ASSY, TRAY 9	9
1	1007178	OPTICAL ELECTRONICS ASSY, TRAY 8	8
1	1007177	MISC ELECTRONICS ASSY, TRAY 7	7
1	1007176	CDU & PWR SUPP ELECTRONICS ASSY, TRAY 6	6
1	1007175	CDU & GYRO ACCEL ELECTRONICS ASSY, TRAY 5	5
1	1007154	GYRO ACCEL ELECTRONICS ASSY, TRAY 4	4
1	1007153	GYRO ACCEL ELECTRONICS ASSY, TRAY 3	3
1	1007152	PWR SUPP ELECTRONICS ASSY, TRAY 2	2
1	1007151	GIMBAL SERVO ELECT. ASSY, TRAY 1	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
1015000	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
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INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT
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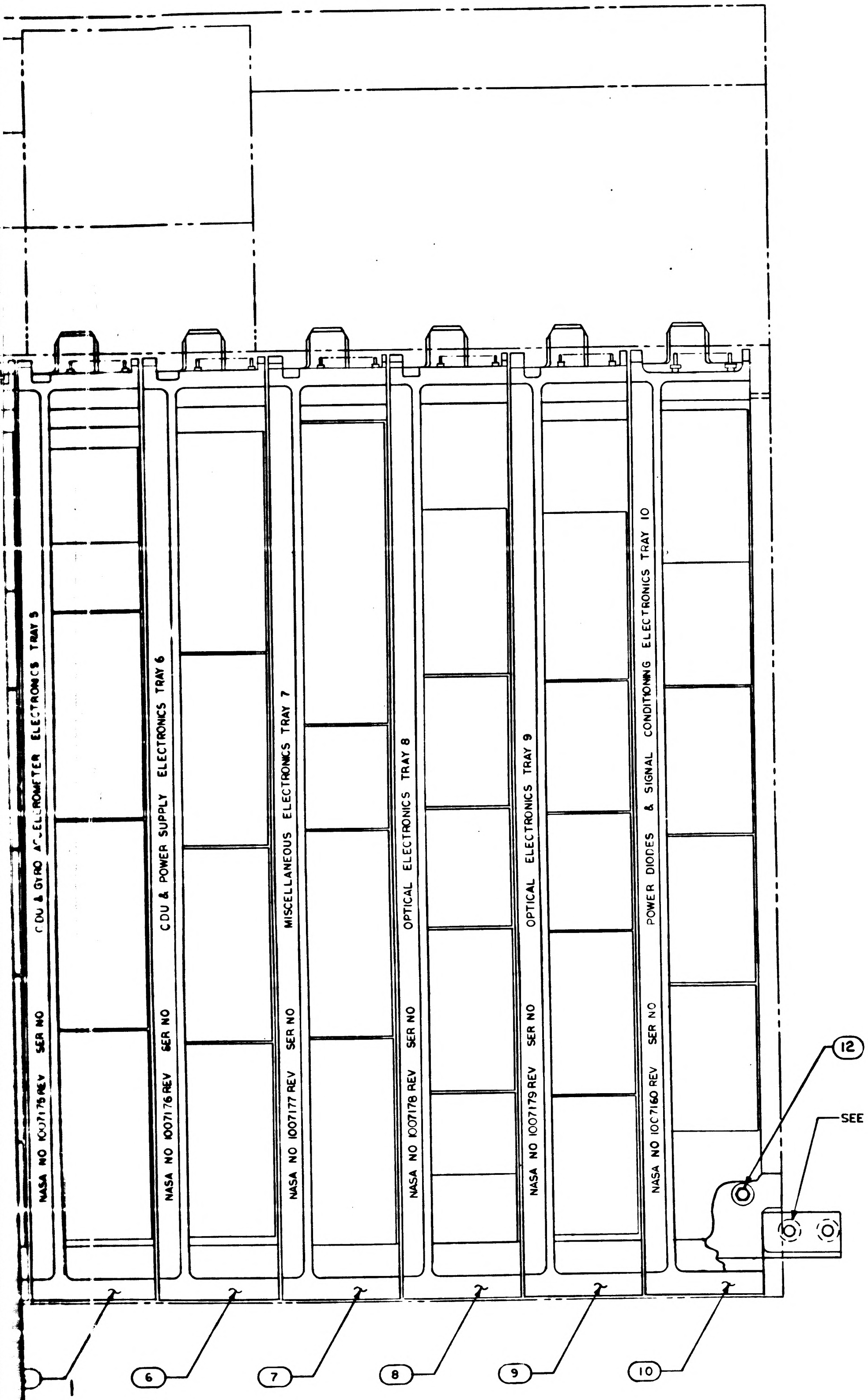
DATE
CHECKED
APPROVAL
APPROVAL D. R. Test 3/20/64
NASA APPROVAL 3/3/64
MIT APPROVAL 3/4/64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER AND SERVO ASSEMBLY

CODE IDENT NO.
SIZE J
NASA DRAWING NO 1007170
SCALE 1/1
WT
SHEET 1 OF 1



CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
NASA NO 1007175 REV SER NO
CDU & POWER SUPPLY ELECTRONICS TRAY 6
NASA NO 1007176 REV SER NO
MISCELLANEOUS ELECTRONICS TRAY 7
NASA NO 1007177 REV SER NO
OPTICAL ELECTRONICS TRAY 8
NASA NO 1007178 REV SER NO
OPTICAL ELECTRONICS TRAY 9
NASA NO 1007179 REV SER NO
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
NASA NO 10C7160 REV SER NO
12 SEE NOTE 7 & 8
SEE NOTE 3
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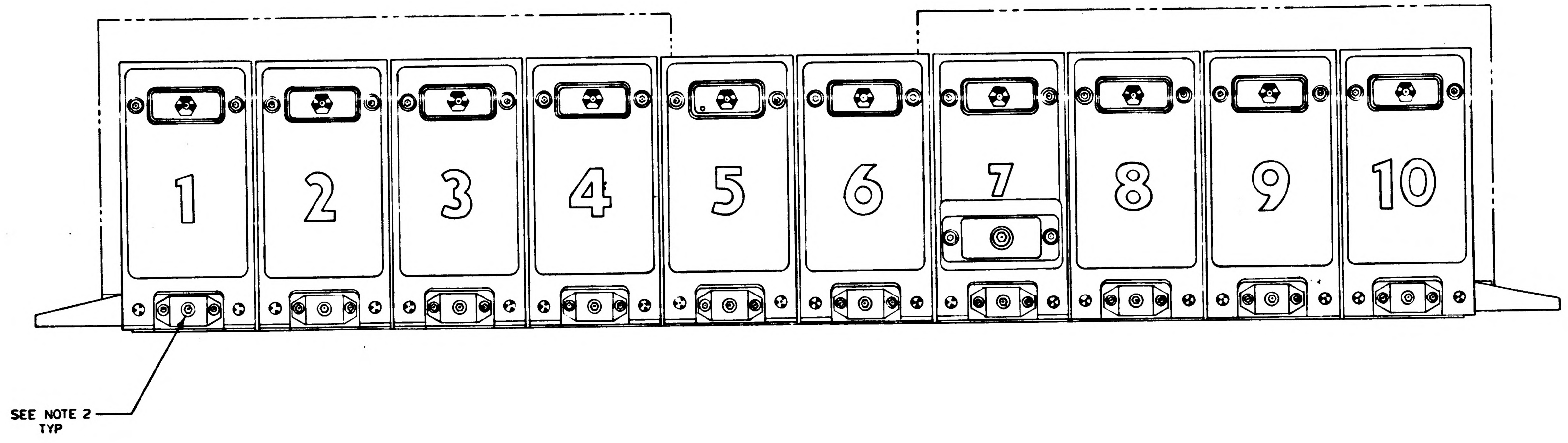

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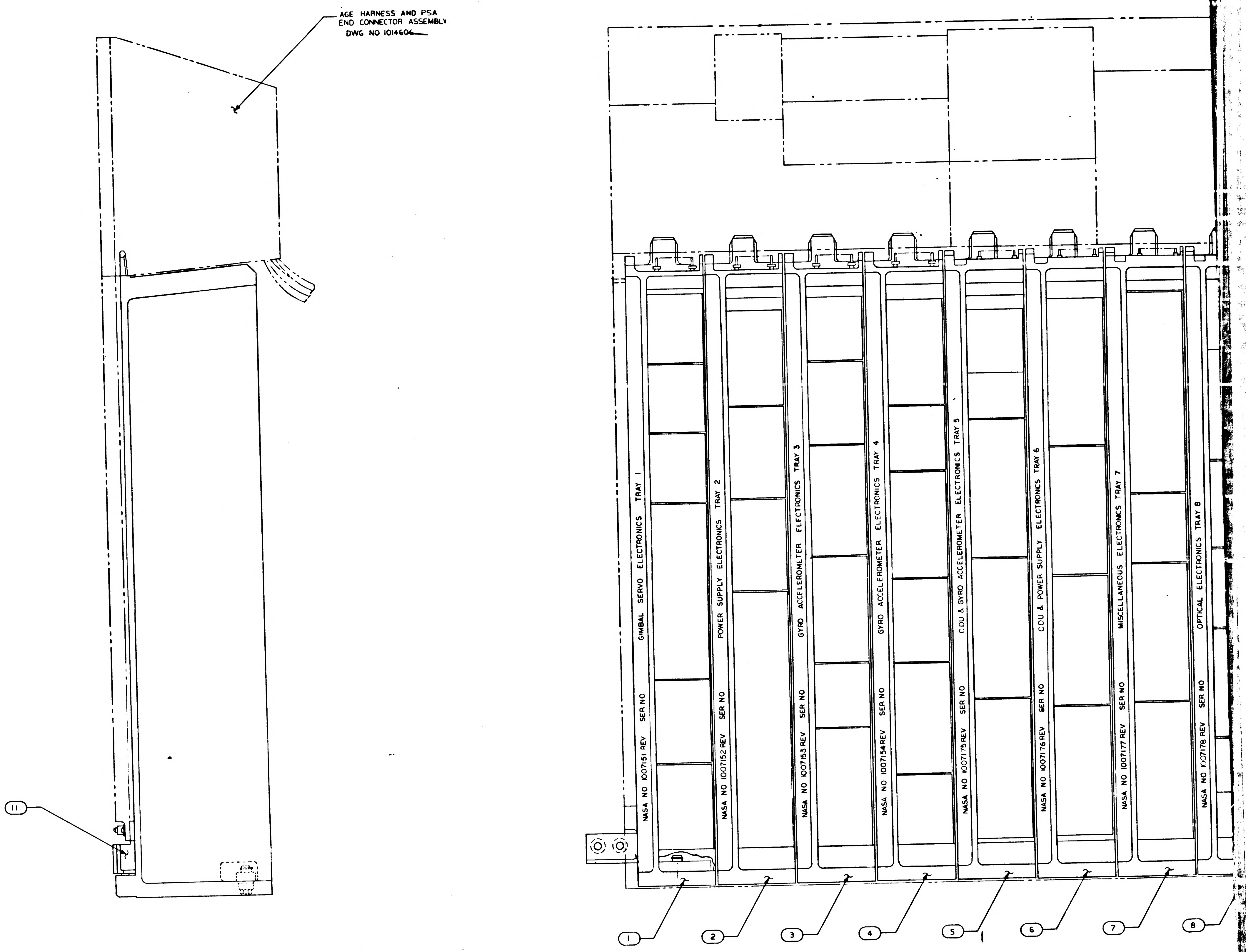
SEE NOTE 2
TYP

1015000
NEXT ASSY
APPL

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


AGE HARNESS AND PSA
END CONNECTOR ASSEMBLY
DWG NO 1014606
11
NASA NO 1007151 REV SER NO GIMBAL SERVO ELECTRONICS TRAY 1
NASA NO 1007152 REV SER NO POWER SUPPLY ELECTRONICS TRAY 2
NASA NO 1007153 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY 3
NASA NO 1007154 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY 4
NASA NO 1007175 REV SER NO CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
NASA NO 1007176 REV SER NO CDU & POWER SUPPLY ELECTRONICS TRAY 6
NASA NO 1007177 REV SER NO MISCELLANEOUS ELECTRONICS TRAY 7
NASA NO 1007178 REV SER NO OPTICAL ELECTRONICS TRAY 8
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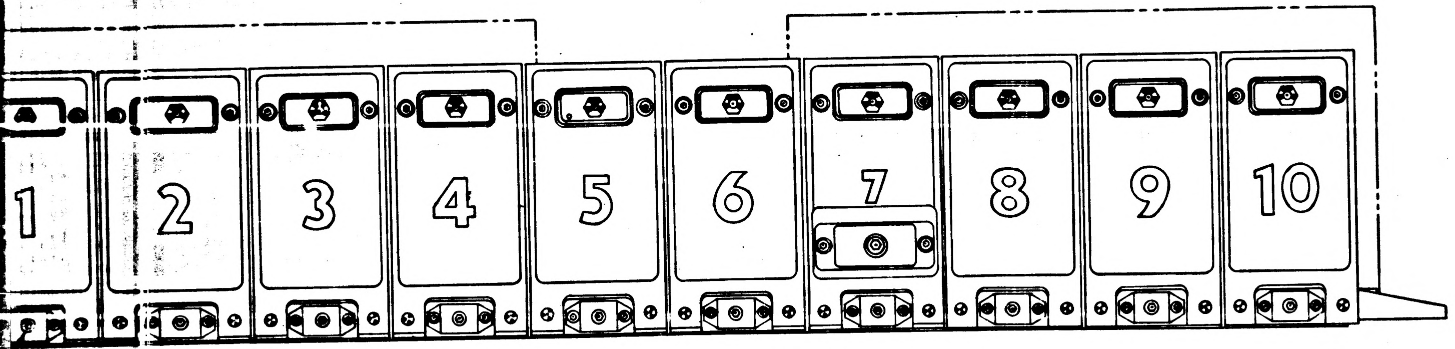
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TRAY ASSEMBLY TORQUE TO FIND NO.11 TO BE 25-30 IN-LBS.
3. TOE CAP HARDWARE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC.
4. PSA COLDPLATE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC. REF PART NO V16-614047
5. SERIALIZE WITH TAG PER ND 1002023. ~~REF PARA 3.2~~.
6. TEST PER ATP 1007100.
7. MOUNTING TORQUE FOR FIND NO. 12 TO NAA COLDPLATE (REF. PART NO. V16-614047) TO BE 30 TO 35 IN. LBS.
8. IDENTIFY FIND NO. 12 PER ND 1002019. FIND NO. 12 MAY BE SHIPPED DISASSEMBLED FROM FIND NO. 11.

3H

1007170



QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1008135	TOE CAP POWER & SERVO ASSY	11
1	1007160	PWR DIOS & SIG COND ELEC ASSY TRAY 10	10
1	1007179	OPTICAL ELECTRONICS ASSY, TRAY 9	9
1	1007178	OPTICAL ELECTRONICS ASSY, TRAY 8	8
1	1007177	MISC ELECTRONICS ASSY, TRAY 7	7
1	1007176	CDU/PWR SUPP ELECTRONICS ASSY, TRAY 6	6
1	1007175	CDU/GYRO ACCEL ELECTRONICS ASSY, TRAY 5	5
1	1007154	GYRO ACCEL ELECTRONICS ASSY, TRAY 4	4
1	1007153	GYRO ACCEL ELECTRONICS ASSY, TRAY 3	3
1	1007152	PWR SUPP ELECTRONICS ASSY, TRAY 2	2
1	1007151	GIMBAL SERVO ELECT. ASSY, TRAY 1	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1015000	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
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DRAWN
CHECKED
APPROVAL
APPROVAL 3/20/64
NASA APPROVAL
MIT APPROVAL 3/16/64

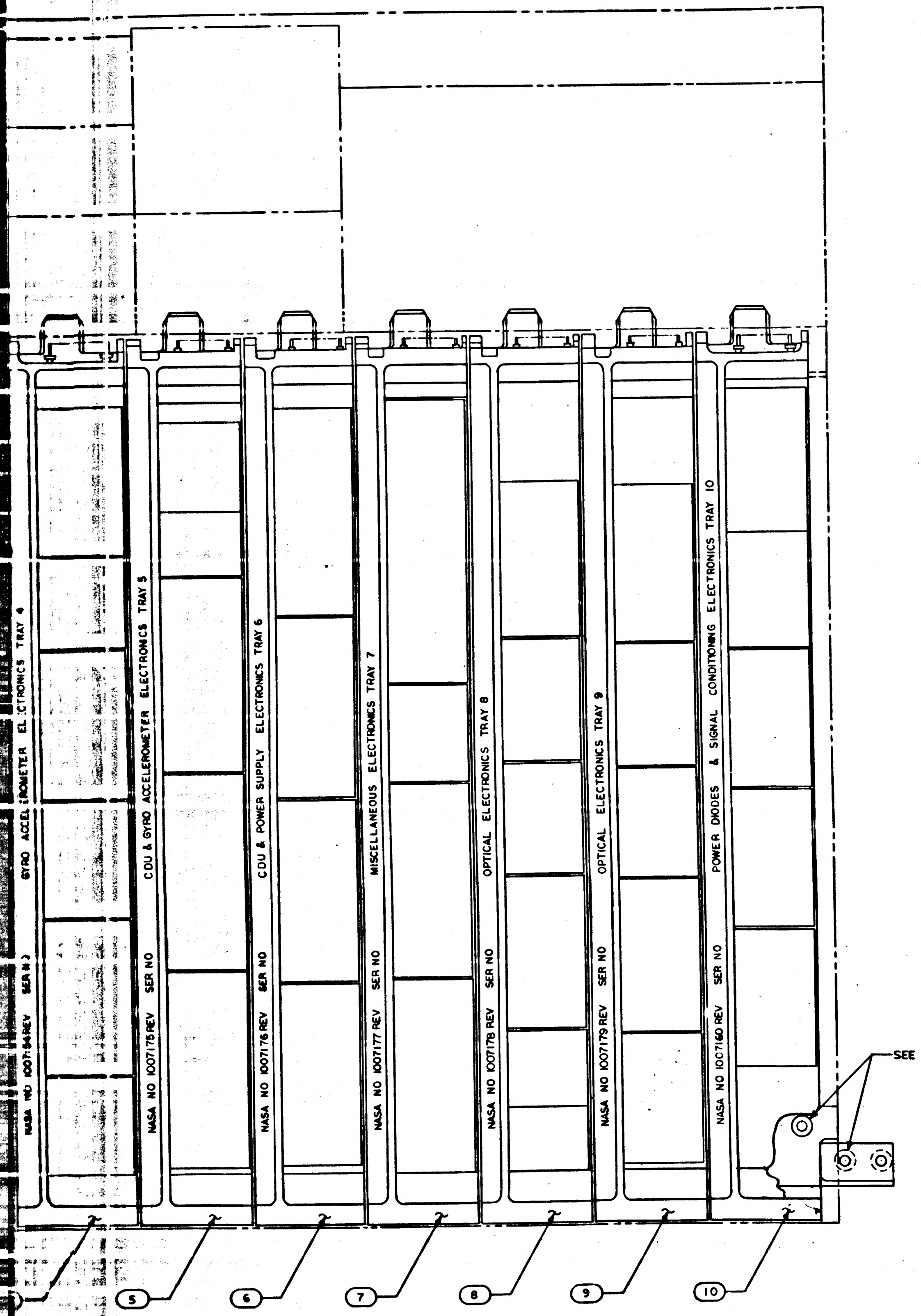
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER AND SERVO ASSEMBLY

CODE IDENT NO.
SIZE J
NASA DRAWING NO 1007170
SCALE 1/1
WT
SHEET 1 OF 1

3H

INCHES
PHOTOGRAPHIC SCALE ONLY


NASA NO 1007184 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY 4
NASA NO 1007175 REV SER NO CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
NASA NO 1007176 REV SER NO CDU & POWER SUPPLY ELECTRONICS TRAY 6
NASA NO 1007177 REV SER NO MISCELLANEOUS ELECTRONICS TRAY 7
NASA NO 1007178 REV SER NO OPTICAL ELECTRONICS TRAY 8
NASA NO 1007179 REV SER NO OPTICAL ELECTRONICS TRAY 9
NASA NO 1007160 REV SER NO POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
SEE NOTE 3
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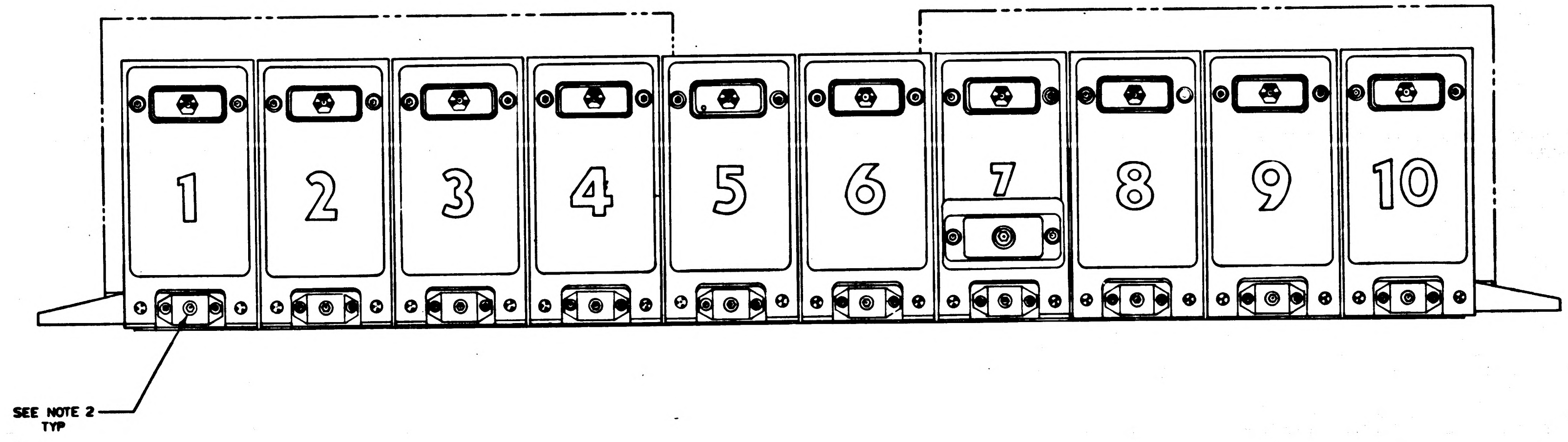
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SEE NOTE 2 TYP

1007170

INCHES
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PHOTOGRAPHIC SCALE ONLY

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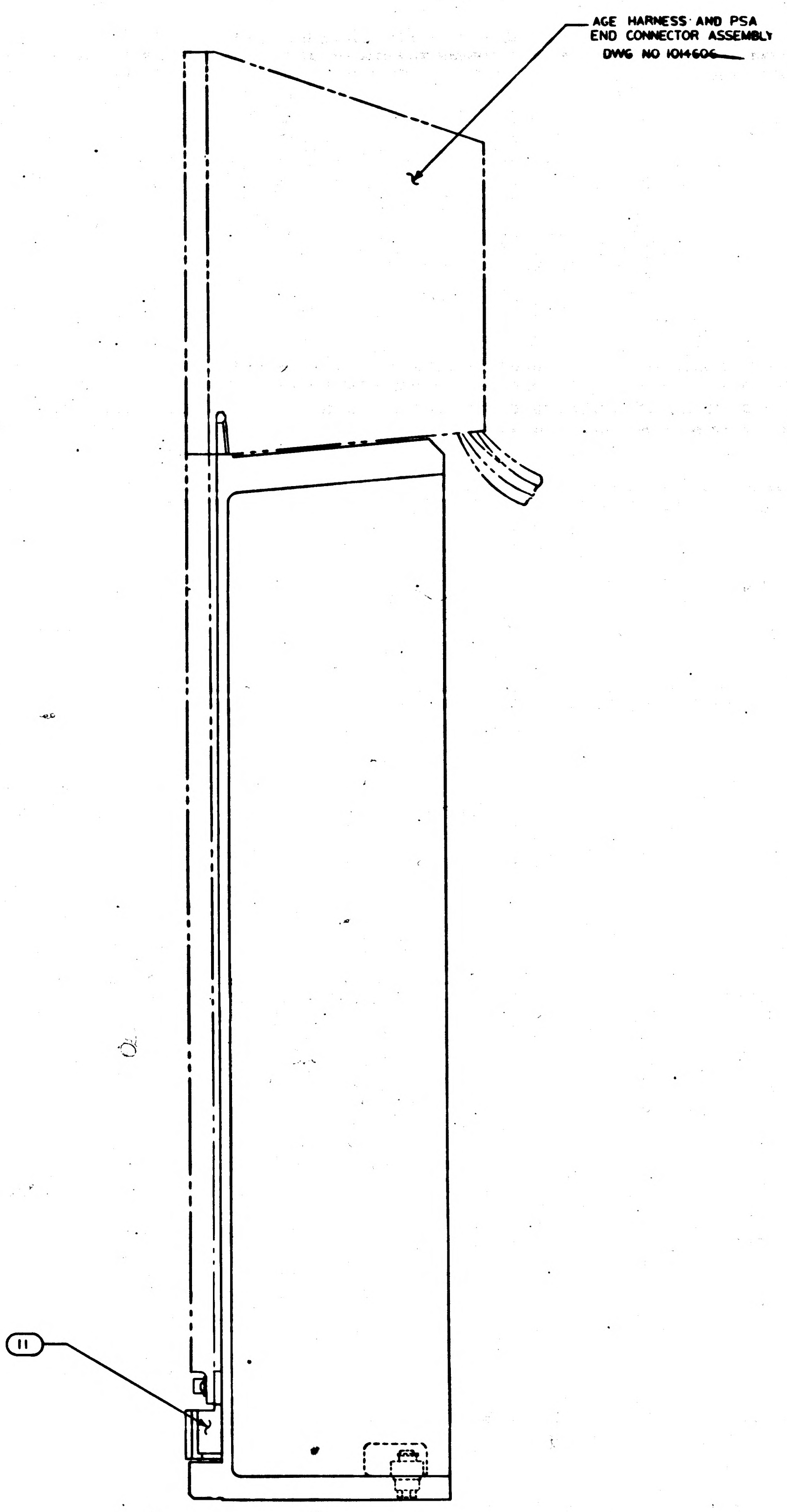
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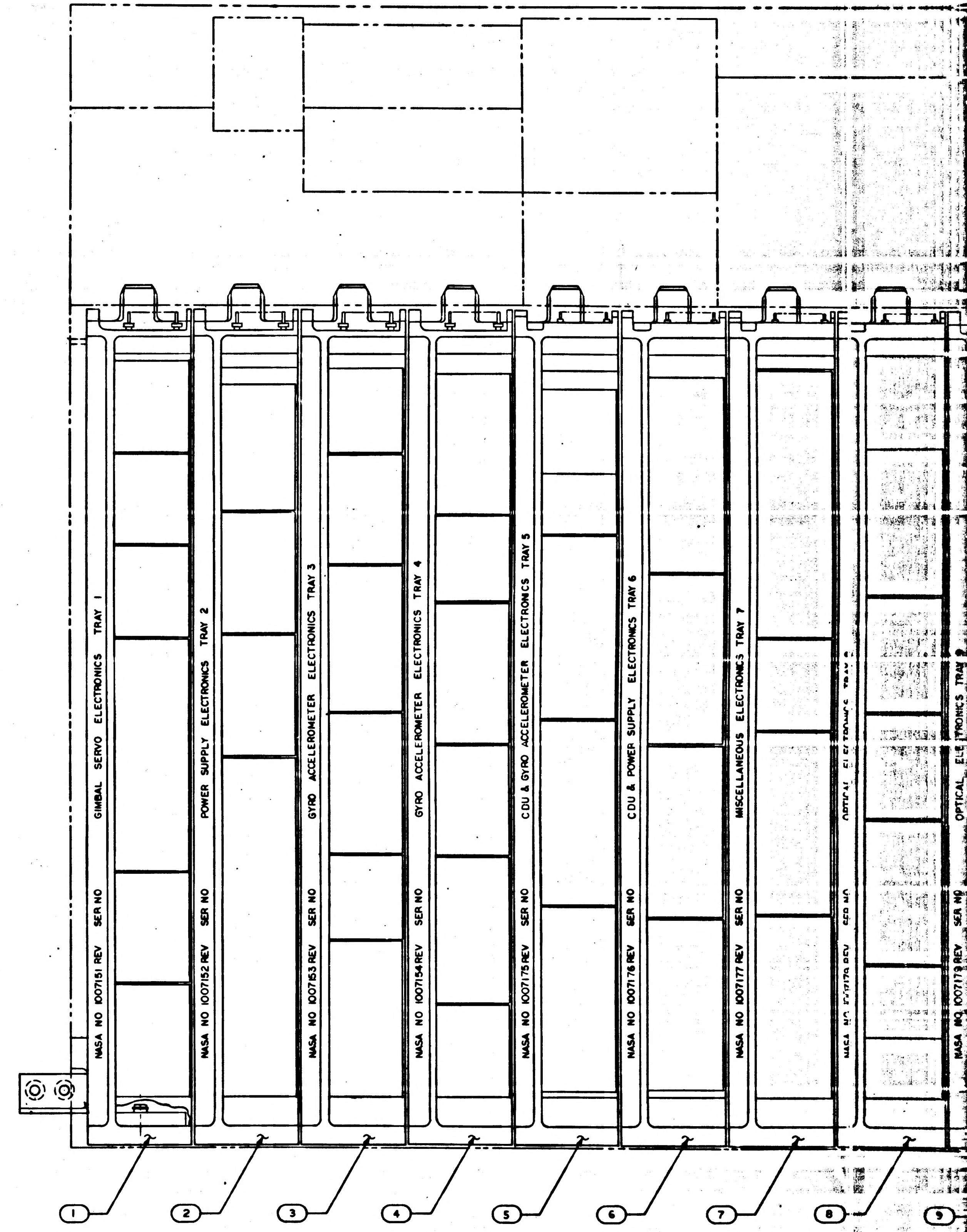
END CONNECTOR ASSEMBLY
DWG NO 1014606
11


GIMBAL SERVO ELECTRONICS TRAY 1
NASA NO 1007151 REV SER NO
POWER SUPPLY ELECTRONICS TRAY 2
NASA NO 1007152 REV SER NO
GYRO ACCELEROMETER ELECTRONICS TRAY 3
NASA NO 1007153 REV SER NO
GYRO ACCELEROMETER ELECTRONICS TRAY 4
NASA NO 1007154 REV SER NO
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
NASA NO 1007175 REV SER NO
CDU & POWER SUPPLY ELECTRONICS TRAY 6
NASA NO 1007176 REV SER NO
MISCELLANEOUS ELECTRONICS TRAY 7
NASA NO 1007177 REV SER NO
OPTICAL ELECTRONICS TRAY 8
NASA NO 1007178 REV SER NO
OPTICAL ELECTRONICS TRAY 9
NASA NO 1007179 REV SER NO
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9

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TRAY ASSEMBLY TORQUE TO FIND NO.11 TO BE
3. TOE CAP HARDWARE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC.
4. PSA COLDPLATE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC. REF PART NO V16-614047
5. SERIALIZE WITH TAG PER ND 1002023. REF PARA. 3.2.

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 06F74

SYM	DESCRIPTION	DATE	APPROVAL
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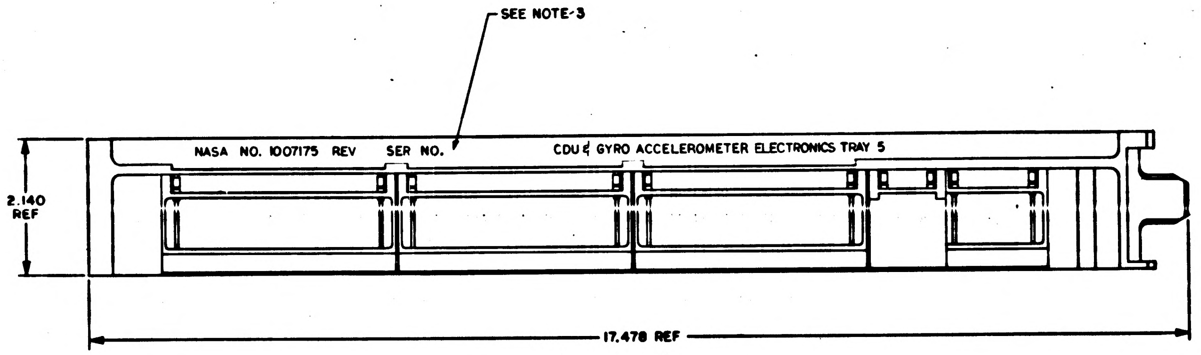
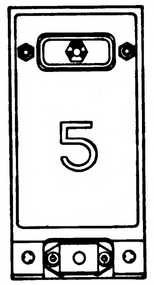
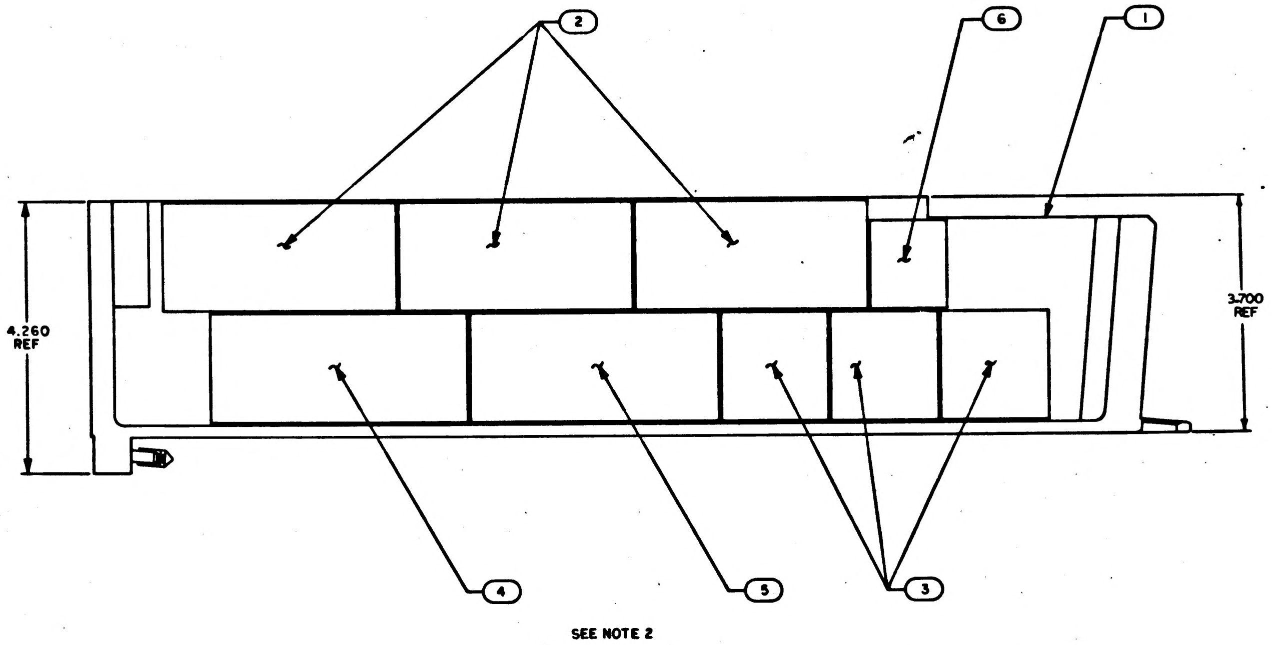
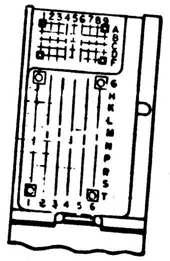

SEE NOTE-3
NASA NO. 1007175 REV SER NO.
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
2.140 REF
17.478 REF





SEE NOTE 2



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO'S. 2,3,4,5,6 AND 7 TO FIND NO. 1 TO BE 13/17 IN.LB.
3. SERIALIZE AND MAKE (WHITE) .14/.10 HIGH PER ND1002023

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007061	CDU ZEROING & LOCK RELAYS	6
1	1007058	FWD-BACKWARD CTR & CMPTR OUTPUT	5
1	1007057	BACK-UP MODE ELECTRONICS	4
3	1007055	CDU D TO A CONVERTER	3
3	1007054	ENCODER	2
1	1007165	FRAME ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007170	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
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APPROVAL 3/9/64
APPROVAL
NASA APPROVAL 3/10/64
MIT APPROVAL 10 Mar 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CDU & GYRO ACCEL
ELECTRONICS ASSEMBLY
TRAY 5

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007175
SCALE 1:1
WT
SHEET 1 OF 1

1007175 A

MASTER

INCHES
0 1 2
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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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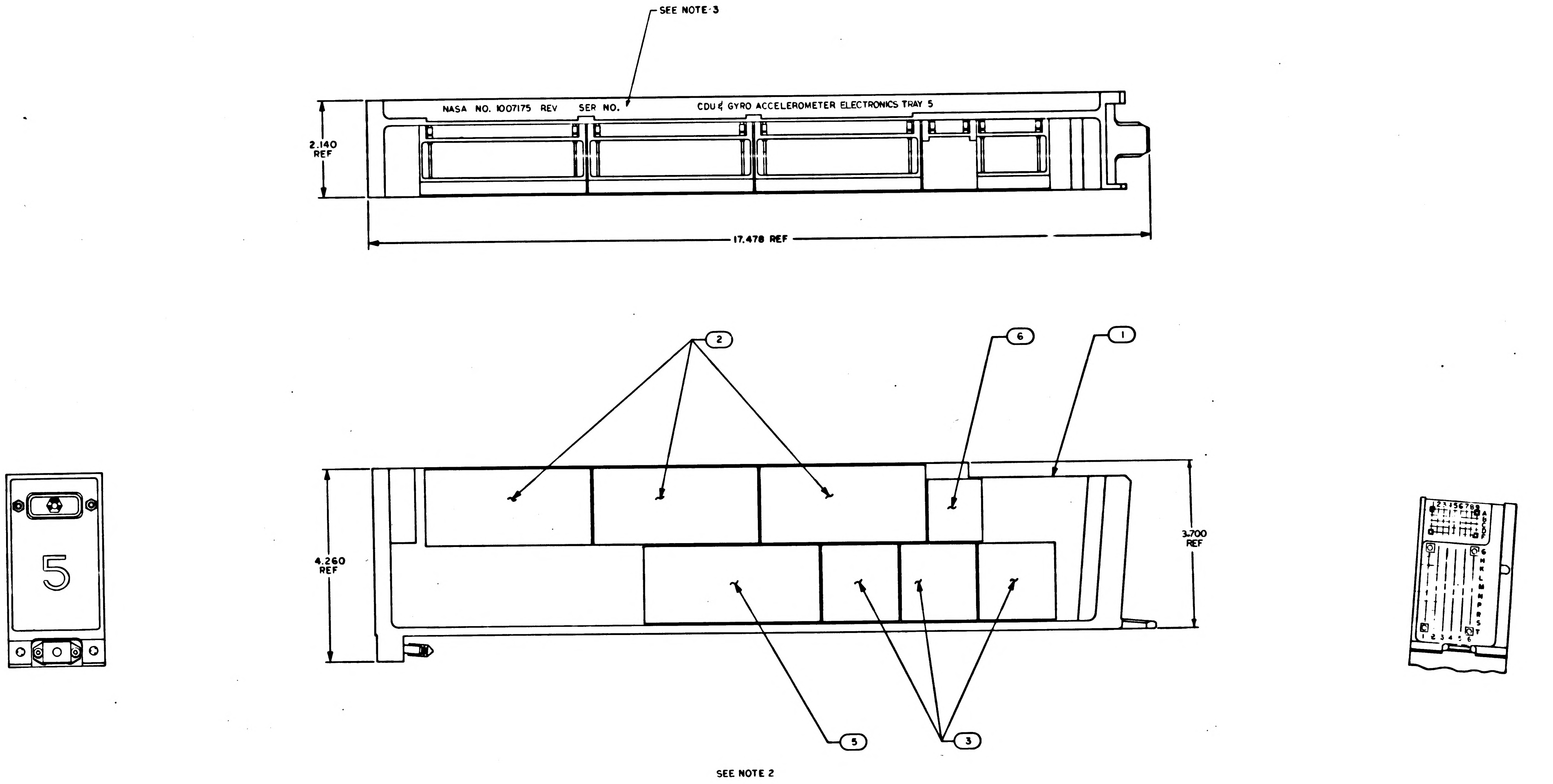
B	REVISED PER TDRR 13917		


SEE NOTE 3
NASA NO. 1007175 REV SER NO. CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
2.140 REF
17.478 REF
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4.260 REF
3.700 REF
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SEE NOTE 2

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO'S. 2,3, .5,6 AND 7 TO FIND NO.1 TO BE 13/17 IN.LB.
3. SERIALIZE AND MAKE (WHITE) .14/.10 HIGH PER ND1002023

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1007061	CDU ZEROING & LOCK RELAYS	6
1	1007058	FWD-BACKWARD CTR & CMPTR OUTPUT	5
~~1~~	~~1007057~~	~~BACK-UP MODE ELECTRONICS~~	4
3	1007055	CDU D TO A CONVERTER	3
3	1007054	ENCODER	2
1	1007165	FRAME ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007170	

APPLICATION

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CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CDU & GYRO ACCEL
ELECTRONICS ASSEMBLY
TRAY 5

CODE IDENT NO. SIZE E NASA DRAWING NO 1007175
SCALE 1:1 WT SHEET 1 OF 1

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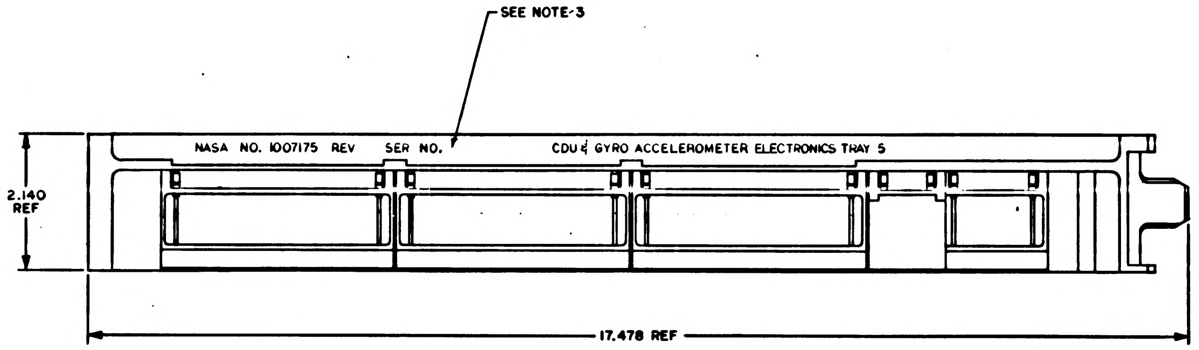
REVISIONS 06E70			
SYM	DESCRIPTION	DATE	APPROVAL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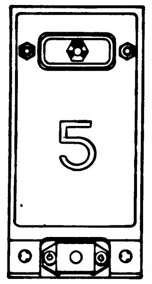
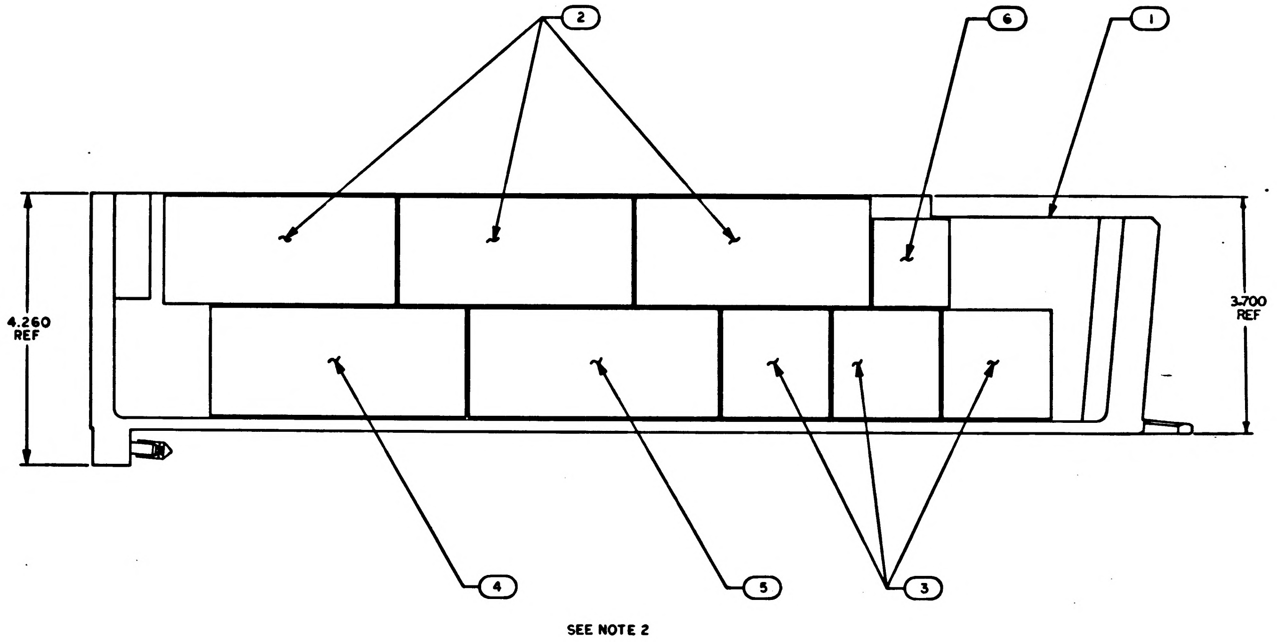
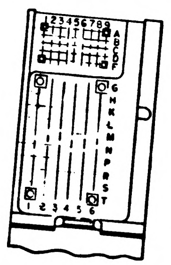
NASA NO. 1007175 REV SER NO.
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
2.140 REF
17.478 REF







NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO'S. 2,3,4,5,6 AND 7 TO FIND NO. 1 TO BE 13/17 IN.LB.
3. SERIALIZE AND MAKE (WHITE) .14/.10 HIGH PER ND1002023

1007175

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007061	CDU ZEROING & LOCK RELAYS	6
1	1007058	FWD-BACKWARD CTR & CMPTR OUTPUT	5
1	1007057	BACK-UP MODE ELECTRONICS	4
3	1007055	CDU D TO A CONVERTER	3
3	1007054	ENCODER	2
1	1007165	FRAME ASSEMBLY	1

LIST OF MATERIALS

1007100	
NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
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DRAWN L Krahn DATE 4 MAR 64
CHECKED
APPROVAL 3/9/64
APPROVAL
NASA APPROVAL 3/13/64
MIT APPROVAL 10 Mar 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CDU & GYRO ACCEL ELECTRONICS ASSEMBLY
TRAY 5

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007175
SCALE 1:1
WT
SHEET 1 OF 1

MASTER

INCHES
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REVISIONS 06877

SYM	DESCRIPTION	DATE	APPROVAL
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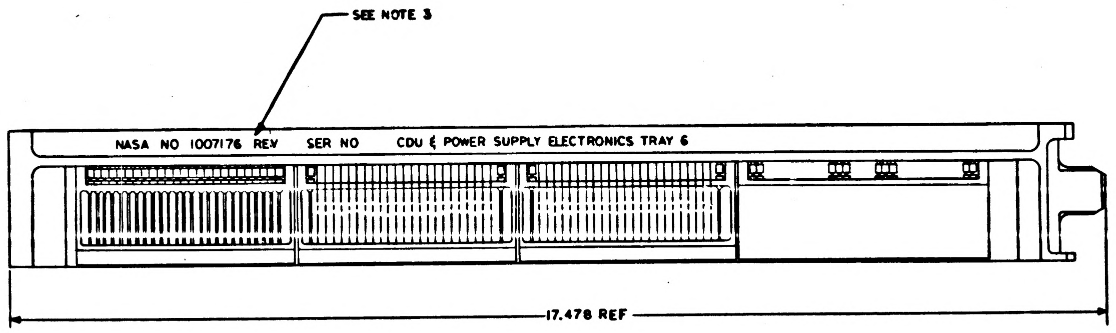
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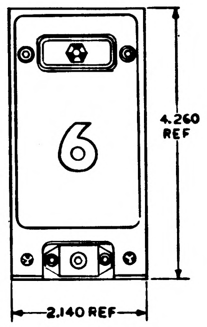

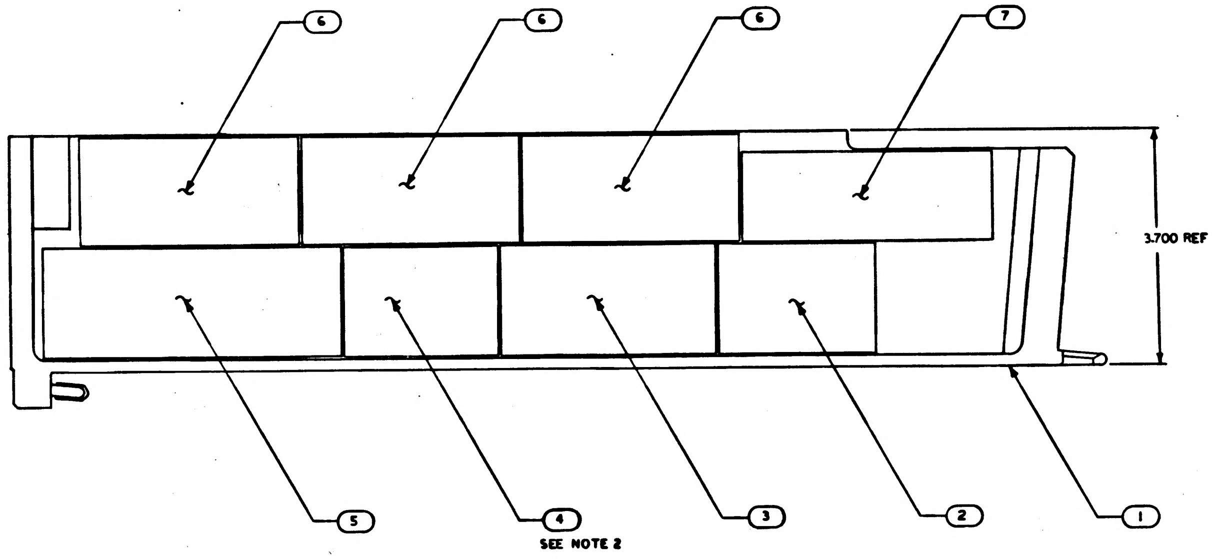

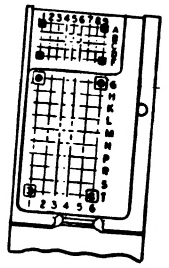

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO'S 2,3,4,5,6 AND 7 TO FIND NO. 1 TO BE 13/17 IN LB
3. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND1002023

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007062	CDU RESOLVER LOADS	7
3	1007060	MOTOR DRIVE AMP & SELECTOR CIRCUIT	6
1	1007048	AMPLIFIER 5% -800CPS	5
1	1007046	AAC FILTER & MULTIVIBRATOR 800 CPS	4
1	1007047	AMPLIFIER 1% -800 CPS	3
1	1007064	CDU ZEROING TRANS, RELAYS	2
1	1007166	FRAME ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007170	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
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DO NOT SCALE THIS DRAWING
MATERIAL —
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DRAWN R Krahn DATE MAR 24
CHECKED [illegible]
APPROVAL [illegible] 3/10/64
APPROVAL
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 10 Mar 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CDU & POWER SUPPLY ELECTRONICS ASSEMBLY TRAY 6

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007176
SCALE 1/1 WT SHEET 1 OF 1

1007176 A

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INCHES 0 1 2
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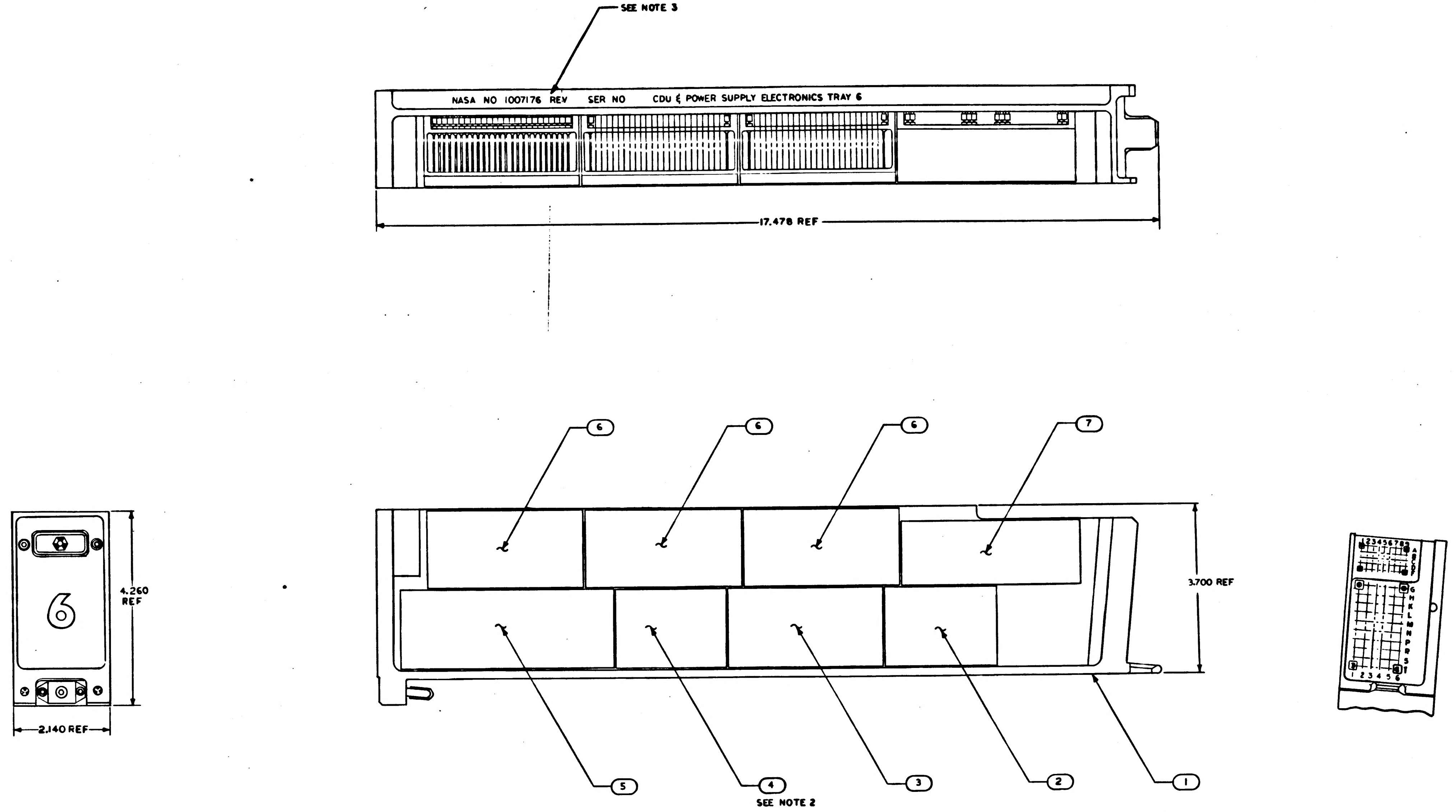
REVISIONS 06874			
SYM	DESCRIPTION	DATE	APPROVAL



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO'S 2,3,4,5,6 AND 7 TO FIND NO. 1 TO BE 13/17 IN LB
3. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND1002023

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007062	CDU RESOLVER LOADS	7
3	1007060	MOTOR DRIVE AMP & SELECTOR CIRCUIT	6
1	1007048	AMPLIFIER 5%-800CPS	5
1	1007046	AAC FILTER & MULTIVIBRATOR 800 CPS	4
1	1007047	AMPLIFIER 1%-800 CPS	3
1	1007064	CDU ZEROING TRANS, RELAYS	2
1	1007166	FRAME ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

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APPROVAL
NASA APPROVAL [illegible] 3/10/64
MIT APPROVAL [illegible] 10 Mar 64

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CDU & POWER SUPPLY ELECTRONICS ASSEMBLY TRAY 6

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007176
SCALE 1/1 WT SHEET 1 OF 1

1007176

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REVISIONS 06P72			
SYM	DESCRIPTION	DATE	APPROVAL
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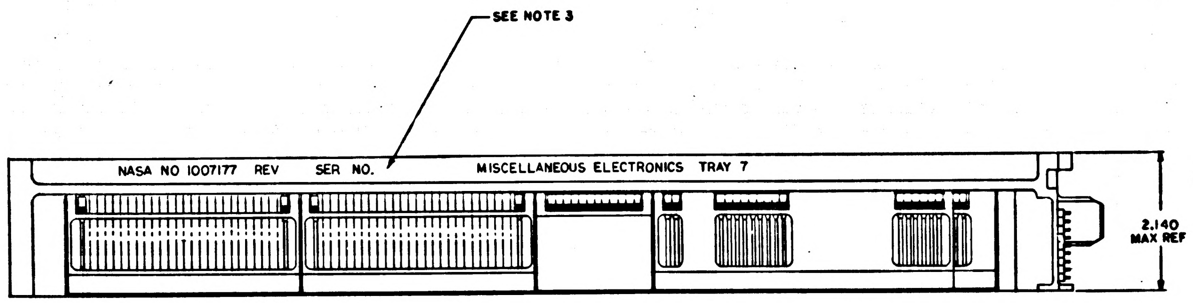
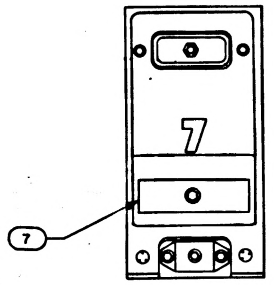
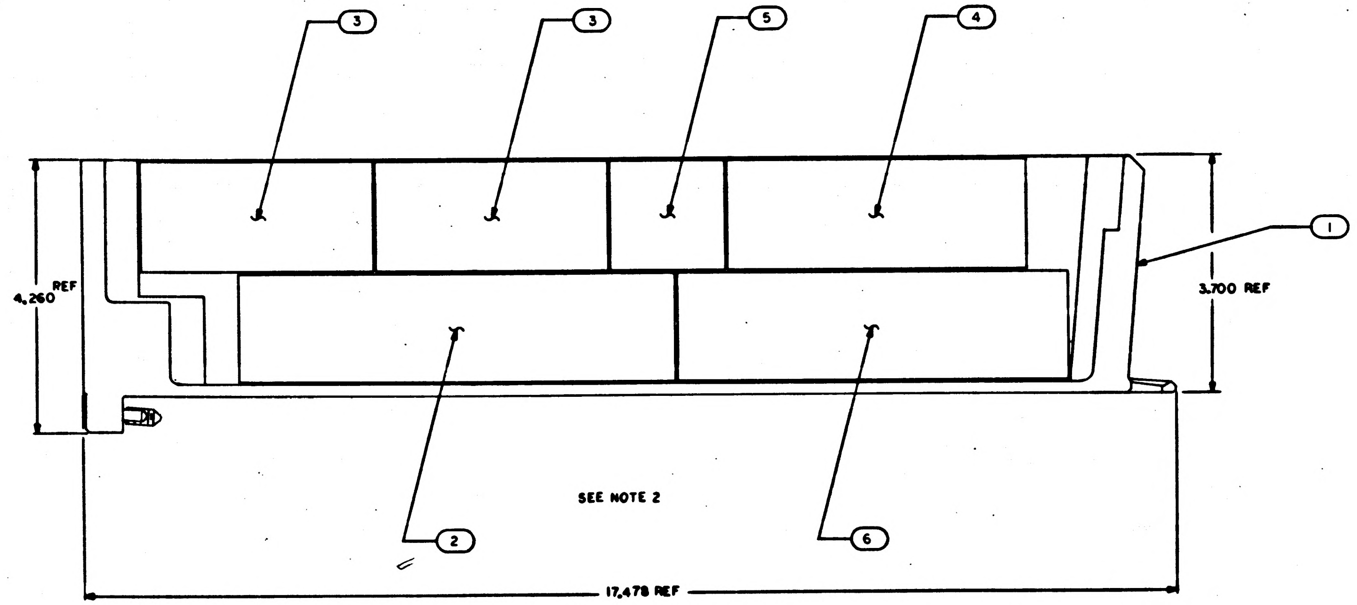
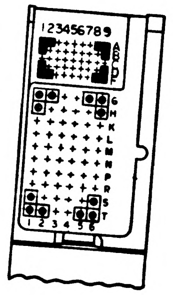

SEE NOTE 3
NASA NO 1007177 REV SER NO. MISCELLANEOUS ELECTRONICS TRAY 7
2.140 MAX REF







NOTES
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QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007163	CONNECTOR PLUG ELEC	7
1	1007162	IMU TEMP IND ALARM & BACK-UP CONT	6
1	1C07063	CDU FIXED RESOLUTION TRANS & ENTRY	5
1	1007056	IMU TEMPERATURE CONTROLLER	4
2	1007054	ENCODER	3
1	1007052	PULSE TORQUING POWER SUPPLY	2
1	1007167	FRAME ASSEMBLY	1

LIST OF MATERIALS

1007170	
NEXT ASSY	USED ON
APPLICATION	

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APPROVAL
NASA APPROVAL 3/12/64
MIT APPROVAL 10 Mar 64

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MISCELLANEOUS
ELECTRONICS ASSEMBLY
TRAY 7

CODE IDENT NO.	SIZE	NASA DRAWING NO.
	E	1007177
SCALE 1/1	WT	SHEET 1 OF 1

MASTER

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REVISIONS 06874			
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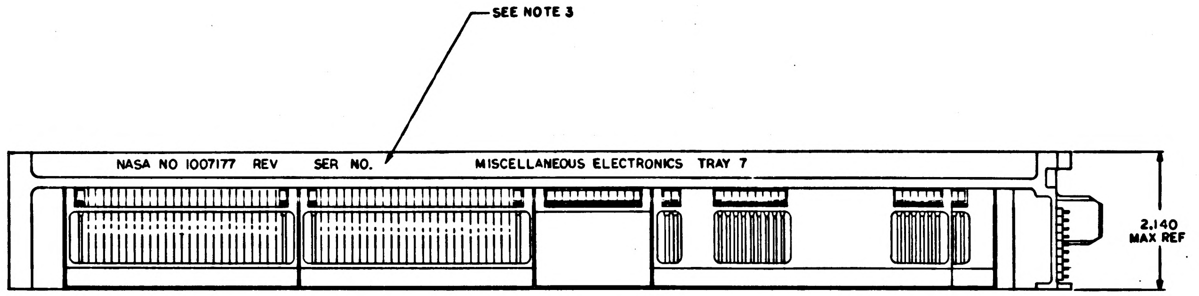
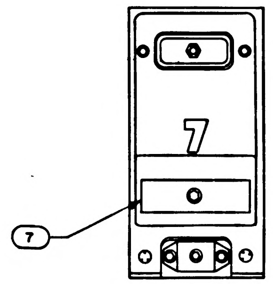
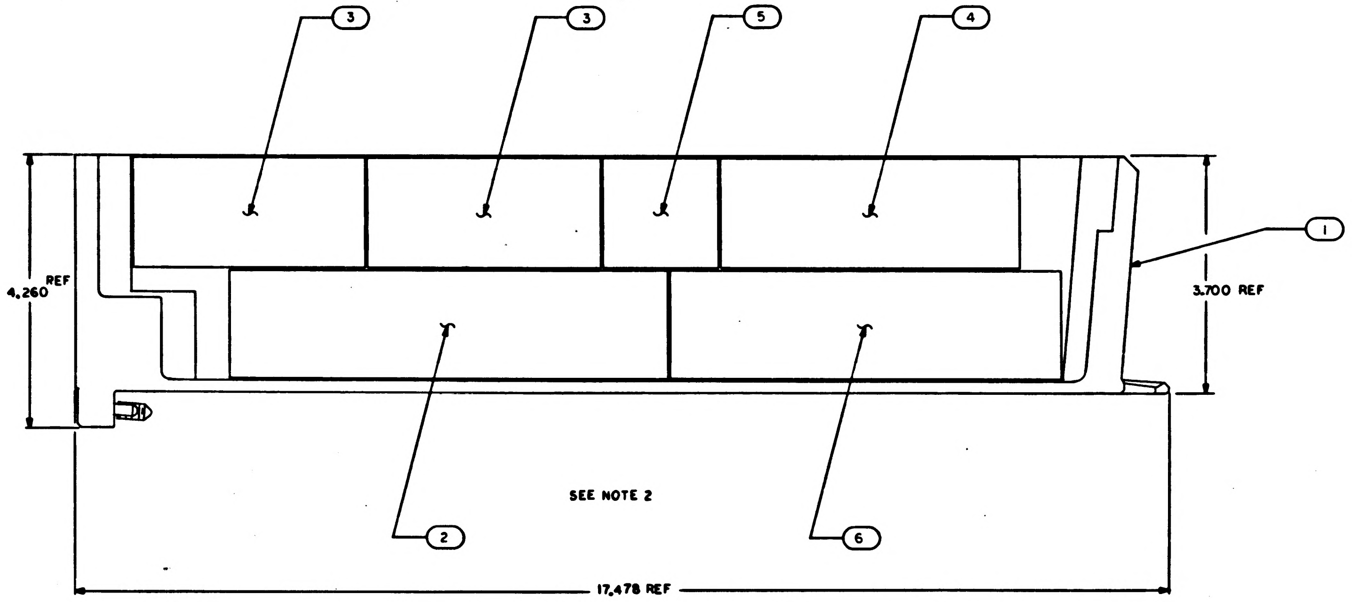
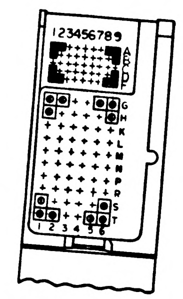

SEE NOTE 3
NASA NO 1007177 REV SER NO. MISCELLANEOUS ELECTRONICS TRAY 7
2.140
MAX REF







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QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007114	CONNECTOR PLUG ELEC	7
1	1007081	IMU TEMP IND ALARM & BACK-UP CONT	6
1	1007063	CDU FIXED RESOLUTION TRANS & ENTRY	5
1	1007056	IMU TEMPERATURE CONTROLLER	4
2	1007054	ENCODER	3
1	1007052	PULSE TORQUING POWER SUPPLY	2
1	1007167	FRAME ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

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APPROVAL
NASA APPROVAL 3/12/64
MIT APPROVAL 10 Mar 64

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MISCELLANEOUS
ELECTRONICS ASSEMBLY
TRAY 7

CODE IDENT NO.	SIZE	NASA DRAWING NO.
	E	1007177

SCALE 1/1 WT SHEET 1 OF 1

1007177

MASTER

INCHES
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REVISIONS 06874

SYM	DESCRIPTION	DATE	APPROVAL
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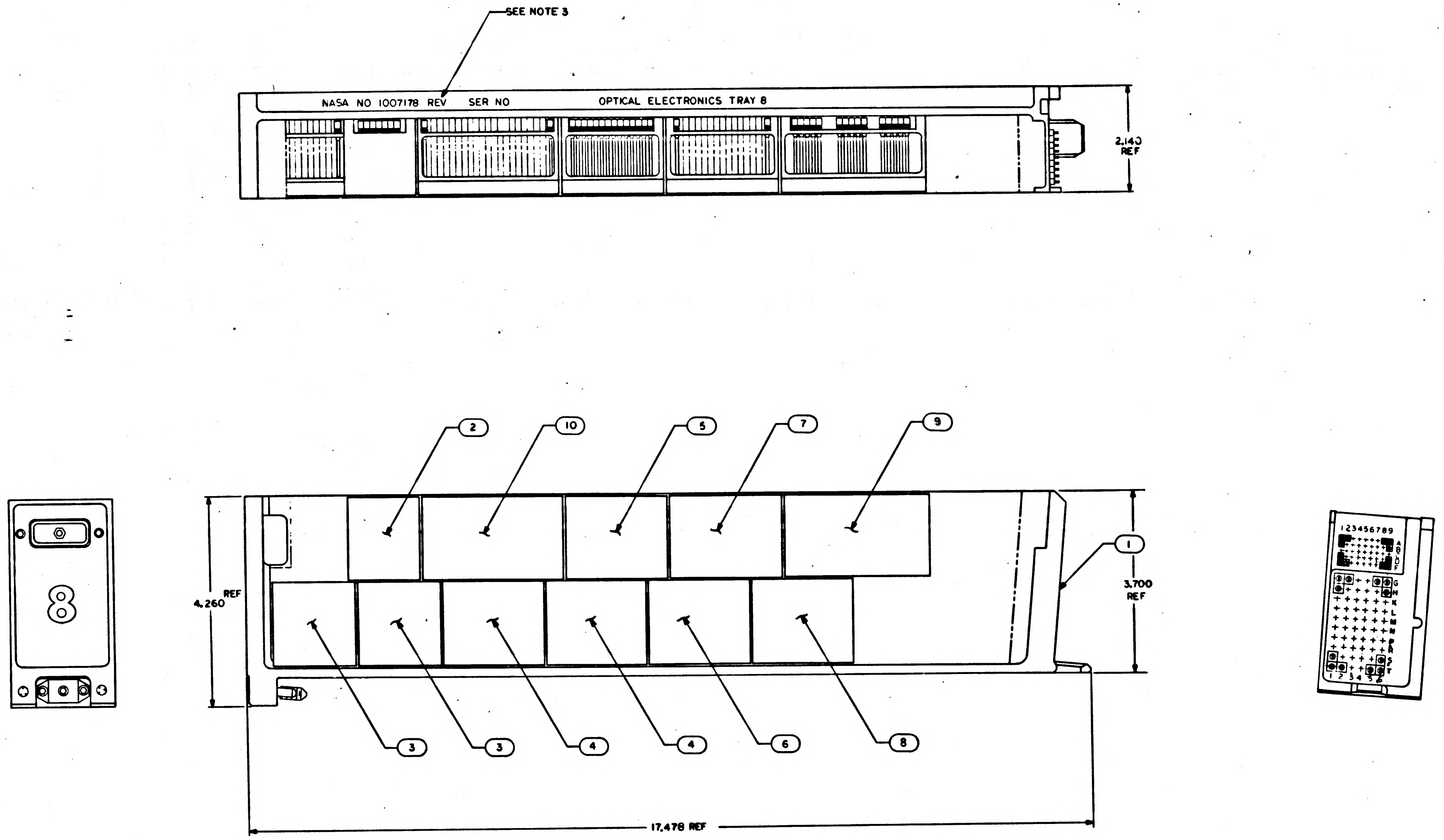

NOTES:

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3. SERIALIZE AND MARK (WHITE).14/.10 HIGH PER ND 1002023

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1015136	BUFFER CIRCUIT	10
1	1015137	RELAY	9
1	1015123	RESOLVER DRIVE AMP	8
1	1015113	MOTOR DRIVE PREAMP	7
1	1015124	COSECANT GENERATOR	6
1	1015104	TWO SPEED SWITCH	5
2	1015121	MOTOR DRIVE AMP	4
2	1007055	CDU D TO A CONVERTER	3
1	1015154	ZERO OPTICS	2
1	1007168	FRAME ASSY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007170	

APPLICATION

UNLESS OTHERWISE SPECIFIED
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APPROVAL
NASA APPROVAL 3/5/64
MIT APPROVAL 10 Mar 64

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OPTICAL
ELECTRONIC ASSEMBLY
TRAY 8

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007178
SCALE 1/1 WT SHEET 1 OF 1

1007178 A

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SYM	DESCRIPTION	DATE	APPROVAL
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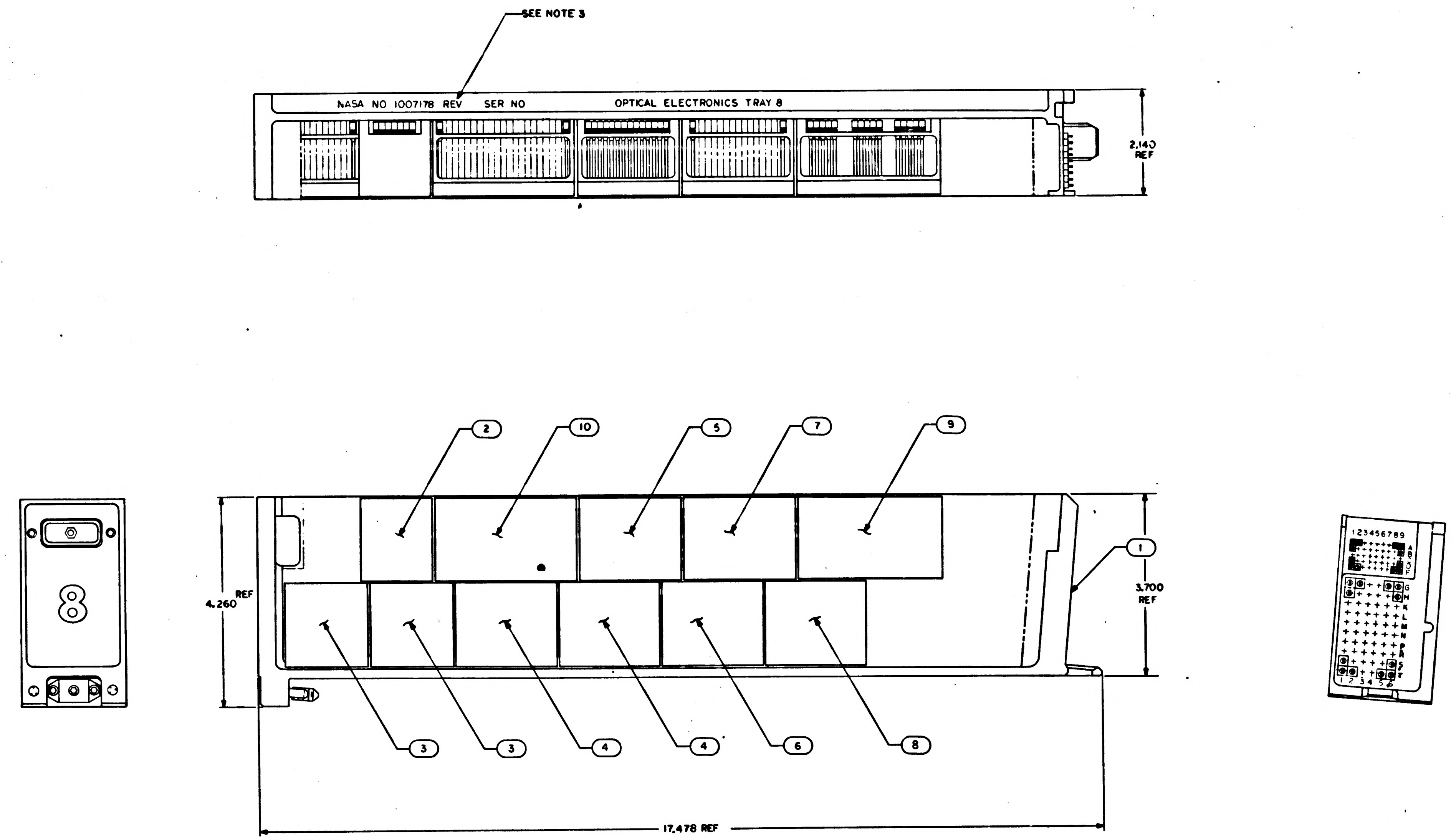

NOTES:
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QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1015136	BUFFER CIRCUIT	10
1	1015137	RELAY	9
1	1015123	RESOLVER DRIVE AMP	8
1	1015113	MOTOR DRIVE PREAMP	7
1	1015124	COSECANT GENERATOR	6
1	1015104	TWO-SPEED SWITCH	5
2	1015121	MOTOR DRIVE AMP	4
2	1007055	CDU D TO A CONVERTER	3
1	1015154	ZERO OPTICS	2
1	1007168	FRAME ASSY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

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APPROVAL
NASA APPROVAL [illegible] 3/10/64
MIT APPROVAL [illegible] 10 Mar 64

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OPTICAL
ELECTRONIC ASSEMBLY
TRAY 8

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007178
SCALE 1/1
WT
SHEET 1 OF 1

1007178

MASTER

INCHES
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REVISIONS 06K74			
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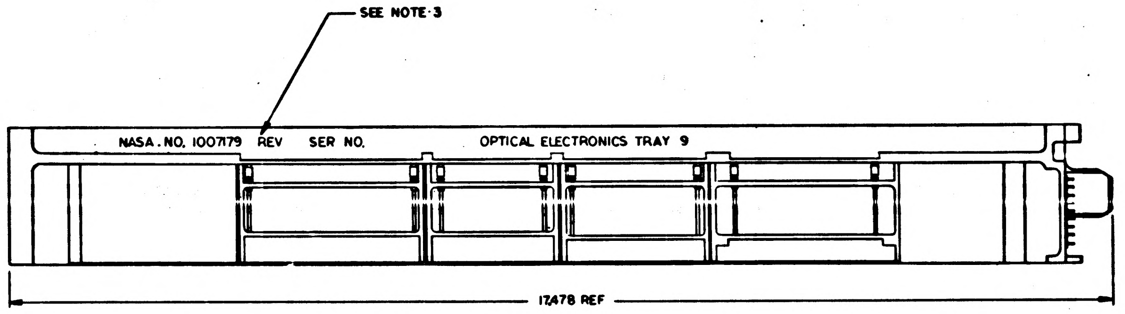

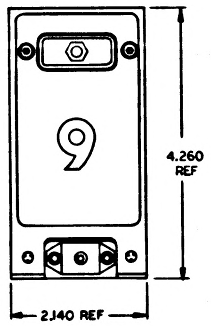

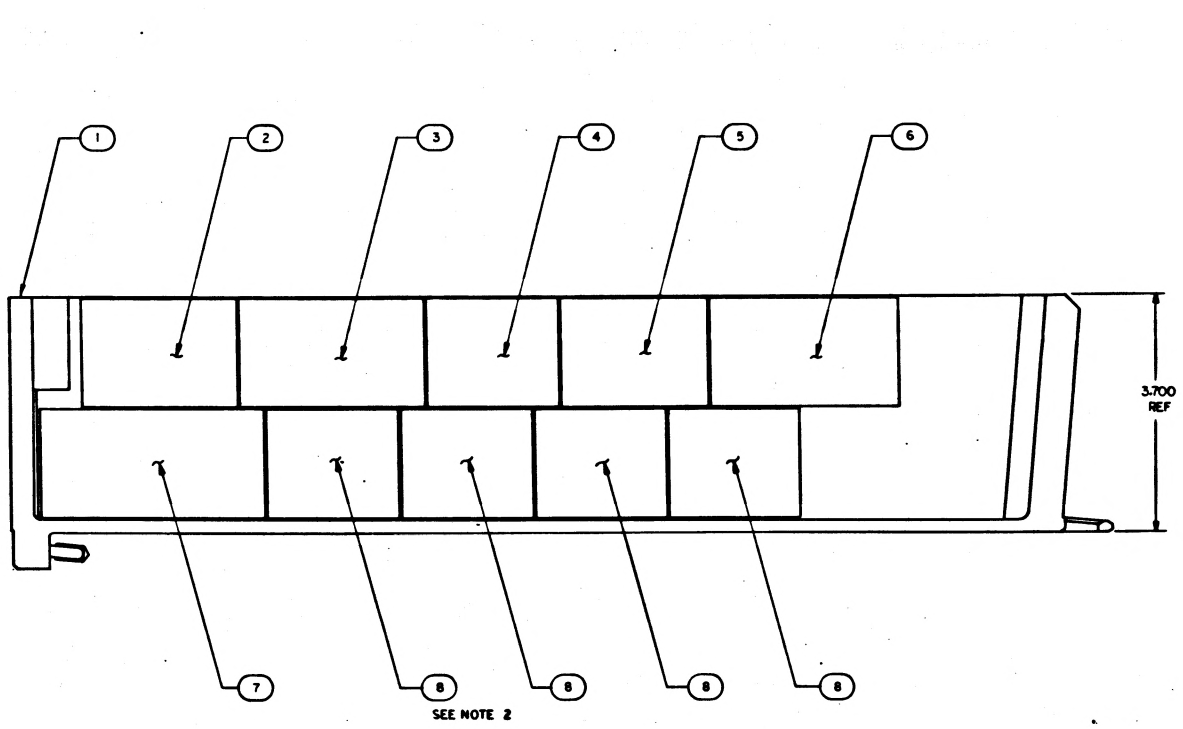

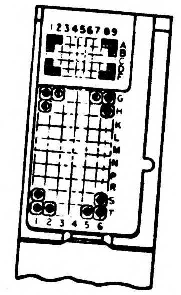

NOTES:

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QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	1015121	MOTOR DRIVE AMP	8
1	1015155	RESISTOR AND CAPACITOR	7
1	1015137	RELAY	6
1	1015149	SERVO MOTOR DRIVE PREAMP	5
1	1015104	TWO - SPEED SWITCH	4
1	1015136	BUFFER CIRCUIT	3
1	1015138	ISOLATION TRANSFORMER	2
1	1007169	FRAME ASSY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007170	

APPLICATION

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APPROVAL 3/9/64
APPROVAL
NASA APPROVAL
MIT APPROVAL 10 Mar 64

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OPTICAL ELECTRONICS ASSEMBLY TRAY 9

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007179
SCALE 1/1 WT SHEET 1 OF 1

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INCHES
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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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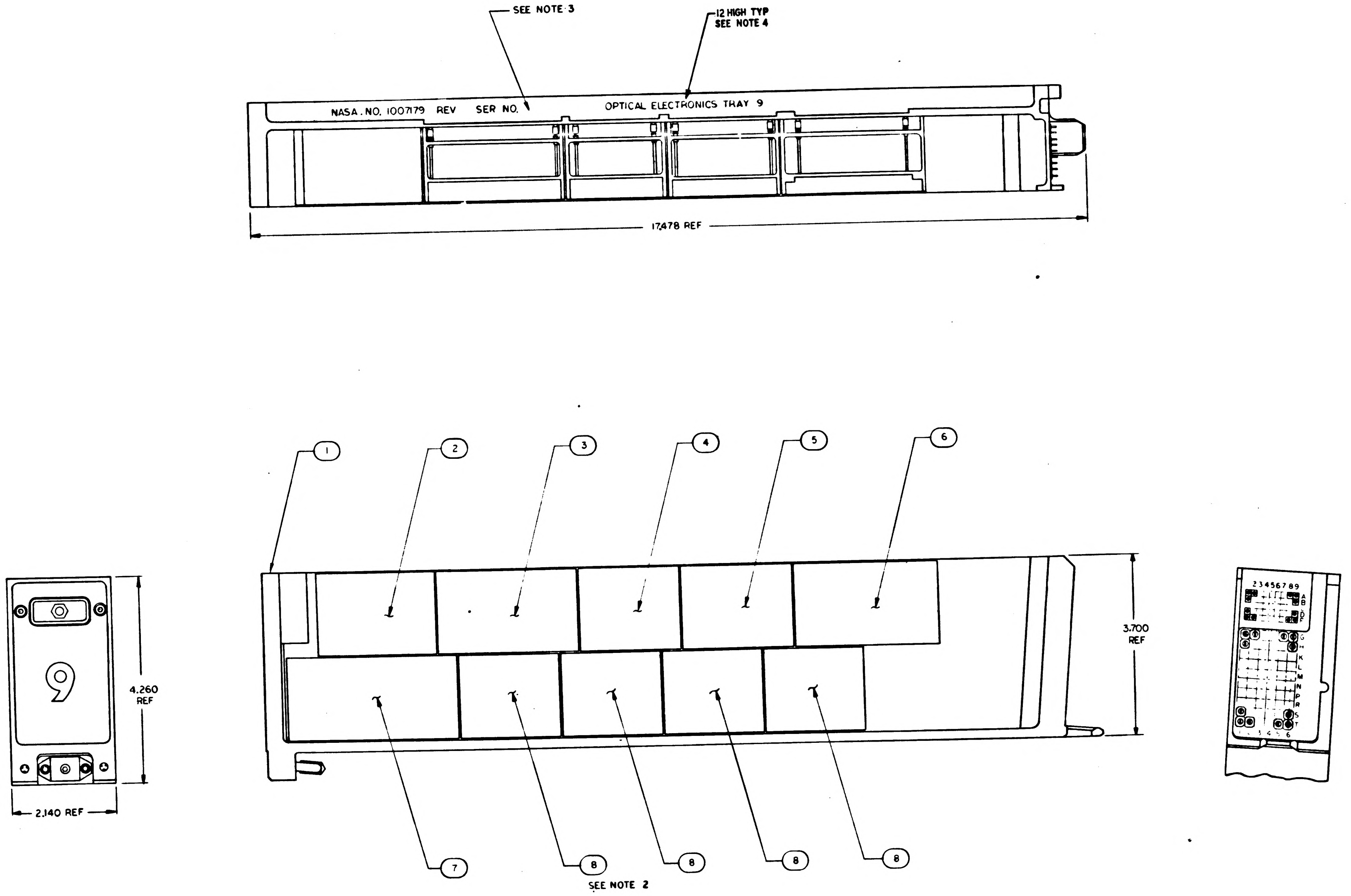

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4. MARK PER ND 1002019, WHITE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
4	1015121	MOTOR DRIVE AMP	8
1	1015155	RESISTOR AND CAPACITOR	7
1	1015137	RELAY	6
1	1015149	SERVO MOTOR DRIVE PREAMP	5
1	1015104	TWO - SPEED SWITCH	4
1	1015136	BUFFER CIRCUIT	3
1	1015138	ISOLATION TRANSFORMER	2
1	1007169	FRAME ASSY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007170	

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APPROVAL 3/9/64
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NASA APPROVAL
MIT APPROVAL

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HOUSTON, TEXAS

OPTICAL
ELECTRONICS ASSEMBLY
TRAY 9

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007179
SCALE 1/1
WT
SHEET 1 OF 1

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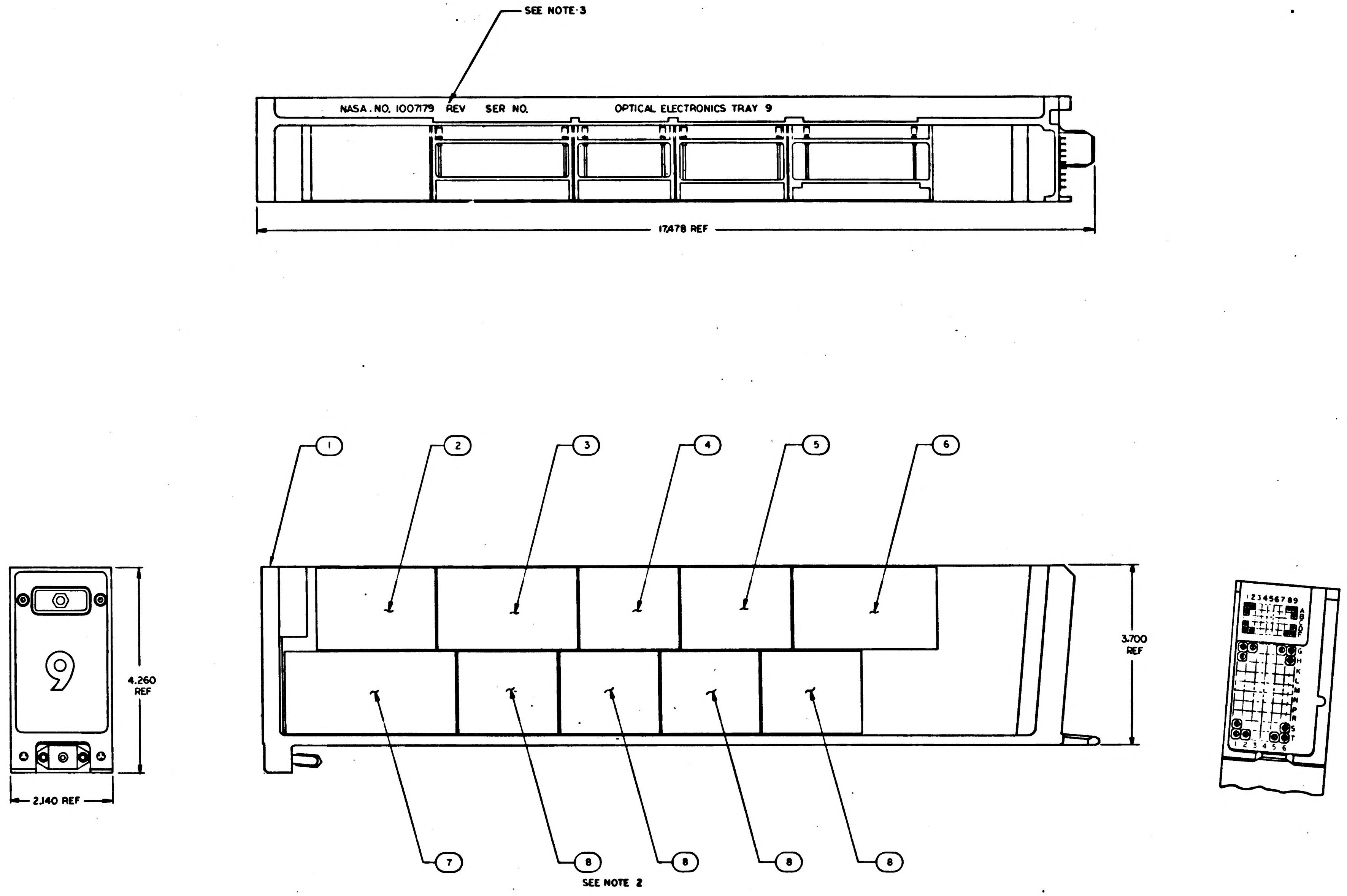
REVISIONS D6K74			
SYM	DESCRIPTION	DATE	APPROVAL


SEE NOTE 3
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2.140 REF
3.700 REF
1 2 3 4 5 6 7 8 9
A B C D E F G H K L M N P R S T
7
8
8
8
8
SEE NOTE 2

NOTES:

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1007179

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4	1015121	MOTOR DRIVE AMP	8
1	1015155	RESISTOR AND CAPACITOR	7
1	1015137	RELAY	6
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1	1015136	BUFFER CIRCUIT	3
1	1015138	ISOLATION TRANSFORMER	2
1	1007169	FRAME ASSY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007100	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN R Krahn DATE 4 MAR 64
CHECKER [illegible]
APPROVAL [illegible] 3/9/64
APPROVAL
NASA APPROVAL [illegible] 3/10/64
MIT APPROVAL [illegible] 10 Mar 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPTICAL ELECTRONICS ASSEMBLY TRAY 9

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007179
SCALE 1/1
WT
SHEET 1 OF 1

[illegible]

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 14687	14 DEC 64	

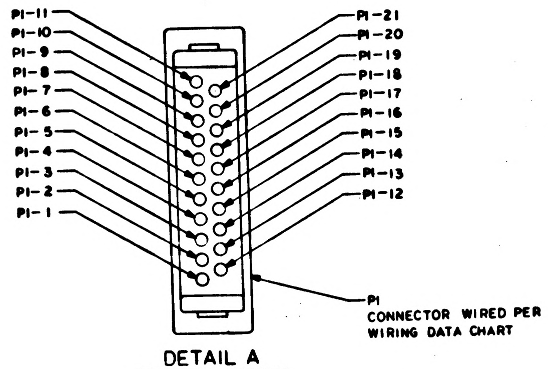
REVISIONS 72263

WIRING DATA		
FROM CIRCUIT POINT	TO CIRCUIT POINT	CIRCUIT FUNCTION
PI-1	E14	GYRO INPUT
PI-2	E15	GYRO ERROR SIG
PI-3	SPARE	SPARE
PI-4	SPARE	SPARE
PI-5	SPARE	SPARE
PI-6	SPARE	SPARE
PI-7	SPARE	SPARE
PI-8	SPARE	SPARE
PI-9	SPARE	SPARE
PI-10	E20	OV DC, COMMON
PI-11	E3	GYRO ERROR SIG
PI-12	E13	GYRO INPUT
PI-13	E16	GYRO ERROR SIG
PI-14	E9	GYRO ERROR SIG
PI-15	E10	GYRO ERROR SIG
PI-16	E7	GYRO INPUT
PI-17	E8	GYRO INPUT
PI-18	E4	GYRO ERROR SIG
PI-19	E19	27.5V DC, COMMON
PI-20	E2	GYRO INPUT
PI-21	E1	GYRO INPUT

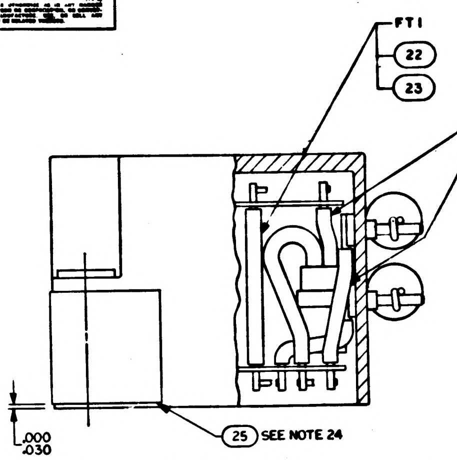
WIRING DATA		
FROM CIRCUIT POINT	TO CIRCUIT POINT	CIRCUIT FUNCTION
1	E6	EXTERNAL SELECT
2	E5	EXTERNAL SELECT
3	E18	EXTERNAL SELECT
4	E17	EXTERNAL SELECT
5	E11	EXTERNAL SELECT
6	E12	EXTERNAL SELECT

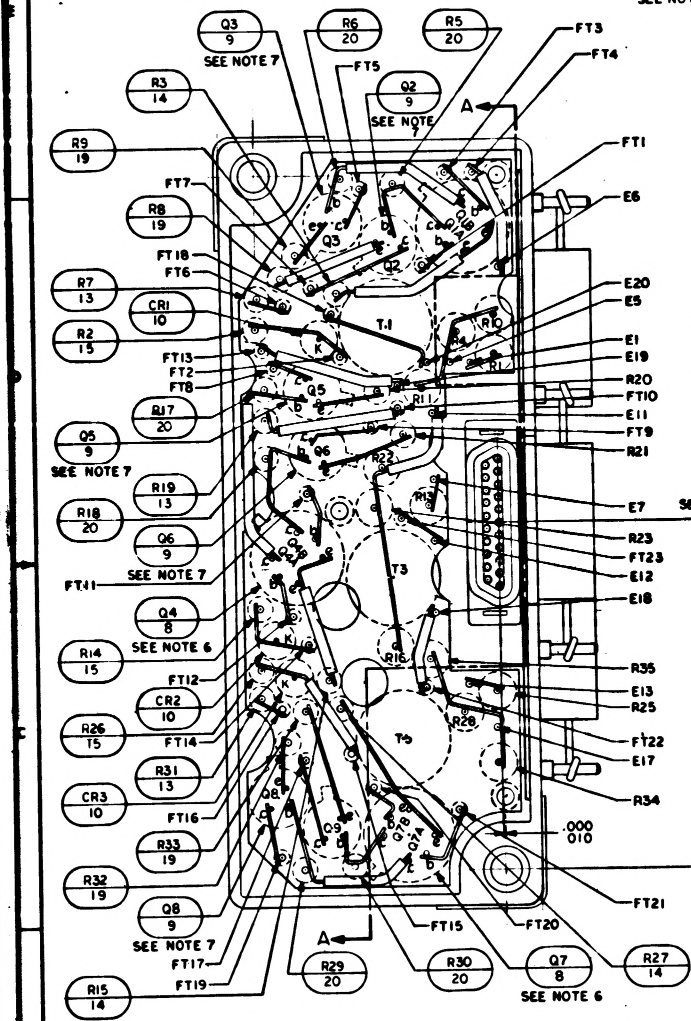
TABLE A SELECTION CHART FOR R12, R24 AND R36

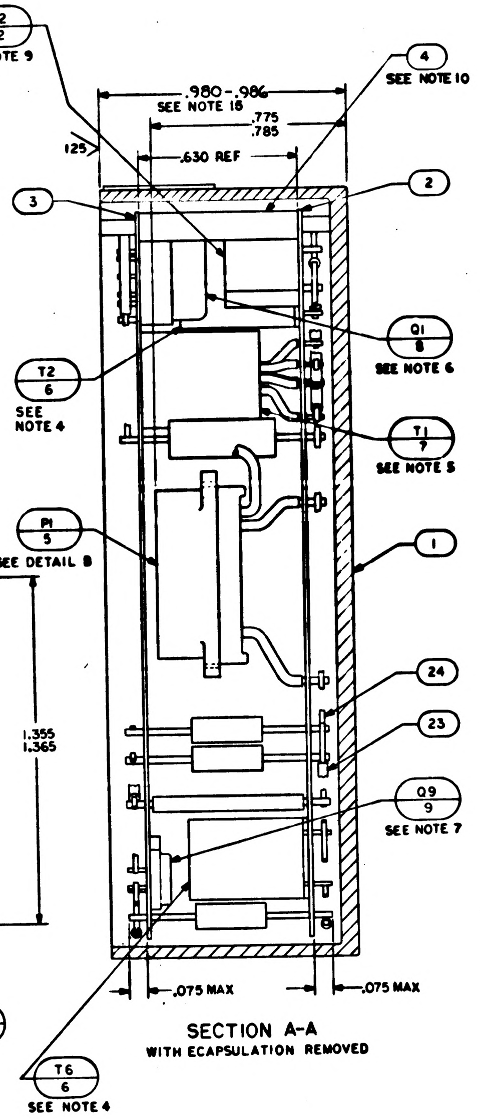
PART NUMBER	VALUE	PART NUMBER	VALUE
1010363-444	10K	1010363-659	130K
-502	20K	-662	137K
-536	30.1K	-666	143K
-560	40.2K	-670	150K
-578	49.9K	-674	158K
-592	59K	-678	165K
-604	68.1K	-682	174K
-614	76.8K	-686	182K
-622	84.4K	-690	191K
-628	90.9K	-694	200K
-634	97.6K	-698	210K
-640	105K	-700	215K
-646	113K	-702	221K
-650	118K	-704	226K
1010363-654	124K	1010363-706	232K


PI-11
PI-10
PI-9
PI-8
PI-7
PI-6
PI-5
PI-4
PI-3
PI-2
PI-1
PI-21
PI-20
PI-19
PI-18
PI-17
PI-16
PI-15
PI-14
PI-13
PI-12
PI
CONNECTOR WIRED PER
WIRING DATA CHART

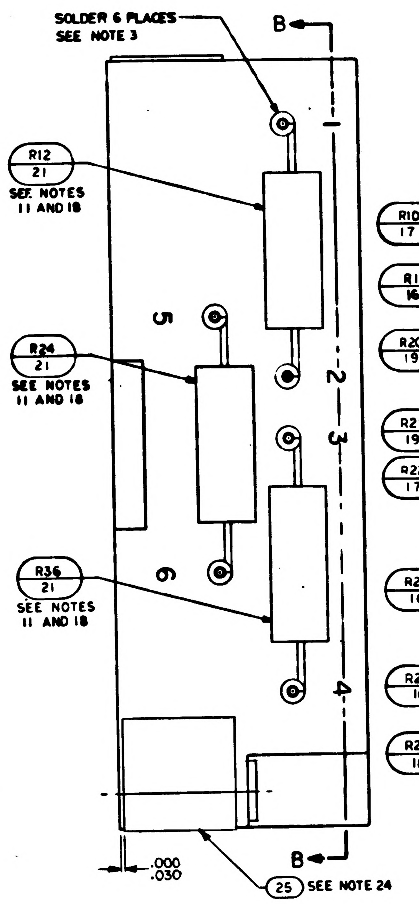
DETAIL A
CONNECTOR TERMINAL
IDENTIFICATION VIEW
SCALE: NONE

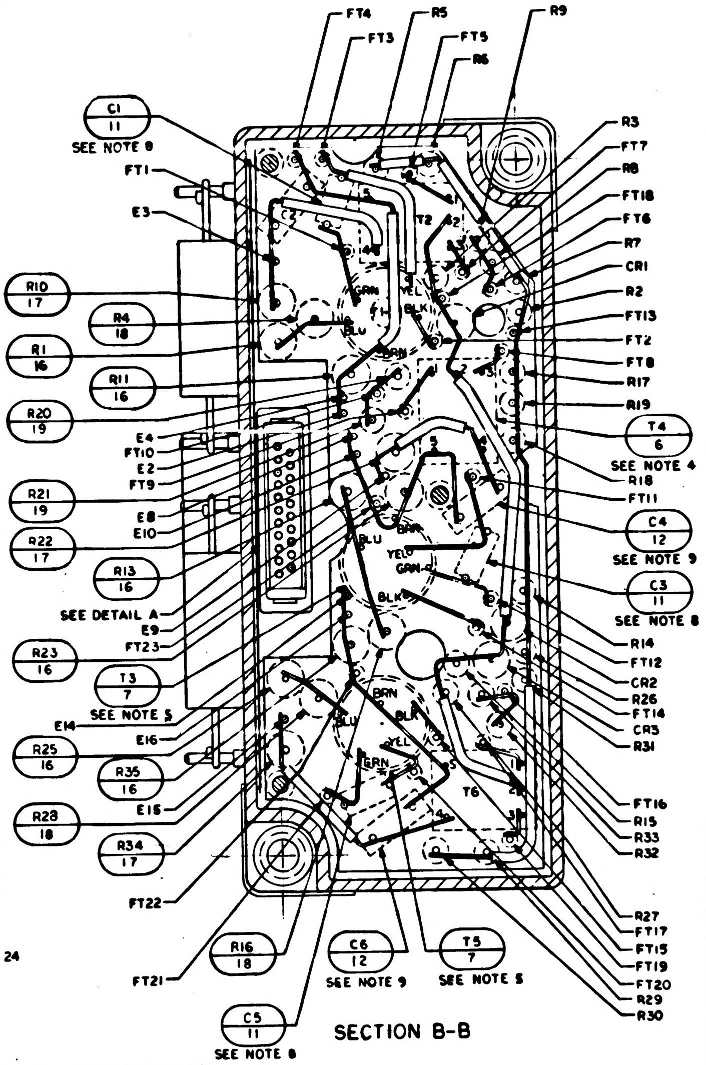

FT1
22
23
23
.000
.030
25 SEE NOTE 24


Q3 9 SEE NOTE 7
R6 20
R5 20
FT3
FT4
FT5
R3 14
Q2 9 SEE NOTE
A
R9 19
FT1
E6
FT7
R8 19
FT18
FT6
R7 13
CR1 10
R2 15
FT13
FT2
FT8
R17 20
Q5 9 SEE NOTE 7
R19 13
R18 20
Q6 9 SEE NOTE 7
FT41
Q4 8 SEE NOTE 6
R14 15
FT12
CR2 10
FT14
R26 15
R31 13
CR3 10
FT16
R33 19
R32 19
Q8 9 SEE NOTE 7
FT17
FT19
R15 14
R29 20
R30 20
FT15
Q7 8 SEE NOTE 6
FT20
FT21
R27 14
E20
E5
E1
E19
R20
FT10
E11
FT9
R21
E7
R23
FT23
E12
E18
R35
E13
R25
FT22
E17
R34
T1
T3
T6
.000
.010
A

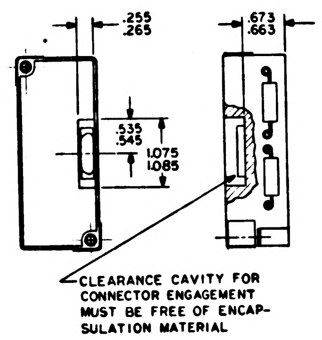

C2 12 SEE NOTE 9
4 SEE NOTE 10
.980-.986 SEE NOTE 18
.775
.785
.125
.630 REF
2
3
Q1 8 SEE NOTE 6
T2 6 SEE NOTE 4
T1 7 SEE NOTE 5
P1 5 SEE DETAIL B
1
24
23
1.355
1.365
Q9 9 SEE NOTE 7
.075 MAX
.075 MAX
T6 6 SEE NOTE 4

SECTION A-A
WITH ECAPSULATION REMOVED

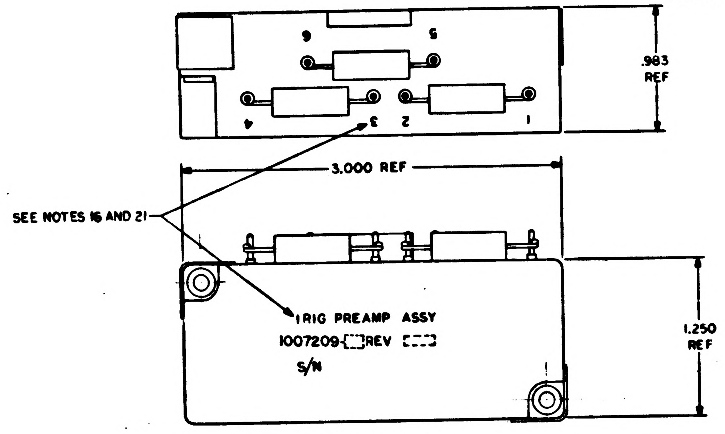

SOLDER 6 PLACES
SEE NOTE 3
B
R12 21 SEE NOTES 11 AND 18
R24 21 SEE NOTES 11 AND 18
R36 21 SEE NOTES 11 AND 18
1
2
3
4
5
6
.000
.030
B
25 SEE NOTE 24


FT4
FT3
R5
FT5
R6
R9
C1 11 SEE NOTE 8
FT1
E3
R3
FT7
R8
FT18
FT6
R7
CR1
R2
FT13
FT2
FT8
R17
R19
R10 17
R4 18
R1 16
R11 16
R20 19
E4
FT10
E2
FT9
E8
E10
R21 19
R22 17
R13 16
SEE DETAIL A
E9
FT23
R23 16
T3 7 SEE NOTE 5
E14
E16
R25 16
R35 16
E15
R28 18
R34 17
FT22
FT21
R16 18
C6 12 SEE NOTE 9
T5 7 SEE NOTE 5
C5 11 SEE NOTE 8
T4 6 SEE NOTE 4
R18
FT11
C4 12 SEE NOTE 9
C3 11 SEE NOTE 8
R14
FT12
CR2
R26
FT14
CR3
R31
FT16
R15
R33
R32
R27
FT17
FT15
FT19
FT20
R29
R30
T2
T6
BRN
YEL
BLU
BLK
GRN

SECTION B-B


.255
.265
.673
.663
.535
.545
1.075
1.085
CLEARANCE CAVITY FOR CONNECTOR ENGAGEMENT MUST BE FREE OF ENCAPSULATION MATERIAL

DETAIL B
ENCAPSULATION CONFIGURATION
DATA
SCALE: 1/1


6
5
4
3
2
1
.983 REF
3.000 REF
SEE NOTES 16 AND 21
IRIG PREAMP ASSY
1007209-[ ]REV [ ]
S/N
1.250 REF

MARKING VIEWS
SCALE: 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL WELDS TO BE PER ND1002005
3. ALL SOLDERING CONNECTIONS TO BE MADE PER ND1002071
4. BOND FIND NO. 6 TO FIND NO. 2 PER ND1002004 TYPE I
5. BOND FIND NO. 7 TO FIND NO. 3 PER ND1002004 TYPE I
6. BOND FIND NO. 8 TO FIND NO. 3 PER ND1002004 TYPE I
7. BOND FIND NO. 9 TO FIND NO. 3 PER ND1002004 TYPE I
8. BOND FIND NO. 11 TO FIND NO. 2 PER ND1002004 TYPE I
9. BOND FIND NO. 12 TO FIND NO. 2 PER ND1002004 TYPE I
10. BOND FIND NO. 4 TO FIND NO. 2 & 3 PER ND 1002004 TYPE I
11. BOND FIND NO. 21 TO FIND NO. 1 PER ND 1002004 TYPE I
12. AFTER WELDING ALL LEADS MUST EXTEND BEYOND RIBBON .010 MINIMUM
13. DIPCOAT PER ND1002068 PRIOR TO ENCAPSULATION
14. ENCAPSULATE MODULE PER ND 1002106 USING 1010765 & 1010766
15. MACHINE TO DIMENSION SHOWN AFTER ENCAPSULATION
16. MARK .100/.140 HIGH YELLOW PER ND1002019 & SERIALIZE PER ND1002023
17. AR DENOTES AS REQUIRED
18. R12, R24 AND R36 TO BE SELECTED BY ELECTRICAL TEST, PER ATP______
19. K DENOTES CATHODE SIDE OF DIODE
20. SPARE LEADS FROM FIND NO. 5 TO BE CUT TO .030 TO .090 LENGTH
21. PIECEMARK TO BE CENTRALLY LOCATED ON SURFACE INDICATED
22. INSPECT PER PS1007024
23. TEST PER FTM 1007024
24. BOND FIND NO. 25 TO FIND NO. 1 IN THE LOCATION SHOWN PER ND1002004 TYPE II RIGID, AFTER FINAL MACHINING

☒	1010053	SCHEMATIC	REF
2	1008272-001	STRIP, REINFORCING	25
AR	1006757-1	WIRE, ELECTRICAL	24
AR	1006776-22	INSULATION, SLEEVING, ELEC	23
AR	1006787-2	WIRE, ELECTRICAL	22
3	1010363	RESISTOR (SEE NOTE 18)	21
6	1006750-58	RESISTOR	20
6	1006750-15	RESISTOR	19
3	1010364-769	RESISTOR	18
3	1010364-635	RESISTOR	17
6	1010364-501	RESISTOR	16
3	1006750-63	RESISTOR	15
3	1006750-52	RESISTOR	14
3	1006750-32	RESISTOR	13
3	1010359-23	CAPACITOR	12
3	1010359-17	CAPACITOR	11
3	1010372-15	DIODE	10
3	1010633-2	TRANSISTOR MATCHED PAIR	9
3	1010252-1	TRANSISTOR	8
3	1007080	TRANSFORMER, SHIELDED ASSY	7
3	1010291-1	TRANSFORMER	6
1	1010472-2	CONNECTOR, RECP, ELECTRICAL	5
3	1008053	SPACER	4
1	1008061	WIRING BOARD, BOTTOM	3
1	1008060	WIRING BOARD, TOP	2
1	1007210-011	HOUSING, INSEPARABLE ASSY	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

1000005	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.030 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN DATE
CHECKED 4 Aug 64
APPROVAL
APPROVAL S.C. 8/31/64
NASA APPROVAL
MIT APPROVAL Aug 64

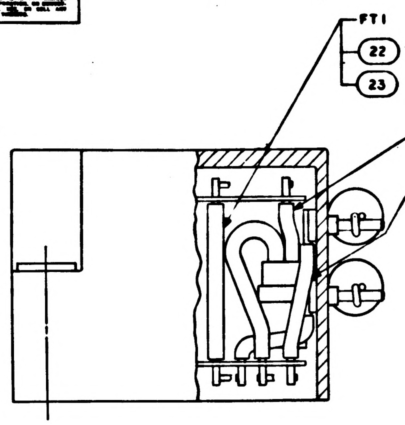
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

IRIG PREAMP ASSY

CODE IDENT NO. —
SIZE E
NASA DRAWING NO. 1007209
SCALE 4/1
WT
SHEET 1 OF 1

1007209

MASTER

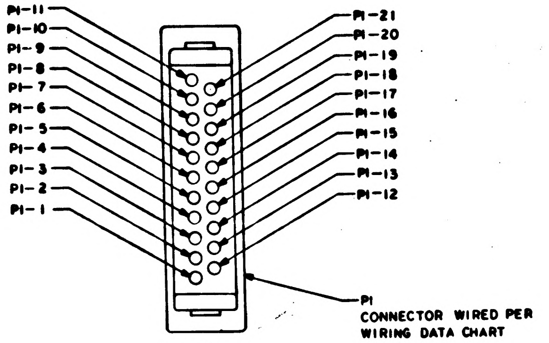


WIRING DATA		
FROM CIRCUIT POINT	TO CIRCUIT POINT	CIRCUIT FUNCTION
P1-1	E14	GYRO INPUT
P1-2	E15	GYRO ERROR SIG
P1-3	SPARE	SPARE
P1-4	SPARE	SPARE
P1-5	SPARE	SPARE
P1-6	SPARE	SPARE
P1-7	SPARE	SPARE
P1-8	SPARE	SPARE
P1-9	SPARE	SPARE
P1-10	E20	0V DC, COMMON
P1-11	E3	GYRO ERROR SIG
P1-12	E13	GYRO INPUT
P1-13	E16	GYRO ERROR SIG
P1-14	E9	GYRO ERROR SIG
P1-15	E10	GYRO ERROR SIG
P1-16	E7	GYRO INPUT
P1-17	E8	GYRO INPUT
P1-18	E4	GYRO ERROR SIG
P1-19	E19	27.5V DC, COMMON
P1-20	E2	GYRO INPUT
P1-21	E1	GYRO INPUT

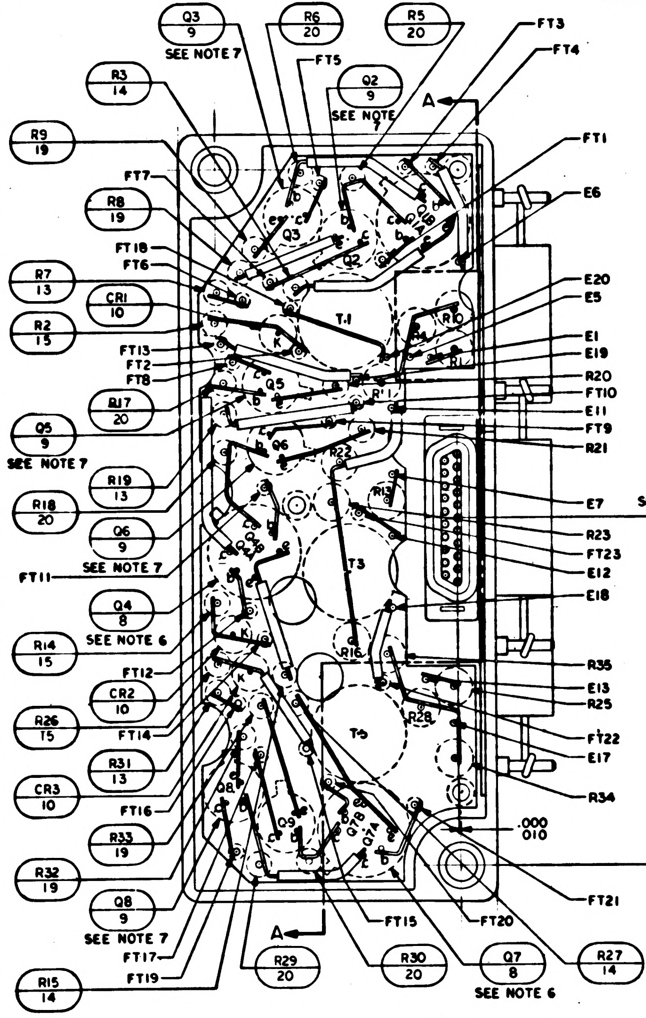
WIRING DATA		
FROM CIRCUIT POINT	TO CIRCUIT POINT	CIRCUIT FUNCTION
1	E6	EXTERNAL SELECT
2	E5	EXTERNAL SELECT
3	E18	EXTERNAL SELECT
4	E17	EXTERNAL SELECT
5	E11	EXTERNAL SELECT
6	E12	EXTERNAL SELECT

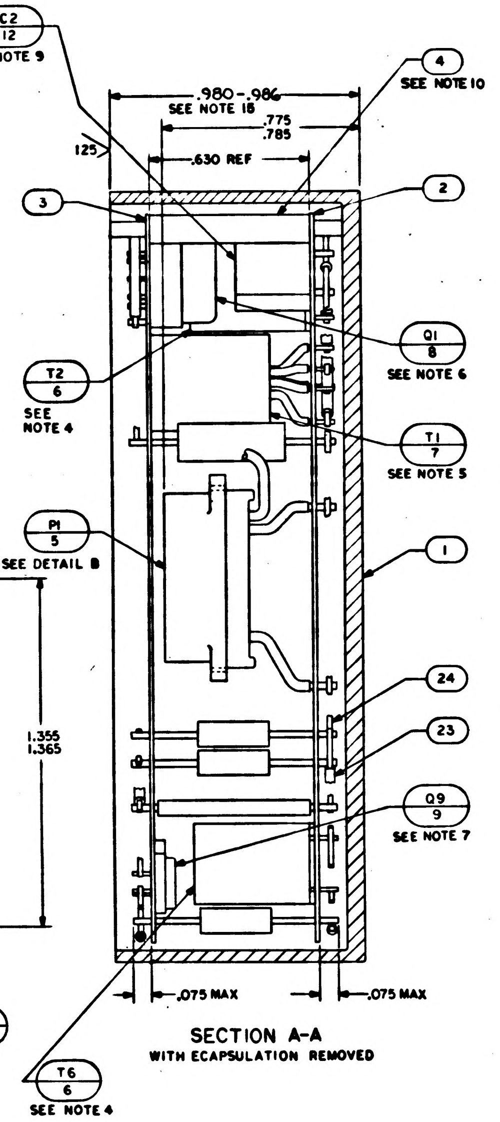
TABLE A SELECTION CHART FOR R12, R24 AND R36

PART NUMBER	VALUE	PART NUMBER	VALUE
1010363-444	10K	1010363-658	130K
-502	20K	-662	137K
-536	30.1K	-666	143K
-560	40.2K	-670	150K
-578	49.9K	-674	158K
-592	59K	-678	165K
-604	68.1K	-682	174K
-614	76.8K	-686	182K
-622	84.4K	-690	191K
-628	90.9K	-694	200K
-634	97.6K	-698	210K
-640	105K	-700	215K
-646	113K	-702	221K
-650	118K	-704	226K
1010363-654	124K	1010363-706	232K

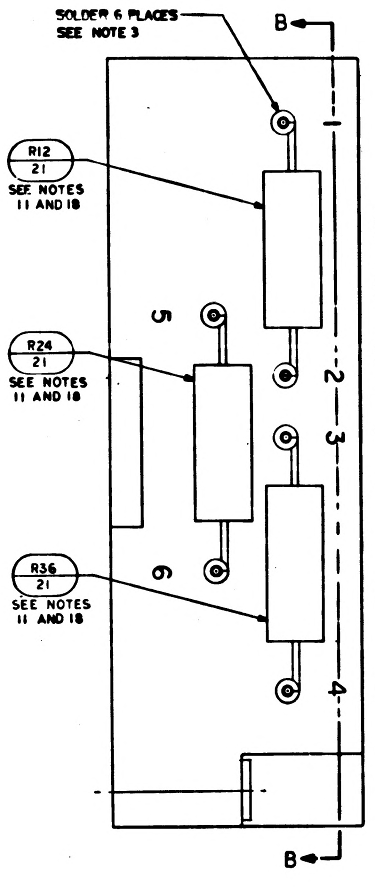

P1-11
P1-10
P1-9
P1-8
P1-7
P1-6
P1-5
P1-4
P1-3
P1-2
P1-1
P1-21
P1-20
P1-19
P1-18
P1-17
P1-16
P1-15
P1-14
P1-13
P1-12
P1
CONNECTOR WIRED PER
WIRING DATA CHART

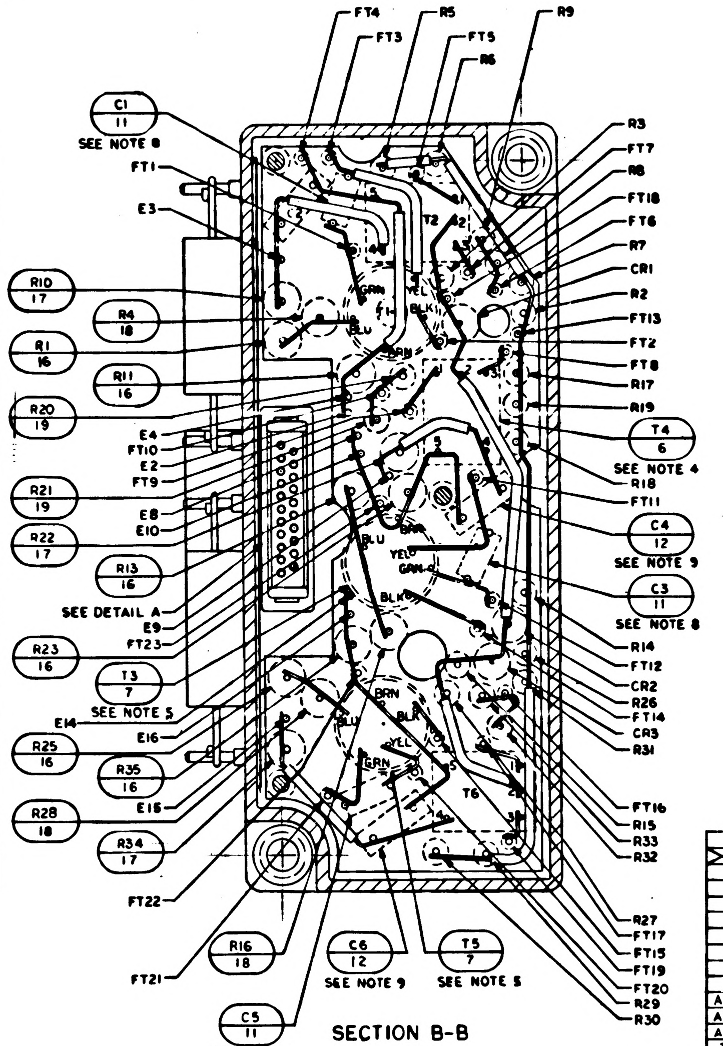
DETAIL A
CONNECTOR TERMINAL
IDENTIFICATION VIEW
SCALE: NONE


Q3 9 SEE NOTE 7
R6 20
R5 20
FT3
FT4
FT5
Q2 9 SEE NOTE 7
A
R3 14
R9 19
FT7
FT1
E6
R8 19
FT18
FT6
E20
E5
R7 13
CR1 10
T1
E1
E19
R2 15
FT13
FT2
FT8
R20
FT10
E11
FT9
R17 20
Q5 9 SEE NOTE 7
R21
R19 13
E7
R18 20
R23
FT23
Q6 9 SEE NOTE 7
E12
E18
FT11
Q4 8 SEE NOTE 6
R14 15
T3
R35
E13
R25
FT12
CR2 10
FT22
E17
R26 15
FT14
R31 13
R34
CR3 10
FT16
R33 19
.000
.010
R32 19
FT21
Q8 9 SEE NOTE 7
FT17
FT15
FT20
FT19
A
R29 20
R30 20
Q7 8 SEE NOTE 6
R27 14
R15 14


C2 12 SEE NOTE 9
4 SEE NOTE 10
.980-.986 SEE NOTE 15
.775
.785
.125
.630 REF
3
2
Q1 8 SEE NOTE 6
T2 6 SEE NOTE 4
T1 7 SEE NOTE 5
P1 5 SEE DETAIL B
1
1.355
1.365
24
23
Q9 9 SEE NOTE 7
.075 MAX
.075 MAX
T6 6 SEE NOTE 4

SECTION A-A
WITH ECAPSULATION REMOVED

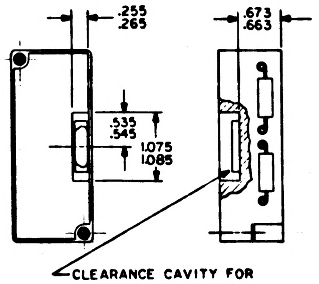

SOLDER 6 PLACES
SEE NOTE 3
B
R12 21 SEE NOTES 11 AND 18
R24 21 SEE NOTES 11 AND 18
R36 21 SEE NOTES 11 AND 18
1
2
3
4
5
6
B


FT4
R5
R9
FT3
FT5
R6
C1 11 SEE NOTE 8
R3
FT7
R8
FT1
FT18
E3
FT6
R7
CR1
R2
R10 17
R4 18
FT13
FT2
R1 16
FT8
R17
R11 16
R19
R20 19
T4 6 SEE NOTE 4
E4
FT10
E2
FT9
R18
FT11
R21 19
C4 12 SEE NOTE 9
E8
E10
R22 17
C3 11 SEE NOTE 8
R13 16
SEE DETAIL A
E9
FT23
R14
FT12
R23 16
CR2
T3 7 SEE NOTE 5
R26
FT14
E14
CR3
E16
R31
R25 16
R35 16
E15
FT16
R15
R28 18
R33
R34 17
R32
FT22
R27
FT17
R16 18
C6 12 SEE NOTE 9
T5 7 SEE NOTE 5
FT15
FT19
FT21
FT20
R29
R30
C5 11 SEE NOTE 8
GRN
BLK
BLU
YEL
BRN
T2
T6

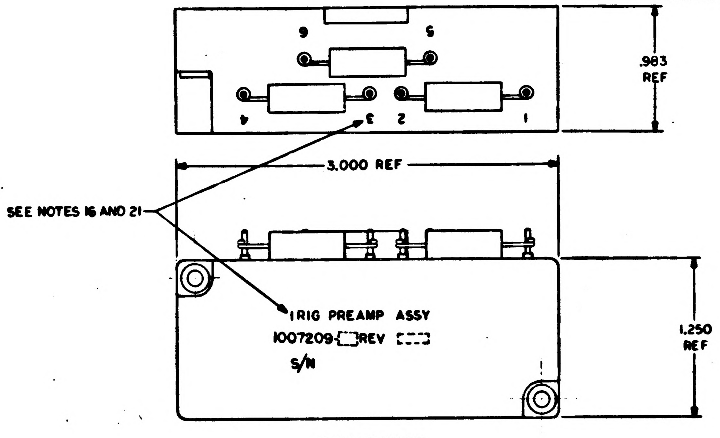
SECTION B-B

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL WELDS TO BE PER ND1002005
3. ALL SOLDERING CONNECTIONS TO BE MADE PER ND1002071

4. BOND FIND NO. 6 TO FIND NO. 2 PER ND1002004 TYPE I
5. BOND FIND NO. 7 TO FIND NO. 3 PER ND1002004 TYPE I
6. BOND FIND NO. 8 TO FIND NO. 3 PER ND1002004 TYPE I
7. BOND FIND NO. 9 TO FIND NO. 3 PER ND1002004 TYPE I
8. BOND FIND NO. 11 TO FIND NO. 2 PER ND1002004 TYPE I
9. BOND FIND NO. 12 TO FIND NO. 2 PER ND1002004 TYPE I
10. BOND FIND NO. 4 TO FIND NO. 2 & 3 PER ND1002004 TYPE I
11. BOND FIND NO. 21 TO FIND NO. 1 PER ND 1002004 TYPE I
12. AFTER WELDING ALL LEADS MUST EXTEND BEYOND RIBBON .010 MINIMUM
13. DIPCOAT PER ND1002068 PRIOR TO ENCAPSULATION
14. ENCAPSULATE MODULE PER ND1002106 USING 1010765 & 1010766
15. MACHINE TO DIMENSION SHOWN AFTER ENCAPSULATION
16. MARK .100/.140 HIGH YELLOW PER ND1002019 & SERIALIZE PER ND1002023
17. AR DENOTES AS REQUIRED
18. R12, R24 AND R36 TO BE SELECTED BY ELECTRICAL TEST, PER ATP______
19. K DENOTES CATHODE SIDE OF DIODE
20. SPARE LEADS FROM FIND NO. 5 TO BE CUT TO .030 TO .090 LENGTH
21. PIECEMARK TO BE CENTRALLY LOCATED ON SURFACE INDICATED
22. INSPECT PER PS1007024
23. TEST PER FTM 1007024


.255
.265
.673
.663
.535
.545
1.075
1.085
CLEARANCE CAVITY FOR
CONNECTOR ENGAGEMENT
MUST BE FREE OF ENCAP-
SULATION MATERIAL

DETAIL B
ENCAPSULATION CONFIGURATION DATA
SCALE: 1/1


6
5
4
3
2
1
.983 REF
3.000 REF
SEE NOTES 16 AND 21
IRIG PREAMP ASSY
1007209-☐ REV ☐
S/N
1.250 REF

MARKING VIEWS
SCALE: 2/1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
X	1010053	SCHEMATIC	REF
AR	1006757-1	WIRE, ELECTRICAL	24
AR	1006776-22	INSULATION, SLEEVING, ELEC	23
AR	1006787-2	WIRE, ELECTRICAL	22
3	1010363	RESISTOR (SEE NOTE 18)	21
6	1006750-58	RESISTOR	20
6	1006750-15	RESISTOR	19
3	1010364-769	RESISTOR	18
3	1010364-635	RESISTOR	17
6	1010364-501	RESISTOR	16
3	1006750-63	RESISTOR	15
3	1006750-52	RESISTOR	14
3	1006750-32	RESISTOR	13
3	1010359-23	CAPACITOR	12
3	1010359-17	CAPACITOR	11
3	1010372-15	DIODE	10
3	1010633-2	TRANSISTOR MATCHED PAIR	9
3	1010252-1	TRANSISTOR	8
3	1007080	TRANSFORMER, SHIELDED ASSY	7
3	1010291-1	TRANSFORMER	6
1	1010472-2	CONNECTOR, RECP, ELECTRICAL	5
3	1008053	SPACER	4
1	1008061	WIRING BOARD, BOTTOM	3
1	1008060	WIRING BOARD, TOP	2
1	1007210-011	HOUSING, INSEPARABLE ASSY	1
-011	LIST OF MATERIALS		

100C005
NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.030 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN DATE
CHECKED A. Lindstrom 4 Aug 64
APPROVAL
APPROVAL S.C. Smith 8/31/64
NASA APPROVAL 9-1-64
MIT APPROVAL Aug 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

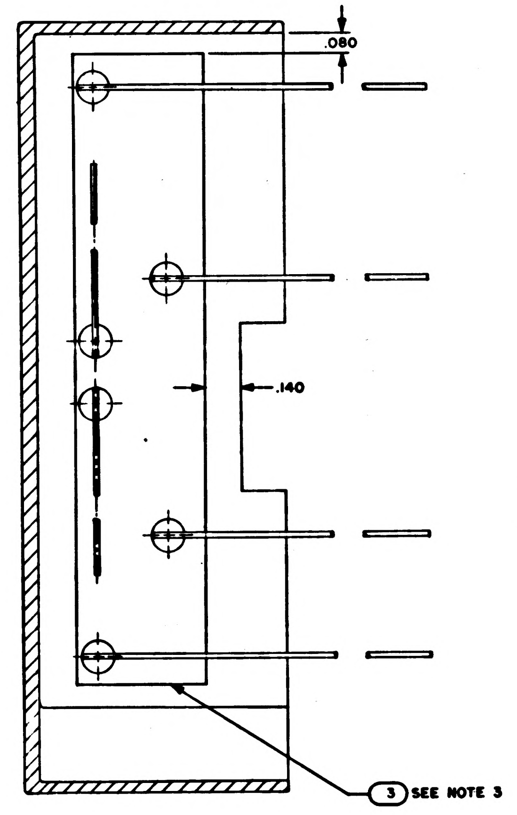
IRIG PREAMP ASSY

CODE IDENT NO. ——
SIZE E
NASA DRAWING NO. 1007209
SCALE 4/1
WT
SHEET 1 OF 1

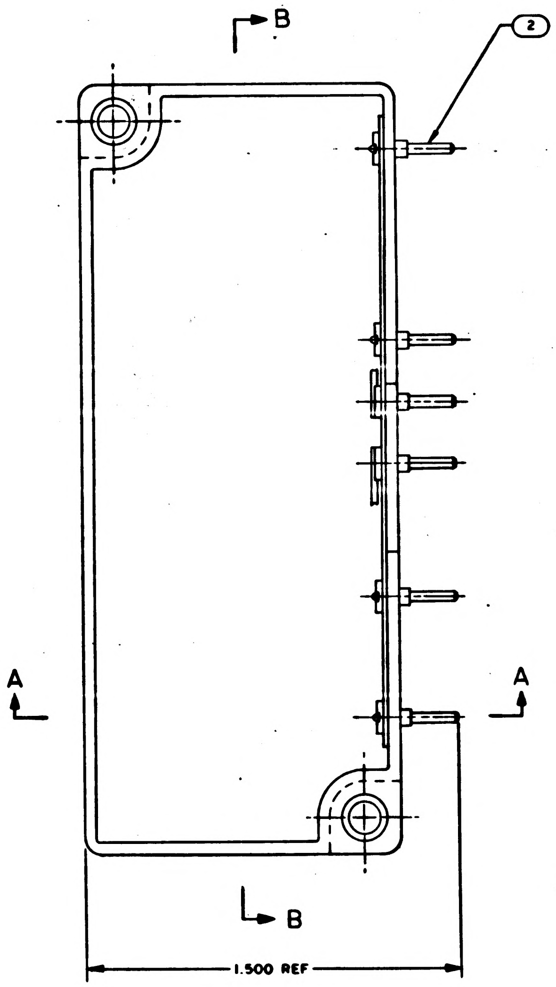
1007209

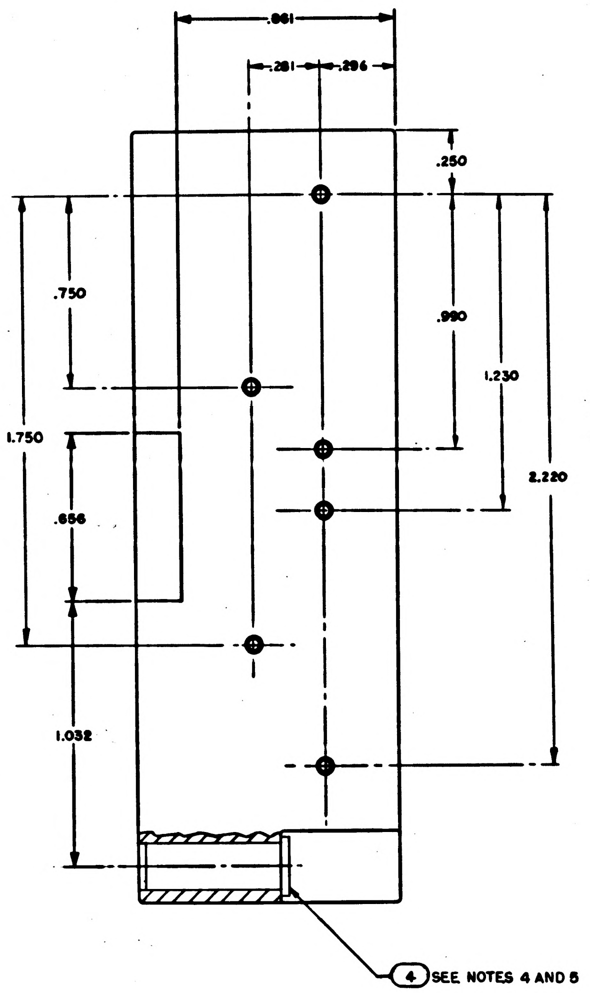
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

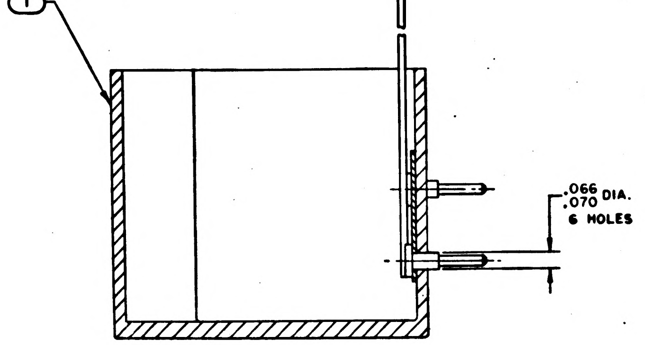
REVISIONS 18203			
SYM	DESCRIPTION	DATE	APPROVAL



SECTION B-B







SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. BOND FIND NO. 2 TO FIND NO. 1 PER ND 10C2004, TYPE I
3. BOND FIND NO. 3 TO FIND NO. 1 PER ND 1002004, TYPE I
4. FIND NO.4 TO BE FREE OF FOREIGN MATTER
5. BOND FIND NO.4 TO FIND NO. 1 PER ND 1002004, TYPE II
6. IDENTIFY PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
2	1008220	FERRULE, GME	4
1	1008100	TERMINAL BOARD	3
6	1007000-2	TERMINAL LUG ASSEMBLY	2
1	1008221-001	HOUSING, IRIG PREAMP	1
-011	LIST OF MATERIALS		

MASTER

1007209	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — DECIMALS ±.005 ANGLES —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE
CHECKED A. Lindstrom 4 Aug 64
APPROVAL
APPROVAL 8/31/64
NASA APPROVAL 9-1-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING ASSEMBLY
INSEPARABLE
IRIG PREAMP

CODE IDENT NO. —
SIZE E
NASA DRAWING NO. 1007210.
SCALE 4/1
WT
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 226

SYM	DESCRIPTION	DATE	APPROVAL
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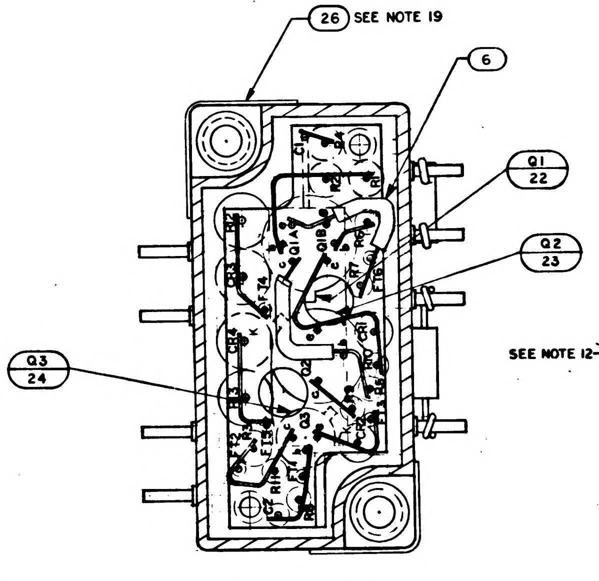
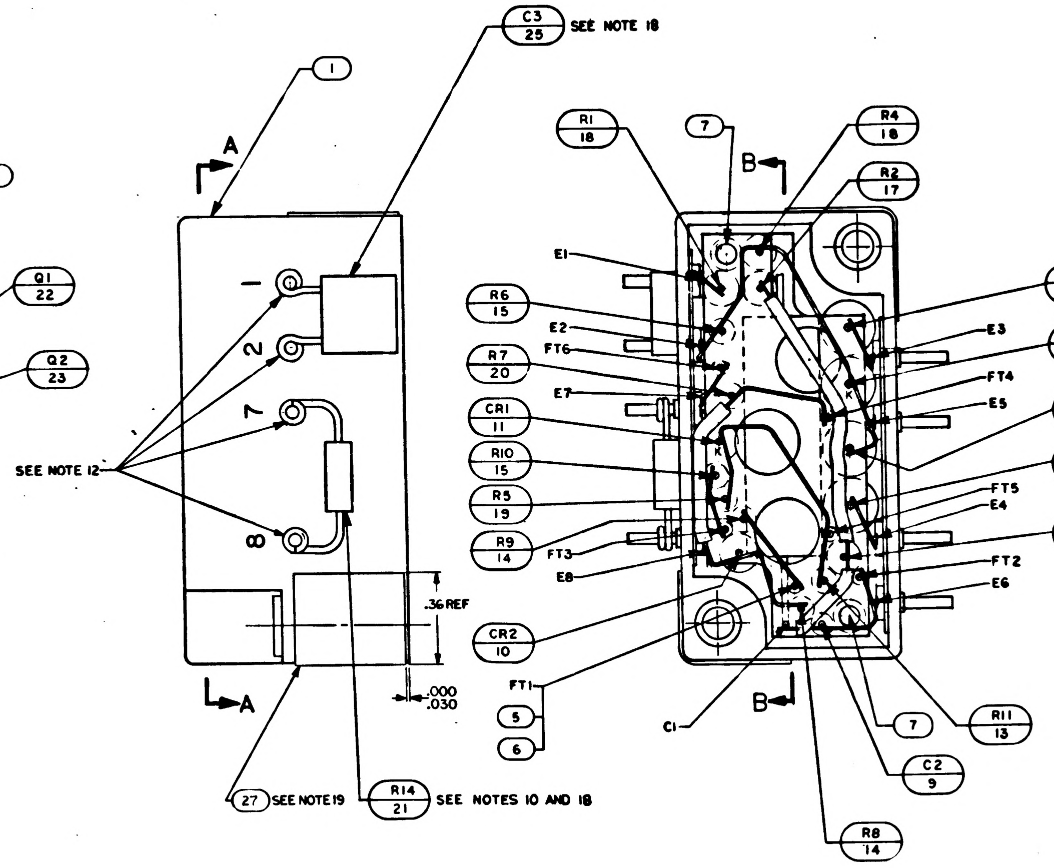
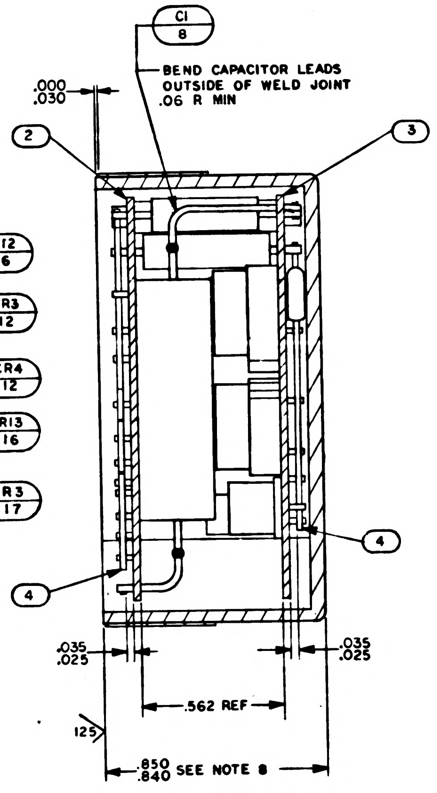

26 SEE NOTE 19
6
Q1 22
Q2 23
Q3 24
K

SECTION A-A


C3 25 SEE NOTE 18
1
A
1
2
7
8
SEE NOTE 12
.36 REF
.000
.030
A
27 SEE NOTE 19
R14 21 SEE NOTES 10 AND 18
R1 18
7
B
R4 18
R2 17
E1
R6 15
E2
FT6
R7 20
E7
CR1 11
R10 15
R5 19
R9 14
FT3
E8
CR2 10
FT1
5
6
C1
B
R12 16
E3
CR3 12
FT4
CR4 12
E5
R13 16
FT5
E4
R3 17
FT2
E6
7
R11 13
C2 9
R8 14

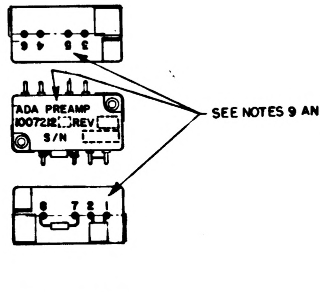

C1 8
BEND CAPACITOR LEADS OUTSIDE OF WELD JOINT .06 R MIN
.000
.030
2
3
4
4
.035
.025
.035
.025
.562 REF
125
.850
.840 SEE NOTE 8

SECTION B-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WIRE PER ND-1002003
3. WELD PER ND-1002005
4. BOND FIND NUMBERS 22,23,AND 24 TO FIND NO. 3 PER ND1002004, TYPE I
5. AFTER WELDING ALL LEADS MUST EXTEND BEYOND RIBBON .010 MINIMUM
6. DIP COAT PER ND-1002068 PRIOR TO ENCAPSULATION
7. CENTRALIZE MODULE IN HOUSING, WELD E1 THRU E8, AND ENCAPSULATE PER ND-1002106 USING 1010765 & 1010766
8. MACHINE TO DIMENSION SHOWN AFTER ENCAPSULATION.
9. MARK .100/.140 HIGH YELLOW PER ND1002019 & SERIALIZE PER ND 1002023
10. R14 TO BE SELECTED BY ELECTRICAL TEST FROM SELECTION CHART.
11. AR DENOTES AS REQUIRED
12. SOLDER PER ND1002071
13. K DENOTES CATHODE SIDE OF DIODE
14. DASHED LINES ON FIND NOS. 2 & 3 INDICATE INSULATION SLEEVING.
15. PIECEMARK TO BE CENTRALLY LOCATED ON SURFACES INDICATED
16. INSPECT PER PS 1007025
17. TEST PER FTM 1007025
18. BOND FIND NO. 21 & 25 TO FIND NO. 1 PER ND1002004 TYPE I
19. BOND FIND NO'S 26 AND 27 TO FIND NO. 1 IN THE LOCATION SHOWN PER ND1002004 TYPE II RIGID, AFTER FINAL MACHINING

R14	
1010369-94	360K
-95	390K
-96	430K
-97	470K
-98	510K
-99	560K
-100	620K
-101	680K
-102	750K
-103	820K
-104	910K
-105	1000K
-106	1100K
-107	1200K
-108	1300K
-109	1500K


6 4 5 3
ADA PREAMP
1007212 REV
S/N
8 7 2 1
SEE NOTES 9 AND 15

MARKING VIEW
SCALE 1/1

☒	1010022	SCHEMATIC	REF
1	1008272-002	STRIP, REINFORCING	27
1	1008272-001	STRIP, REINFORCING	26
1	1010359-29	CAPACITOR	25
1	1010397	TRANSISTOR	24
1	1010345-1	TRANSISTOR	23
1	1010252	TRANSISTOR	22
1	SEE NOTE 10	RESISTOR	21
1	1010369-98	RESISTOR	20
1	1010369-96	RESISTOR	19
2	1010364-501	RESISTOR	18
2	1010321-398	RESISTOR	17
2	1010312-030	RESISTOR	16
2	1006750-64	RESISTOR	15
2	1006750-63	RESISTOR	14
1	1006750-60	RESISTOR	13
2	1010265-012	DIODE	12
1	1010372-20	DIODE	11
1	1010372-1	DIODE	10
1	1006777-24	CAPACITOR	9
1	1010320-13	CAPACITOR	8
2	1008043	SPACER	7
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	6
AR	1006787-2	WIRE, ELECTRICAL, NICKEL, IRON	5
AR	1006757-1	WIRE, ELECTRICAL, NICKEL, RECT	4
1	1008048	WIRING BOARD, BOTTOM	3
1	1008047	WIRING BOARD, TOP	2
1	1007211-011	HOUSING ASSY	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

	DL 1000201
1000005	DL 1000001
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS ± .03 ANGLES ± //
DO NOT SCALE THIS DRAWING
MATERIAL //
HEAT TREATMENT //
FINAL FINISH //

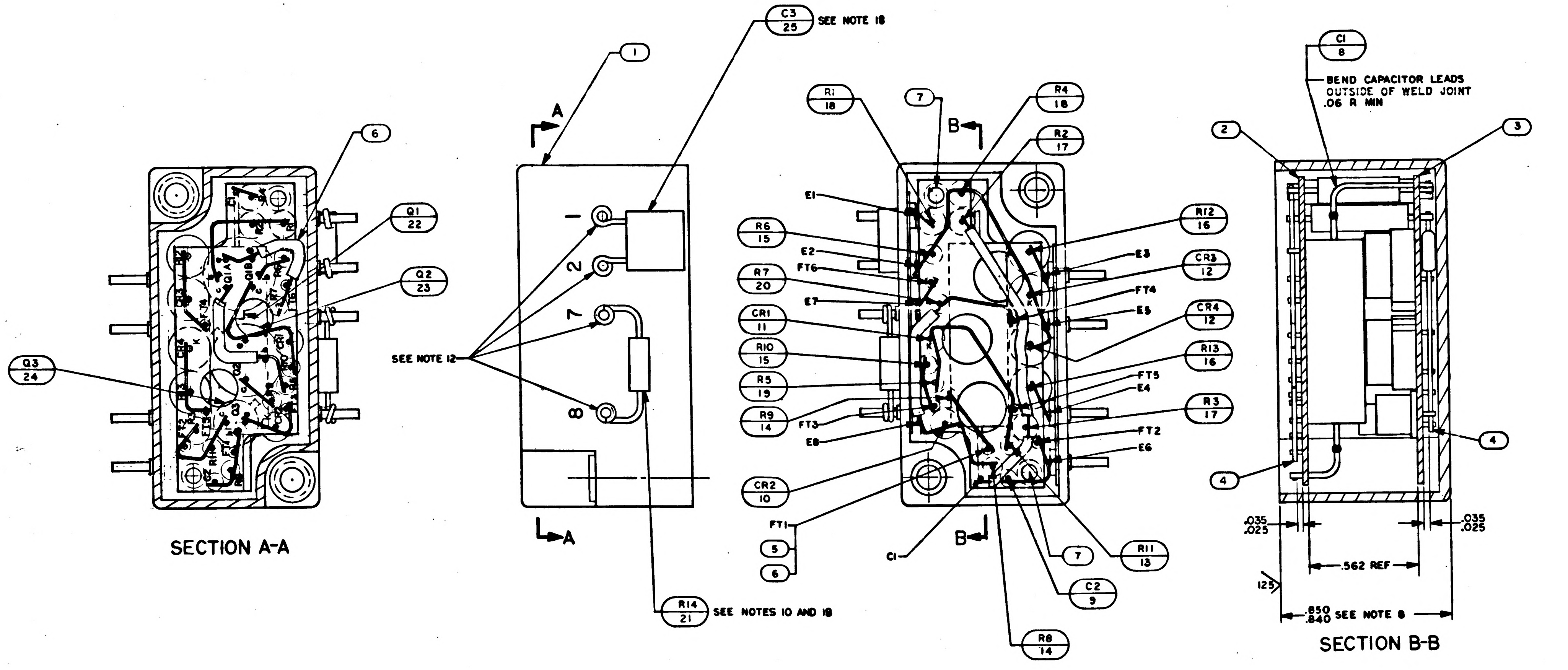
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE
CHECKED A. Lindstrom 6 Aug 64
APPROVAL
APPROVAL A. C. Smith 8/31/64
NASA APPROVAL W. J. Rhine 9-1-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADA PREAMP ASSY
(STABLE MEMBER)

CODE IDENT NO. —— SIZE E NASA DRAWING NO. 1007212
SCALE 4/1 WT —— SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



6
Q1 22
Q2 23
Q3 24
1
A
C3 25 SEE NOTE 18
1
2
7
8
SEE NOTE 12
R14 21 SEE NOTES 10 AND 18
R1 18
7
B
R4 18
R2 17
E1
R6 15
E2
FT6
R7 20
E7
CR1 11
R10 15
R5 19
R9 14
FT3
E8
CR2 10
FT1
5
6
C1
R12 16
E3
CR3 12
FT4
E5
CR4 12
R13 16
FT5
E4
R3 17
FT2
E6
R11 13
7
C2 9
R8 14
C1 8
BEND CAPACITOR LEADS OUTSIDE OF WELD JOINT .06 R MIN
2
3
4
4
.035 .025
.035 .025
.562 REF
125
.850 .840 SEE NOTE 8

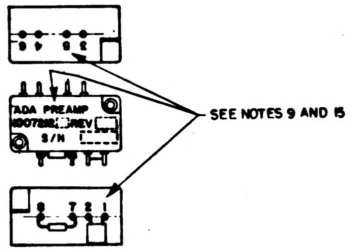
SECTION A-A

SECTION B-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WIRE PER ND-1002003
3. WELD PER ND-1002005
4. BOND FIND NUMBERS 22,23,AND 24 TO FIND NO. 3 PER ND1002004, TYPE I
5. AFTER WELDING ALL LEADS MUST EXTEND BEYOND RIBBON .010 MINIMUM
6. DIP COAT PER ND-1002068 PRIOR TO ENCAPSULATION
7. CENTRALIZE MODULE IN HOUSING, WELD E1 THRU E8, AND ENCAPSULATE PER ND-1002106 USING 1010765 & 1010766
8. MACHINE TO DIMENSION SHOWN AFTER ENCAPSULATION.
9. MARK .100/.140 HIGH YELLOW PER ND1002019 & SERIALIZE PER ND 1002023
10. R14 TO BE SELECTED BY ELECTRICAL TEST FROM SELECTION CHART.
11. AR DENOTES AS REQUIRED
12. SOLDER PER ND1002071
13. K DENOTES CATHODE SIDE OF DIODE
14. DASHED LINES ON FIND NOS. 2&3 INDICATE INSULATION SLEEVING.
15. PIECEMARK TO BE CENTRALLY LOCATED ON SURFACES INDICATED
16. INSPECT PER PS 1007025
17. TEST PER FTM 1007025
18. BOND FIND NO. 21 & 25 TO FIND NO. 1 PER ND1002004 TYPE I

R14	
1010369-94	360K
-95	390K
-96	430K
-97	470K
-98	510K
-99	560K
-100	620K
-101	680K
-102	750K
-103	820K
-104	910K
-105	1000K
-106	1100K
-107	1200K
-108	1300K
-109	1500K



ADA PREAMP
1007212 REV
S/N
SEE NOTES 9 AND 15

MARKING VIEW
SCALE 1/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010022	SCHEMATIC	REF
1	1010359-29	CAPACITOR	25
1	1010397	TRANSISTOR	24
1	1010345-1	TRANSISTOR	23
1	1010252	TRANSISTOR	22
1	SEE NOTE 10	RESISTOR	21
1	1010369-98	RESISTOR	20
1	1010369-96	RESISTOR	19
2	1010364-501	RESISTOR	18
2	1010321-398	RESISTOR	17
2	1010312-030	RESISTOR	16
2	1006750-64	RESISTOR	15
2	1006750-63	RESISTOR	14
1	1006750-60	RESISTOR	13
2	1010265-012	DIODE	12
1	1010372-20	DIODE	11
1	1010372-1	DIODE	10
1	1006777-24	CAPACITOR	9
1	1010320-13	CAPACITOR	8
2	1008043	SPACER	7
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	6
AR	1006787-2	WIRE, ELECTRICAL, NICKEL, IRON	5
AR	1006757-1	WIRE, ELECTRICAL, NICKEL, RECT	4
1	1008048	WIRING BOARD, BOTTOM	3
1	1008047	WIRING BOARD, TOP	2
1	1007211-011	HOUSING ASSY	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
	DL 1000201
1000005	DL 1000001

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS ± .03 ANGLES ± //
DO NOT SCALE THIS DRAWING
MATERIAL //
HEAT TREATMENT //
FINAL FINISH //

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE
CHECKED A. Lindstrom 6 Aug 64
APPROVAL
APPROVAL A. C. Smith 8/31/64
NASA APPROVAL W. J. Rhine 9-1-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADA PREAMP ASSY
(STABLE MEMBER)

CODE IDENT NO. —— SIZE E NASA DRAWING NO. 1007212
SCALE 4/1 WT —— SHEET 1 OF 1

MASTER

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REVISIONS 2203

SYM	DESCRIPTION	DATE	APPROVAL
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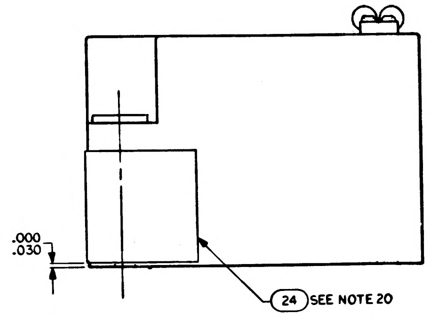
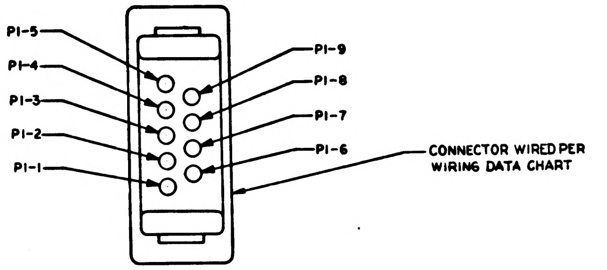
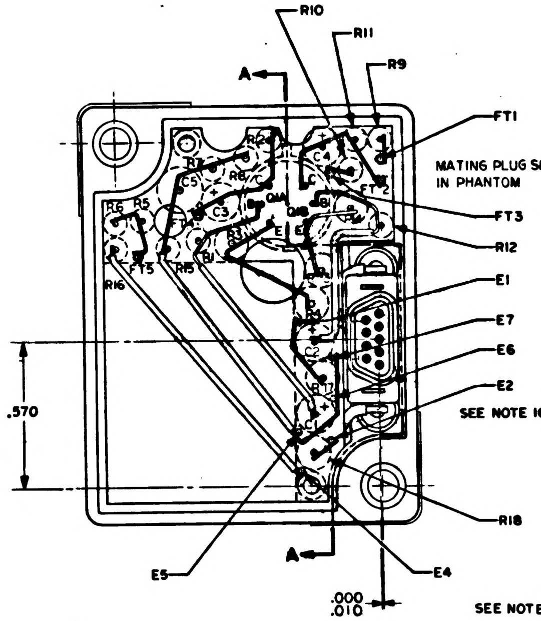
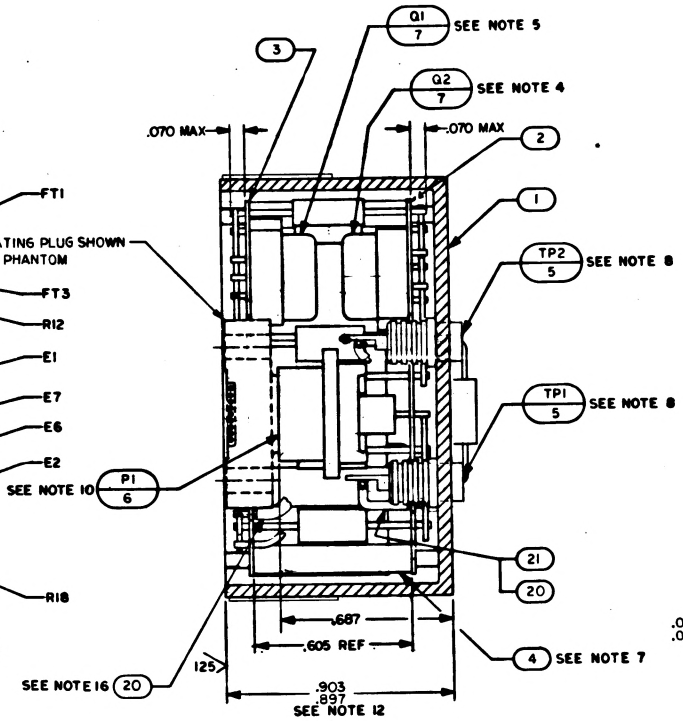

.000
.030
24
SEE NOTE 20

WIRING DATA		
IDENTIFICATION	FROM CIRCUIT POINT	TO CIRCUIT POINT
GRD	P6	E5
28 VDC	P7	E4
INPUT HI	P8	E1
OUTPUT NO.1	P9	E3
INPUT LO	P1	E2
SHIELD	P2	E6
INPUT C.T.	P3	E7
SPARE	P4	SPARE
OUTPUT NO.2	P5	E8
HI	TP1	E9
LO	TP2	E10

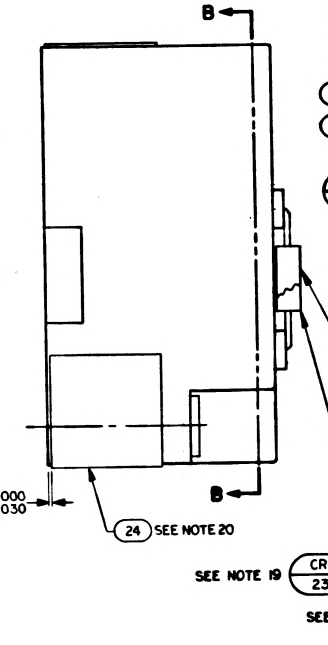

P1-5
P1-4
P1-3
P1-2
P1-1
P1-9
P1-8
P1-7
P1-6
CONNECTOR WIRED PER WIRING DATA CHART

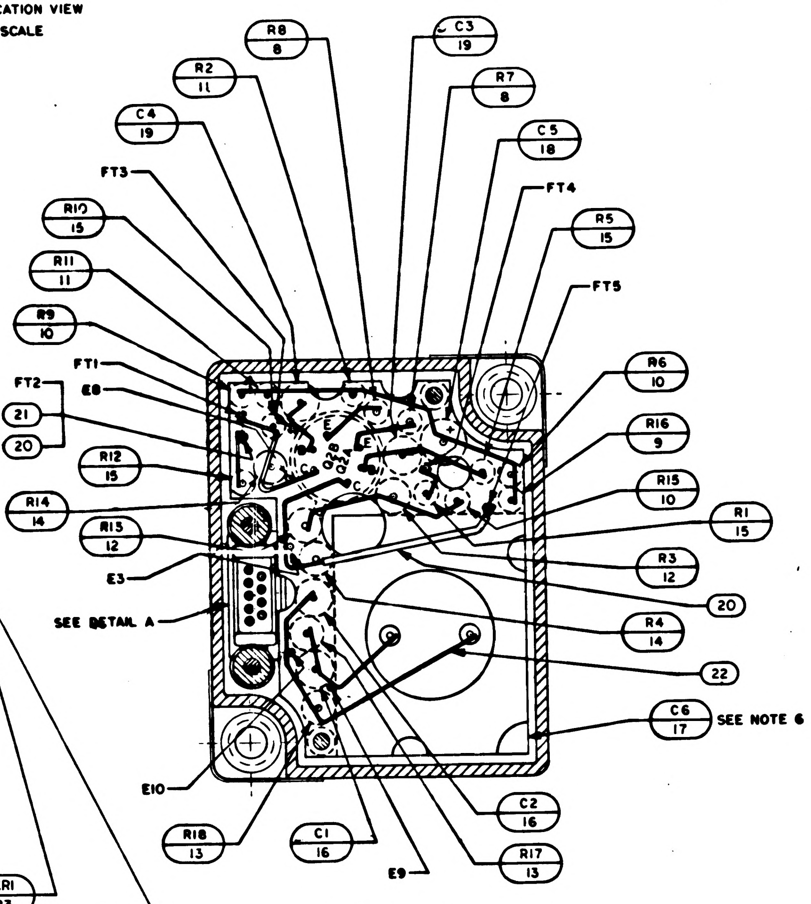
DETAIL A
CONNECTOR TERMINAL IDENTIFICATION VIEW
NO SCALE


R10
R11
R9
A
FT1
FT3
R12
E1
E7
E6
E2
.570
R16
FT5
R15
R5
C5
R6
C3
R18
E5
E4
A
.000
.010


3
Q1 7 SEE NOTE 5
Q2 7 SEE NOTE 4
.070 MAX
.070 MAX
2
1
MATING PLUG SHOWN IN PHANTOM
TP2 5 SEE NOTE 8
TP1 5 SEE NOTE 8
SEE NOTE 10
P1 6
21
20
.687
.605 REF
4 SEE NOTE 7
.125
SEE NOTE 16 20
.903
.897
SEE NOTE 12

SECTION A-A


B
B
.000
.030
24 SEE NOTE 20
SEE NOTE 19 CR1 23
SEE NOTE 19 CR2 23

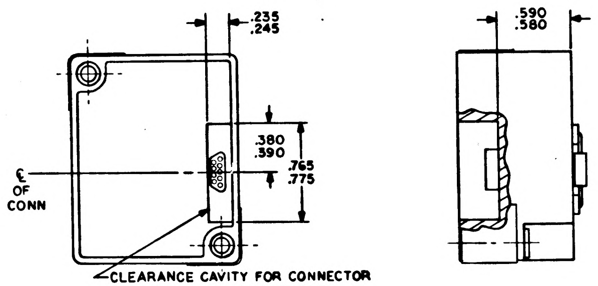

R8 8
C3 19
R2 11
R7 8
C4 19
C5 18
FT3
FT4
R10 15
R5 15
R11 11
FT5
R9 10
FT1
FT2
E8
21
20
R6 10
R16 9
R12 15
R15 10
R14 14
R1 15
R13 12
R3 12
E3
SEE DETAIL A
20
R4 14
22
C6 17 SEE NOTE 6
E10
R18 13
C1 16
C2 16
E9
R17 13

SECTION B-B

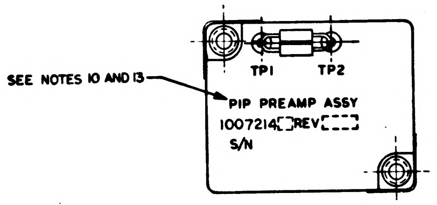
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL WIRING TO COMPLY WITH STANDARDS PRESCRIBED BY ND 1002003
3. ALL WELDS TO BE PER NASA DOCUMENT ND 1002005
4. BOND FIND NO. 7 (Q2) TO FIND NO. 2 PER 1002004 TYPE I
5. BOND FIND NO. 7 (Q1) TO FIND NO. 3 PER 1002004 TYPE I
6. BOND FIND NO. 17 TO FIND NO. 3 PER 1002004 TYPE I
7. BOND FIND NO. 4 TO FIND NO. 2 AND 3 PER 1002004 TYPE I
8. BOND FIND NO. 5 TO FIND NO. 1 PER 1002004 TYPE I
9. AFTER WELDING ALL LEADS MUST EXTEND BEYOND RIBBON .010 MINIMUM
10. PIECEMARK TO BE CENTRALLY LOCATED ON SURFACE INDICATED

11. DIPCOAT PER ND 1002068 PRIOR TO ENCAPSULATION
12. MACHINE TO DIMENSION SHOWN AFTER ENCAPSULATION
13. MARK .060/.100 HIGH YELLOW PER ND1002019 & SERIALIZE PER ND1002023
14. ENCAPSULATE MODULE PER ND 1002106 USING 1010765 & 1010766
15. AR DENOTES AS REQUIRED
16. APPLY FIND NO. 20 TO ALL CONNECTOR LEADS
17. INSPECT PER PS-1007015
18. TEST PER FTM-1007015
19. SOLDER PER ND1002071
20. BOND FIND NO. 24 TO FIND NO. 1 IN THE LOCATION SHOWN PER ND1002004 TYPE II RIGID, AFTER FINAL MACHINING


.235
.245
.380
.390
.765
.775
℄ OF CONN
CLEARANCE CAVITY FOR CONNECTOR ENGAGEMENT MUST BE FREE OF ENCAPSULATION MATERIAL
.590
.580

VIEW SHOWING MOLD CAVITY


SEE NOTES 10 AND 13
TP1
TP2
PIP PREAMP ASSY
1007214☐REV☐
S/N

MARKING VIEW
SCALE: 2:1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010006	SCHEMATIC	REF
2	1008272-001	STRIP, REINFORCING	24
2	1010761	DIODE	23
AR	1006757-1	WIRE, ELECTRICAL	22
AR	1006787-2	WIRE, ELECTRICAL	21
AR	1006776-22	INSULATION, SLEEVING, ELECTRICAL	20
2	1006755-45	CAPACITOR	19
1	1010393-037	CAPACITOR	18
1	1010317	CAPACITOR	17
2	1006755-69	CAPACITOR	16
4	1010369-95	RESISTOR	15
2	1010311-097	RESISTOR	14
2	1010311-023	RESISTOR	13
2	1010311-001	RESISTOR	12
2	1006750-50	RESISTOR	11
3	1006750-48	RESISTOR	10
1	1006750-49	RESISTOR	9
2	1006750-1	RESISTOR	8
2	1010376-1	TRANSISTOR	7
1	1010318-2	CONNECTOR, RECP., ELECTRICAL	6
2	1010292-1	TERMINAL, FEEDTHRU	5
2	1008026	SPACER	4
1	1008034	WIPING BOARD, BOTTOM	3
1	1008033	WIRING BOARD, TOP	2
1	1007213-011	HOUSING ASSEMBLY	1

-011 LIST OF MATERIALS

	DL1000001
1000005	DL1000201
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± .030 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
DRAWN DATE July 20-64
CHECKED A. Lindstrom 6 Aug '64
APPROVAL
APPROVAL 8/4/64
NASA APPROVAL 9-1-64
MIT APPROVAL

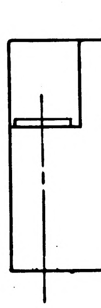
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

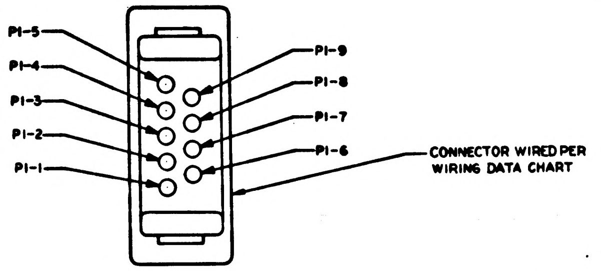
PIP PREAMP ASSY

CODE IDENT NO. —
SIZE E
NASA DRAWING NO 1007214
SCALE 4:1
WT —
SHEET 1 OF 1

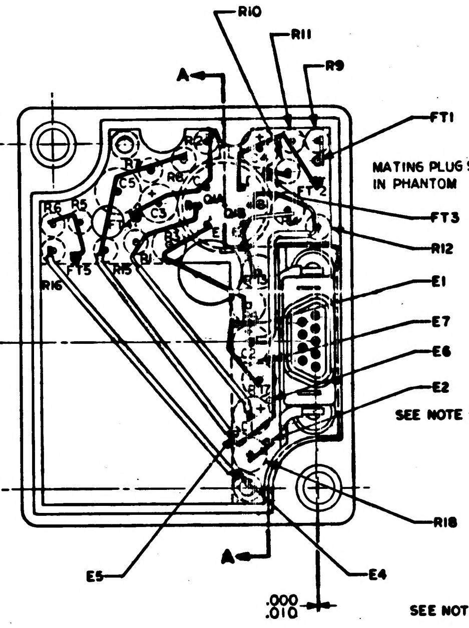
1007214 A

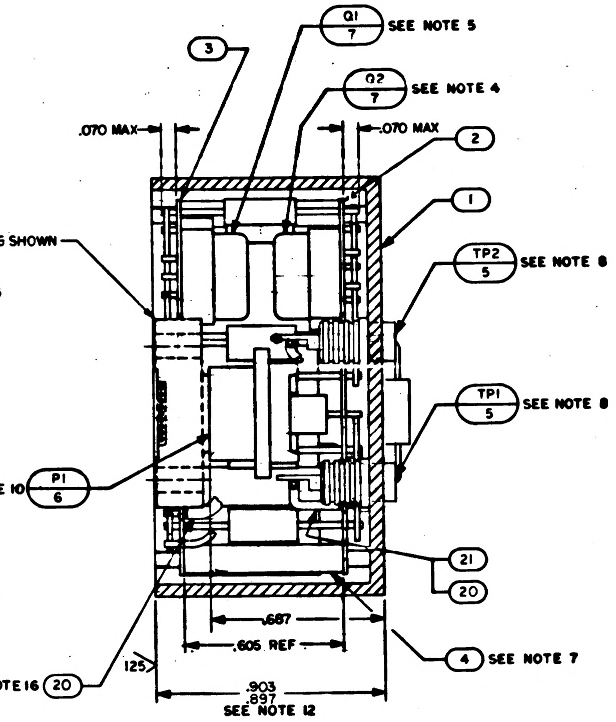
WIRING DATA		
IDENTIFICATION	FROM CIRCUIT POINT	TO CIRCUIT POINT
GRD	P6	E5
28 VDC	P7	E4
INPUT HI	P8	E1
OUTPUT NO.1	P9	E3
INPUT LO	P1	E2
SHIELD	P2	E6
INPUT C.T.	P3	E7
SPARE	P4	SPARE
OUTPUT NO.2	P5	E8
HI	TP1	E9
LO	TP2	E10



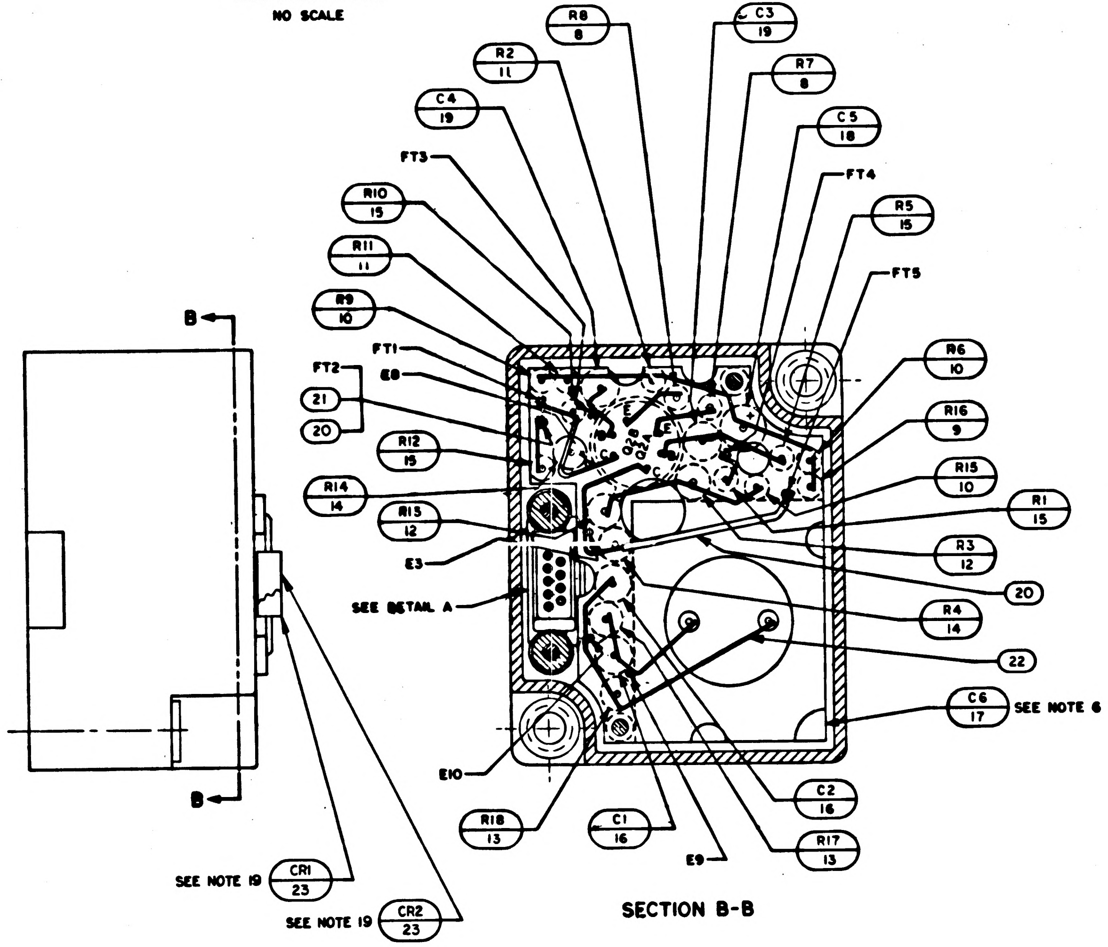

P1-5
P1-4
P1-3
P1-2
P1-1
P1-9
P1-8
P1-7
P1-6
CONNECTOR WIRED PER WIRING DATA CHART

DETAIL A
CONNECTOR TERMINAL IDENTIFICATION VIEW
NO SCALE


R10
R11
R9
A
FT1
FT3
R12
E1
E7
E6
E2
.570
R18
E5
E4
.000
.010
A

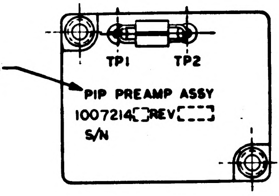

Q1 7 SEE NOTE 5
Q2 7 SEE NOTE 4
3
.070 MAX
.070 MAX
2
1
MATING PLUG SHOWN IN PHANTOM
TP2 5 SEE NOTE 8
TP1 5 SEE NOTE 8
P1 6 SEE NOTE 10
21
20
.687
.605 REF
4 SEE NOTE 7
.125
.903
.897
SEE NOTE 12
SEE NOTE16 20

SECTION A-A

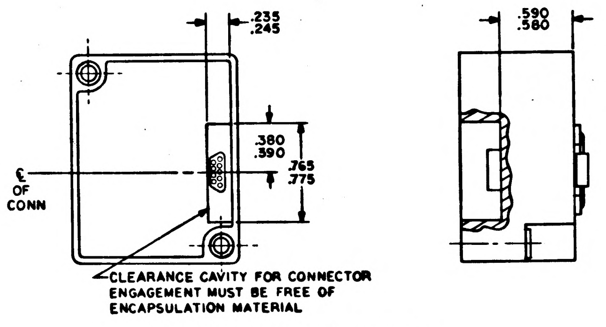

B
B
SEE NOTE 19 CR1 23
SEE NOTE 19 CR2 23
R8 8
C3 19
R2 11
R7 8
C4 19
C5 18
FT3
FT4
R10 15
R5 15
R11 11
FT5
R9 10
FT1
FT2 21 20
E8
R6 10
R16 9
R12 15
R15 10
R14 14
R1 15
R13 12
E3
R3 12
20
SEE DETAIL A
R4 14
22
C6 17 SEE NOTE 6
E10
C2 16
R18 13
C1 16
E9
R17 13

SECTION B-B

SEE NOTES 10 AND 13


TP1
TP2
PIP PREAMP ASSY
1007214☐REV☐
S/N

MARKING VIEW
SCALE: 2:1


.235
.245
.590
.580
.380
.390
.765
.775
℄ OF CONN
CLEARANCE CAVITY FOR CONNECTOR ENGAGEMENT MUST BE FREE OF ENCAPSULATION MATERIAL

VIEW SHOWING MOLD CAVITY

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL WIRING TO COMPLY WITH STANDARDS PRESCRIBED BY ND 1002003
3. ALL WELDS TO BE PER NASA DOCUMENT ND 1002005
4. BOND FIND NO. 7 (Q2) TO FIND NO. 2 PER 1002004 TYPE I
5. BOND FIND NO. 7 (Q1) TO FIND NO. 3 PER 1002004 TYPE I
6. BOND FIND NO. 17 TO FIND NO. 3 PER 1002004 TYPE I
7. BOND FIND NO. 4 TO FIND NO. 2 AND 3 PER 1002004 TYPE I
8. BOND FIND NO. 5 TO FIND NO. 1 PER 1002004 TYPE I
9. AFTER WELDING ALL LEADS MUST EXTEND BEYOND RIBBON .010 MINIMUM
10. PIECEMARK TO BE CENTRALLY LOCATED ON SURFACE INDICATED
11. DIPCOAT PER ND 1002068 PRIOR TO ENCAPSULATION
12. MACHINE TO DIMENSION SHOWN AFTER ENCAPSULATION
13. MARK .060/.100 HIGH YELLOW PER ND1002019 & SERIALIZE PER ND1002023
14. ENCAPSULATE MODULE PER ND 1002106 USING 1010765 & 1010766
15. AR DENOTES AS REQUIRED
16. APPLY FIND NO. 20 TO ALL CONNECTOR LEADS
17. INSPECT PER PS-1007015
18. TEST PER FTM-1007015
19. SOLDER PER ND1002071

☒	1010006	SCHEMATIC	REF
2	1010761	DIODE	23
AR	1006757-1	WIRE, ELECTRICAL	22
AR	1006787-2	WIRE, ELECTRICAL	21
AR	1006776-22	INSULATION, SLEEVING, ELECTRICAL	20
2	1006755-45	CAPACITOR	19
1	1010393-037	CAPACITOR	18
1	1010317	CAPACITOR	17
2	1006755-69	CAPACITOR	16
4	1010369-95	RESISTOR	15
2	1010311-097	RESISTOR	14
2	1010311-023	RESISTOR	13
2	1010311-001	RESISTOR	12
2	1006750-50	RESISTOR	11
3	1006750-48	RESISTOR	10
1	1006750-49	RESISTOR	9
2	1006750-1	RESISTOR	8
2	1010376-1	TRANSISTOR	7
1	1010318-2	CONNECTOR, RECP., ELECTRICAL	6
2	1010292-1	TERMINAL, FEEDTHRU	5
2	1008026	SPACER	4
1	1008034	WIRING BOARD, BOTTOM	3
1	1008033	WIRING BOARD, TOP	2
1	1007213-011	HOUSING ASSEMBLY	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
-011	LIST OF MATERIALS		

1007214

	DL1000001
1000005	DL1000201
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± # DECIMALS ± .030 ANGLES ± #
DO NOT SCALE THIS DRAWING
MATERIAL #
HEAT TREATMENT #
FINAL FINISH #

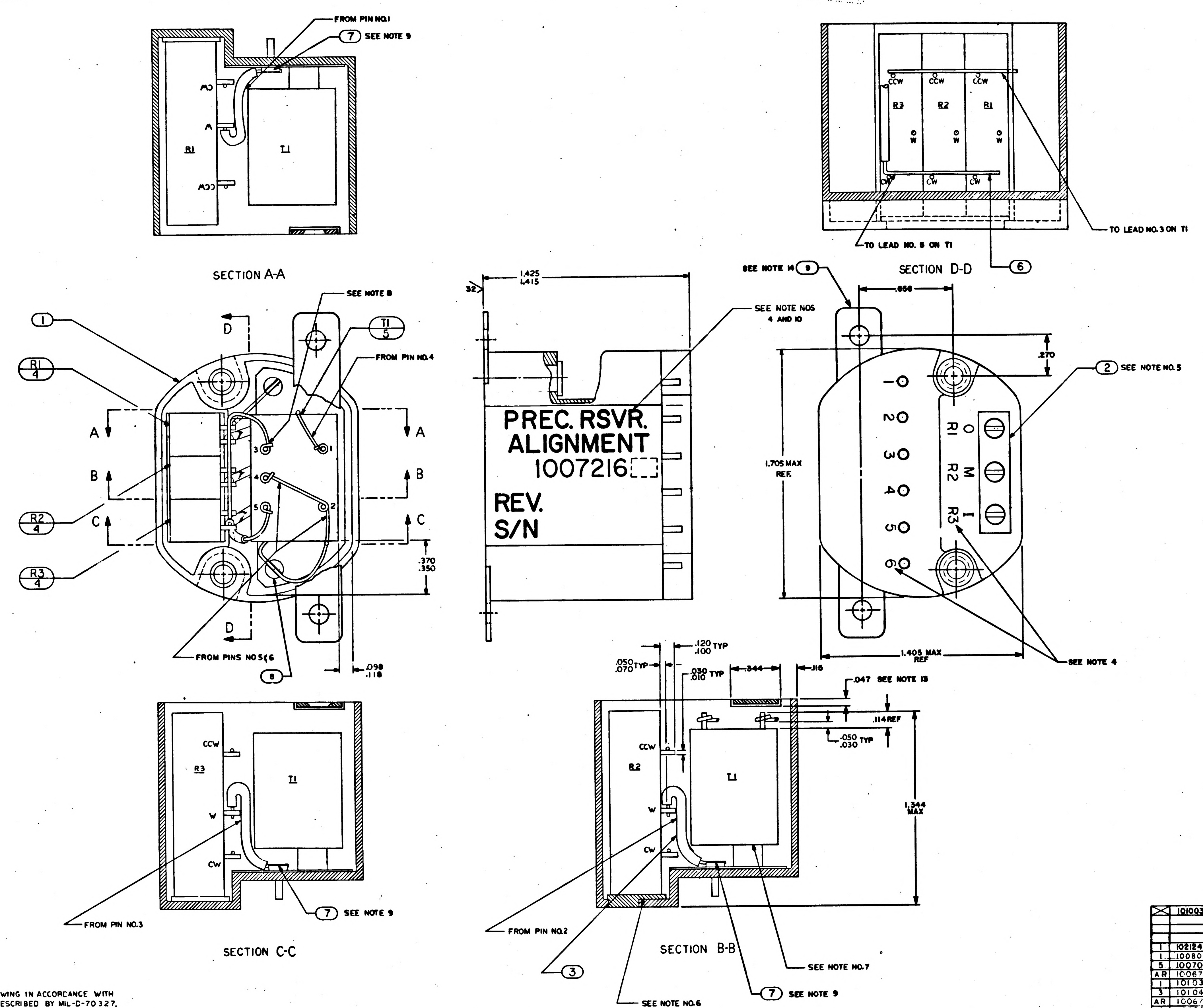
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE 7/1/30-64
CHECKED 6 Aug 64
APPROVAL
APPROVAL J.C. Smith 8/4/64
NASA APPROVAL 9-1-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PIP PREAMP ASSY

CODE IDENT NO. —— SIZE E NASA DRAWING NO 1007214
SCALE 4:1 WT —— SHEET 1 OF 1

MASTER


FROM PIN NO.1
7 SEE NOTE 9
CCW
W
CW
R1
T1
SECTION A-A
CCW
R3
R2
R1
W
CW
TO LEAD NO. 6 ON T1
TO LEAD NO.3 ON T1
6
SECTION D-D
1
R1 4
R2 4
R3 4
D
A
B
C
SEE NOTE 8
T1 5
FROM PIN NO.4
.370
.350
FROM PINS NO.5 & 6
8
.098
.118
1.425
1.415
32
PREC. RSVR.
ALIGNMENT
1007216
REV.
S/N
SEE NOTE 14 9
SEE NOTE NOS 4 AND 10
.656
.270
2 SEE NOTE 5
1.705 MAX REF.
1.405 MAX REF
SEE NOTE 4
R1 R2 R3
O W I
1 2 3 4 5 6
.050
.070 TYP
.120
.100 TYP
.030
.010 TYP
.344
.115
.047 SEE NOTE 13
.114 REF
.050
.030 TYP
1.344 MAX
R3
T1
FROM PIN NO.3
7 SEE NOTE 9
SECTION C-C
R2
FROM PIN NO.2
3
SEE NOTE NO.6
SECTION B-B
SEE NOTE NO.7
7 SEE NOTE 9

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-C-70327.
2. WELD PER-ND-1002005.
3. ENCAPSULATE PER ND1002106 USING 1010765 & 1010766
4. MARK .100/.140 HIGH YELLOW PER ND-1002019 & SERIALIZE PER ND 1002023.
5. BOND FIND NO. 4 TO FIND NO. 2 PER ND-1002004 TYPE I
6. BOND FIND NO. 2 TO FIND NO. 1 PER ND-1002004 TYPE I
7. BOND FIND NO.5 TO FIND NO. 1 PER ND-1002004 TYPE I
8. SOLDER PER ND1002071
9. INSTALL TERMINAL LUGS, 6 PLACES, PER ND1002004, TYPE I TO FIND NO 1.
10. PIECEMARK TO BE CENTRALLY LOCATED ON SURFACE INDICATED
11. INSPECT PER PS 1007004
12. TEST PER FTM- 1007004
13. SLOT TO ACCEPT BRACKET TO BE MILLED AFTER MACHINING MODULE TO 1.425/1.415 DIMENSION
14. BOND FIND NO. 9 INTO MILLED SLOT PER ND 1002004, TYPE II RIGID, LOCATING FROM MOUNTING HOLES

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010031	SCHEMATIC, PRECISION RES. ALIG.	☒
1	1021241	BRACKET	9
1	1008000	TERMINAL LUG	8
5	1007000-2	TERMINAL LUG	7
AR	1006757-1	WIRE ELECTRICAL	6
1	1010333	TRANSFORMER	5
3	1010469-2	RESISTOR, VARIABLE	4
AR	1006776-20	INSULATION SLEEVING	3
1	1008008	SPACER	2
1	1007215-011	HOUSING SUB-ASS'Y	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
1000201	DL1000201
1000001	DL1000001
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.03 XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL ——
HEAT TREATMENT ——
FINAL FINISH ——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract
DRAWN DATE
CHECKED 6 Aug '64
APPROVAL
APPROVAL 8/24/64
NASA APPROVAL 9-1-64
MIT APPROVAL

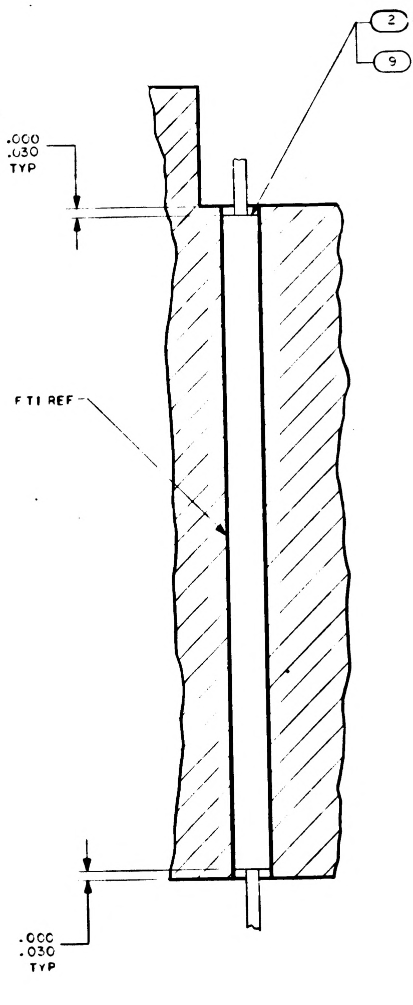
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PRECISION RESOLVER
ALIGNMENT ASS'Y
GIMBAL MOUNTED

CODE IDENT NO. ——
SIZE E
NASA DRAWING NO. 1007216
SCALE 4/1
WT ——
SHEET 1 OF 1

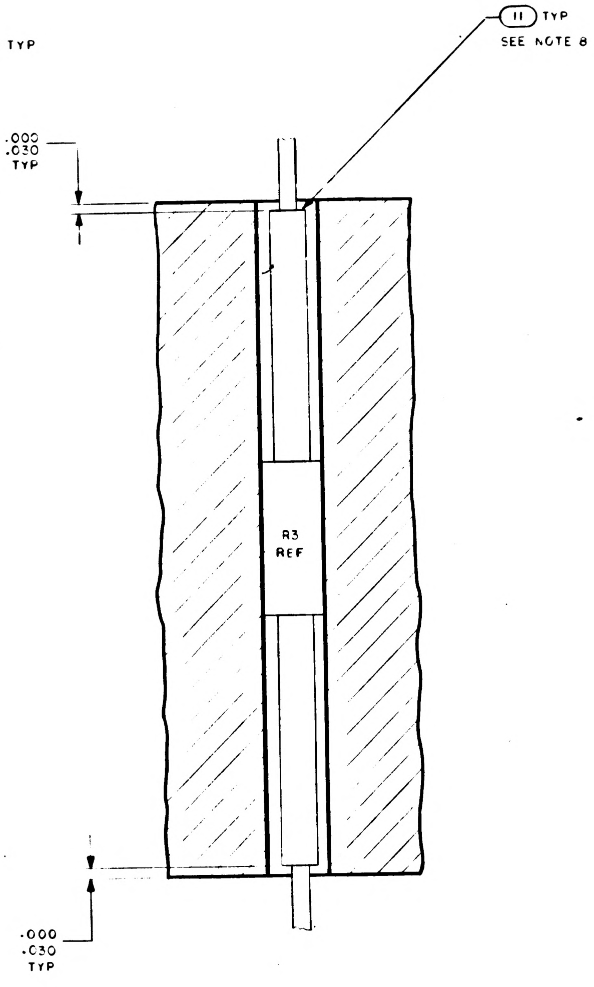
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20789	J J	EF	5 AUG 65	

REVISIONS 19984



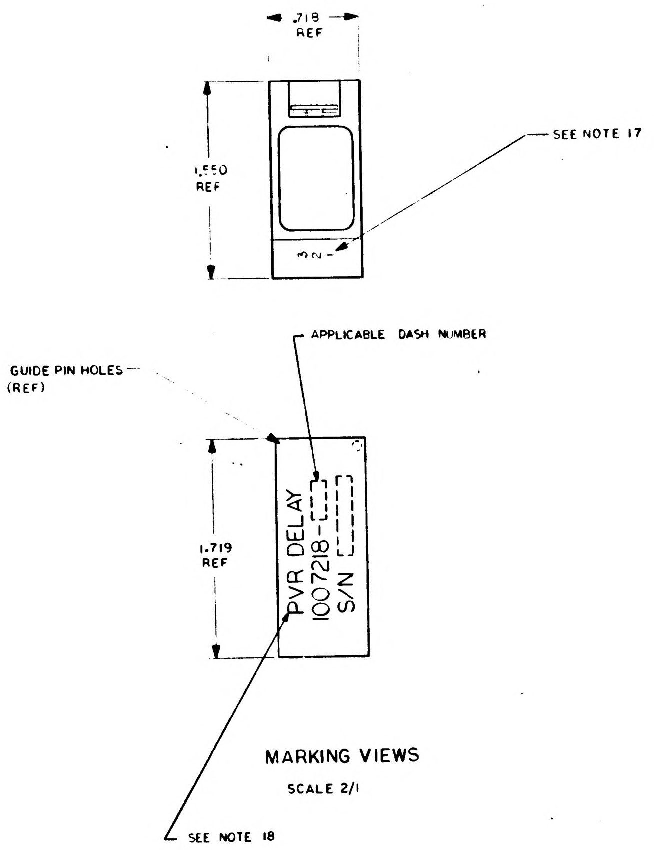
2
9
TYP
.000
.030
TYP
FTI REF
.000
.030
TYP

SECTION C-C



11 TYP
SEE NOTE 8
.000
.030
TYP
R3
REF
.000
.030
TYP

SECTION D-D



.719
REF
1.550
REF
SEE NOTE 17
APPLICABLE DASH NUMBER
GUIDE PIN HOLES
(REF)
1.719
REF
PVR DELAY
1007218-
S/N
SEE NOTE 18

MARKING VIEWS

SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	1010143	SCHEMATIC	REF
1	1010497	DIODE	21
1	1010372 -15	DIODE	20
1	1006755 -133	CAPACITOR	19
1	1006755 -53	CAPACITOR	18
1	1010369 -100	RESISTOR	17
1	1010369 -99	RESISTOR	16
1	1010369 -94	RESISTOR	15
1	1006750-24	RESISTOR	14
1	1010395 -1	TRANSISTOR	13
1	1010342	TRANSISTOR	12
AR	1006776 -21	INSULATION SLEEVING	11
AR	1006776 -20	INSULATION SLEEVING	10
AR	1006757 -9	WIRE ELECTRICAL	9
AR	1006757 -1	WIRE ELECTRICAL	8
1	1008025 -2	INSULATOR BUSHING	7
1	1008025 -1	INSULATOR BUSHING	6
3	1006782 -4	CONTACT WRAPOST MALE MINIAT.	5
3	1006775	INSULATOR WRAPOST MALE MINIAT.	4
1	1008540 -3	GASKET	3
AR	1006776 22	INSULATION SLEEVING	2
1	1008235	HEATSINK	1

-011 LIST OF MATERIALS

1007577	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
———

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED 4/8/65
APPROVED MIT 6-1-65
APPROVED MSC
DATE

ASSEMBLY
PVR DELAY CIRCUIT

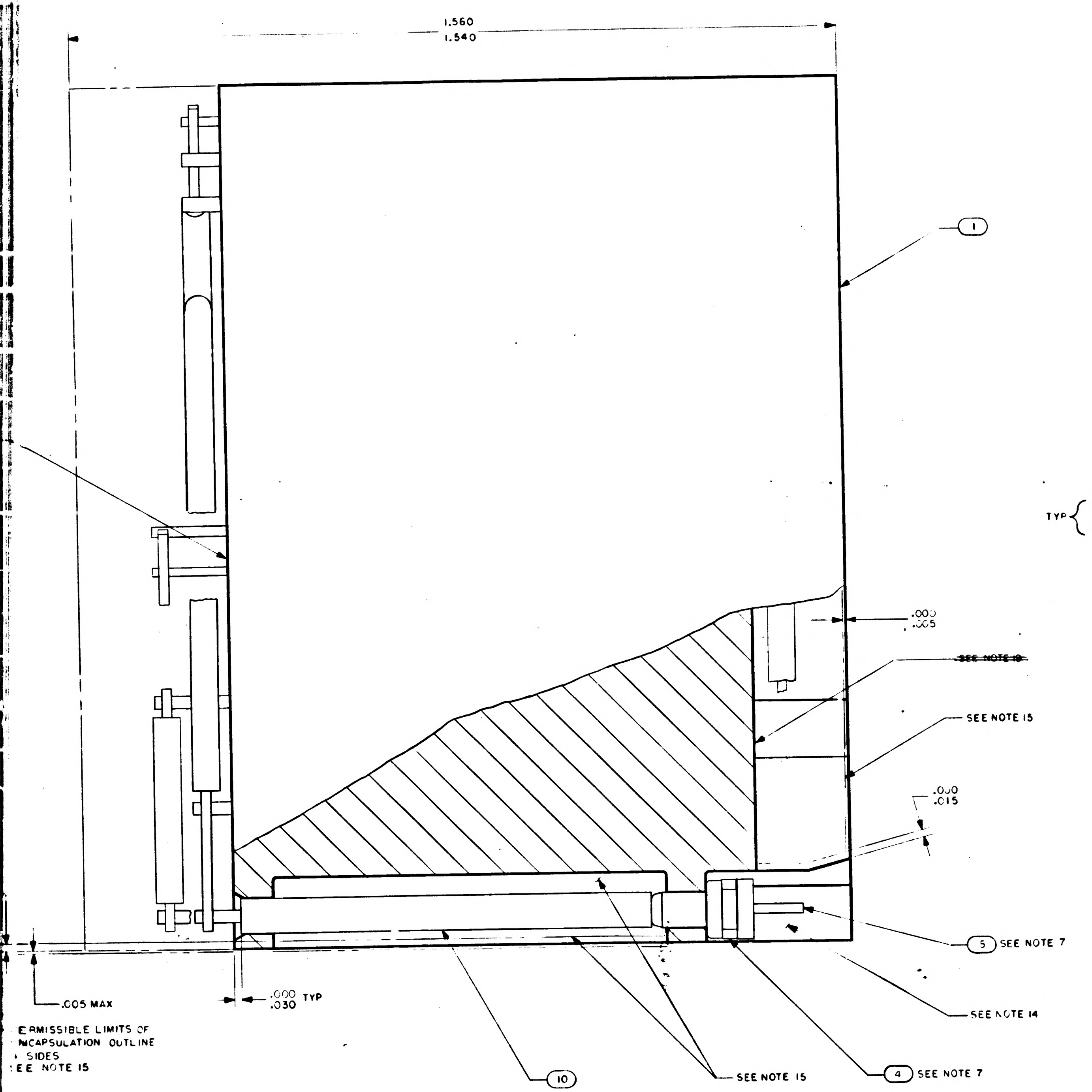
CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	1007218

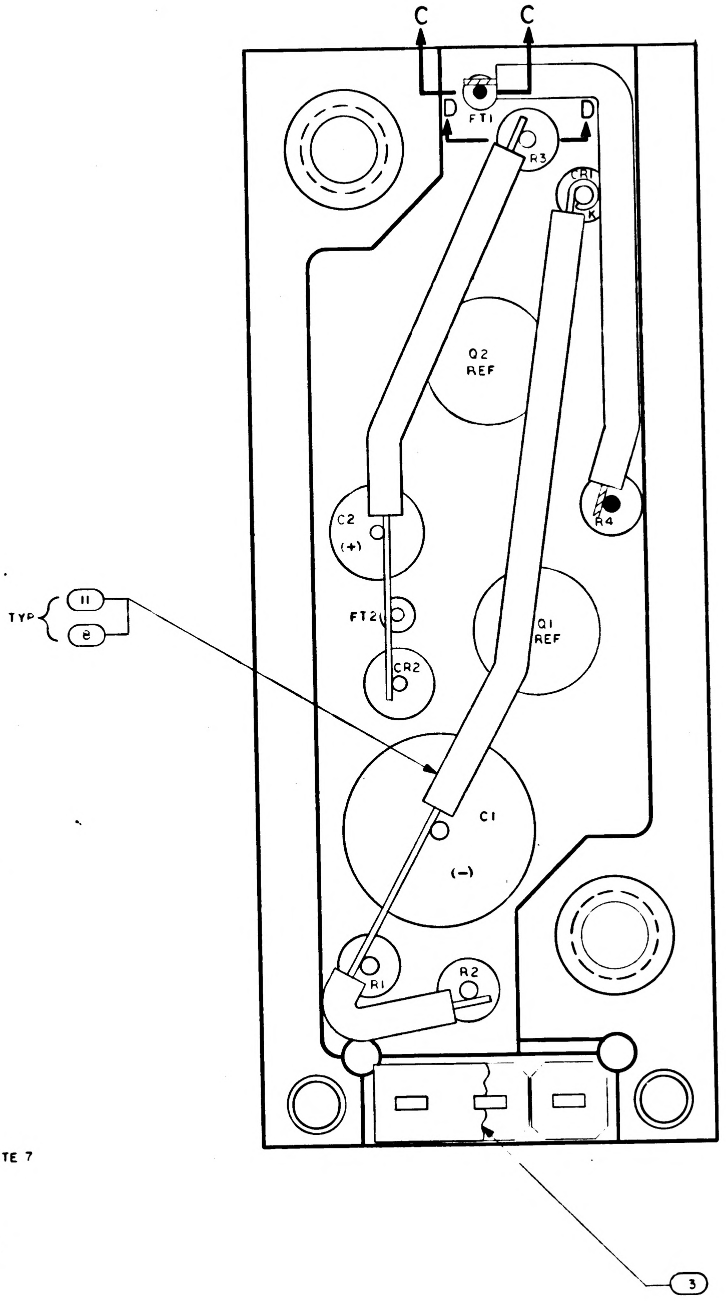
SCALE 10/1 SHEET 1 OF 1

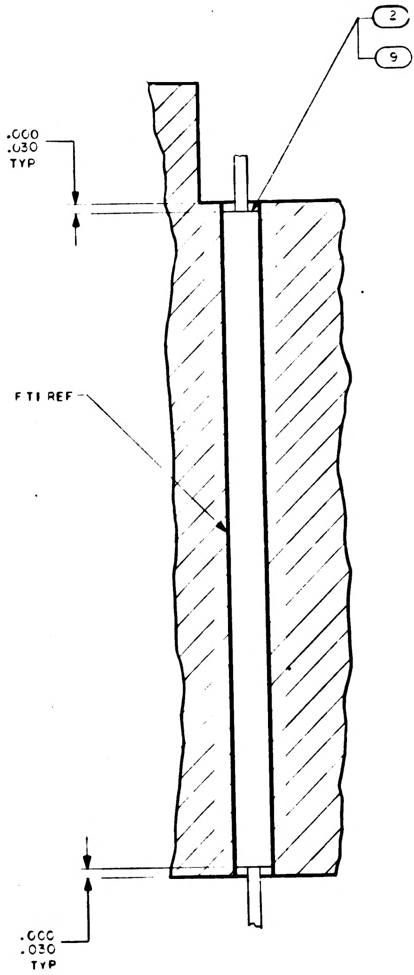
1007218 A

3H

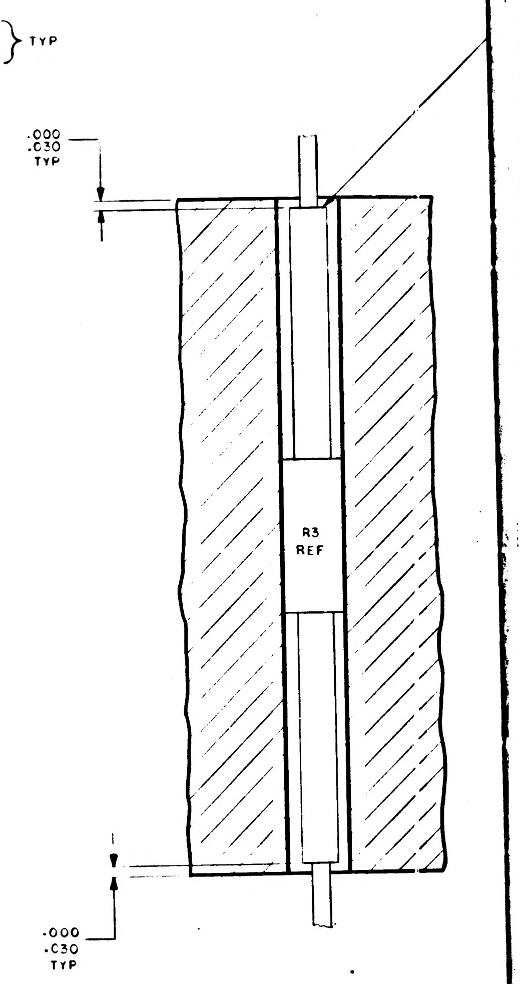
3/1007218


1.560
1.540
1
.000
.005
~~SEE NOTE 10~~
SEE NOTE 15
.000
.015
5 SEE NOTE 7
SEE NOTE 14
.005 MAX
.000
.030 TYP
ERMISSIBLE LIMITS OF
NCAPSULATION OUTLINE
SIDES
EE NOTE 15
10
SEE NOTE 15
4 SEE NOTE 7


C
C
D
D
FT1
R3
CR1
K
Q2
REF
C2
(+)
R4
TYP
11
8
FT2
CR2
Q1
REF
C1
(−)
R1
R2
3


2
9
TYP
.000
.030
TYP
FT1 REF
.000
.030
TYP

SECTION C-C

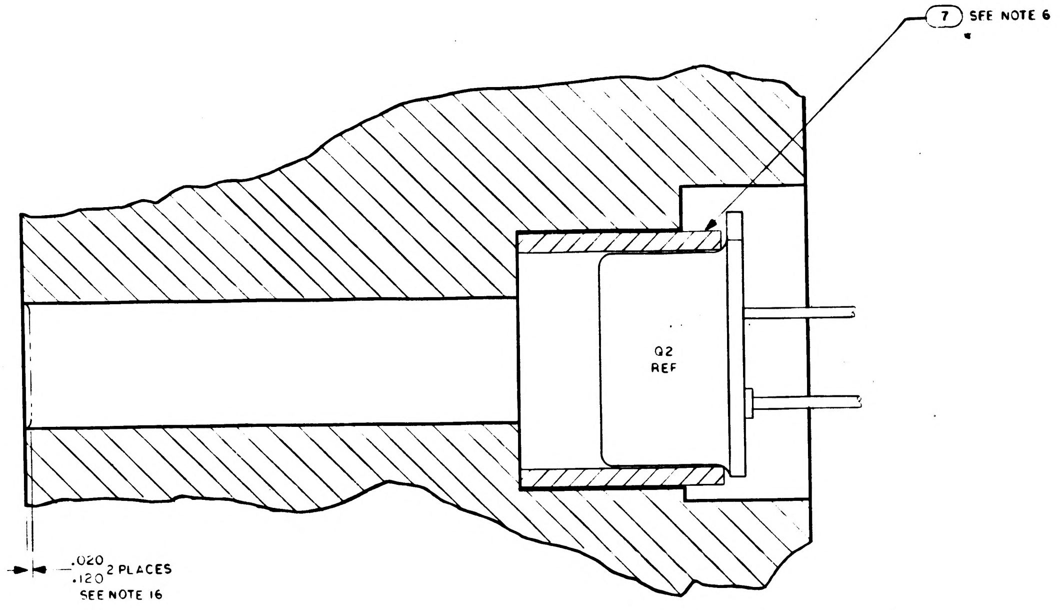

.000
.030
TYP
R3
REF
.000
.030
TYP

SECTION D-D

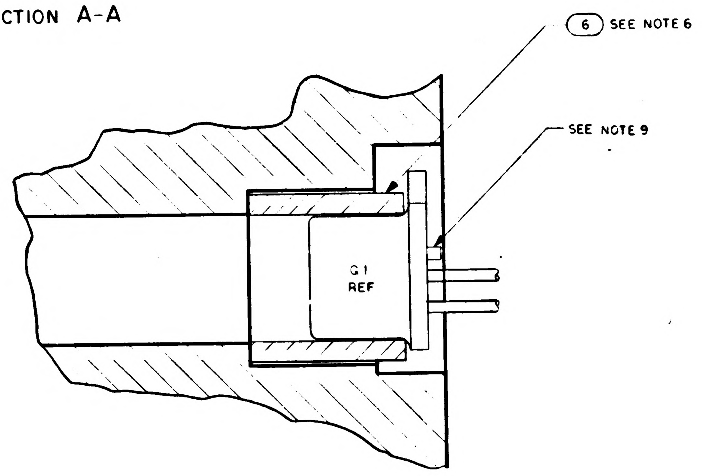
1007218	A

2/1007218

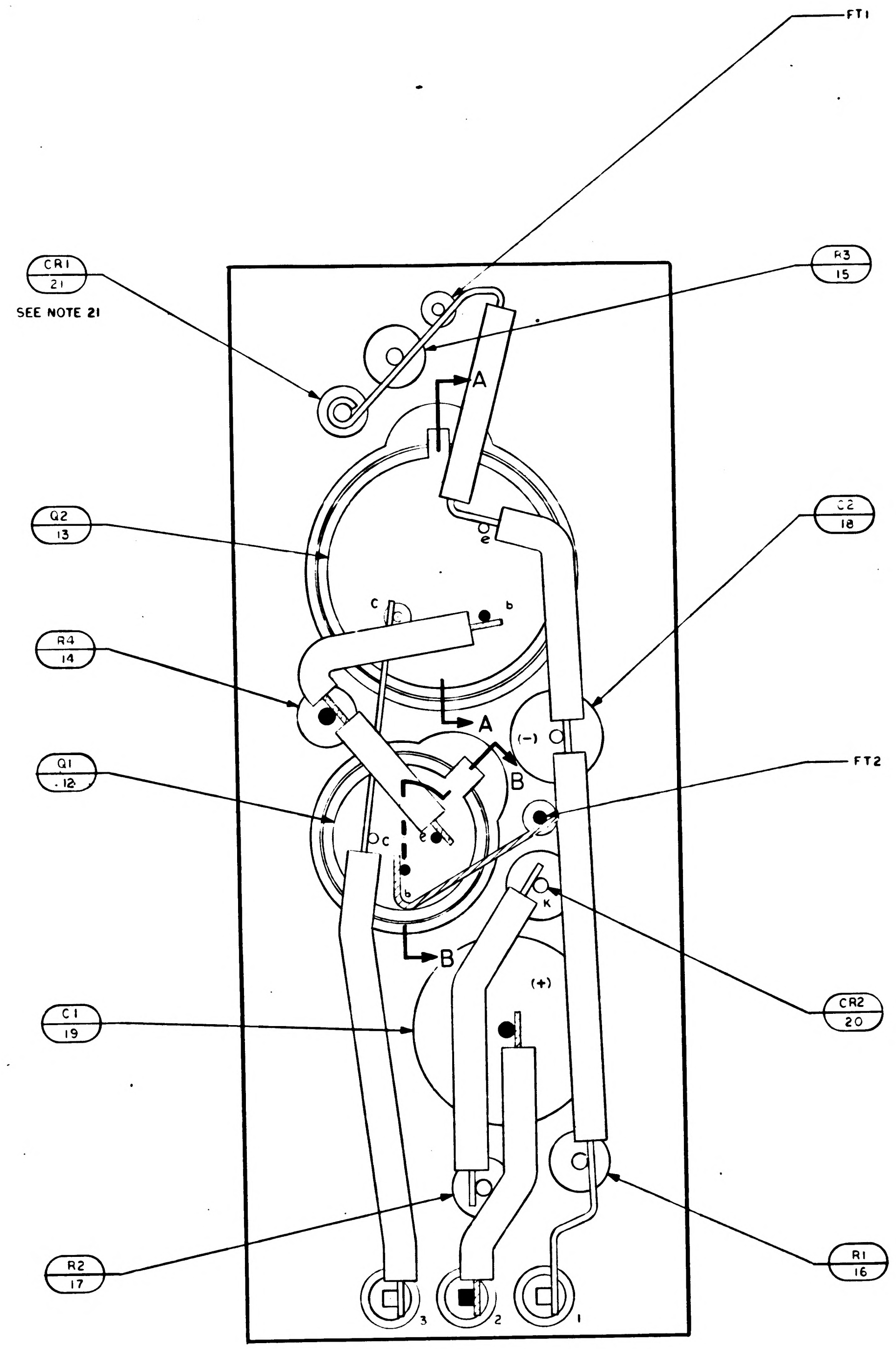
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

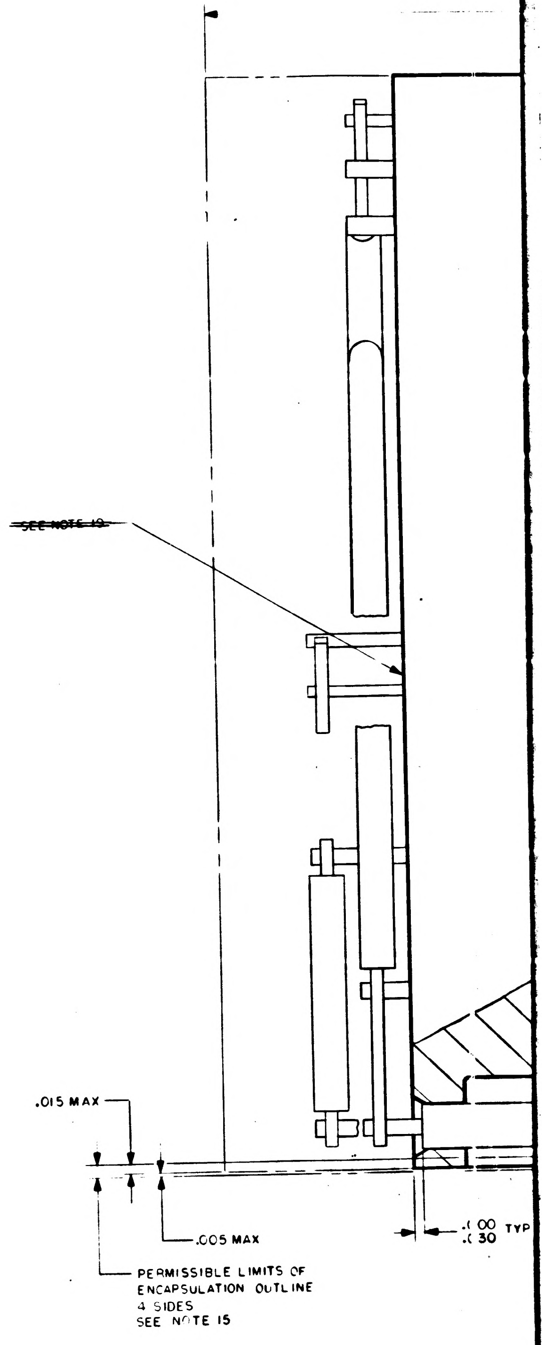

7 SEE NOTE 6
Q2 REF
.020/.120 2 PLACES
SEE NOTE 16

SECTION A-A


6 SEE NOTE 6
SEE NOTE 9
Q1 REF

PARTIAL SECTION B-B


FT1
CR1 21
SEE NOTE 21
R3 15
A
Q2 13
C2 18
e
c
b
R4 14
(−)
A
Q1 12
FT2
B
c
e
b
K
CR2 20
B
(+)
C1 19
R2 17
R1 16
3
2
1

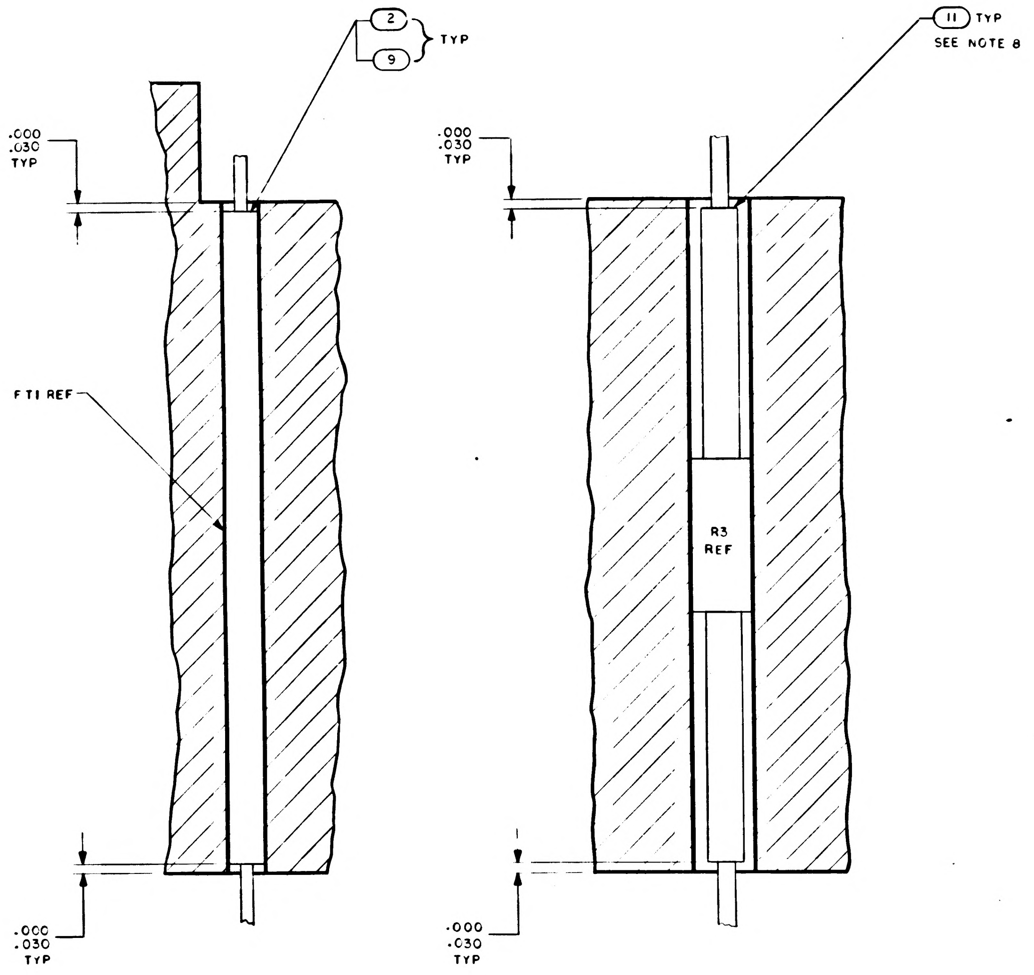

~~SEE NOTE 19~~
.015 MAX
.005 MAX
.(00/.(30 TYP
PERMISSIBLE LIMITS OF ENCAPSULATION OUTLINE
4 SIDES
SEE NOTE 15

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. STAKE FIND NO.6 AND FIND NO.7 AND FIND NOS.12 THRU FIND NO.21 PER ND1002009 METHOD H
7. ASSEMBLE FIND NO.4 AND FIND NO.5 TO FIND NO.1 PER ND 1002136
8. TYPICAL SLEEVING FOR FIND NO.S 14 THRU FIND NO.18, FIND NO.20 AND FIND NO. 21
9. TRIM UNUSED LEAD OF FIND NO. 12 .010/.030 FROM CASE
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
12. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
13. WELD PER ND 1002005
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
16. ENCAPSULATE PER ND 1002117
17. MARK .060/.100 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
18. MARK .100/.140 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
19. ~~COAT INDICATED SURFACES PER ND 1002167 TYPE II~~
20. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 1007218
21. SOLDER PER ND 1002071
22. EXCEPT FOR THE HELICOIL INSERT MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110, TYPE II AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR 8 HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.

1007218 A

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20789		EF	5 AUG 65	
B		REVISED PER TDRR 21276	WJR	RWH	9 AUG 65	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SEE NOTE 8
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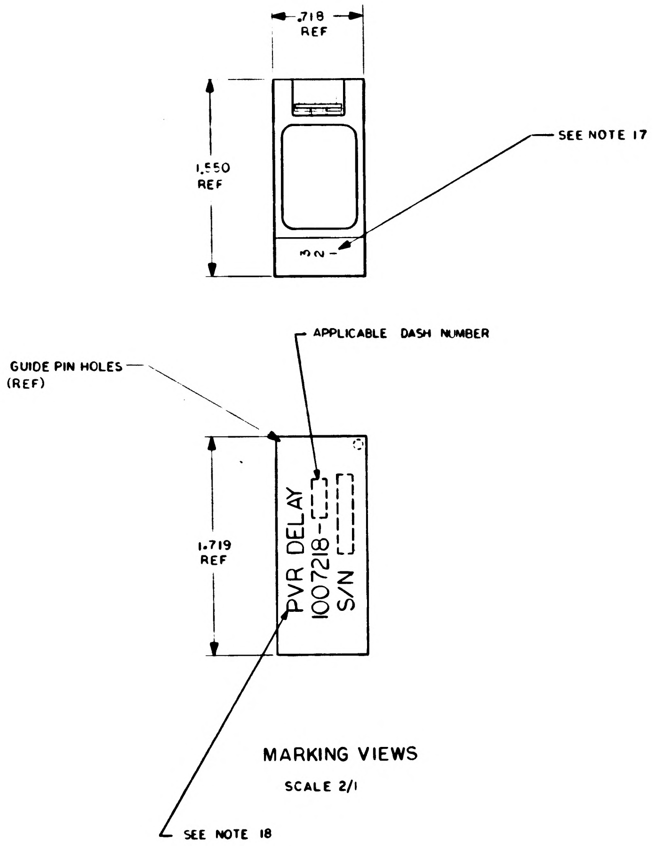
SECTION C-C

SECTION D-D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APPLICABLE DASH NUMBER
GUIDE PIN HOLES
(REF)
1.719
REF
PVR DELAY
1007218-
S/N
SEE NOTE 18

MARKING VIEWS

SCALE 2/1

3H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
	1010143	SCHEMATIC	REF
1	1010497	DIODE	21
1	1010372 -15	DIODE	20
1	1006755 -133	CAPACITOR	19
1	1006755 -53	CAPACITOR	18
1	1010369 -100	RESISTOR	17
1	1010369 -99	RESISTOR	16
1	1010369 -94	RESISTOR	15
1	1006750-24	RESISTOR	14
1	1010398 -1	TRANSISTOR	13
1	1010342	TRANSISTOR	12
AR	1006776-21	INSULATION SLEEVING	11
AR	1006776 -20	INSULATION SLEEVING	10
AR	1006757-8	WIRE ELECTRICAL	9
AR	1006757-1	WIRE ELECTRICAL	8
1	1008025-2	INSULATOR BUSHING	7
1	1008025-1	INSULATOR BUSHING	6
3	1006782-4	CONTACT WRAPOST MALE MINIAT.	5
3	1006775	INSULATOR WRAPOST MALE MINIAT.	4
1	1008540 -3	GASKET	3
AR	1006776 22	INSULATION SLEEVING	2
1	1008235	HEATSINK	1

-011 LIS OF MATERIALS

1007218 B

NEXT ASSY	USED ON
1007577	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED 1/8/65
APPROVED MIT
APPROVED MSC
DATE

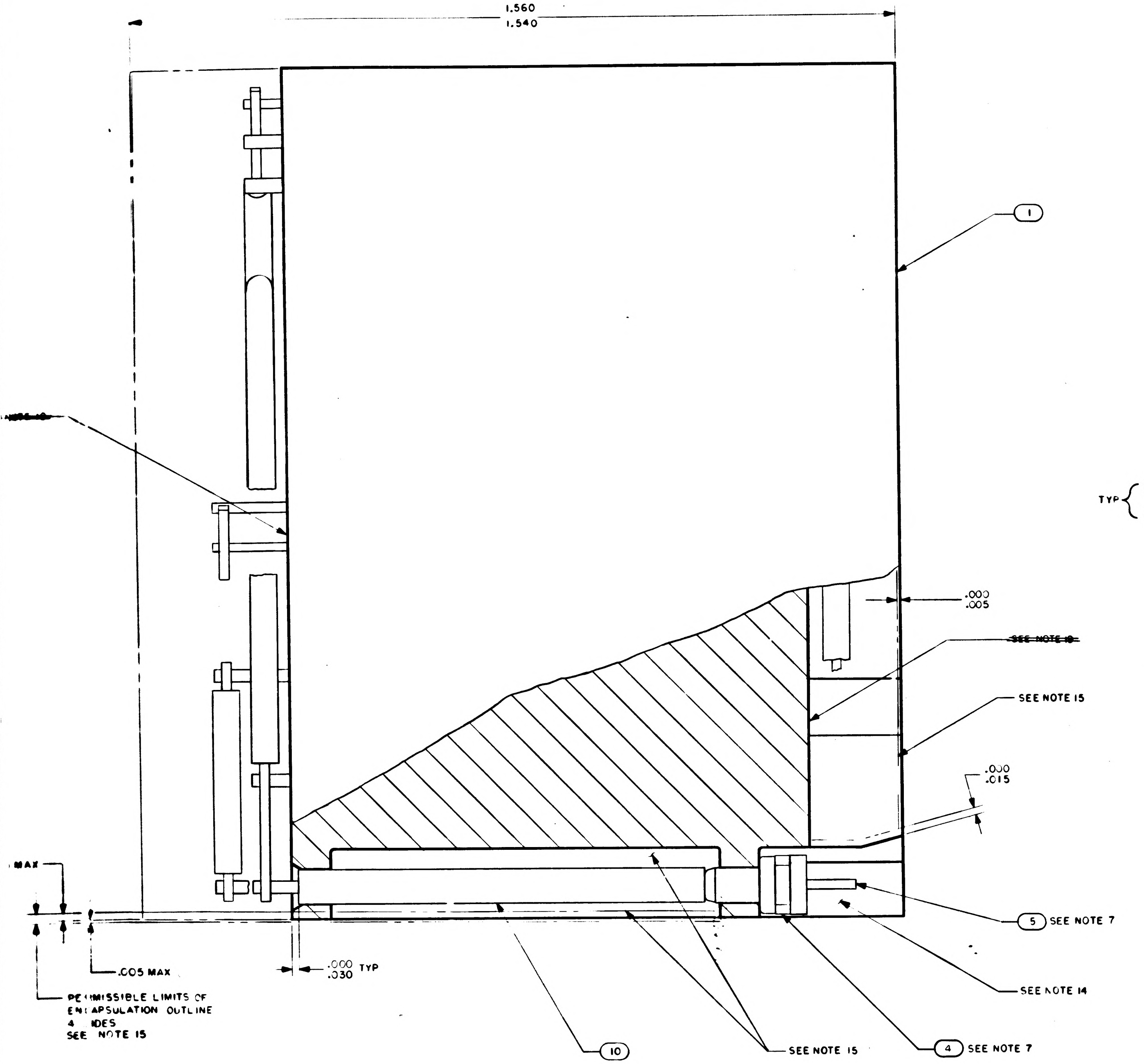
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ASSEMBLY
PVR DELAY CIRCUIT

CODE IDEN NO 80230
SIZE J
DRAWING NO. 1007218
SCALE 10/1
SHEET 1 OF 1

10C7218 B

3/1007218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SEE NOTE 15
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MAX
.005 MAX
.000
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PERMISSIBLE LIMITS OF
ENCAPSULATION OUTLINE
4 SIDES
SEE NOTE 15
5 SEE NOTE 7
SEE NOTE 14
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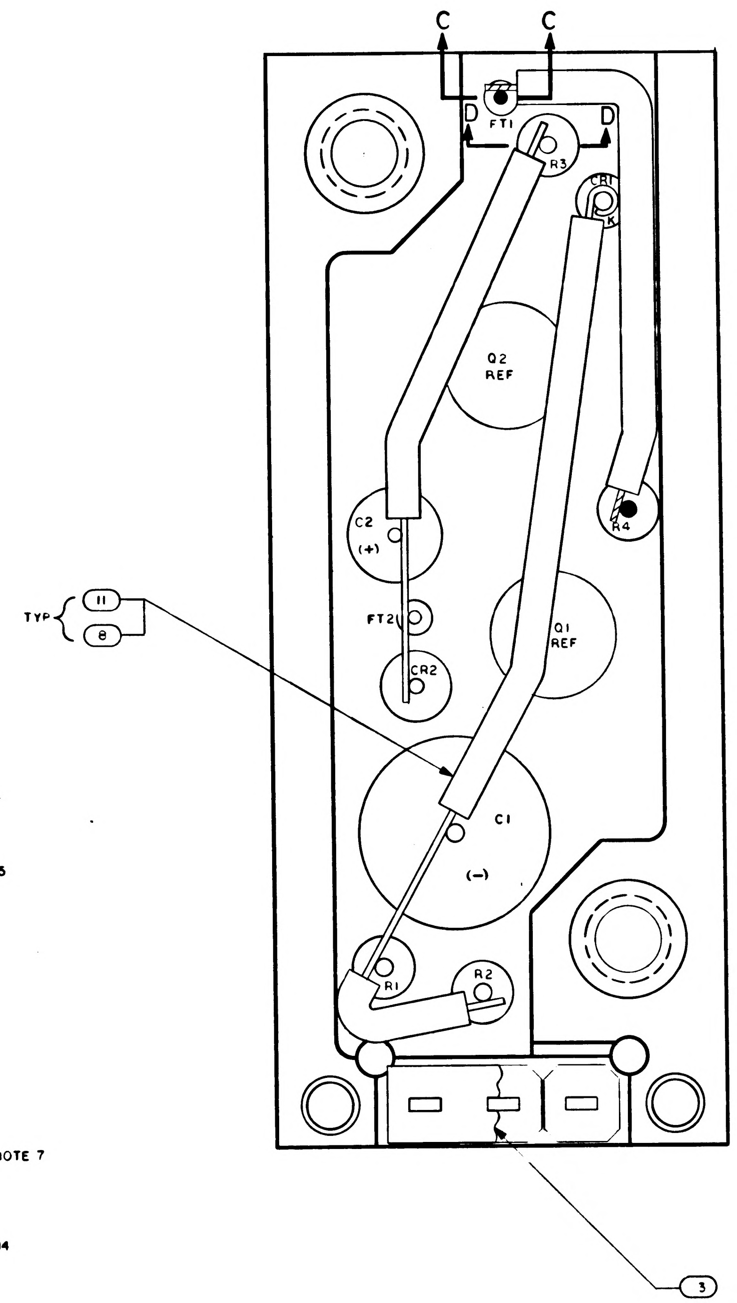
SEE NOTE 15
4 SEE NOTE 7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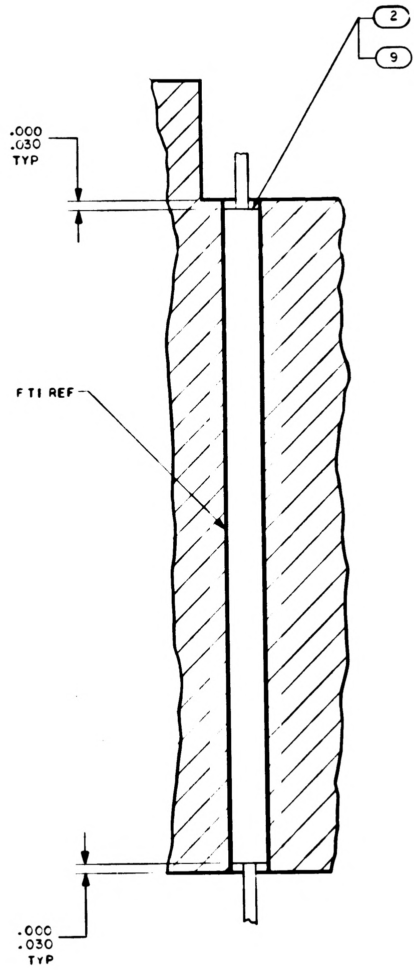
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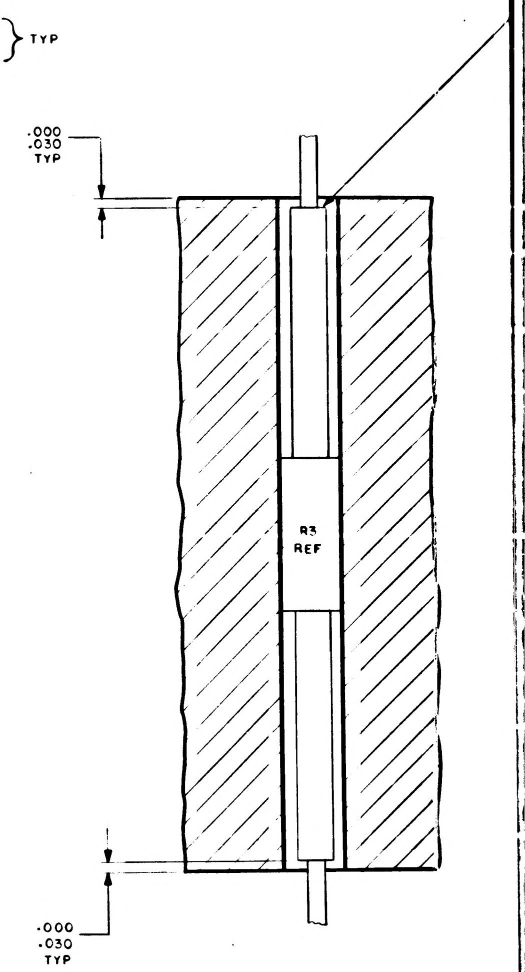
SECTION C-C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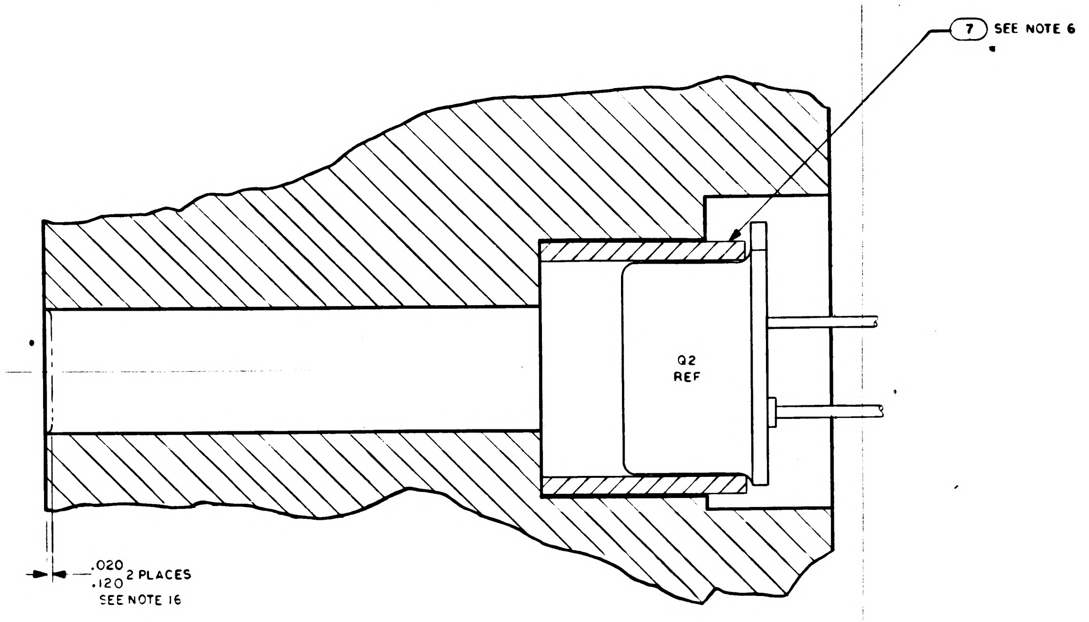
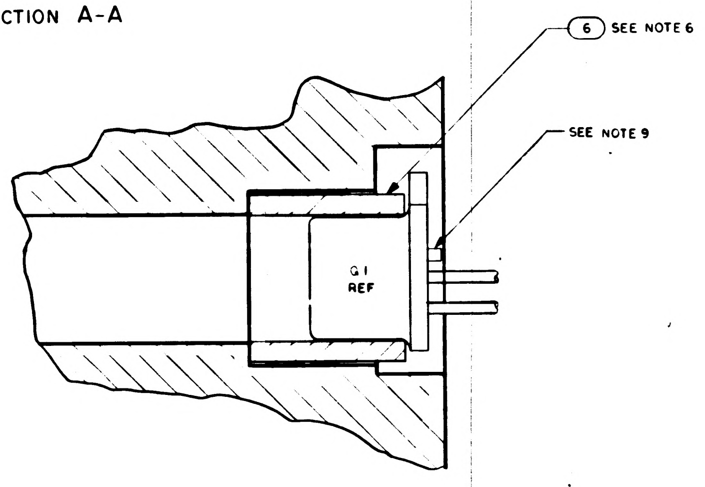
SECTION D-D

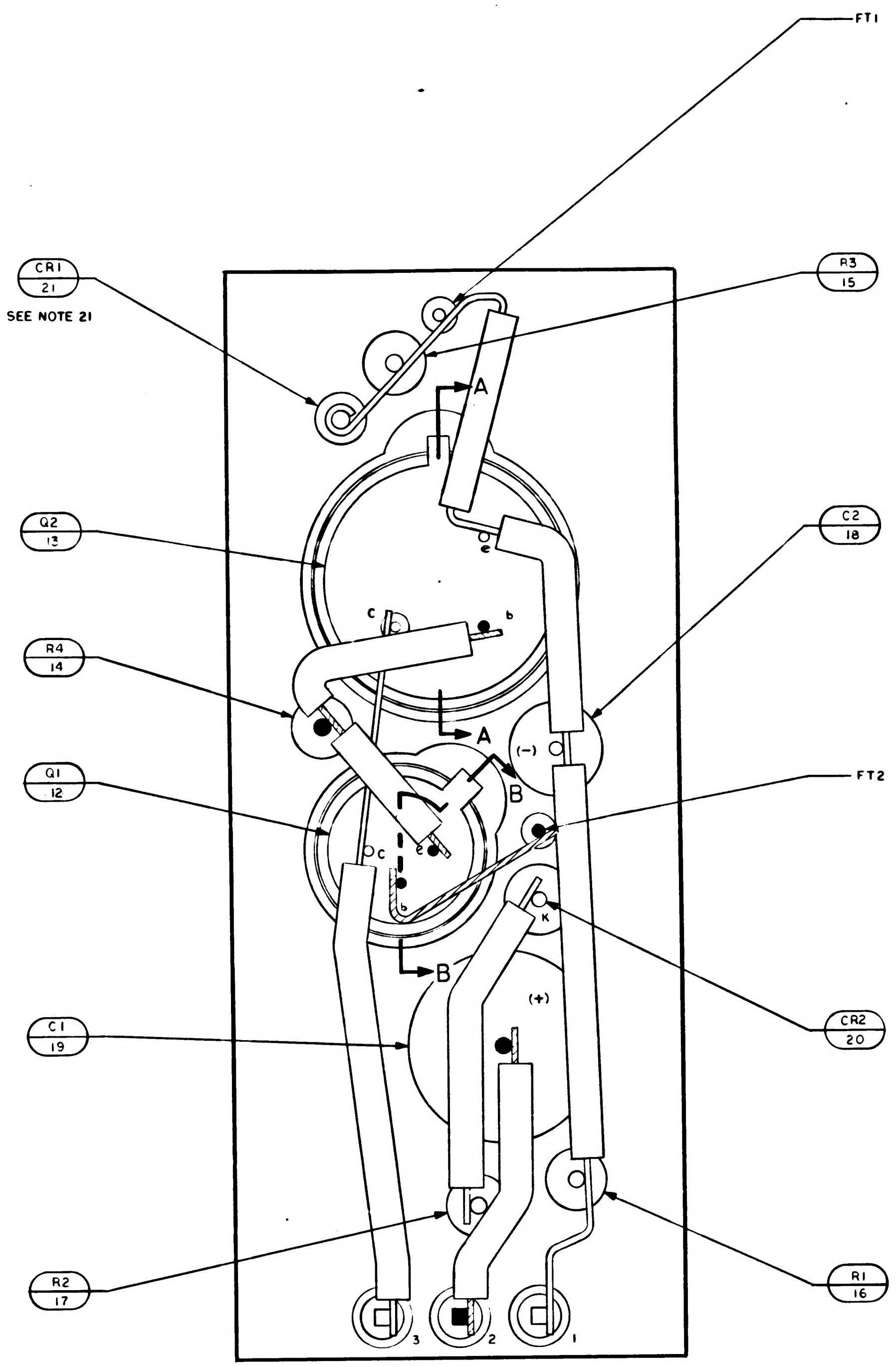
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

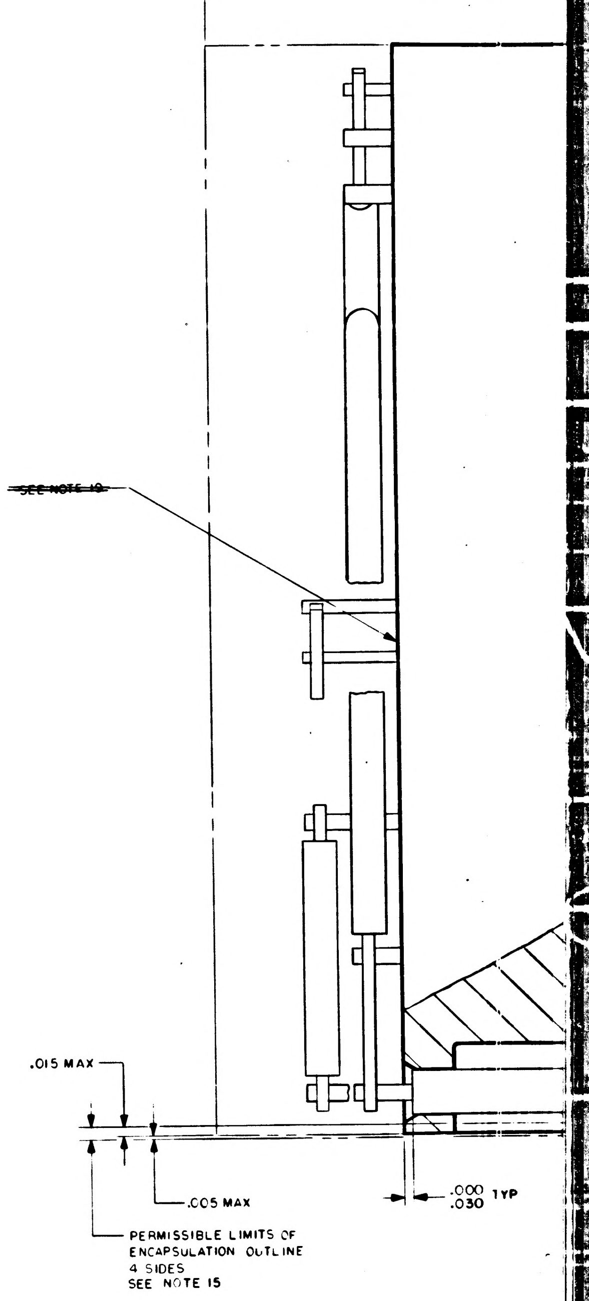


SECTION A-A



PARTIAL SECTION B-B





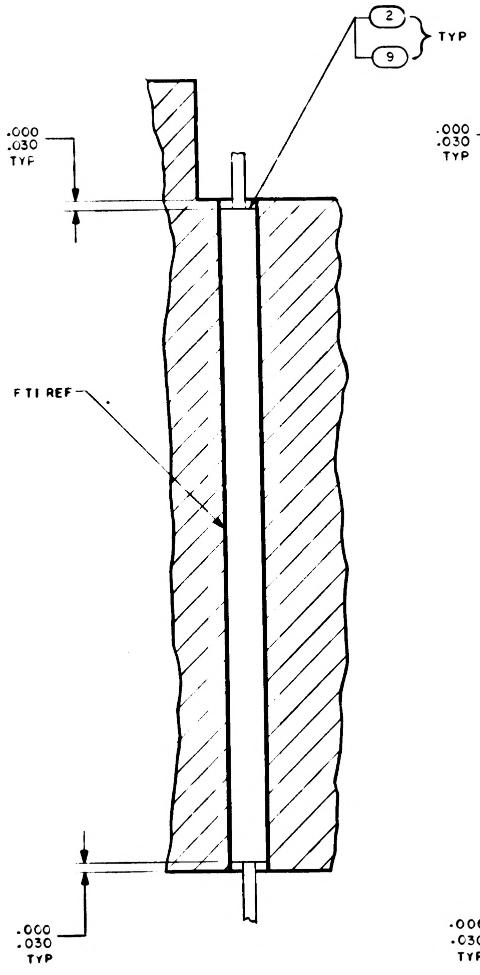
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. STAKE FIND NO.6 AND FIND NO.7 AND FIND NOS.12 THRU FIND NO.21 PER ND1002009 METHOD H
7. ASSEMBLE FIND NO.4 AND FIND NO.5 TO FIND NO.1 PER ND 1002136
8. TYPICAL SLEEVING FOR FIND NO.S 14 THRU FIND NO.18, FIND NO.20 AND FIND NO.21
9. TRIM UNUSED LEAD OF FIND NO. 12 .010/.030 FROM CASE
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
12. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
13. WELD PER ND 1002005
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
16. ENCAPSULATE PER ND 1002117
17. MARK .060/.100 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
18. MARK .100/.140 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
19. ~~COAT INDICATED SURFACES PER ND 1002187 TYPE II~~
20. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 1007218
21. SOLDER PER ND 1002071
22. EXCEPT FOR THE HELICOIL INSERT MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110, TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR 8 HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. AFTER ENCAPSULATION, PRIME AND PAINT ALL SURFACES EXCEPT MOUNTING SURFACE PER ND 1002110 TYPE II USING PRIMER PER 1010992 AND BLACK PAINT PER 1010729-4. CURE TEMPERATURE NOT TO EXCEED 140°F. CONNECTOR PIN BLADES AND INSULATORS BE FREE OF PAINT.

3/7

1007218 | B

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
REVISIONS 19984						
A		REVISED PER TDRR 20789		EF	5 AUG 65	
B		REVISED PER TDRR 21276	WJR	RWH	9 AUG 65	
C		REVISED PER TDRR 22970	LK		2 OCT 65	



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TYP
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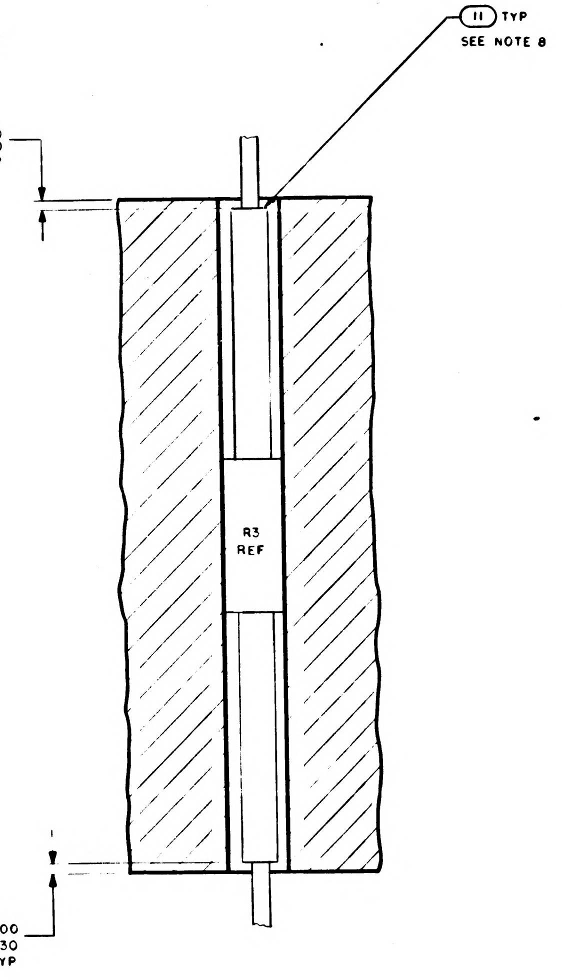
TYP

SECTION C-C



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SEE NOTE 8
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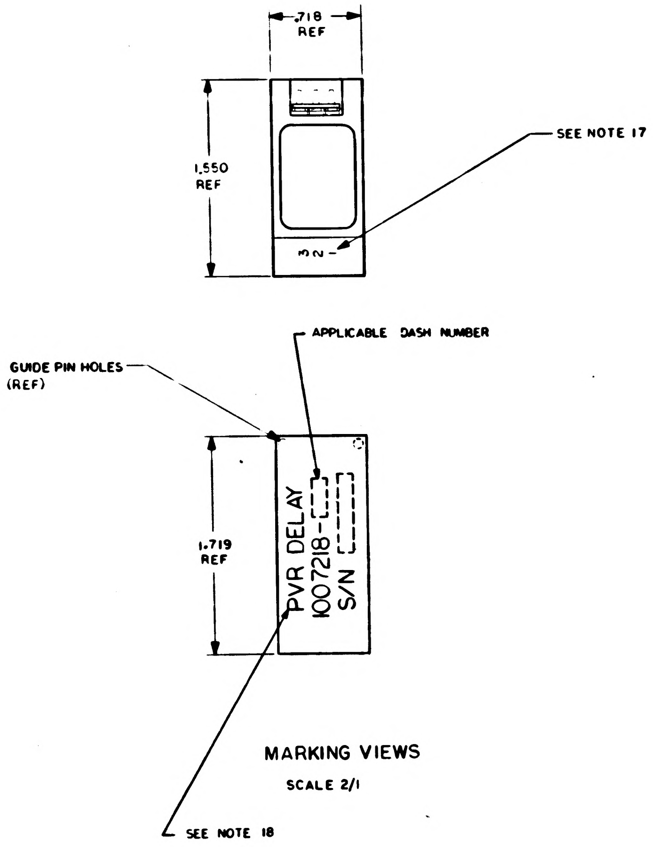
SECTION D-D



.718
REF
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REF
SEE NOTE 17
SN -
APPLICABLE DASH NUMBER
GUIDE PIN HOLES
(REF)
1.719
REF
PVR DELAY
100718-
S/N
SEE NOTE 18

MARKING VIEWS

SCALE 2/1

3H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010143	SCHEMATIC	REF
1	1010497	DIODE	21
1	1010372 -15	DIODE	20
1	1006755 -133	CAPACITOR	19
1	1006755 -53	CAPACITOR	18
1	1010369 -100	RESISTOR	17
1	1010369 -99	RESISTOR	16
1	1010369 -94	RESISTOR	15
1	1006750 -24	RESISTOR	14
1	1010398 -1	TRANSISTOR	13
1	1010342	TRANSISTOR	12
AR	1006776 -21	INSULATION SLEEVING	11
AR	1006776 -20	INSULATION SLEEVING	10
AR	1006757 -8	WIRE ELECTRICAL	9
AR	1006757 -1	WIRE ELECTRICAL	8
1	1008025 -2	INSULATOR BUSHING	7
1	1008025 -1	INSULATOR BUSHING	6
3	1006782 -4	CONTACT WRAPOST MALE MINIAT.	5
3	1006775	INSULATOR WRAPOST MALE MINIAT.	4
1	1008540 -3	GASKET	3
AR	1006776 22	INSULATION SLEEVING	2
1	1008235	HEATSINK	1
-011	LIST OF MATERIALS		

1007218 C

1007577	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN 6/1/65
CHECKED
APPROVED Renner 8 JUNE
APPROVED 6/8/65
APPROVED MIT 6-8-65
APPROVED MSC 6/1/65
DATE

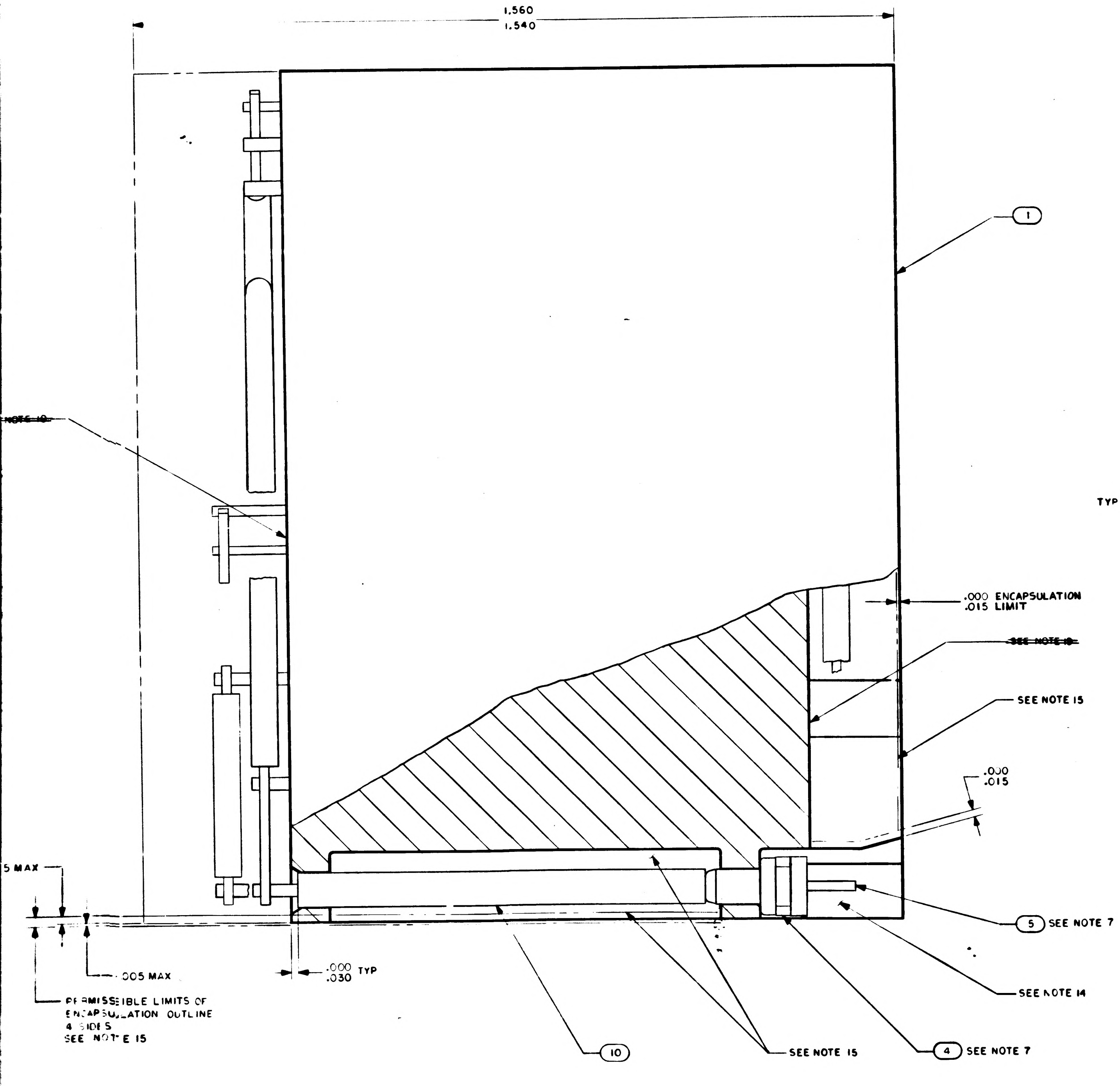
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ASSEMBLY
PVR DELAY CIRCUIT

CODE IDENT NO. 80230
SIZE J
DRAWING NO 1007218
SCALE 10/1
SHEET 1 OF 1

1007218 C

3-1007218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.000 TYP
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PERMISSIBLE LIMITS OF
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4 SIDES
SEE NOTE 15
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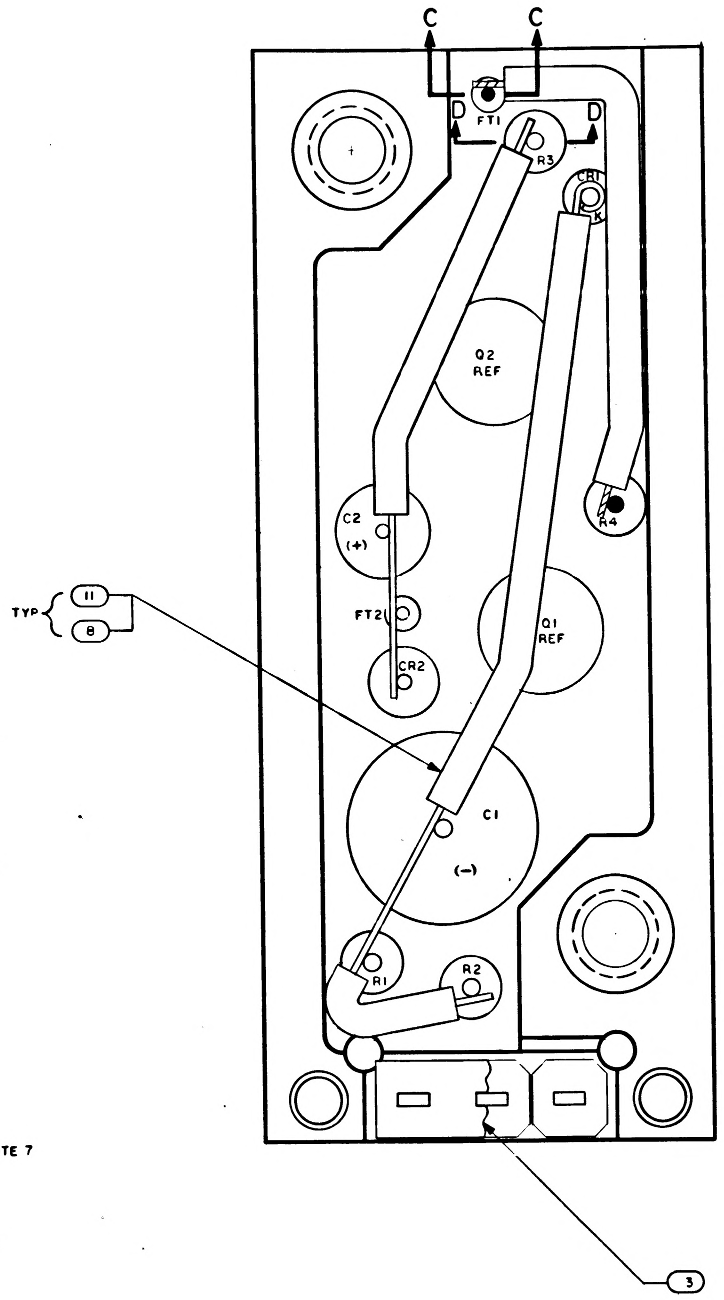
④ SEE NOTE 7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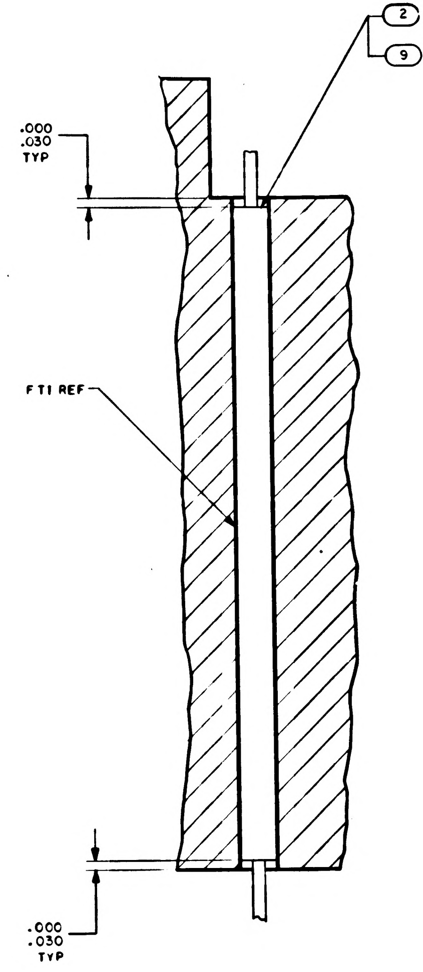
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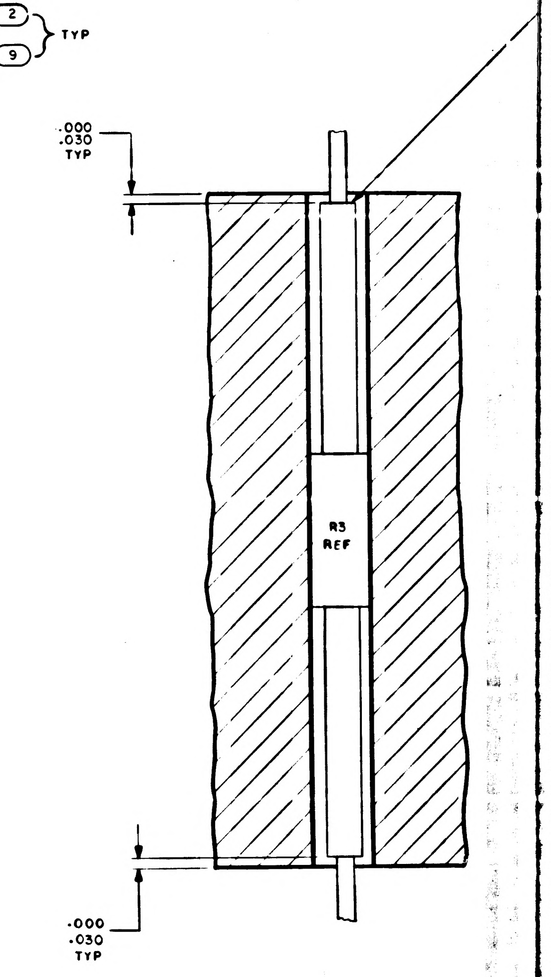
SECTION C-C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R3
REF
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TYP

SECTION D-D

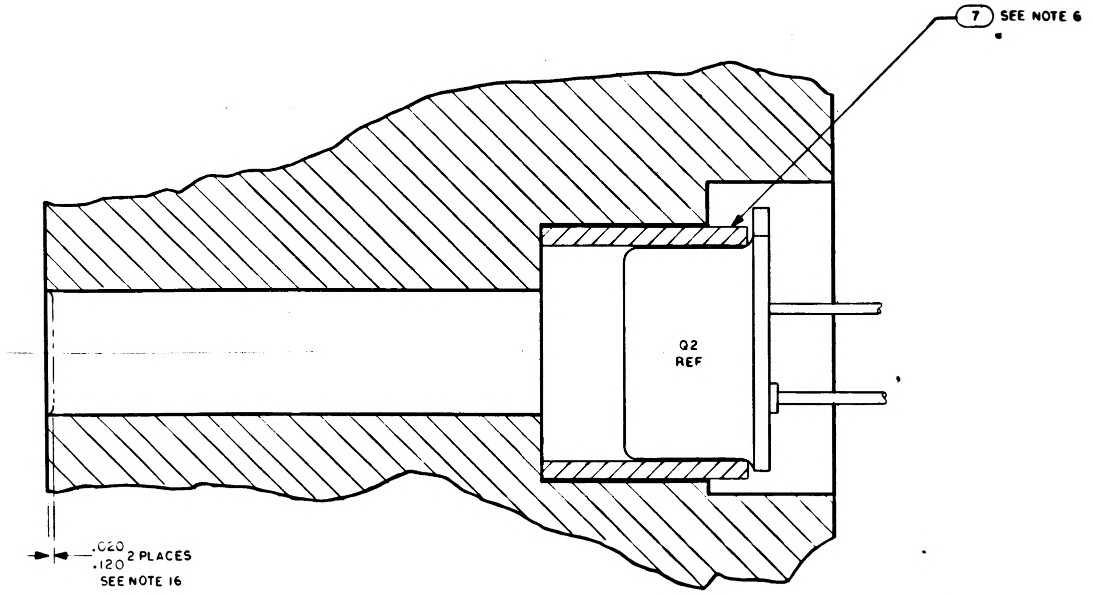
1007218 C

27 1007218

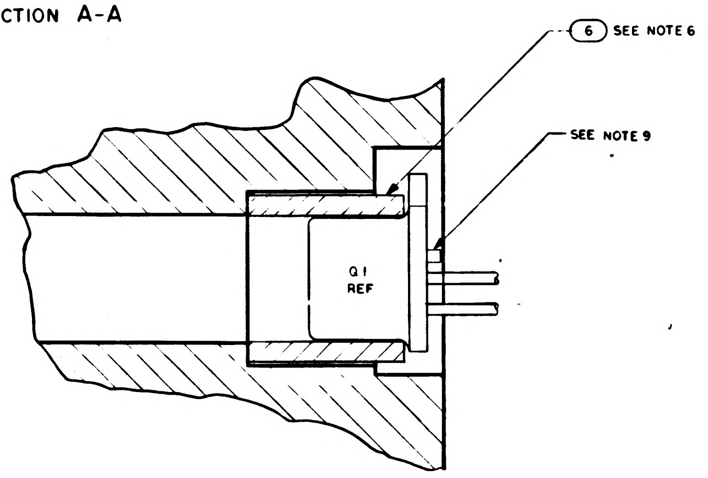
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

1007218

34



SECTION A-A



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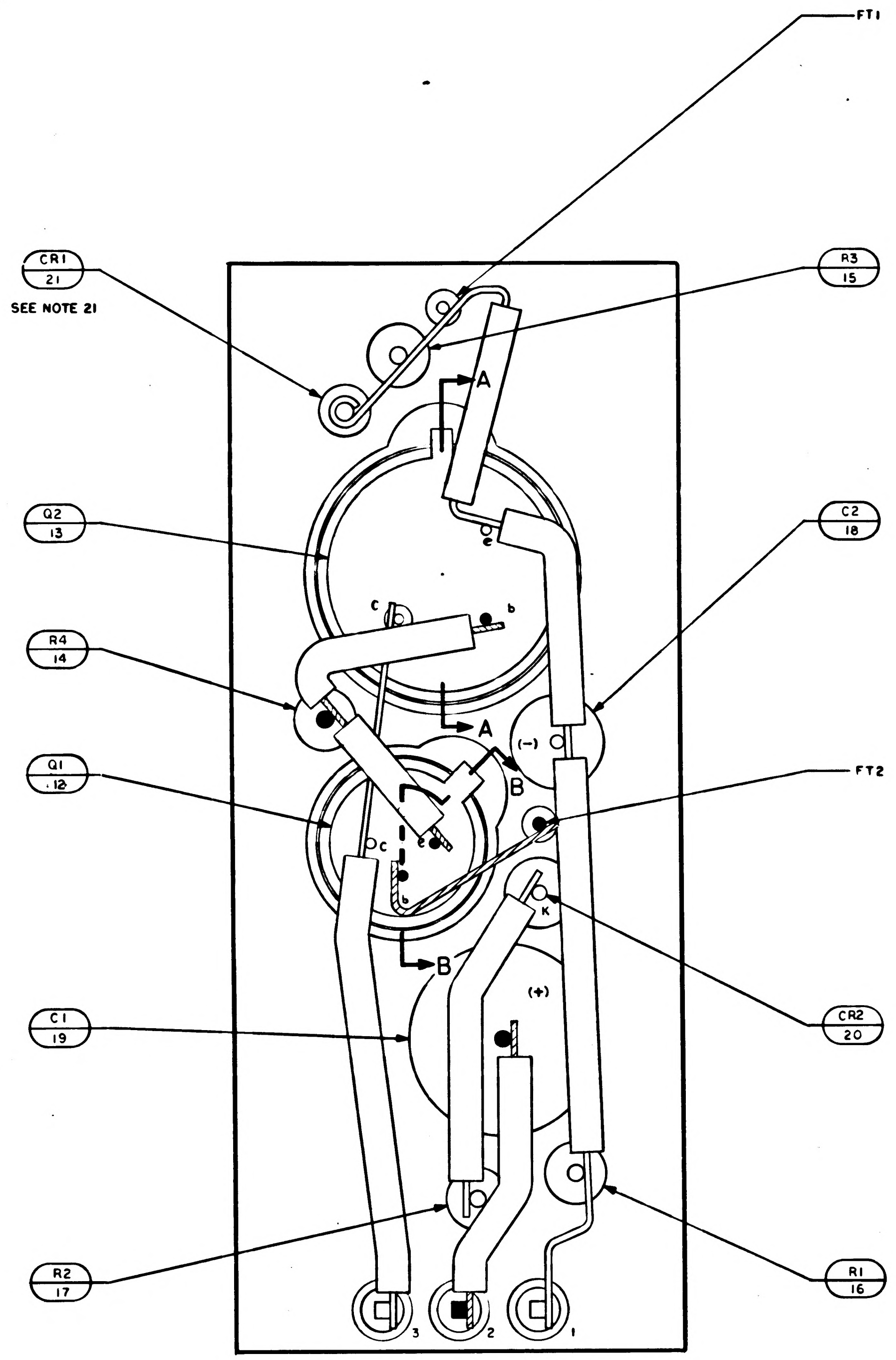
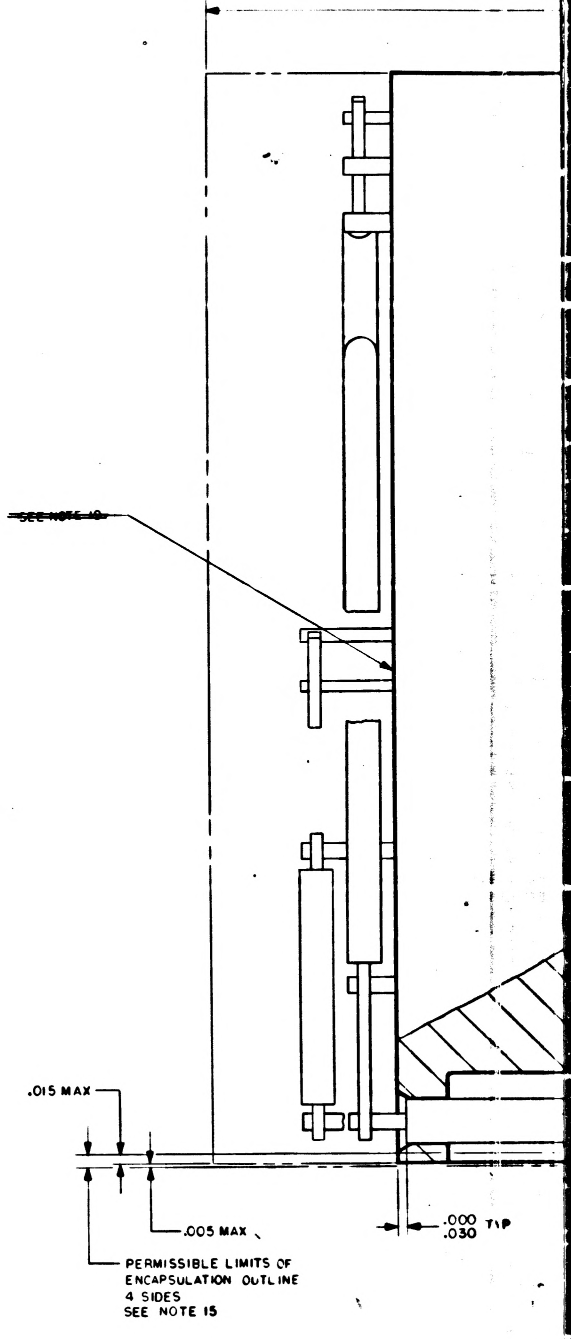
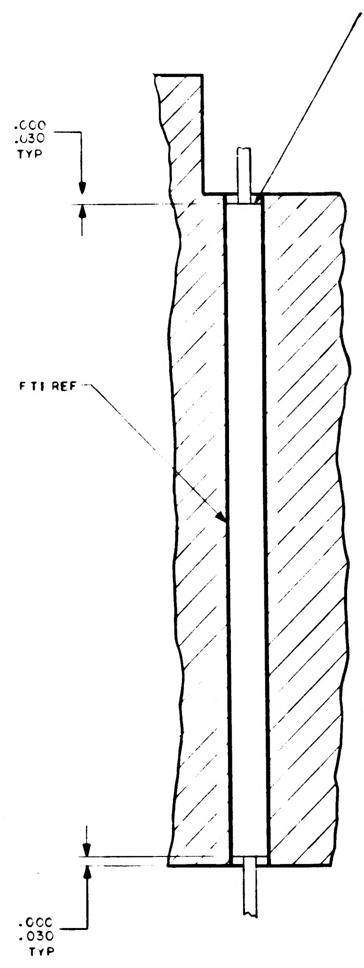




NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. STAKE FIND NO.6 AND FIND NO.7 AND FIND NOS.12 THRU FIND NO.21 PER ND1002009 METHOD J.
7. ASSEMBLE FIND NO.4 AND FIND NO.5 TO FIND NO.1 PER ND 1002136
8. TYPICAL SLEEVING FOR FIND NO.S 14 THRU FIND NO.18, FIND NO.20 AND FIND NO.21
9. TRIM UNUSED LEAD OF FIND NO. 12 .010/.030 FROM CASE
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
12. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
13. WELD PER ND 1002005
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
16. ENCAPSULATE PER ND 1002117
17. MARK .060/.100 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
18. MARK .100/.140 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
~~19. COAT INDICATED SURFACES PER ND 1002187 TYPE II~~
20. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 1007218
21. SOLDER PER ND 1002071
~~22. EXCEPT FOR THE HELICOIL INSERT MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110, TYPE II AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR 8 HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION
24. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
25. RROCURE PER PS 1007218

REVISIONS 19984						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20789		EF	5 AUG 65	
B		REVISED PER TDRR 21276	WJR	RWH	9 AUG 65	
C		REVISED PER TDRR 22970	LK		2 OCT 65	
D		REVISED PER TDRR 23888	JHF		6 NOV 65	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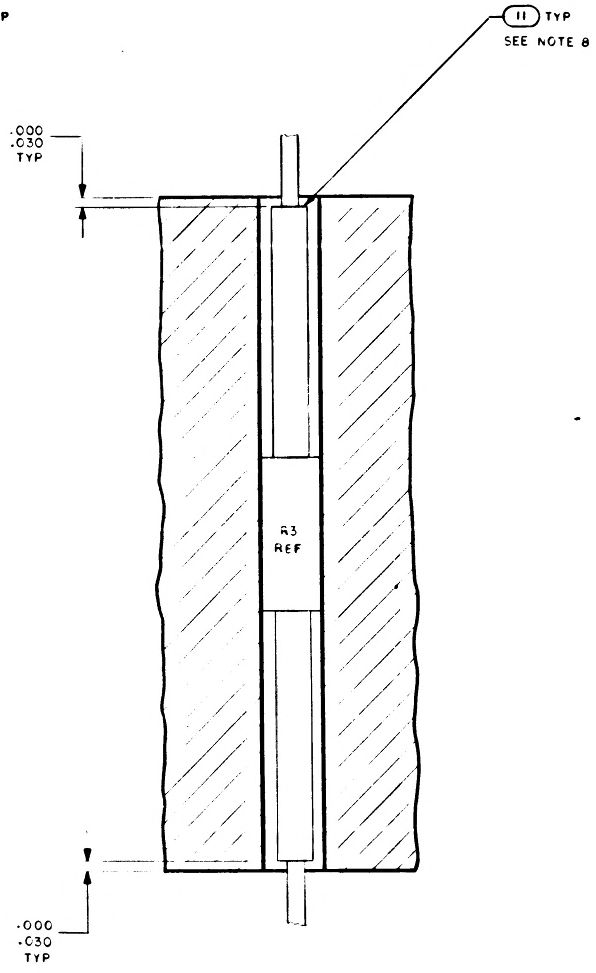
SECTION C-C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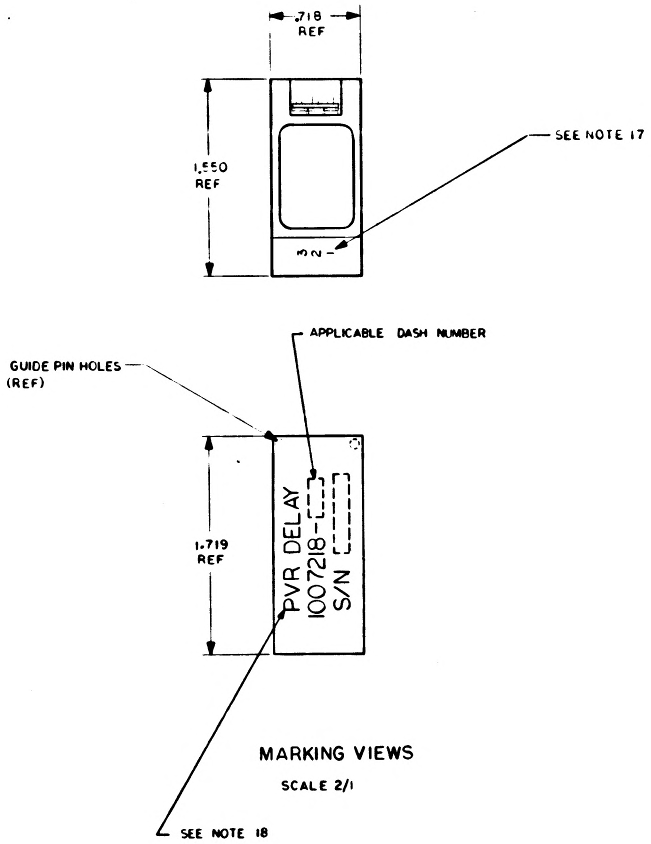
SECTION D-D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REF
SEE NOTE 17
APPLICABLE DASH NUMBER
GUIDE PIN HOLES
(REF)
1.719
REF
PVR DELAY
1007218-
S/N
SEE NOTE 18

MARKING VIEWS

SCALE 2/1

3H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	1010143	SCHEMATIC	REF
AR	1010848-2	WIRE, ELECTRICAL - NICKEL	22
1	1010497	DIODE	21
1	1010372 -15	DIODE	20
1	1006755 -133	CAPACITOR	19
1	1006755 -53	CAPACITOR	18
1	1010369 -100	RESISTOR	17
1	1010369 -99	RESISTOR	16
1	1010369 -94	RESISTOR	15
1	1006750 -24	RESISTOR	14
1	1010398 -1	TRANSISTOR	13
1	1010342	TRANSISTOR	12
AR	1006776 -21	INSULATION SLEEVING	11
AR	1006776 -20	INSULATION SLEEVING	10
~~AR~~	~~1006757 -8~~	~~WIRE ELECTRICAL~~	9
AR	1006757 -1	WIRE ELECTRICAL	8
1	1008025 -2	INSULATOR BUSHING	7
1	1008025 -1	INSULATOR BUSHING	6
3	1006782 -4	CONTACT WRAPOST MALE MINIAT.	5
3	1006775	INSULATOR WRAPOST MALE MINIAT.	4
1	1008540 -3	GASKET	3
~~AR~~	~~1006776 -22~~	~~INSULATION SLEEVING~~	2
1	1008235	HEATSINK	1
-011	LIST OF MATERIALS		

1007218 D

1007577	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN [illegible] 6/1/65
CHECKED [illegible]
APPROVED [illegible]
APPROVED [illegible] 6/1/65
APPROVED MIT [illegible] 6 1 65
APPROVED MSC [illegible] 6/1/65
DATE

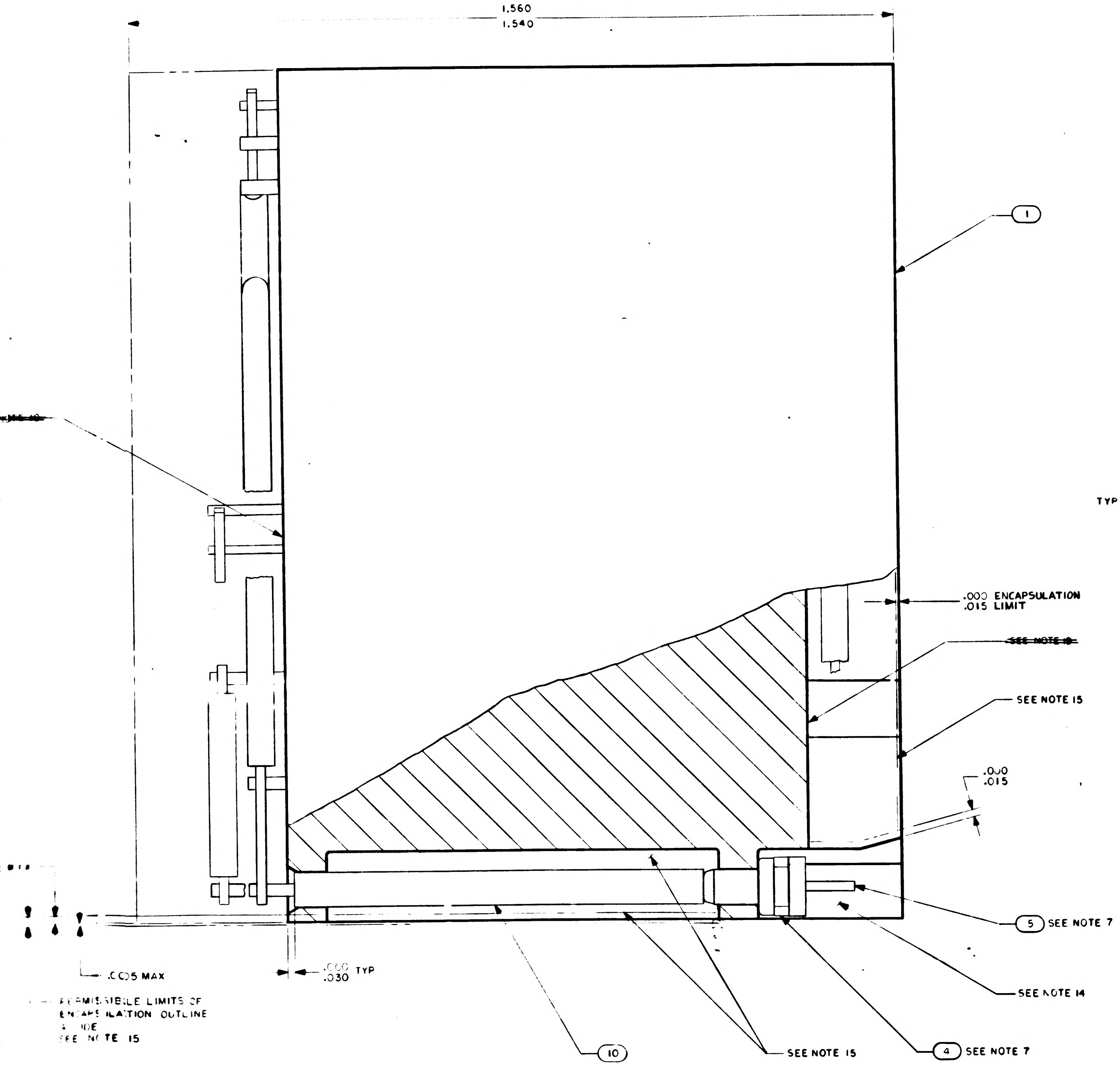
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ASSEMBLY
PVR DELAY CIRCUIT

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 1007218
SCALE 10/1
SHEET 1 OF 1

1007218 D

3Z1007218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PERMISSIBLE LIMITS OF
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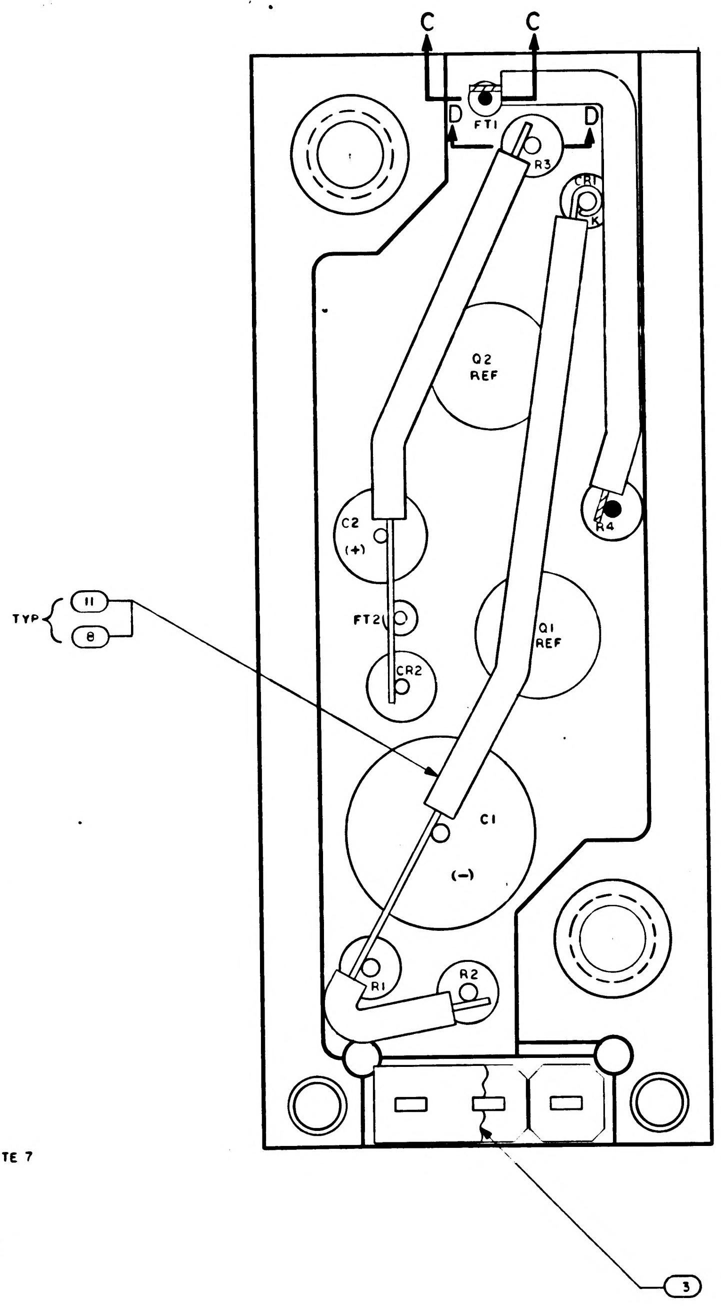
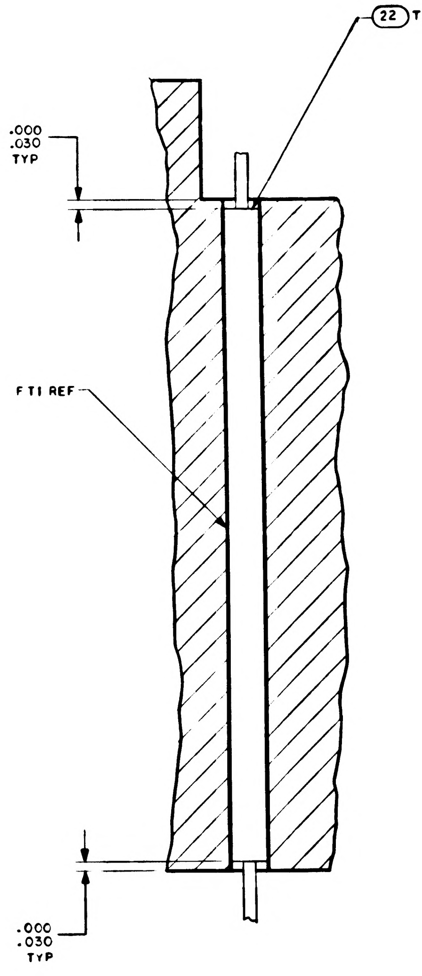
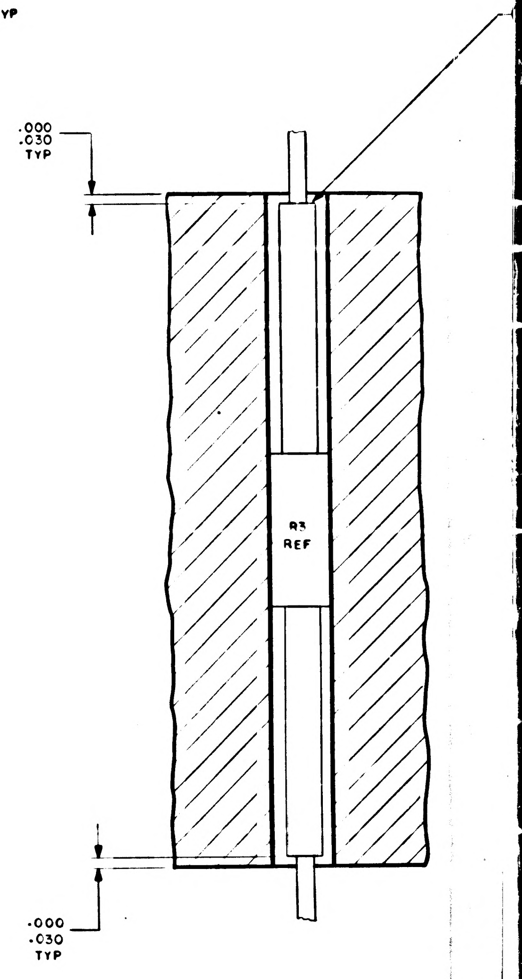
SEE NOTE 15
4 SEE NOTE 7

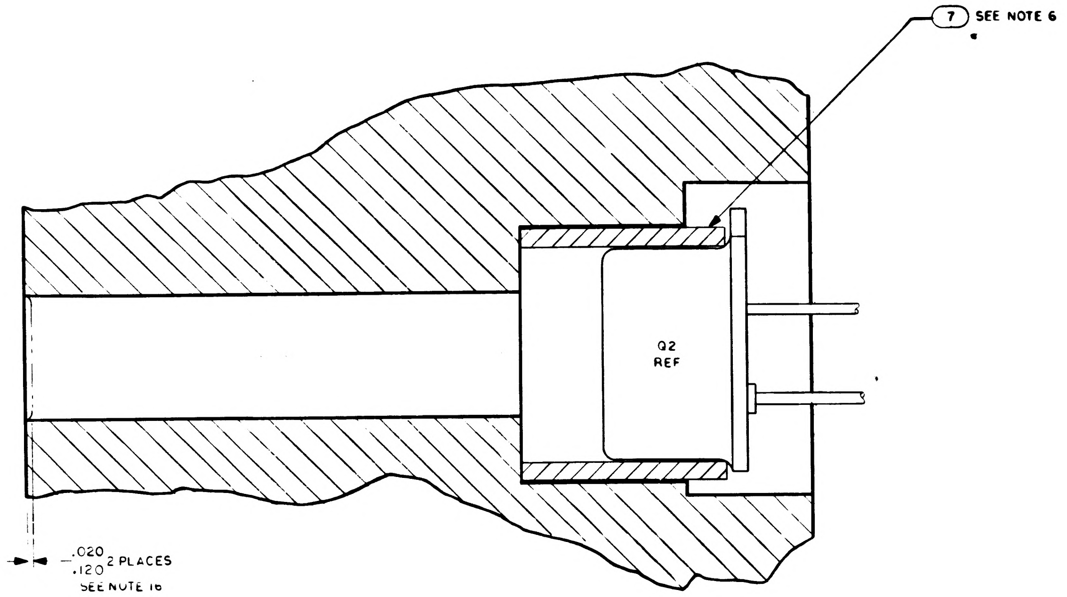

C
C
D
D
FT1
R3
CR1
K
Q2
REF
C2
(+)
R4
FT2
Q1
REF
CR2
C1
(−)
R1
R2
TYP
11
8
3


22 TYP
.000
.030
TYP
FT1 REF
.000
.030
TYP

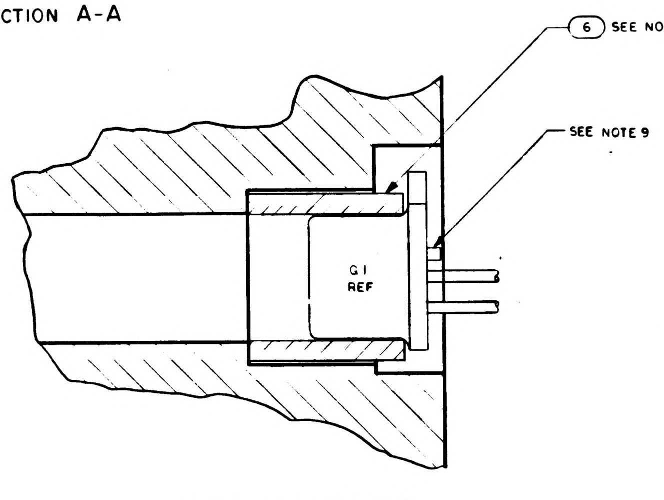
SECTION C-C


.000
.030
TYP
R3
REF
.000
.030
TYP

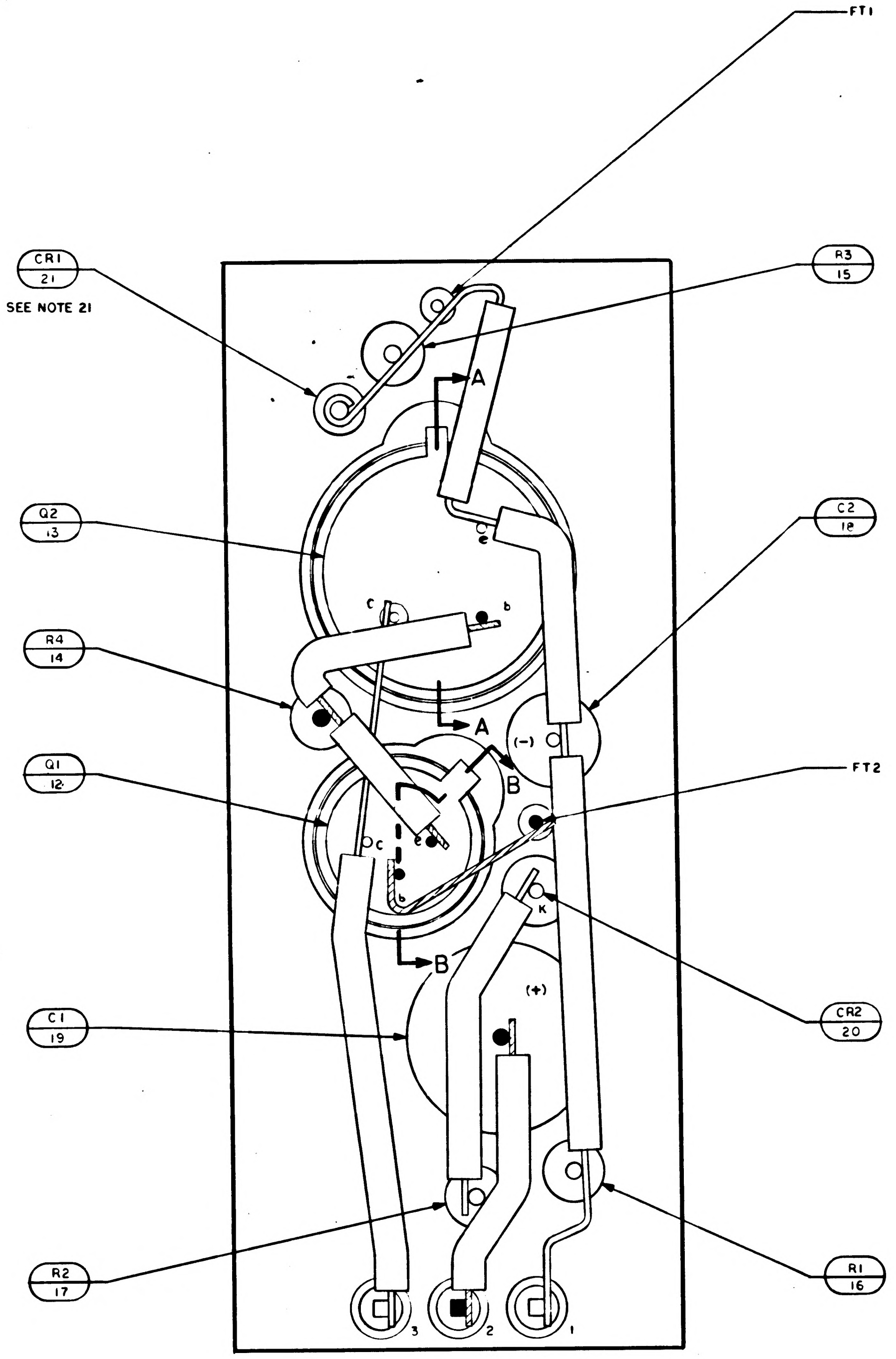
SECTION D-D

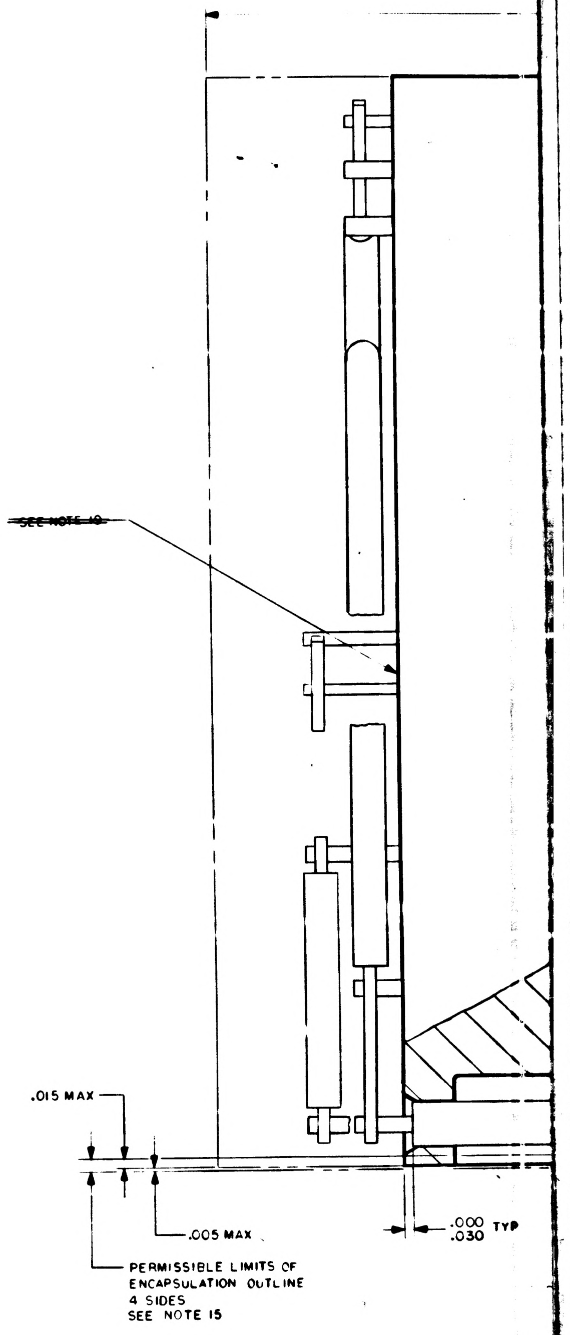

7 SEE NOTE 6
Q2 REF
.020
.120 2 PLACES
SEE NOTE 16

SECTION A-A


6 SEE NOTE 6
SEE NOTE 9
Q1 REF

PARTIAL SECTION B-B


FT1
CR1 21
SEE NOTE 21
R3 15
Q2 13
C2 18
R4 14
Q1 12
FT2
C1 19
CR2 20
R2 17
R1 16
A
A
B
B
(-)
(+)
K
c
b
e
c
e
b
3
2
1


~~SEE NOTE 10~~
.015 MAX
.005 MAX
.000
.030 TYP
PERMISSIBLE LIMITS OF
ENCAPSULATION OUTLINE
4 SIDES
SEE NOTE 15

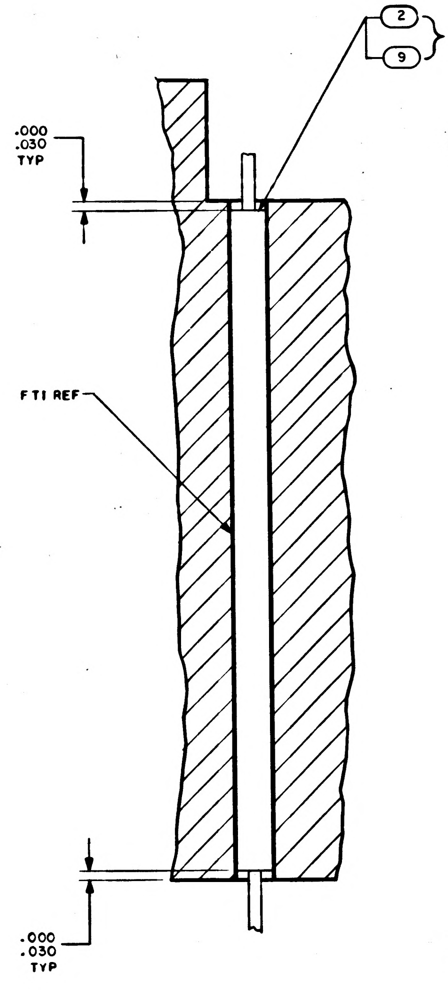
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. STAKE FIND NO.6 AND FIND NO.7 AND FIND NOS.12 THRU FIND NO.21 PER ND1002009 METHOD J.
7. ASSEMBLE FIND NO.4 AND FIND NO.5 TO FIND NO.1 PER ND 1002136
8. TYPICAL SLEEVING FOR FIND NO.S 14 THRU FIND NO.18, FIND NO.20 AND FIND NO. 21
9. TRIM UNUSED LEAD OF FIND NO. 12 .010/.030 FROM CASE
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
12. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
13. WELD PER ND 1002005
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
16. ENCAPSULATE PER ND 1002117
17. MARK .060/.100 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
18. MARK .100/.140 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
~~19. COAT INDICATED SURFACES PER ND 1002187 TYPE II~~
20. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 1007218
21. SOLDER PER ND 1002071
~~22. EXCEPT FOR THE HELICOIL INSERT MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110, TYPE II AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR 8 HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION
24. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
25. RROCURE PER PS 1007218

1007218 D

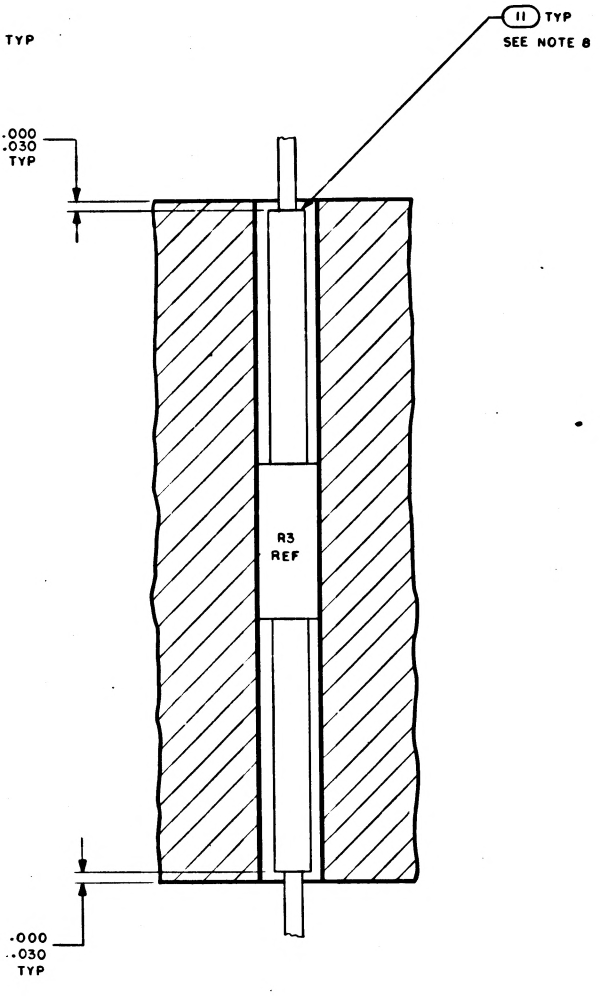
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

REVISIONS



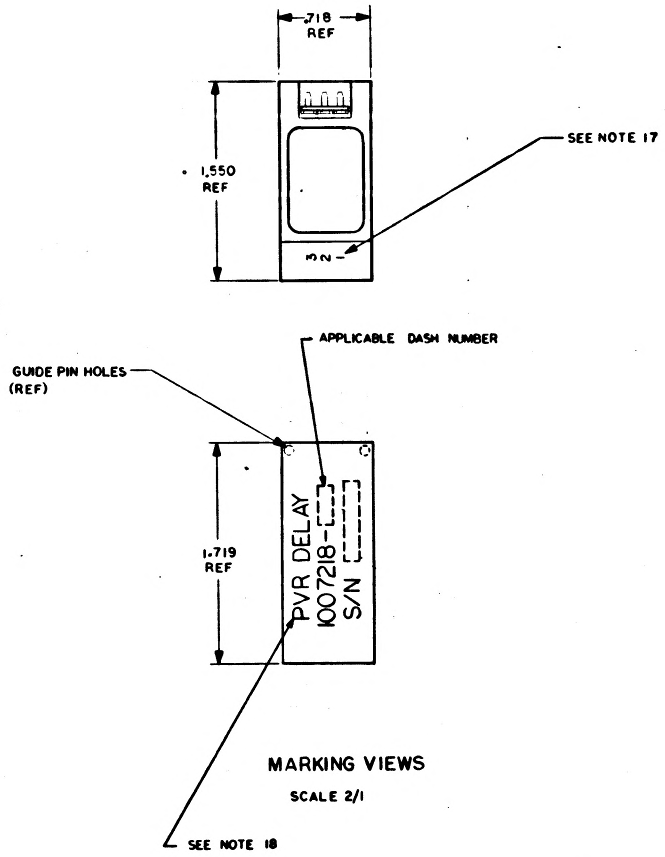
2
9
TYP
.000
.030
TYP
FTI REF
.000
.030
TYP

SECTION C-C



11 TYP
SEE NOTE 8
.000
.030
TYP
R3
REF
.000
.030
TYP

SECTION D-D



.718
REF
1.550
REF
SEE NOTE 17
S/N
APPLICABLE DASH NUMBER
GUIDE PIN HOLES
(REF)
1.719
REF
PVR DELAY
1007218-
S/N
SEE NOTE 18

MARKING VIEWS

SCALE 2/1

3H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010143	SCHEMATIC	REF
1	1010497	DIODE	21
1	1010372 -15	DIODE	20
1	1006755 -133	CAPACITOR	19
1	1006755 -53	CAPACITOR	18
1	1010369 -100	RESISTOR	17
1	1010369 -99	RESISTOR	16
1	1010369 -94	RESISTOR	15
1	1006750 -24	RESISTOR	14
1	1010398 -1	TRANSISTOR	13
1	1010342	TRANSISTOR	12
AR	1006776 -21	INSULATION SLEEVING	11
AR	1006776 -20	INSULATION SLEEVING	10
AR	1006757 -8	WIRE ELECTRICAL	9
AR	1006757 -1	WIRE ELECTRICAL	8
1	1008025 -2	INSULATOR BUSHING	7
1	1008025 -1	INSULATOR BUSHING	6
3	1006782 -4	CONTACT WRAPOST MALE MINIAT.	5
3	1006775	INSULATOR WRAPOST MALE MINIAT.	4
1	1008540 -3	GASKET	3
AR	1006776 22	INSULATION SLEEVING	2
1	1008235	HEATSINK	1
-011	LIST OF MATERIALS		

1007218

NEXT ASSY	USED ON
1007577	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN R.10 6/1/65
CHECKED
APPROVED Rymer 8 JUN 65
APPROVED 6/4/65
APPROVED MIT 6-8-65
APPROVED MSC 6/8/65
DATE

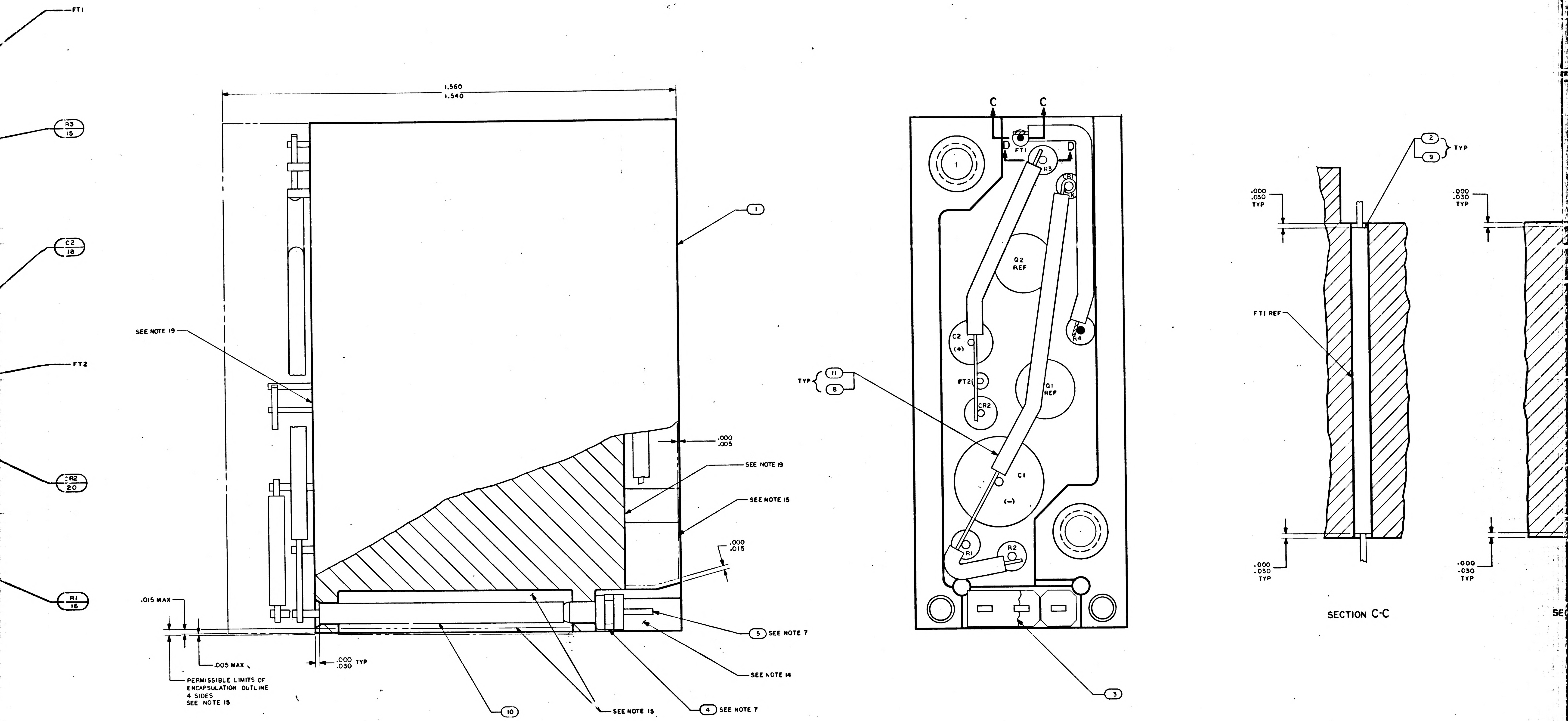
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ASSEMBLY
PVR DELAY CIRCUIT

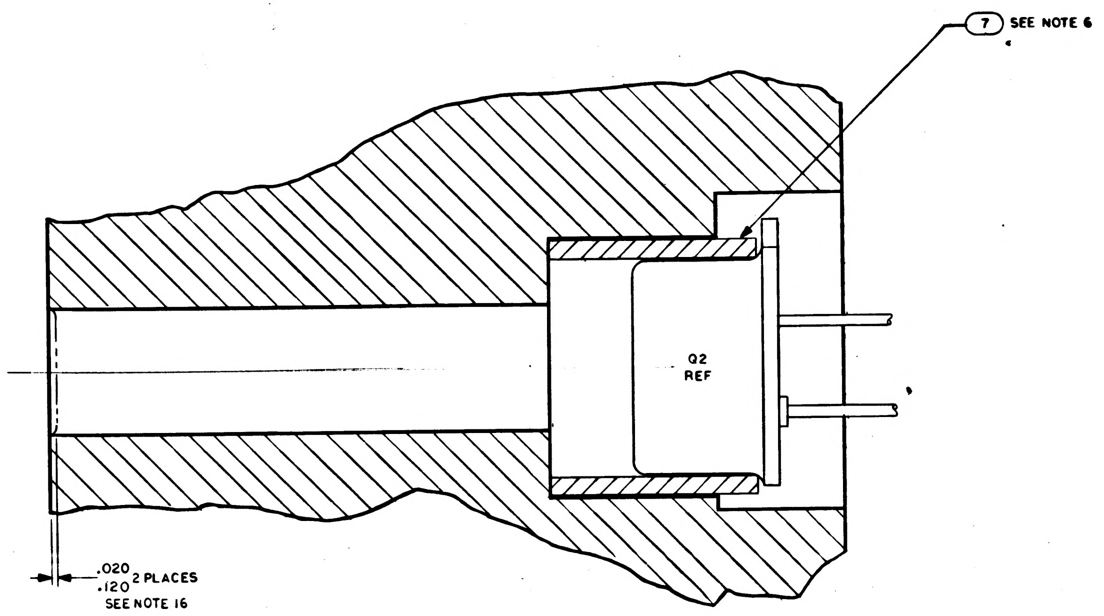
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 1007218
SCALE 10/1
SHEET 1 OF 1

MASTER

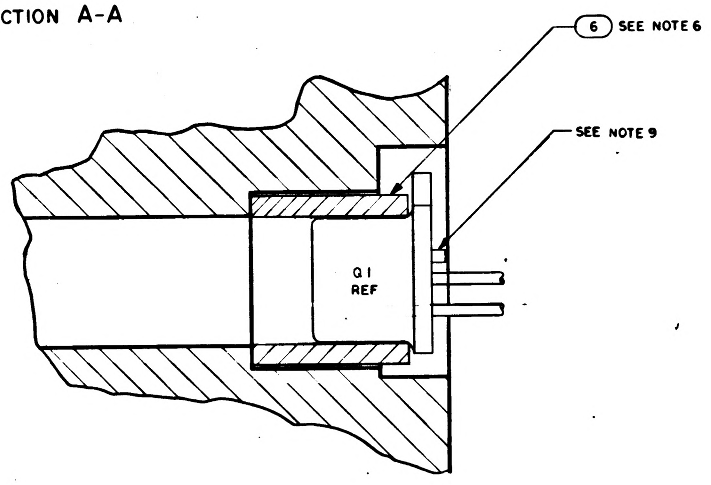
1007218


FT1
R3
15
C2
18
FT2
R2
20
R1
16
1.560
1.540
1
SEE NOTE 19
.000
.005
SEE NOTE 19
SEE NOTE 15
.000
.015
.015 MAX
.005 MAX
PERMISSIBLE LIMITS OF
ENCAPSULATION OUTLINE
4 SIDES
SEE NOTE 15
.000
.030 TYP
10
SEE NOTE 15
4 SEE NOTE 7
5 SEE NOTE 7
SEE NOTE 14
C
C
D
D
FT1
R3
CR1
K
Q2
REF
C2
(+)
R4
FT2
Q1
REF
CR2
C1
(−)
R1
R2
TYP
11
8
3
2
9
TYP
.000
.030
TYP
FT1 REF
.000
.030
TYP
SECTION C-C
SE

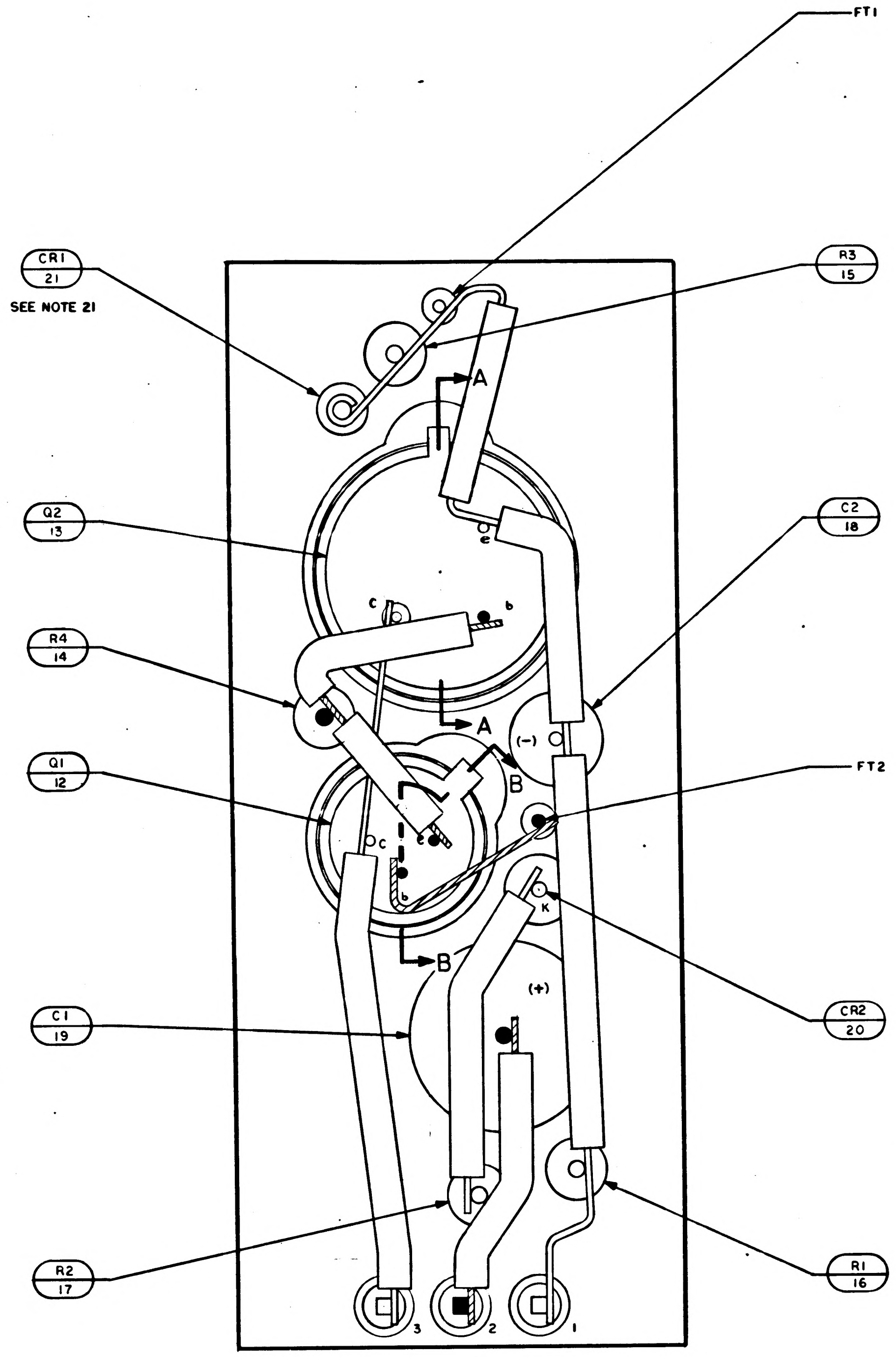
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

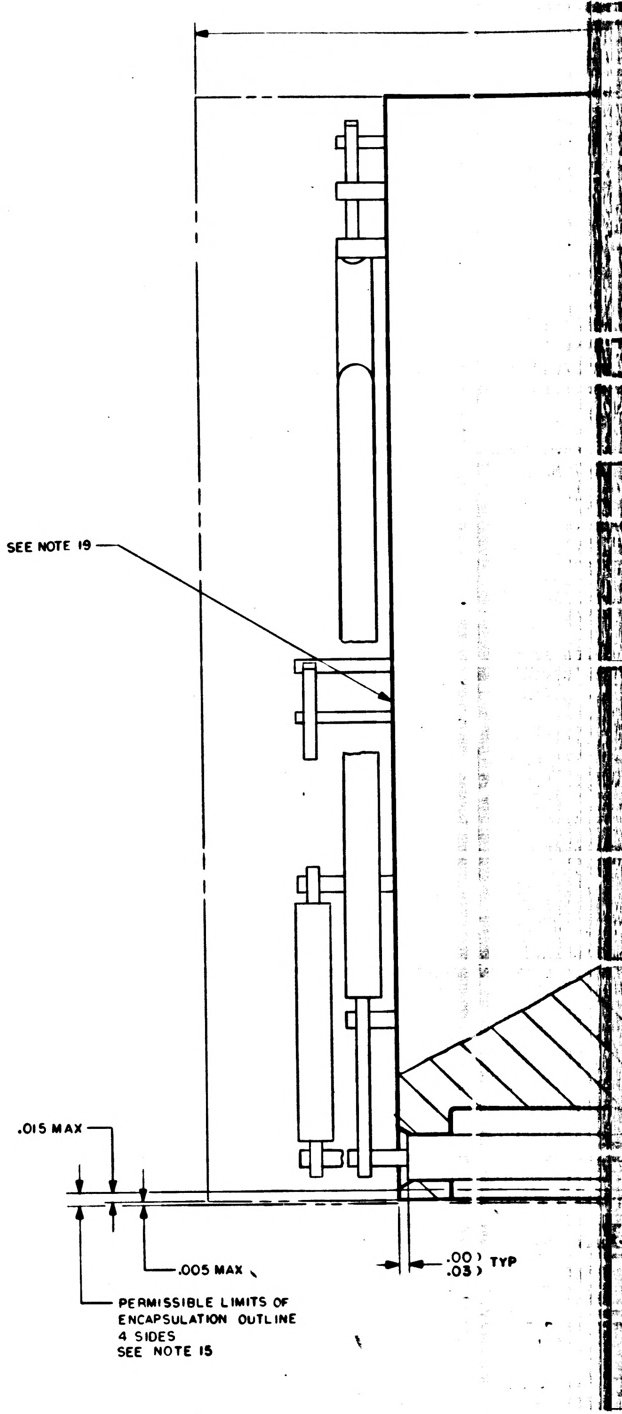

7 SEE NOTE 6
Q2
REF
.020
.120 2 PLACES
SEE NOTE 16

SECTION A-A


6 SEE NOTE 6
SEE NOTE 9
Q1
REF

PARTIAL SECTION B-B


CR1
21
SEE NOTE 21
FT1
R3
15
A
Q2
13
e
C2
18
c
b
R4
14
A
(−)
B
Q1
12
FT2
c
e
b
K
B
CR2
20
(+)
C1
19
R2
17
R1
16
3
2
1


SEE NOTE 19
.015 MAX
.005 MAX
.00
.03 TYP
PERMISSIBLE LIMITS OF ENCAPSULATION OUTLINE
4 SIDES
SEE NOTE 15

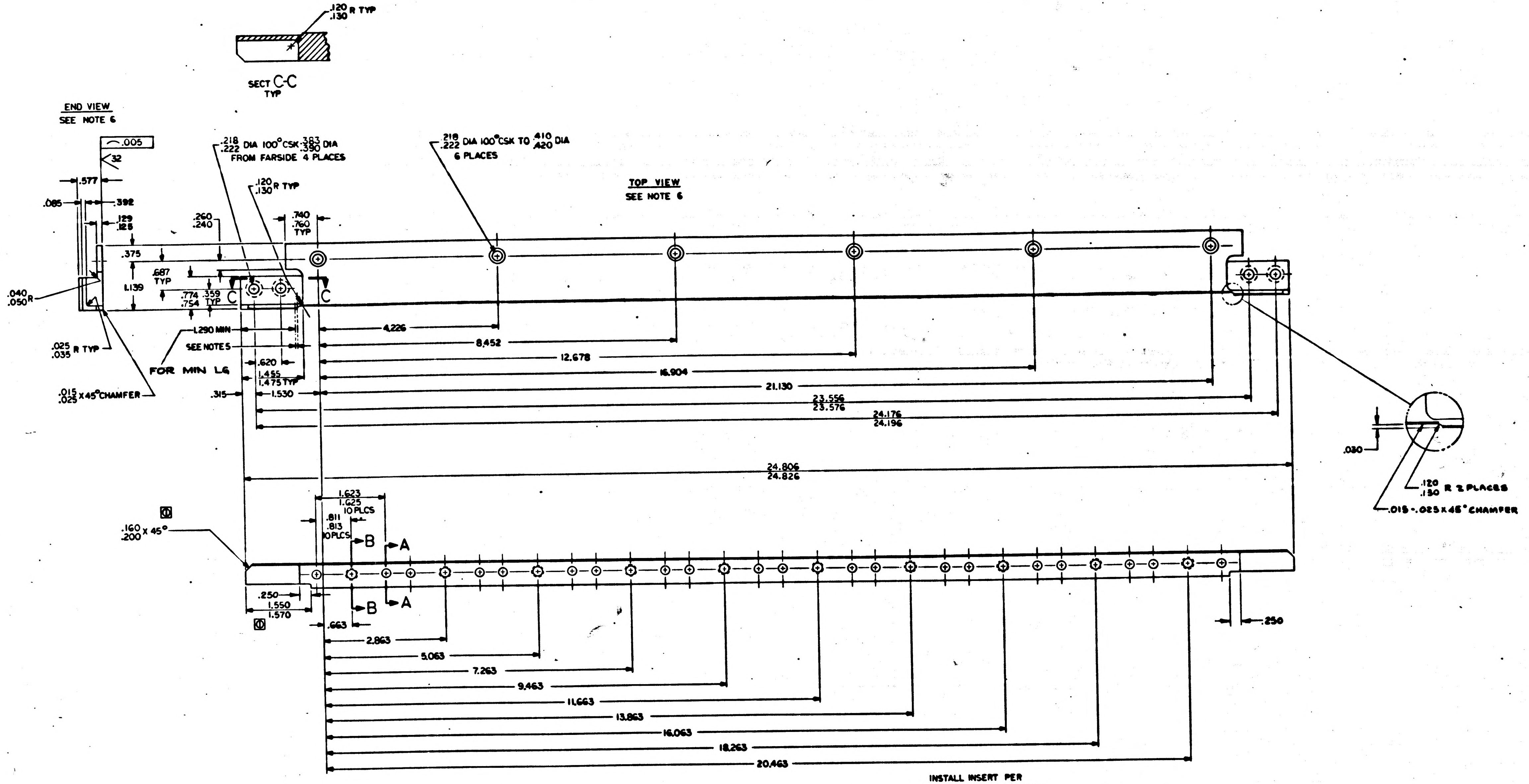
NOTES:

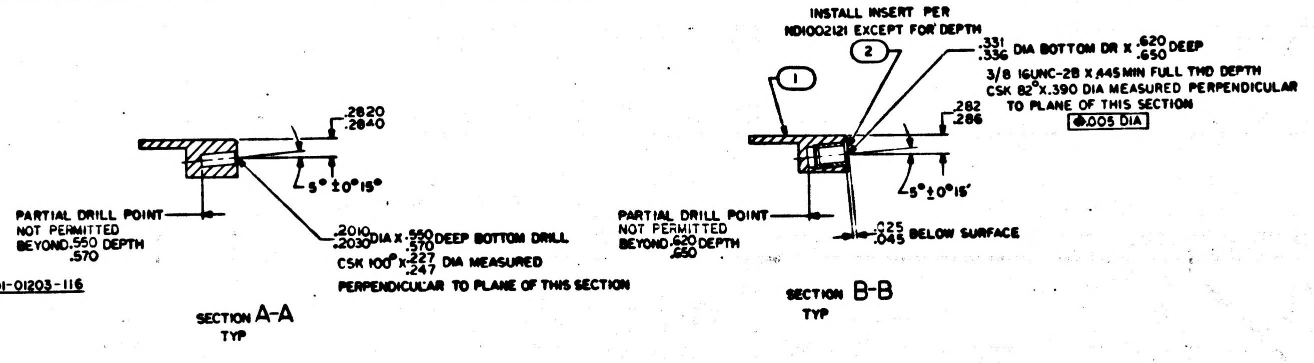
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. STAKE FIND NO.6 AND FIND NO.7 AND FIND NOS. 12 THRU FIND NO.23 PER ND1002009 METHOD H
7. ASSEMBLE FIND NO.4 AND FIND NO.5 TO FIND NO.1 PER ND 1002136
8. TYPICAL SLEEVING FOR FIND NO.S 14 THRU FIND NO.18, FIND NO.20 AND FIND NO.21
9. TRIM UNUSED LEAD OF FIND NO. 12 .010/.030 FROM CASE
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
12. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
13. WELD PER ND 1002005
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
16. ENCAPSULATE PER ND 1002117
17. MARK .060/.100 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
18. MARK .100/.140 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
19. COAT INDICATED SURFACES PER ND 1002187 TYPE II
20. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 1007218
21. SOLDER PER ND 1002071

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

F 1001550

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE CLASS A PER TDRR 26420.		


.120 .130 R TYP
SECT C-C TYP
END VIEW
SEE NOTE 6
.005
32
.577
.085
.392
.129 .125
.040 .050 R
.025 .035 R TYP
.015 .025 X45° CHAMFER
.218 .222 DIA 100° CSK .383 .390 DIA FROM FARSIDE 4 PLACES
.120 .130 R TYP
.260 .240
.740 .760 TYP
.375
.687 TYP
1.139
.774 .754
.359 TYP
C
C
.218 .222 DIA 100° CSK TO .410 .420 DIA 6 PLACES
TOP VIEW
SEE NOTE 6
1.290 MIN
SEE NOTE 5
FOR MIN LG
.620
1.455 1.475 TYP
.315
1.530
4.226
8.452
12.678
16.904
21.130
23.556 23.576
24.176 24.196
24.806 24.826
.030
.120 .130 R 2 PLACES
.015-.025 X 45° CHAMFER
1.623 1.625 10 PLCS
.811 .813 10 PLCS
.160 .200 X 45°
B
A
B
A
.250
1.550 1.570
.663
2.863
5.063
7.263
9.463
11.663
13.863
16.063
18.263
20.463
.250


.2820 .2840
5° ±0°15'
PARTIAL DRILL POINT NOT PERMITTED BEYOND .550 .570 DEPTH
.2010 .2030 DIA X .550 .570 DEEP BOTTOM DRILL
CSK 100° X .227 .247 DIA MEASURED
PERPENDICULAR TO PLANE OF THIS SECTION
SECTION A-A TYP
INSTALL INSERT PER ND1002121 EXCEPT FOR DEPTH
2
1
.331 .336 DIA BOTTOM DR X .620 .650 DEEP
3/8 16UNC-2B X .445 MIN FULL THD DEPTH
CSK 82° X .390 DIA MEASURED PERPENDICULAR
TO PLANE OF THIS SECTION
.005 DIA
.282 .286
5° ±0°15'
PARTIAL DRILL POINT NOT PERMITTED BEYOND .620 .650 DEPTH
.025 .045 BELOW SURFACE
SECTION B-B TYP

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. 63 ALL OVER UNLESS OTHERWISE SPECIFIED
3. MAT'L: 2021563, BERYLLIUM, INSTRUMENT GRADE, HIGH STRENGTH
4. REMOVE BURRS AND BREAK SHARP EDGES .005-.015
5. BLEND SMOOTH .025 .035 R WITH .120 .130 R IN THIS LENGTH
6. ALL DIMENSIONS IN TOP AND END VIEWS ARE CONTROLLED BY ICD MAH01-01203-116 IN OTHER AREAS OF THIS DRAWING, DENOTES THOSE DIMENSIONS OR CHARACTERISTICS CONTROLLED BY ICD MAH01-01203-116

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
10	NAS1394CA-4L	INSERT, SCREW, LOCKING	2
1	1007220-001	TOE CAP	1

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.005 ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 3
HEAT TREATMENT
——
FINAL FINISH
SEE NOTE 3

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN Friedel DATE 29 DEC 65
CHECKED 5 JAN 66
APPROVAL
APPROVAL 15 Feb 66
NASA APPROVAL A. C. METZGER
MIT APPROVAL 16 Feb 66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TOE CAP
POWER & SERVO ASSY

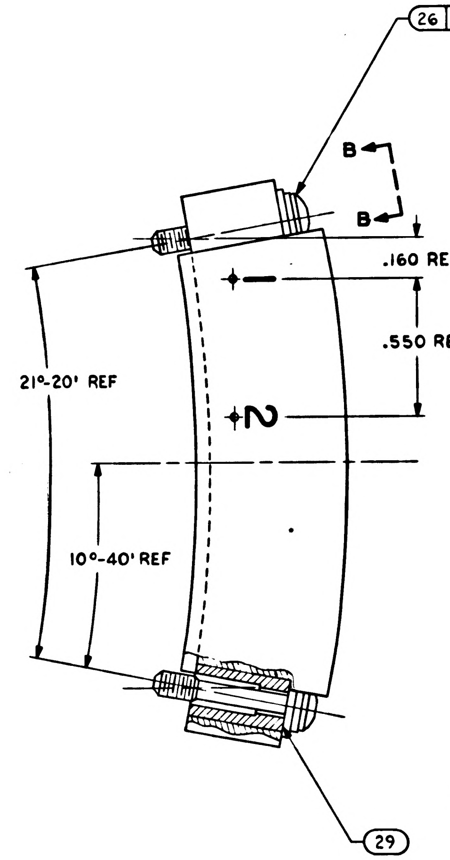
CODE IDENT NO. 83230
SIZE E
NASA DRAWING NO. 1007220
SCALE 1/1
WT ——
SHEET 1 OF 1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. *UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE IN ACCORDANCE WITH ND 1002069*
3. WELD PER ND-1002005.
4. BOND FIND NO. 19 TO FIND NO. 1 PER ND-1002004, TYPE I.
5. BOND FIND NO. 21 TO FIND NO. 1 PER ND-1002004, TYPE I.
6. BOND FIND NO. 20 TO FIND NO. 2 PER ND-1002004, TYPE I.
7. BOND FIND NO. 3 TO FIND NO. 1 AND FIND NO. 2 PER ND-1002004, TYPE I.
8. BOND FIND NO. 13 TO ADJACENT SURFACE PER ND-1002004, TYPE I.
9. AFTER WELDING ALL LEADS MUST EXTEND BEYOND RIBBON .010 MIN.
10. *MARK CHARACTER .100/.140 HIGH YELLOW PER ND 1002019 AND SERIALIZE PER ND 1002023 CENTRALIZE ON INDICATED SURFACES AS SHOWN*
11. R14 TO BE SELECTED *FROM SELECTION CHART*
12. COMPONENT LEADS (BOTH ENDS) OF R5, R6, AND R7 TO BE INSULATED WITH FIND NO. 25.
13. AR DENOTES AS REQUIRED.
14. SOLDER PER *ND 1002071, USING MIL QQ-S-571 COMPOSITION SN60*
15. ENCAPSULATE PER ND-1002106.
16. K DENOTES CATHODE SIDE OF DIODE.
17. *COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 1007022*
18. *DIP COAT PER ND 1002068 PRIOR TO ENCAPSULATION*

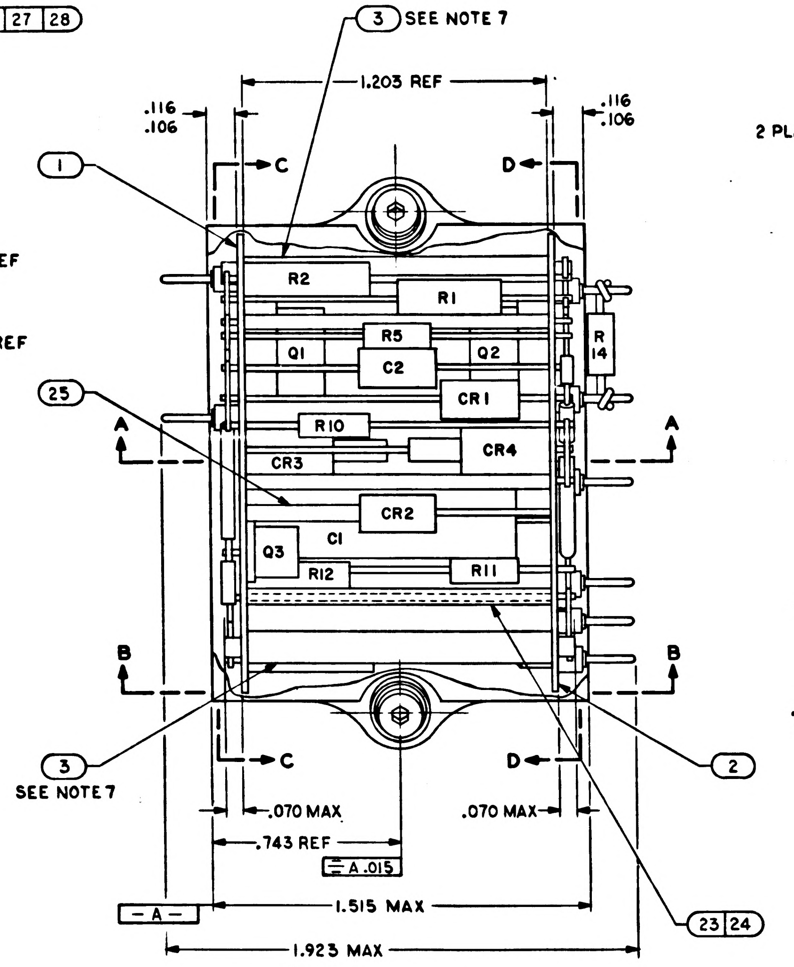
R14	
1010885-1	360 K
-2	390 K
-3	430 K
-4	470 K
-5	510 K
-6	560 K
-7	620 K
-8	680 K
-9	750 K
-10	820 K
-11	910 K
-12	1000 K
-13	1100 K
-14	1200 K
-15	1300 K
-16	1500 K

REVISIONS

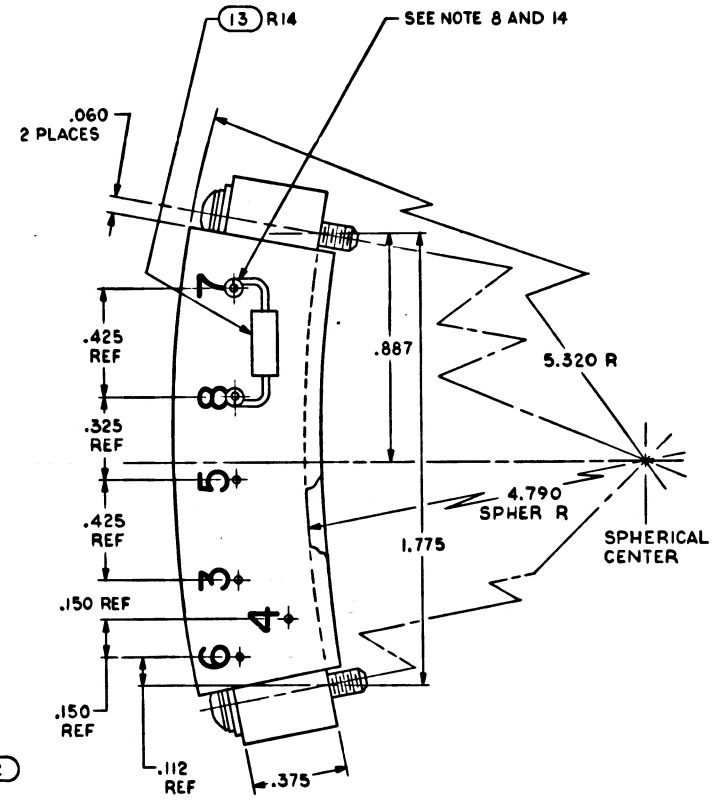
SYM	ZONE	DESCRIPTION		DATE	APPD
A		REVISED PER TDRR 16975	CHG NO	65	



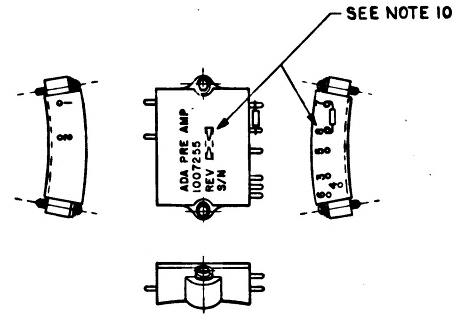
26
27
28
B
B
.160 REF
.550 REF
21°-20' REF
10°-40' REF
2
29



3 SEE NOTE 7
1.203 REF
.116
.106
.116
.106
1
C
D
R2
R1
R5
Q1
C2
Q2
R 14
CR1
25
R10
CR4
CR3
A
A
CR2
C1
Q3
R12
R11
B
B
3
SEE NOTE 7
C
D
2
.070 MAX
.070 MAX
.743 REF
A .015
1.515 MAX
A
1.923 MAX
23
24

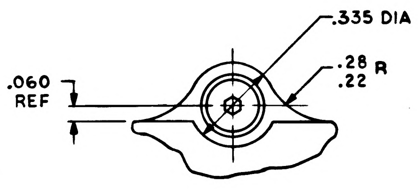


13 R14
SEE NOTE 8 AND 14
.060
2 PLACES
7
.425 REF
8
.887
5.320 R
.325 REF
5
4.790 SPHER R
SPHERICAL CENTER
.425 REF
3
1.775
.150 REF
4
6
.150 REF
.112 REF
.375



SEE NOTE 10
ADA PRE AMP
1007255
REV
S/N

MARKING VIEW
SCALE : 1/1



.335 DIA
.060 REF
.28
.22
R

PARTIAL VIEW B-B

					ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			☒		31	1010234	SCHEMATIC DIAGRAM, ELECT
			1		30	1010359-29	CAPACITOR, FIXED
			2		29	1008001-2	RETAINER, SCREW
			2		28	1008002-3	SCREW, EXT RELIEVED BODY
			2		27	MS35338-78	WASHER, LOCK
			2		26	MS15795-303	WASHER, FLAT
			AR		25	1006776-20	INSULATION, SLEEVING, ELECT
			AR		24	1006776-22	INSULATION, SLEEVING, ELECT
			AR		23	1006787-2	WIRE, ELECTRICAL, NICKEL, IRON
			AR		22	1006757-1	WIRE, ELECTRICAL, NICKEL, RECT
			1		21	1010397-001	TRANSISTOR
			1		20	1010345-1	TRANSISTOR
			1		19	1010252-001	TRANSISTOR
			2		18	1010265-12	DIODE
			1		17	1010372-1	DIODE
			1		16	1010372-20	DIODE
			1		15	1010320-13	CAPACITOR, FIXED
			1		14	1006755-57	CAPACITOR, FIXED
			1		13	1010885-1 THRU 16	RESISTOR, FIXED
			2		12	1010312-030	
			1		11	1006750-60	
			1		10	1010369-98	
			2		9	1006750-64	
			1		8	1010369-96	
			2		7	1006750-63	
			2		6	1010321-398	
			2		5	1010364-501	RESISTOR, FIXED
			8		4	1006784-59	TERMINAL FEEDTHRU
			2		3	1008030	SPACER
			1		2	1008292	WIRING BOARD, B
			1		1	1008291	WIRING BOARD, A
			011	EFFECTIVITY			
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

1000203	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-469

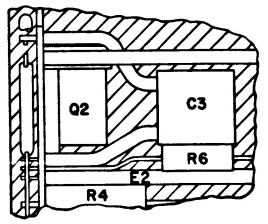
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN Grunewald DATE 28 JAN 65
CHECKED 1 FEB 65
APPROVAL Plummer 2 FEB 65
APPROVAL 2 FEB 65
NASA APPROVAL 2/1/65
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

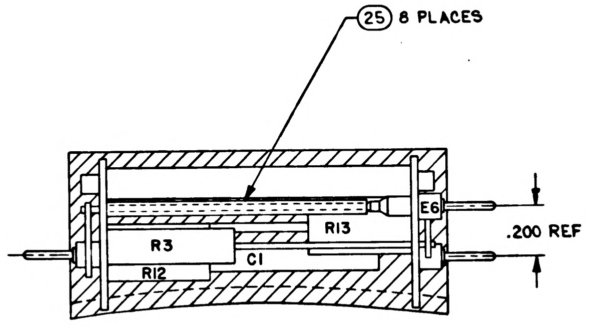
ADA PRE-AMPLIFIER ASSY
MIDDLE GIMBAL

CODE IDENT NO.
SIZE E
1007255
SCALE 4:1
SHEET 1 OF 2

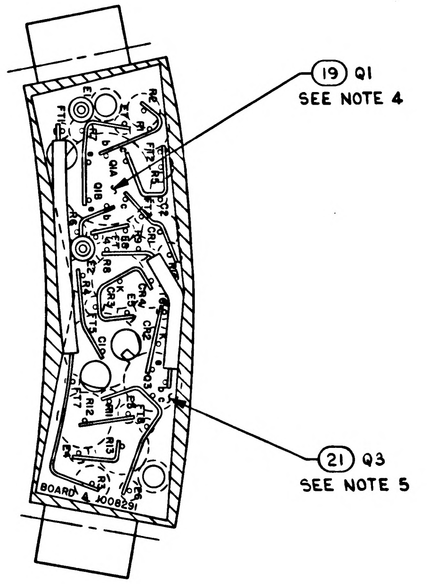
REVISIONS 16451					
SYM	ZONE	DESCRIPTION		DATE	APPD
A		REVISED PER TDRR 16975	CHG NO	25 MAR 65	


Q2
C3
R6
E2
R4

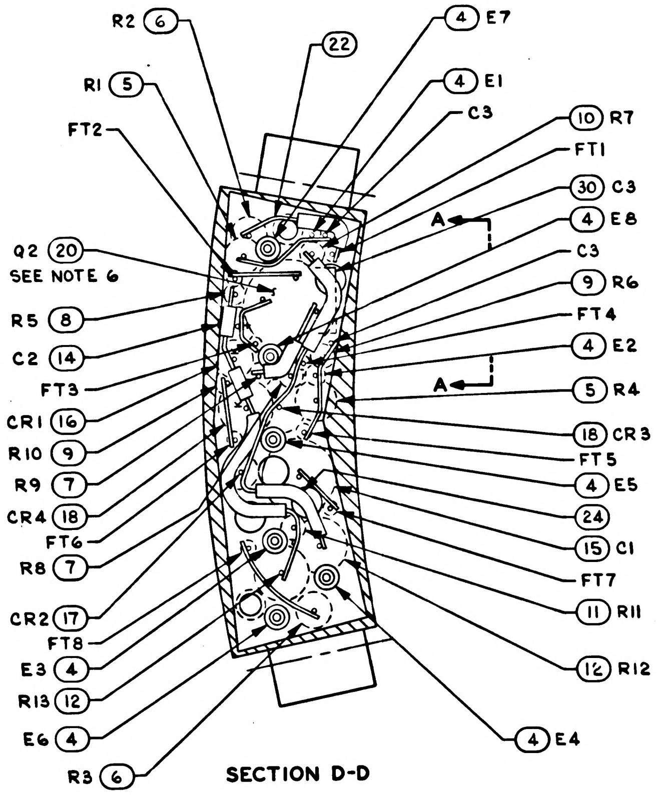
PARTIAL VIEW A-A


(25) 8 PLACES
E6
R13
.200 REF
R3
C1
R12

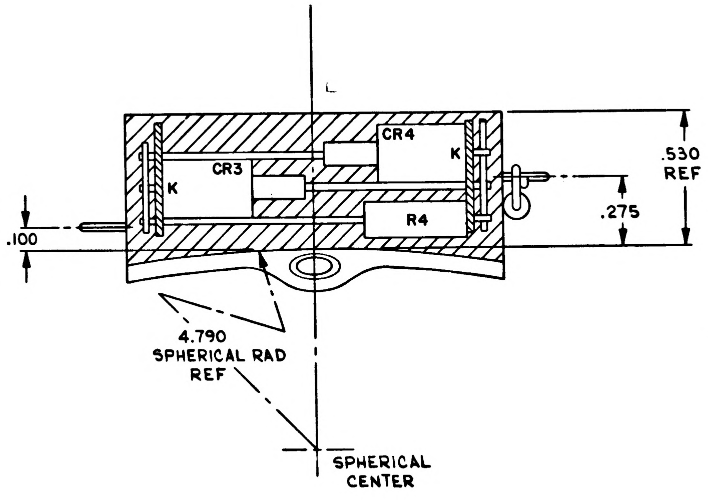
SECTION B-B


(19) Q1
SEE NOTE 4
(21) Q3
SEE NOTE 5
BOARD

SECTION C-C


R2 (6)
(22)
(4) E7
R1 (5)
(4) E1
C3
FT2
(10) R7
FT1
(30) C3
A
(4) E8
Q2 (20)
SEE NOTE 6
C3
(9) R6
R5 (8)
FT4
C2 (14)
(4) E2
FT3
A
(5) R4
CR1 (16)
(18) CR3
R10 (9)
FT5
R9 (7)
(4) E5
CR4 (18)
(24)
FT6
(15) C1
R8 (7)
FT7
(11) R11
CR2 (17)
FT8
(12) R12
E3 (4)
R13 (12)
E6 (4)
(4) E4
R3 (6)

SECTION D-D


CR4
CR3
K
K
.530
REF
.275
R4
.100
4.790
SPHERICAL RAD
REF
SPHERICAL
CENTER

SECTION A-A

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ± .005 ANGLES ± —	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
			ACSP PN		
			DRAWN J. [illegible] DATE 28 JAN 65	ADA PRE-AMPLIFIER ASSY MIDDLE GIMBAL	
			CHECKED [illegible] FEB 65		
			APPROVAL [illegible] 2 FEB 65		
		DO NOT SCALE THIS DRAWING	APPROVAL [illegible] 2 FEB 65		
		MATERIAL —	NASA APPROVAL [illegible]	CODE IDENT NO.	SIZE E 1007255
1000203					
NEXT ASSY	USED ON		MIT APPROVAL [illegible] 17 Feb 65		
APPLICATION		CONTRACT NAS9-469		SCALE 4:1	SHEET 2 OF 2

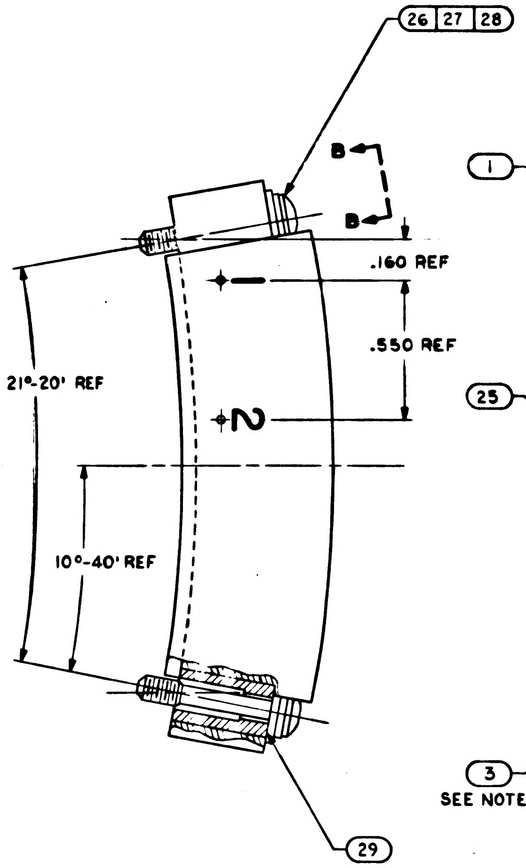
1007255

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE IN ACCORDANCE WITH ND 1002069
3. WELD PER ND-1002005.
4. BOND FIND NO. 19 TO FIND NO. 1 PER ND-1002004, TYPE I.
5. BOND FIND NO. 21 TO FIND NO. 1 PER ND-1002004, TYPE I.
6. BOND FIND NO. 20 TO FIND NO. 2 PER ND-1002004, TYPE I.
7. BOND FIND NO. 3 TO FIND NO. 1 AND FIND NO. 2 PER ND-1002004, TYPE I.
8. BOND FIND NO. 13 TO ADJACENT SURFACE PER ND-1002004, TYPE I.
9. AFTER WELDING ALL LEADS MUST EXTEND BEYOND RIBBON .010 MIN.
10. MARK CHARACTER .100/.140 HIGH YELLOW PER ND 1002019 AND SERIALIZE PER ND 1002023 CENTRALIZE ON INDICATED SURFACES AS SHOWN
11. R14 TO BE SELECTED FROM SELECTION CHART
12. COMPONENT LEADS (BOTH ENDS) OF R5, R6, AND R7 TO BE INSULATED WITH FIND NO. 25.
13. AR DENOTES AS REQUIRED.
14. SOLDER PER ND 1002071, USING MIL QQ-S-571 COMPOSITION SN60
15. ENCAPSULATE PER ND-1002106.
16. K DENOTES CATHODE SIDE OF DIODE.
17. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 1007022
18. DIP COAT PER ND 1002068 PRIOR TO ENCAPSULATION

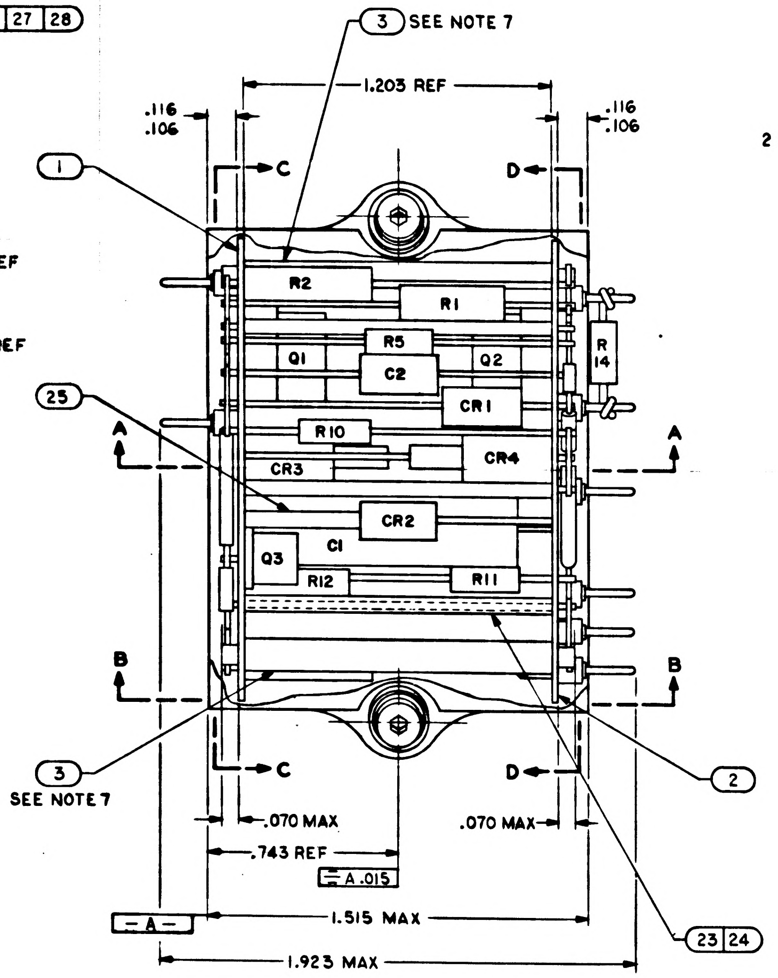
R14	
1010885-1	360K
-2	390K
-3	430K
-4	470K
-5	510K
-6	560K
-7	620K
-8	680K
-9	750K
-10	820K
-11	910K
-12	1000K
-13	1100K
-14	1200K
-15	1300K
-16	1500K

REVISIONS

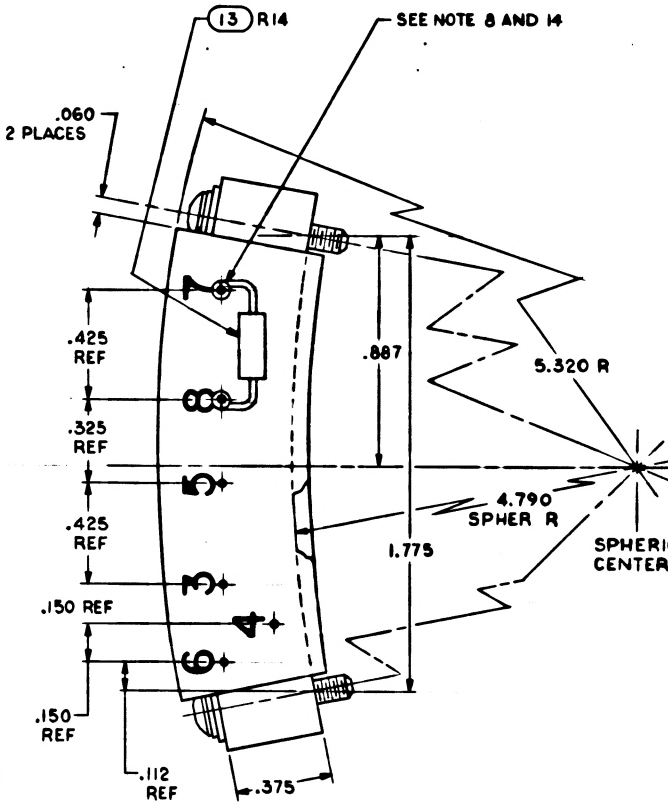
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
(n) A		REVISED PER TORR 16975		[illegible] 65	[illegible]
B		REVISED PER TORR 18107		9 APR 65	HTO / MEM



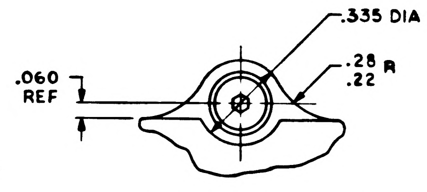
26 27 28
B
B
.160 REF
.550 REF
21°-20' REF
2
10°-40' REF
29



3 SEE NOTE 7
.116
.106
1.203 REF
.116
.106
C
D
1
R2
R1
R5
Q1
C2
Q2
R 14
25
CR1
R10
A
A
CR3
CR4
CR2
Q3
C1
R12
R11
B
B
3
SEE NOTE 7
C
D
2
.070 MAX
.070 MAX
.743 REF
A .015
A
1.515 MAX
1.923 MAX
23 24

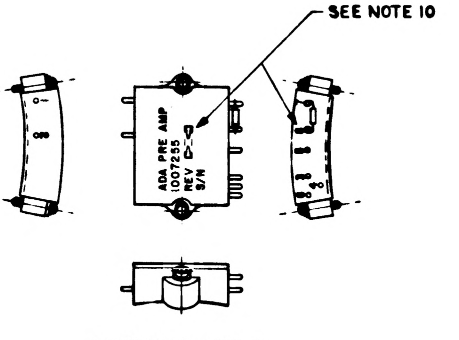


13 R14
SEE NOTE 8 AND 14
.060
2 PLACES
.425 REF
.887
5.320 R
.325 REF
.425 REF
4.790 SPHER R
SPHERICAL CENTER
1.775
.150 REF
.150 REF
.112 REF
.375
7
8
5
3
4
6



.335 DIA
.060 REF
.28
.22 R

PARTIAL VIEW B-B



SEE NOTE 10
ADA PRE AMP 1007255 REV S/N

MARKING VIEW
SCALE : 1/1

QUANTITY REQUIRED ON	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
2		32	1010829-012	DIODE
X		31	1010234	SCHEMATIC DIAGRAM, ELECT
1		30	1010359-29	CAPACITOR, FIXED
2		29	1008001-2	RETAINER, SCREW
2		28	1008002-3	SCREW, EXT RELIEVED BODY
2		27	MS35338-78	WASHER, LOCK
2		26	MS15795-303	WASHER, FLAT
AR		25	1006776-20	INSULATION, SLEEVING, ELECT
AR		24	1006776-22	INSULATION, SLEEVING, ELECT
AR		23	1006787-2	WIRE, ELECTRICAL, NICKEL, IRON
AR		22	1006757-1	WIRE, ELECTRICAL, NICKEL, RECT
1		21	1010397-001	TRANSISTOR
1		20	1010345-1	TRANSISTOR
1		19	1010252-001	TRANSISTOR
~~2~~		18	~~1010265-12~~	~~DIODE~~
1		17	1010372-1	DIODE
1		16	1010372-20	DIODE
1		15	1010320-13	CAPACITOR, FIXED
1		14	1006755-57	CAPACITOR, FIXED
1		13	1010885-1 THRU 16	RESISTOR, FIXED
2		12	1010312-030	
1		11	1006750-60	
1		10	1010369-98	
2		9	1006750-64	
1		8	1010369-96	
2		7	1006750-63	
2		6	1010321-398	
2		5	1010364-501	RESISTOR, FIXED
8		4	1006784-59	TERMINAL FEEDTHRU
2		3	1008030	SPACER
1		2	1008292	WIRING BOARD, B
1		1	1008291	WIRING BOARD, A

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
1000203	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-469

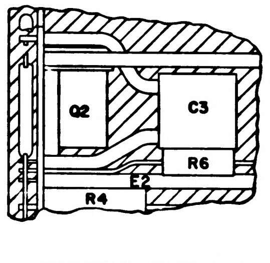
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN Grunewald DATE 28 JAN 65
CHECKED [illegible] 1 FEB 65
APPROVAL [illegible] 2 FEB 65
APPROVAL [illegible] 2 FEB 65
NASA APPROVAL [illegible] 2/17/65
MIT APPROVAL [illegible] 17 Feb

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ADA PRE-AMPLIFIER ASSY
MIDDLE GIMBAL

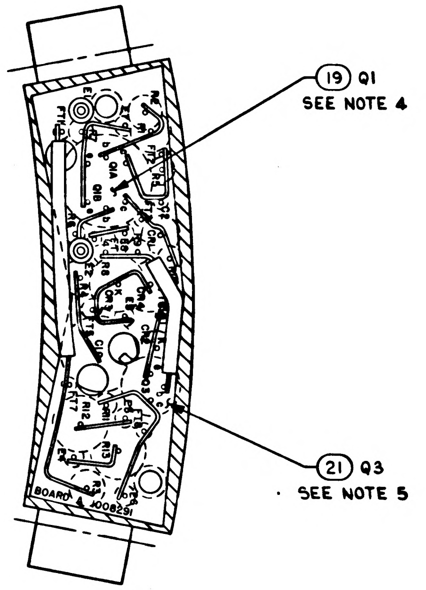
CODE IDENT NO
SIZE E
1007255
SCALE 4:1
SHEET 1 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TCRR 16975		[illegible]	[illegible]
B		REVISED PER TCRR 18.07		9 APR 65	[illegible]



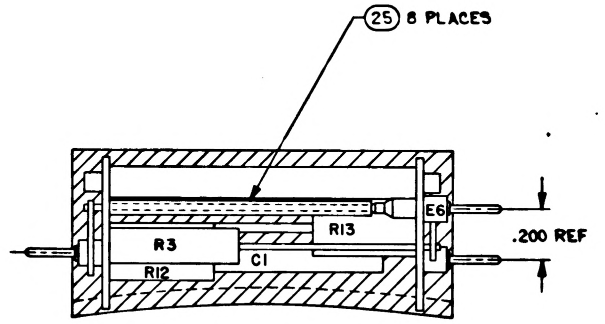
Q2
C3
R6
E2
R4

PARTIAL VIEW A-A



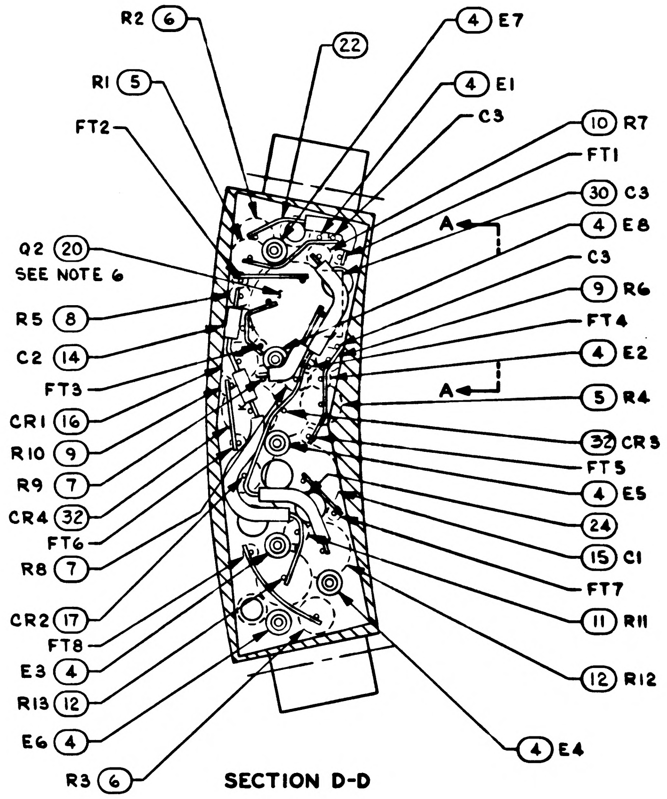
(19) Q1
SEE NOTE 4
(21) Q3
SEE NOTE 5
BOARD 1008251

SECTION C-C



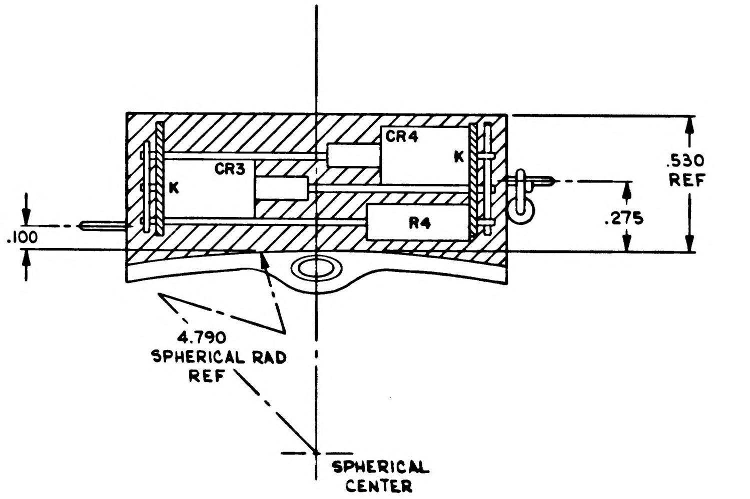
(25) 8 PLACES
E6
R13
R3
R12
C1
.200 REF

SECTION B-B



R2 (6)
R1 (5)
FT2
(22)
(4) E7
(4) E1
C3
(10) R7
FT1
(30) C3
(4) E8
A
C3
(9) R6
FT4
(4) E2
A
(5) R4
(32) CR5
FT5
(4) E5
(24)
(15) C1
FT7
(11) R11
(12) R12
(4) E4
Q2 (20)
SEE NOTE 6
R5 (8)
C2 (14)
FT3
CR1 (16)
R10 (9)
R9 (7)
CR4 (32)
FT6
R8 (7)
CR2 (17)
FT8
E3 (4)
R13 (12)
E6 (4)
R3 (6)

SECTION D-D



CR4
K
CR3
K
R4
.530 REF
.275
.100
4.790 SPHERICAL RAD REF
SPHERICAL CENTER

SECTION A-A

1000203	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± .005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-469

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN J. [illegible] DATE 28 JAN 65
CHECKED [illegible] FEB 65
APPROVAL [illegible] 2 FEB 65
APPROVAL [illegible] 2 FEB 65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

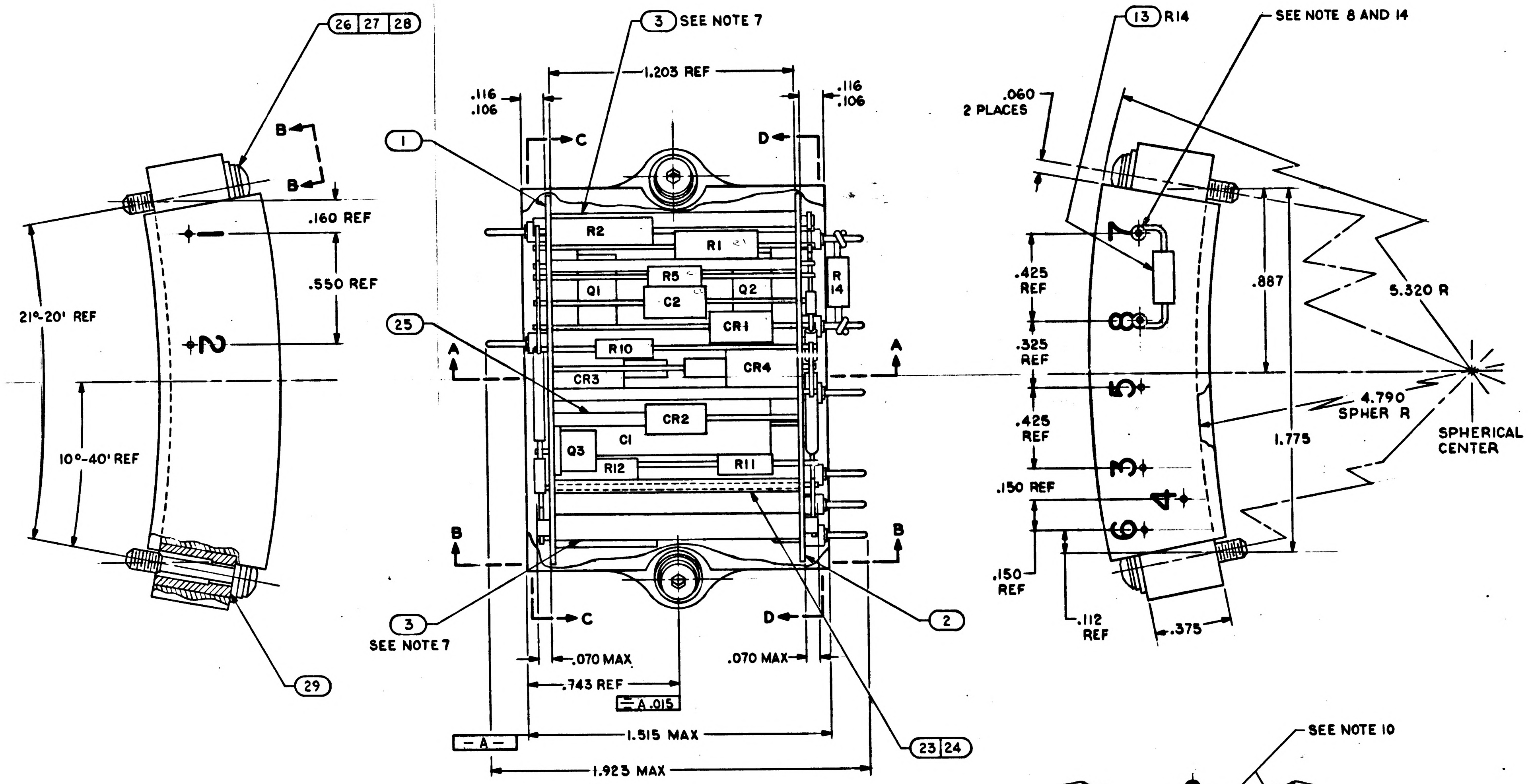
ADA PRE-AMPLIFIER ASSY
MIDDLE GIMBAL

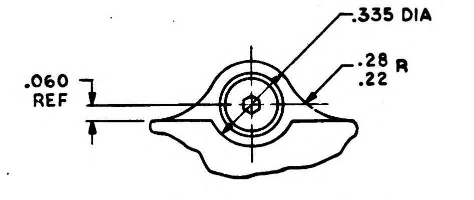
CODE IDENT NO.
SIZE E
1007255
SCALE 4:1
SHEET 2 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.

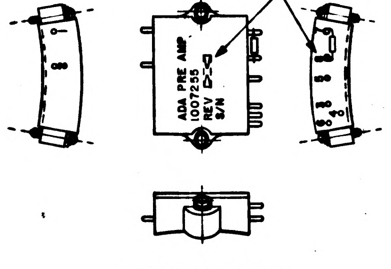
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. *UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE IN ACCORDANCE WITH ND 1002069*
3. WELD PER ND-1002005.
4. BOND FIND NO. 19 TO FIND NO. 1 PER ND-1002004, TYPE I.
5. BOND FIND NO. 21 TO FIND NO. 1 PER ND-1002004, TYPE I.
6. BOND FIND NO. 20 TO FIND NO. 2 PER ND-1002004, TYPE I.
7. BOND FIND NO. 3 TO FIND NO. 1 AND FIND NO. 2 PER ND-1002004, TYPE I.
8. BOND FIND NO. 13 TO ADJACENT SURFACE PER ND-1002004, TYPE I.
9. AFTER WELDING ALL LEADS MUST EXTEND BEYOND RIBBON .010 MIN.
10. *MARK CHARACTER .100/.140 HIGH YELLOW PER ND 1002019 AND SERIALIZE PER ND 1002023 CENTRALIZE ON INDICATED SURFACES AS SHOWN*
11. R14 TO BE SELECTED *FROM SELECTION CHART*
12. COMPONENT LEADS (BOTH ENDS) OF R5, R6, AND R7 TO BE INSULATED WITH FIND NO. 25.
13. AR DENOTES AS REQUIRED.
14. *SOLDER PER ND 1002071, USING MIL QQ-S-571 COMPOSITION SN60*
15. ENCAPSULATE PER ND-1002106.
16. K DENOTES CATHODE SIDE OF DIODE.
17. *COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 1007022*
18. *DIP COAT PER ND 1002068 PRIOR TO ENCAPSULATION*

R14	
1010369-94	360 K
-95	390 K
-96	430 K
-97	470 K
-98	510 K
-99	560 K
-100	620 K
-101	680 K
-102	750 K
-103	820 K
-104	910 K
-105	1000 K
-106	1100 K
-107	1200 K
-108	1300 K
-109	1500 K


26 27 28
B
B
.160 REF
.550 REF
21°-20' REF
2
10°-40' REF
29
3 SEE NOTE 7
1.203 REF
.116
.106
.116
.106
C
D
1
R2
R1
R5
Q1
C2
Q2
R14
CR1
25
R10
CR4
CR3
A
A
CR2
C1
Q3
R12
R11
B
B
3
SEE NOTE 7
C
D
2
.070 MAX
.070 MAX
.743 REF
A .015
1.515 MAX
A
1.923 MAX
23 24
13 R14
SEE NOTE 8 AND 14
.060
2 PLACES
7
8
5
3
4
6
.425 REF
.325 REF
.425 REF
.150 REF
.150 REF
.887
1.775
5.320 R
4.790 SPHER R
SPHERICAL CENTER
.112 REF
.375


.335 DIA
.060 REF
.28
.22 R

PARTIAL VIEW B-B


SEE NOTE 10
ADA PRE AMP
1007255
REV
S/N

MARKING VIEW
SCALE : 1/1

QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
X		31	1010234	SCHEMATIC DIAGRAM, ELECT
1		30	1010359-29	CAPACITOR, FIXED
2		29	1008001-2	RETAINER, SCREW
2		28	1008002-3	SCREW, EXT RELIEVED BODY
2		27	MS35338-78	WASHER, LOCK
2		26	MS15795-303	WASHER, FLAT
AR		25	1006776-20	INSULATION, SLEEVING, ELECT
AR		24	1006776-22	INSULATION, SLEEVING, ELECT
AR		23	1006787-2	WIRE, ELECTRICAL, NICKEL, IRON
AR		22	1006757-1	WIRE, ELECTRICAL, NICKEL, RECT
1		21	1010397-001	TRANSISTOR
1		20	1010345-1	TRANSISTOR
1		19	1010252-001	TRANSISTOR
2		18	1010265-12	DIODE
1		17	1010372-1	DIODE
1		16	1010372-20	DIODE
1		15	1010320-13	CAPACITOR, FIXED
1		14	1006755-57	CAPACITOR, FIXED
1		13	1010369-NE	RESISTOR, FIXED
2		12	1010312-030	↕
1		11	1006750-60	↕
1		10	1010369-98	↕
2		9	1006750-64	↕
1		8	1010369-96	↕
2		7	1006750-63	↕
2		6	1010321-398	↕
2		5	1010364-501	RESISTOR, FIXED
8		4	1006784-59	TERMINAL FEEDTHRU
2		3	1008030	SPACER
1		2	1008292	WIRING BOARD, B
1		1	1008291	WIRING BOARD, A

LIST OF PARTS AND MATERIALS

1007255

NEXT ASSY	USED ON
1000203	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-469

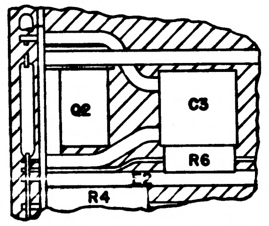
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN Grunewald DATE 28 JAN 65
CHECKED 1 FEB 65
APPROVAL 2 FEB 65
APPROVAL 2 FEB 65
NASA APPROVAL 2/10/65
MIT APPROVAL W Kupfer 17 Feb

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

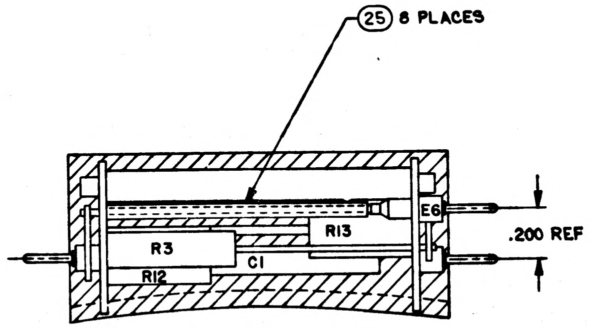
ADA PRE-AMPLIFIER ASSY
MIDDLE GIMBAL

CODE IDENT NO.
SIZE E
1007255
SCALE 4:1
SHEET 1 OF 2

SYM	ZONE	REVISIONS 16401 DESCRIPTION	CHG NO.	DATE	APPD.

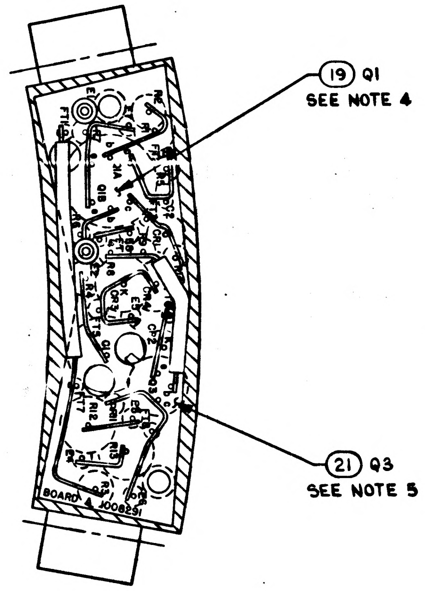


PARTIAL VIEW A-A



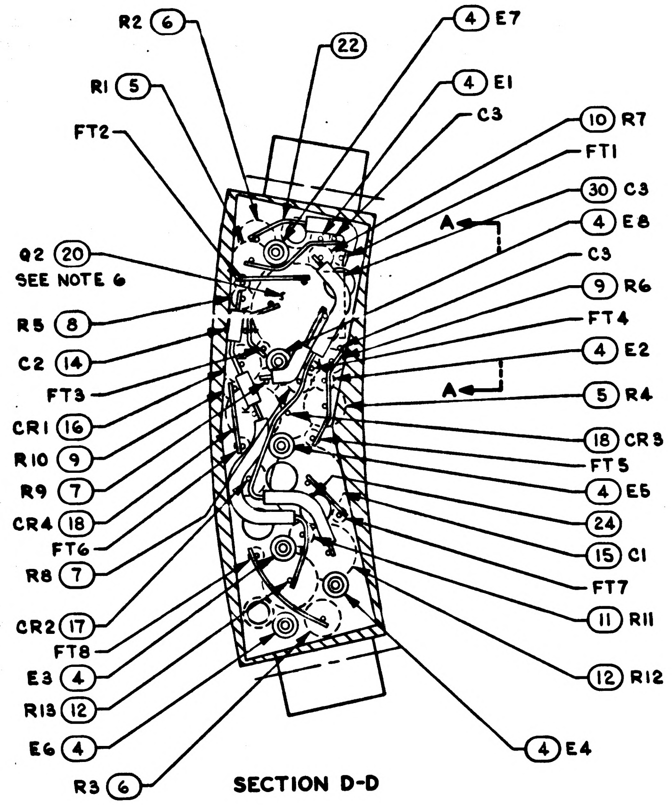
25 8 PLACES
E6
R13
R3
C1
R12
.200 REF

SECTION B-B



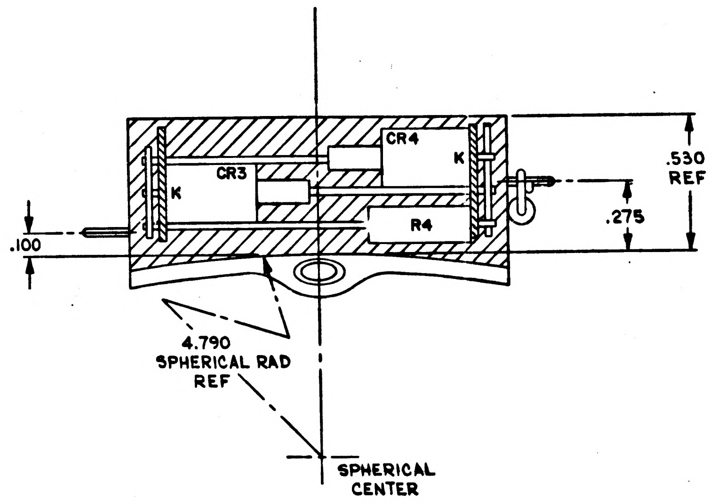
19 Q1
SEE NOTE 4
21 Q3
SEE NOTE 5
BOARD & 1008251

SECTION C-C



R2 6
R1 5
FT2
Q2 20
SEE NOTE 6
R5 8
C2 14
FT3
CR1 16
R10 9
R9 7
CR4 18
FT6
R8 7
CR2 17
FT8
E3 4
R13 12
E6 4
R3 6
22
4 E7
4 E1
C3
10 R7
FT1
30 C3
4 E8
C3
9 R6
FT4
4 E2
5 R4
18 CR3
FT5
4 E5
24
15 C1
FT7
11 R11
12 R12
4 E4
A
A

SECTION D-D



CR4
K
CR3
K
R4
.530 REF
.275
.100
4.790 SPHERICAL RAD REF
SPHERICAL CENTER

SECTION A-A

1000203	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± .005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-469

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN J. Huttenga DATE 28 JAN 65
CHECKED FEB 65
APPROVAL 2 FEB 65
APPROVAL 2 FEB 65
NASA APPROVAL 2/4/65
MIT APPROVAL 17 FEB 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

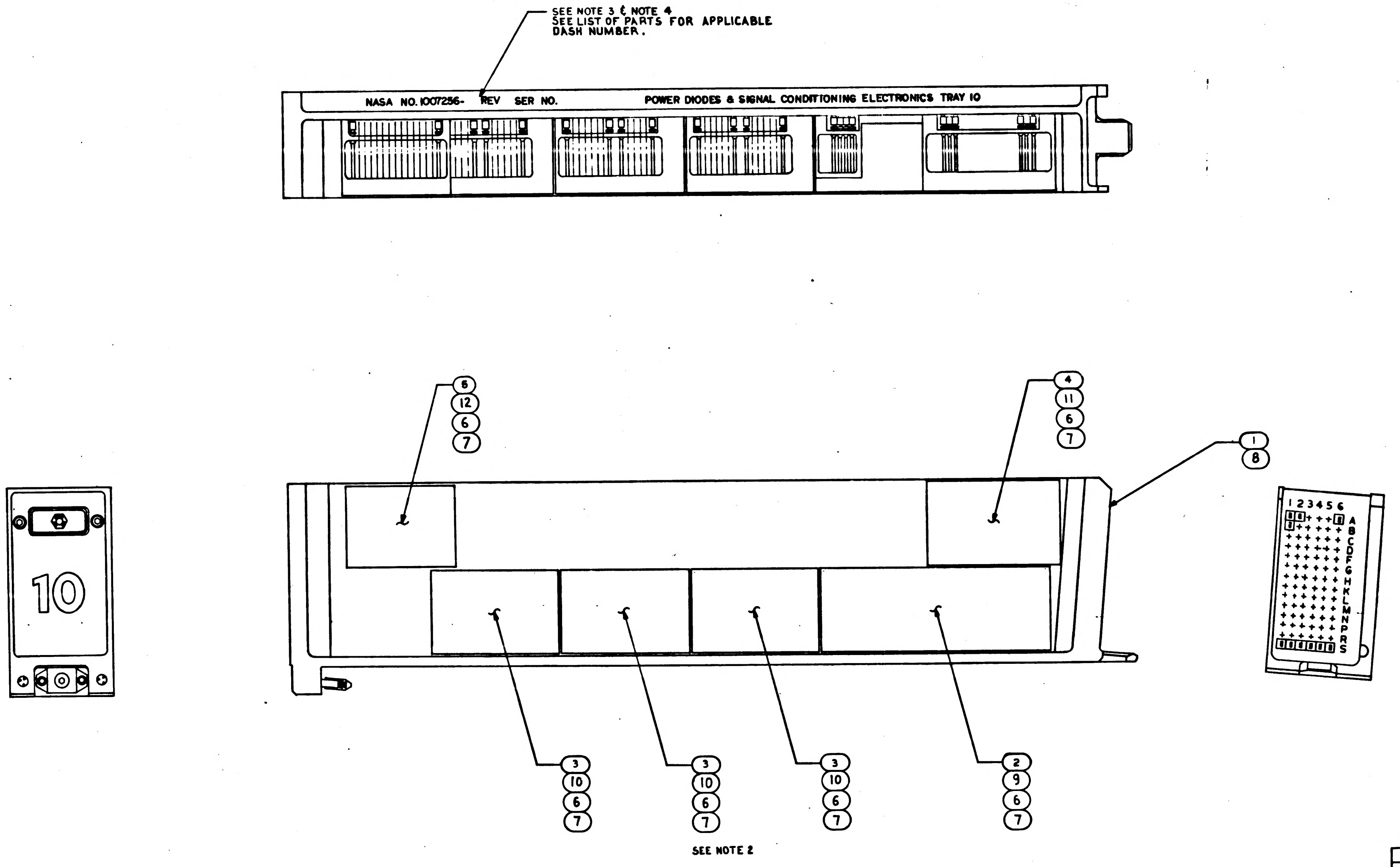
ADA PRE-AMPLIFIER ASSY
MIDDLE GIMBAL

CODE IDENT NO.
SIZE E
1007255
SCALE 4:1
SHEET 2 OF 2

1007255

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		Ⓐ REVISED PER D.C. 58912		25 JAN 65	GM
B	–	REVISED PER D060044	–	22 FEB 65	

REVISIONS TDRR 19032


SEE NOTE 3 & NOTE 4
SEE LIST OF PARTS FOR APPLICABLE DASH NUMBER.
NASA NO. 1007256- REV SER NO.
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
10
6 12 6 7
4 11 6 7
1 8
1 2 3 4 5 6
A B C D E F G H J K L M N P R S
3 10 6 7
3 10 6 7
3 10 6 7
2 9 6 7

SEE NOTE 2

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MOUNTING TORQUE TO SECURE (2) (3) (4) & (5) TO (1) TO BE 25-30 IN. LB., AND (9) (10) (11) & (12) TO (8).
3. SERIALIZE AND MARK (WHITE) .10-.14 HIGH PER ND1002023.
4. MARK (WHITE) .10-.14 HIGH PER ND 1002019.
5. APPLY THERMAL GREASE 1006879 TO THE HEATSINK PORTION OF THE MOUNTING FACE OF ALL MODULES.

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
		021	011				
		1			13	1006879	THERMAL GREASE
		1			12	1007525-011	POWER SUPPLY MODULE ASSY
		1			11	1007591-011	800 CPS COMPENSATION
		3			10	1007590-011	G&N SUB-SYS SUPPLY FILTER
		1			9	1007438-011	AMPLIFIER, 5%, 800 CPS
		1			8	1007258-021	FRAME ASSEMBLY
		18	18		7	MS 15795-805	WASHER, FLAT
		18	18		6	NAS 1352-06-8	SCREW, CAP, SOCKET HEAD
			1		5	1007125	POWER SUPPLY MODULE ASSY
			1		4	1007095	800 CPS COMPENSATION
			3		3	1007090	G&N SUB-SYS SUPPLY FILTER
			1		2	1007048	AMPLIFIER, 5%, 800 CPS
			1		1	1007258-011	FRAME ASSEMBLY

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
1007257	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

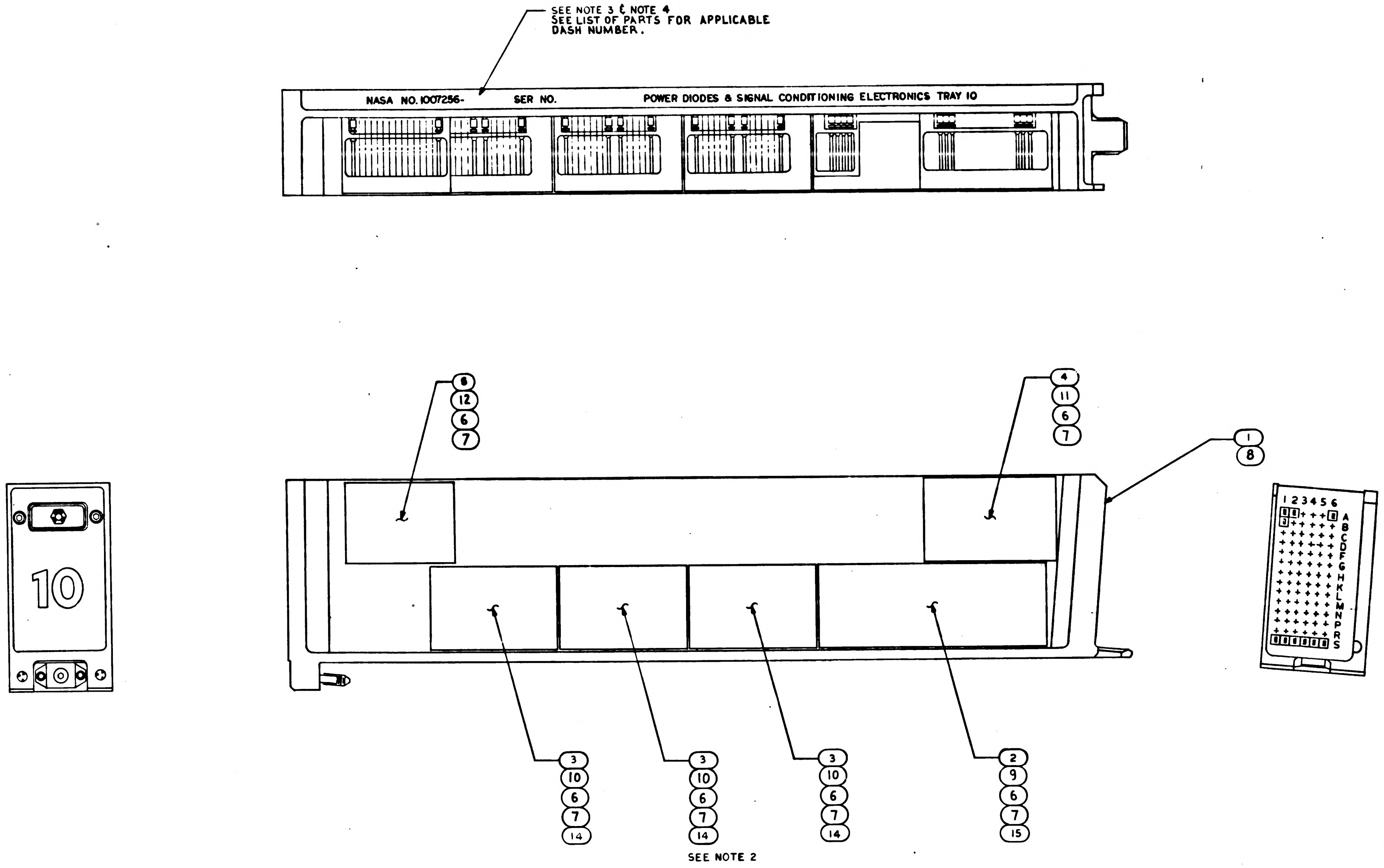
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN 31 Jul 64 DATE
CHECKED 26 AUG 64
APPROVAL 26 Aug 64
APPROVAL 4/9/65
NASA APPROVAL 5-13-65
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

POWER DIODES &
SIGNAL CONDITIONING
ELECTRONICS ASSEMBLY
TRAY 10

CODE IDENT NO. SIZE E 1007256
SCALE FULL SHEET 1 OF 1

REVISIONS ~~TDRR 19032~~					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		Ⓐ REVISED PER DC 58912		15 JAN 65	GM
B	–	REVISED PER DO60044	–	22 FEB 65	
C		REVISED PER TDRR 25362		26 JAN 66	K



SEE NOTE 3 & NOTE 4
SEE LIST OF PARTS FOR APPLICABLE DASH NUMBER.
NASA NO. 1007256-
SER NO.
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
10
8 12 6 7
4 11 6 7
1 8
1 2 3 4 5 6
A B C D E F G H K L M N P R S
3 10 6 7 14
3 10 6 7 14
3 10 6 7 14
2 9 6 7 15
SEE NOTE 2

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MOUNTING TORQUE TO SECURE ② ③ ④ & ⑤ TO ① TO BE 25-30 IN. LB., AND ⑨ ⑩ ⑪ ⑫ ⑭ AND ⑮ TO ⑧.
3. SERIALIZE AND MARK (WHITE) .10-.14 HIGH PER ND1002023.
4. MARK (WHITE) .10-.14 HIGH PER ND 1002019.
5. APPLY THERMAL GREASE 1006879 TO THE HEATSINK PORTION OF THE MOUNTING FACE OF ALL MODULES.

1				15	1007548-011	AMPLIFIER, 5% 800 CPS
3				14	1007590-021	G & N SUB-SYSTEM SUPPLY FILTER
1	1		~~GEN20~~	13	1006879	THERMAL GREASE
1	1		~~GEN17~~	12	1007525-011	POWER SUPPLY MODULE ASSY
1	1			11	1007591-011	800 CPS COMPENSATION
	3			10	1007590-011	G & N SUB-SYS SUPPLY FILTER
	1			9	1007438-011	AMPLIFIER, 5%, 800 CPS
1	1			8	1007258-021	FRAME ASSEMBLY
18	18	18	~~GEN16~~	7	MS 15795-805	WASHER, FLAT
18	18	18		6	NAS 1352-06-8	SCREW, CAP, SOCKET HEAD
		1		5	1007125	POWER SUPPLY MODULE ASSY
		1		4	1007095	800 CPS COMPENSATION
		3		3	1007090	G & N SUB-SYS SUPPLY FILTER
		1		2	1007048	AMPLIFIER, 5%, 800 CPS
		1		1	1007258-011	FRAME ASSEMBLY
031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
QUANTITY REQUIRED				LIST OF PARTS AND MATERIALS		

1007257	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

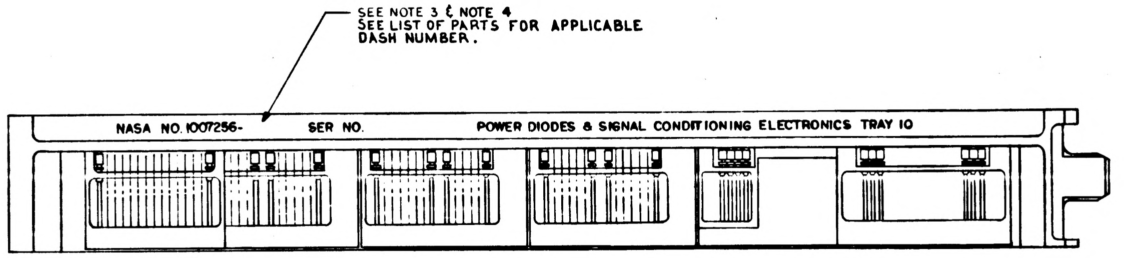
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN G. M. Kulp DATE 31 Jun 64
CHECKED A. Udovich 26 AUG 64
APPROVAL R. Young 26 AUG 64
APPROVAL 4/9/65
NASA APPROVAL 5-12-65
MIT APPROVAL 12 Aug 65

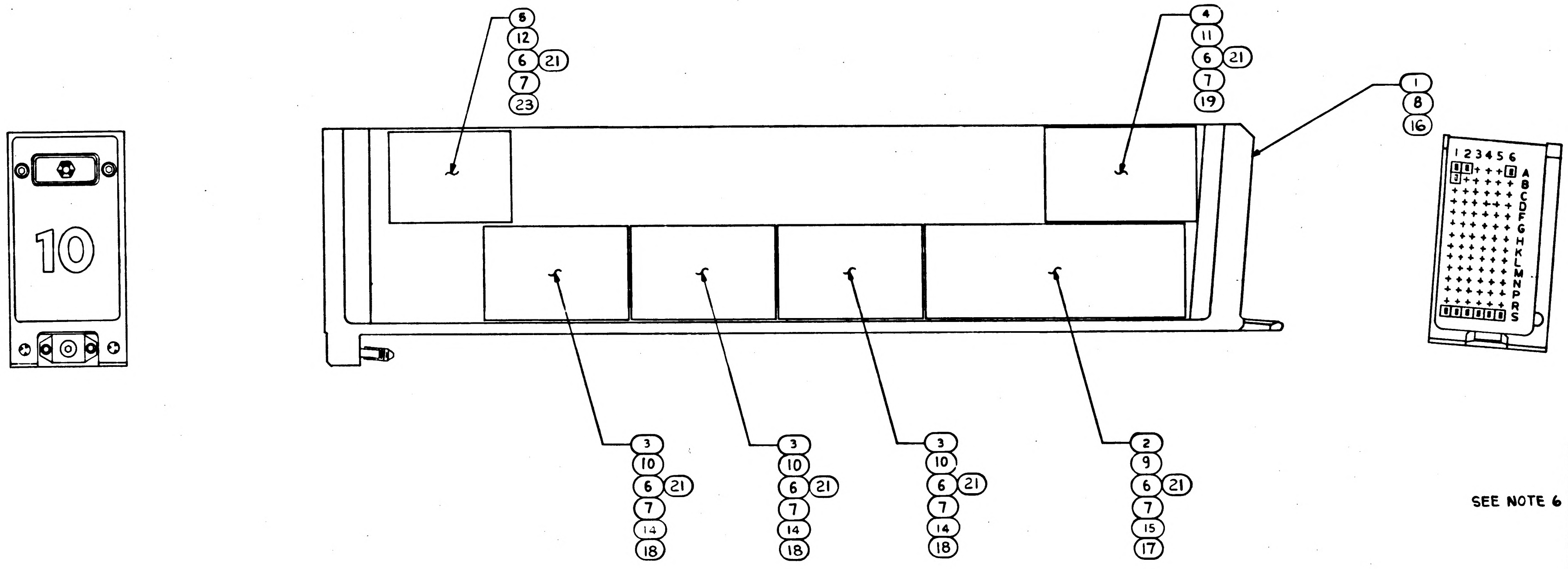
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

POWER DIODES & SIGNAL CONDITIONING ELECTRONICS ASSEMBLY TRAY 10

CODE IDENT NO.
SIZE E
1007256
SCALE FULL
SHEET 1 OF 1

REVISIONS TDRR [illegible]					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		Ⓐ REVISED PER D.O 58912		15 JAN 65	GM
B	-	REVISED PER DO60044	-	22 FEB 65	
C		REVISED PER TDRR 25362		26 JAN 66	
D		REVISED PER TDRR 26410		1 MAR	


SEE NOTE 3 & NOTE 4
SEE LIST OF PARTS FOR APPLICABLE DASH NUMBER.
NASA NO. 1007256-
SER NO.
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10



SEE NOTE 6

QUANTITY REQUIRED							
041	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
1					23	1007525-021	POWER SUPPLY MODULE ASSY
AR					22	SEE NOTE 6	MOISTURE-PROOFING
18					21	1008861-018	SCREW, CAP, SOCKET HEAD
AR					20	1006879	SILICONE COMPOUND
1					19	1007591-021	800 CPS COMPENSATION
3					18	1007590-031	G&N SUB-SYSTEM SUPPLY FILTER
1					17	1007548-021	AMPLIFIER, 5% 800 CPS
1					16	1007558-031	FRAME ASSEMBLY
	1				15	1007548-011	AMPLIFIER, 5% 800 CPS
	3				14	1007590-021	G&N SUB-SYSTEM SUPPLY FILTER
	1	1		~~G&N20~~	13	1006879	THERMAL GREASE
	1	1		~~G&N17~~	12	1007525-011	POWER SUPPLY MODULE ASSY
	1	1			11	1007591-011	800 CPS COMPENSATION
		3			10	1007590-011	G&N SUB-SYS SUPPLY FILTER
		1			9	1007438-011	AMPLIFIER, 5%, 800 CPS
	1	1			8	1007258-021	FRAME ASSEMBLY
18	18	18	18	~~G&N6~~	7	MS 15795-805	WASHER, FLAT
	18	18	18		6	NAS 1352-06-8	SCREW, CAP, SOCKET HEAD
			1		5	1007125	POWER SUPPLY MODULE ASSY
			1		4	1007095	800 CPS COMPENSATION
			3		3	1007090	G&N SUB-SYS SUPPLY FILTER
			1		2	1007048	AMPLIFIER, 5%, 800 CPS
			1		1	1007258-011	FRAME ASSEMBLY

LIST OF PARTS AND MATERIALS

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MOUNTING TORQUE TO SECURE ② THRU ⑤, ⑨ THRU ⑫, ⑭, ⑮, ⑰, ⑱, ⑲ AND ㉓ TO ①, ⑧ OR ⑯ AS APPLICABLE TO BE 25 TO 30 INCH LBS.
3. SERIALIZE AND MARK (WHITE) .10-.14 HIGH PER ND1002023.
4. MARK (WHITE) .10-.14 HIGH PER ND 1002019.
5. APPLY THERMAL GREASE 1006879 TO THE HEATSINK PORTION OF THE MOUNTING FACE OF ALL MODULES.
6. APPLY A THIN LAYER OF THERMAL SILICONE COMPOUND FIND NO. ⑳ TO THE MODULE MOUNTED CAVITY PAINTED SURFACES AND THE HEATSINK PORTION OF THE MOUNTING FACE OF ALL MODULES.

APPLICATION	
NEXT ASSY	USED ON
1007257	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN C. M. Kufs DATE 31 Jul 64
CHECKED A. Ulorich 26 AUG 64
APPROVAL 26 AUG 64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

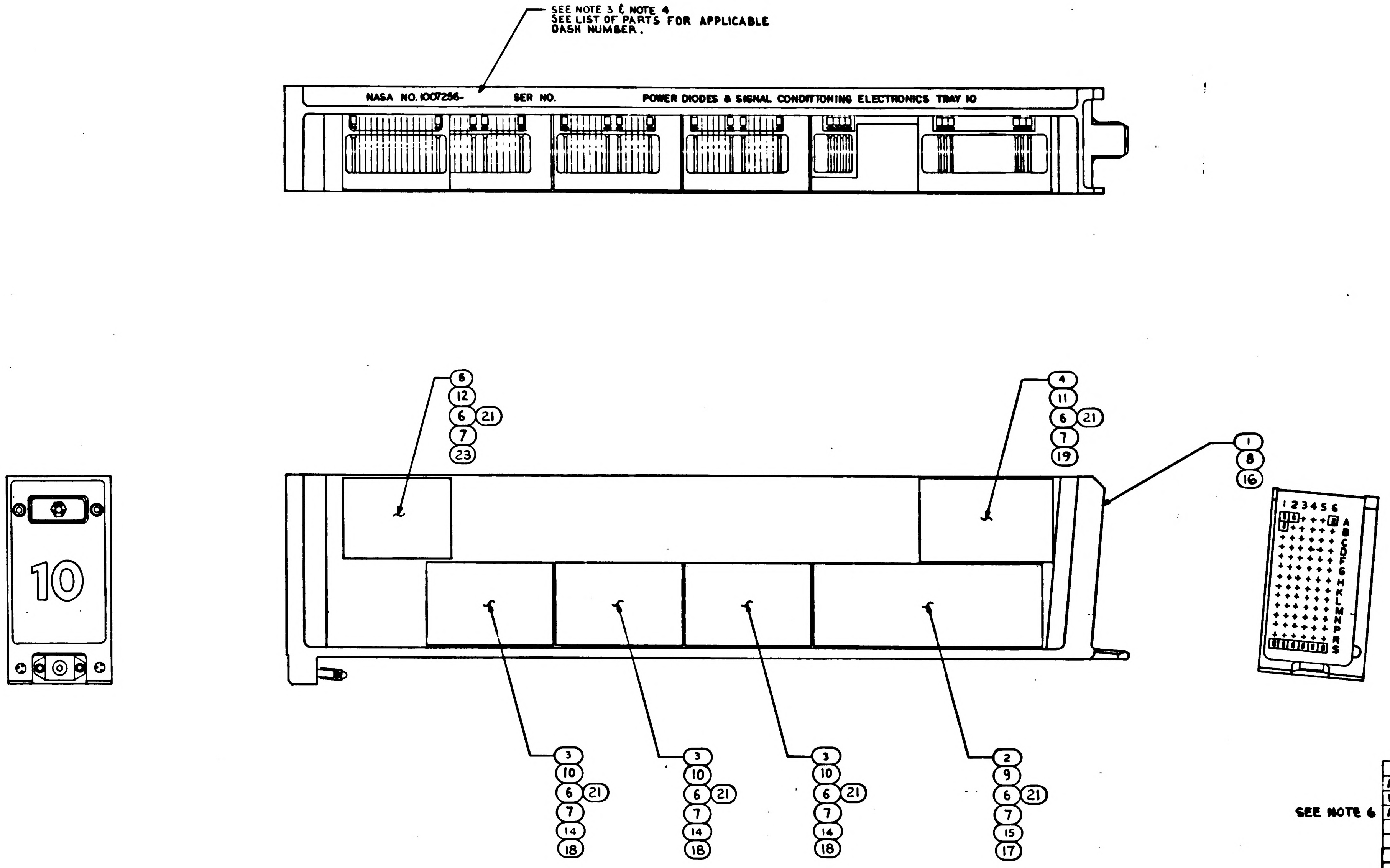
POWER DIODES &
SIGNAL CONDITIONING
ELECTRONICS ASSEMBLY
TRAY 10

CODE IDENT NO.
SIZE E
1007256
SCALE FULL
SHEET 1 OF 1

1H

1H

REVISIONS ~~TDRR 19032~~					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		Ⓐ REVISED PER DC 58912		25 JAN 65	GM
B	–	REVISED PER DO60044	–	22 FEB 65	
C		REVISED PER TDRR 25362		26	LK
D		REVISED PER TDRR 26410		1 MAR	
E		REVISED PER TDRR 33184			LEE


SEE NOTE 3 & NOTE 4
SEE LIST OF PARTS FOR APPLICABLE DASH NUMBER.
NASA NO. 1007256- SER NO. POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
10
⑤ ⑫ ⑥ ㉑ ⑦ ㉓
④ ⑪ ⑥ ㉑ ⑦ ⑲
① ⑧ ⑯
1 2 3 4 5 6
A B C D E F G H J K L M N P R S
③ ⑩ ⑥ ㉑ ⑦ ⑭ ⑱
③ ⑩ ⑥ ㉑ ⑦ ⑭ ⑱
③ ⑩ ⑥ ㉑ ⑦ ⑭ ⑱
② ⑨ ⑥ ㉑ ⑦ ⑮ ⑰

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MOUNTING TORQUE TO SECURE ② THRU ⑤, ⑨ THRU ⑫, ⑭, ⑮, ⑰, ⑱, ⑲ AND ㉓ TO ①, ⑧ OR ⑯ AS APPLICABLE TO BE 25 TO 30 INCH LBS.
3. SERIALIZE AND MARK (WHITE) .10-.14 HIGH PER ND1002023.
4. MARK (WHITE) .10-.14 HIGH PER ND 1002019.
5. APPLY THERMAL GREASE 1006879 TO THE HEATSINK PORTION OF THE MOUNTING FACE OF ALL MODULES.
6. APPLY A THIN LAYER OF THERMAL SILICONE COMPOUND FIND NO. ⑳ TO THE MODULE MOUNTED CAVITY PAINTED SURFACES AND THE HEATSINK PORTION OF THE MOUNTING FACE OF ALL MODULES.

SEE NOTE 6

041	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
1					23	1007525-021	POWER SUPPLY MODULE ASSY
AR					22	SEE NOTE 6	MOISTURE-PROOFING
18					21	1008861-018	SCREW, CAP, SOCKET HEAD
AR					20	1006879	SILICONE COMPOUND
1					19	1007591-021	800 CPS COMPENSATION
3					18	1007590-031	G&N SUB-SYSTEM SUPPLY FILTER
1					17	1007548-021	AMPLIFIER, 5% 800 CPS
1					16	1007258-031	FRAME ASSEMBLY
	1				15	1007548-011	AMPLIFIER, 5% 800 CPS
	3				14	1007590-021	G&N SUB-SYSTEM SUPPLY FILTER
	1	1			13	1006879	THERMAL GREASE
	1	1			12	1007525-011	POWER SUPPLY MODULE ASSY
	1	1			11	1007591-011	800 CPS COMPENSATION
		3			10	1007590-011	G&N SUB-SYS SUPPLY FILTER
		1			9	1007438-011	AMPLIFIER, 5%, 800 CPS
	1	1			8	1007258-021	FRAME ASSEMBLY
18	18	18	18		7	MS 15795-805	WASHER, FLAT
	18	18	18		6	NAS 1352-06-8	SCREW, CAP, SOCKET HEAD
			1		5	1007125	POWER SUPPLY MODULE ASSY
			1		4	1007095	800 CPS COMPENSATION
			3		3	1007090	G&N SUB-SYS SUPPLY FILTER
			1		2	1007048	AMPLIFIER, 5%, 800 CPS
			1		1	1007258-011	FRAME ASSEMBLY
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

1007257	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN G. M. Kulp DATE 21 Jan 64
CHECKED A. Wilmink 26 Aug 64
APPROVAL R. Jensen 26 Aug 64
APPROVAL D. R. Fort 4/9/65
NASA APPROVAL 5-13-65
MIT APPROVAL 12 Aug 65

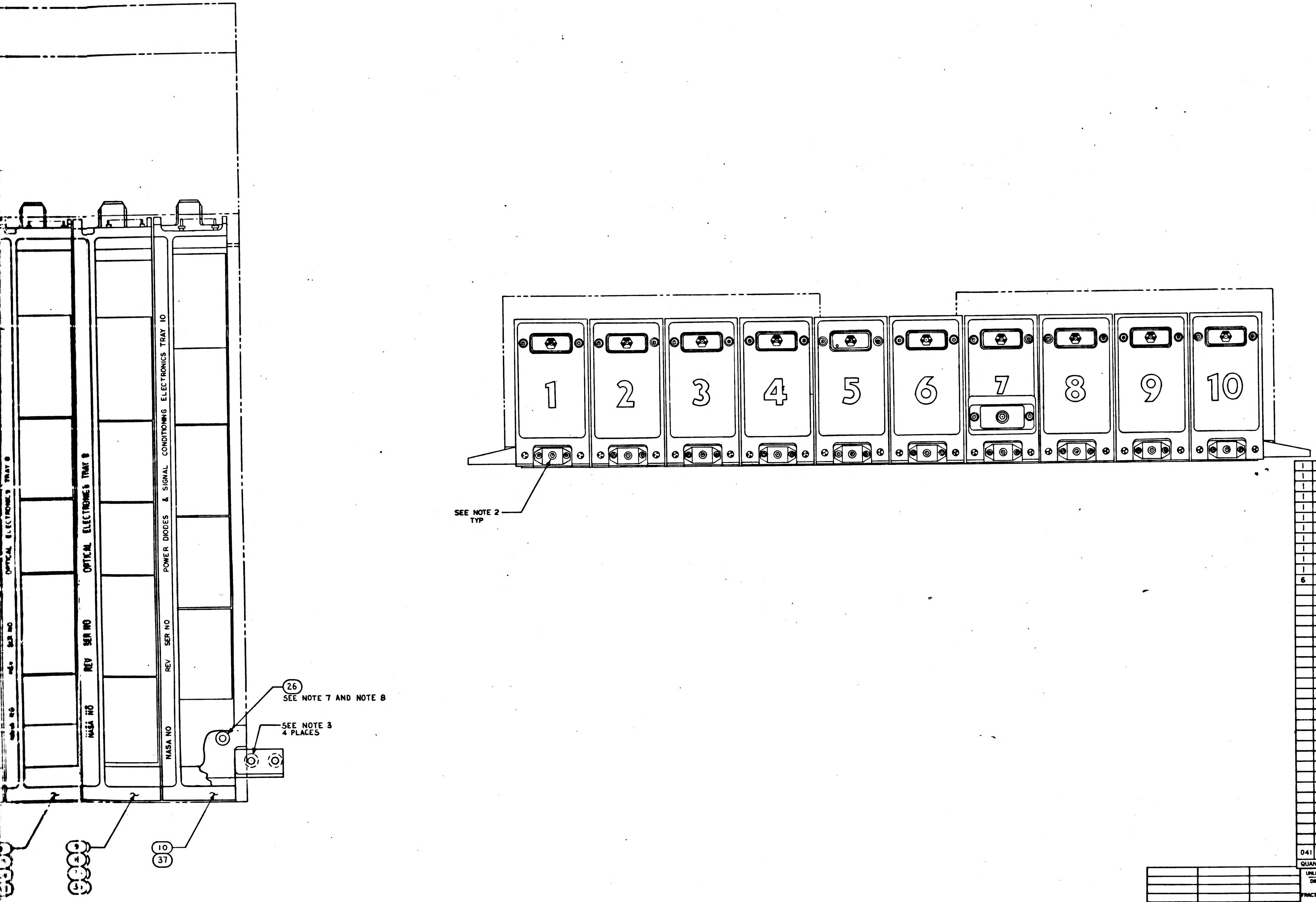
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

POWER DIODES & SIGNAL CONDITIONING ELECTRONICS ASSEMBLY TRAY 10

CODE IDENT NO. SIZE E 1007256
SCALE FULL SHEET 1 OF 1

REVISIONS TDRR 19032

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A₁		Ⓐ REVISED PER D.C. 58912		20 JAN 65	GM / PF
B	—	REVISED PER DO60044	—	22 FEB 65	EF



1
2
3
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5
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7
8
9
10
SEE NOTE 2 TYP
OPTICAL ELECTRONICS TRAY 8
OPTICAL ELECTRONICS TRAY 8
NASA NO
REV
SER NO
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
26
SEE NOTE 7 AND NOTE 8
SEE NOTE 3
4 PLACES
9
10
37

041	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
1	1				37	1007256-021	PWR DIO & SIG COND ELEC ASSY, TRAY 10
1					36	1007459-011	OPTICAL ELEC ASSY, TRAY 9
1					35	1007458-011	OPTICAL ELEC ASSY, TRAY 8
1					34	1007577-021	MISC ELEC ASSY, TRAY 7
1					33	1007456-011	CDU & PWR SUP ELEC ASSY, TRAY 6
1					32	1007575-021	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
1					31	1007574-021	GYRO ACCEL ELEC ASSY, TRAY 4
1					30	1007573-021	GYRO ACCEL ELEC ASSY, TRAY 3
1					29	1007572-021	PWR SUP ELEC ASSY, TRAY 2
1					28	1007571-021	GIMBAL SERVO ELEC ASSY, TRAY 1
1					27	1008535	TOE CAP POWER & SERVO ASSEMBLY
6	6	6	6		26	1008591-011	SCREW, REWORKED
	1				25	1021229-011	OPTICAL ELEC ASSY, TRAY 9
	1				24	1021228-011	OPTICAL ELEC ASSY, TRAY 8
	1				23	1021227-011	MISC ELEC ASSY, TRAY 7
	1				22	1021226-011	CDU & PWR SUP ELEC ASSY, TRAY 6
	1				21	1021225-011	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
	1				20	1021224-011	GYRO ACCEL ELEC ASSY, TRAY 4
	1				19	1021223-011	GYRO ACCEL ELEC ASSY, TRAY 3
	1				18	1021222-011	PWR SUP ELEC ASSY, TRAY 2
	1				17	1021221-011	GIMBAL SERVO ELEC ASSY, TRAY 1
			1		16	1007159	OPTICAL ELEC ASSY, TRAY 9
			1		15	1007158	OPTICAL ELEC ASSY, TRAY 8
			1		14	1007157	MISC ELEC ASSY, TRAY 7
			1		13	1007156	CDU & PWR SUP ELEC ASSY, TRAY 6
			1		12	1007155	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
	1	1	1		11	1008135	TOE CAP POWER & SERVO ASSEMBLY
		1	1		10	1007256-011	PWR DIO & SIG COND ELEC ASSY, TRAY 10
		1			9	1007179	OPTICAL ELEC ASSY, TRAY 9
		1			8	1007178	OPTICAL ELEC ASSY, TRAY 8
		1			7	1007177	MISC ELEC ASSY, TRAY 7
		1			6	1007176	CDU & PWR SUP ELEC ASSY, TRAY 6
		1			5	1007175	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
		1	1		4	1007154	GYRO ACCEL ELEC ASSY, TRAY 4
		1	1		3	1007153	GYRO ACCEL ELEC ASSY, TRAY 3
		1	1		2	1007152	PWR SUP ELEC ASSY, TRAY 2
		1	1		1	1007151	GIMBAL SERVO ELEC ASSY, TRAY 1

QUANTITY REQUIRED

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1015000		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + — — DECIMALS + — — ANGLES + — —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN [illegible] 31 Nov 64
CHECKED [illegible] 26 Nov 64
APPROVAL [illegible]
APPROVAL [illegible] 4/30/65
NASA APPROVAL [illegible] 5-13-65
MIT APPROVAL [illegible] 12 May 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

POWER AND SERVO ASSEMBLY

CODE IDENT NO.
SIZE
1007257
SCALE FULL
SHEET 1 OF 1

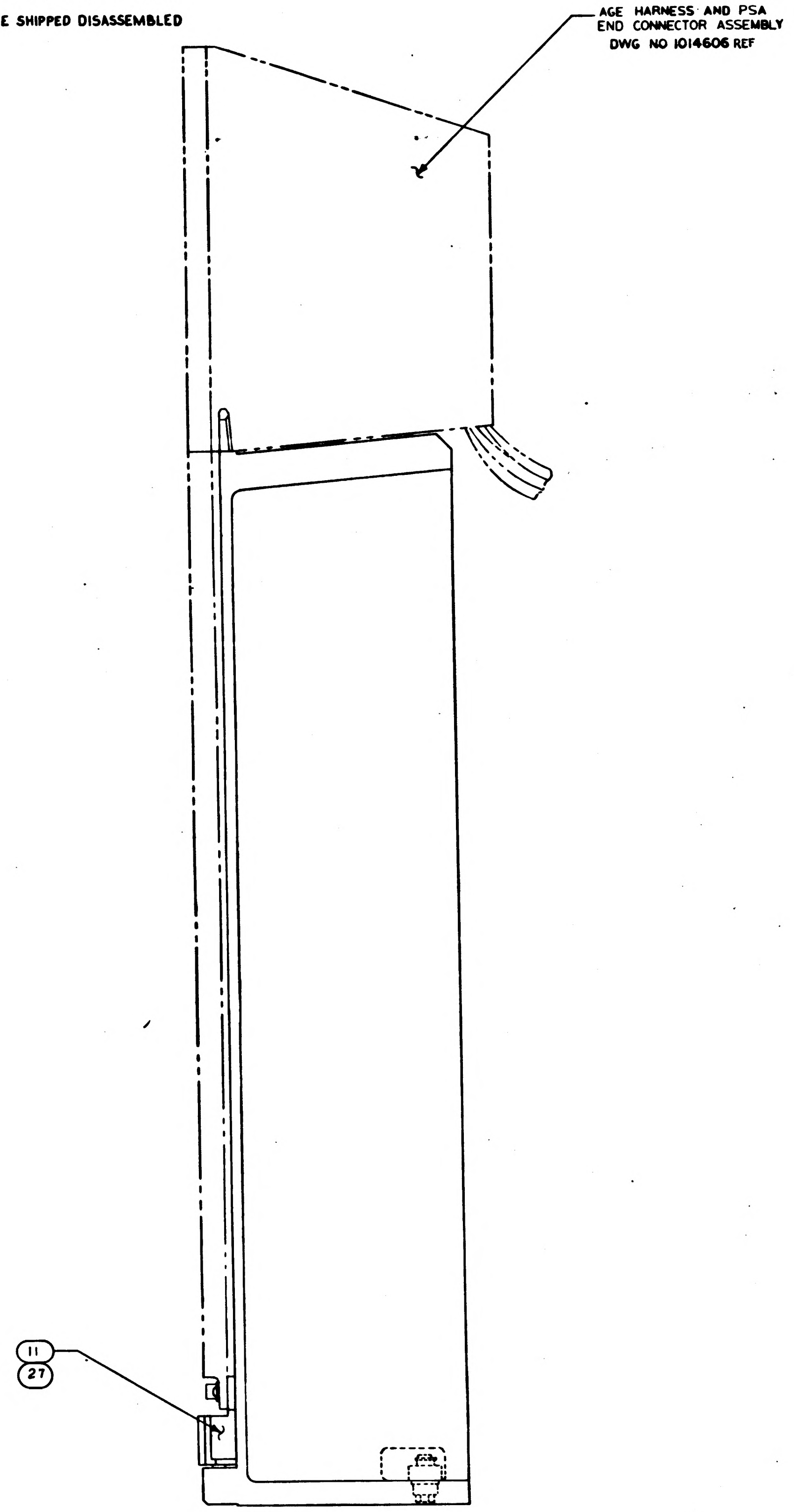
1007257	SH 1

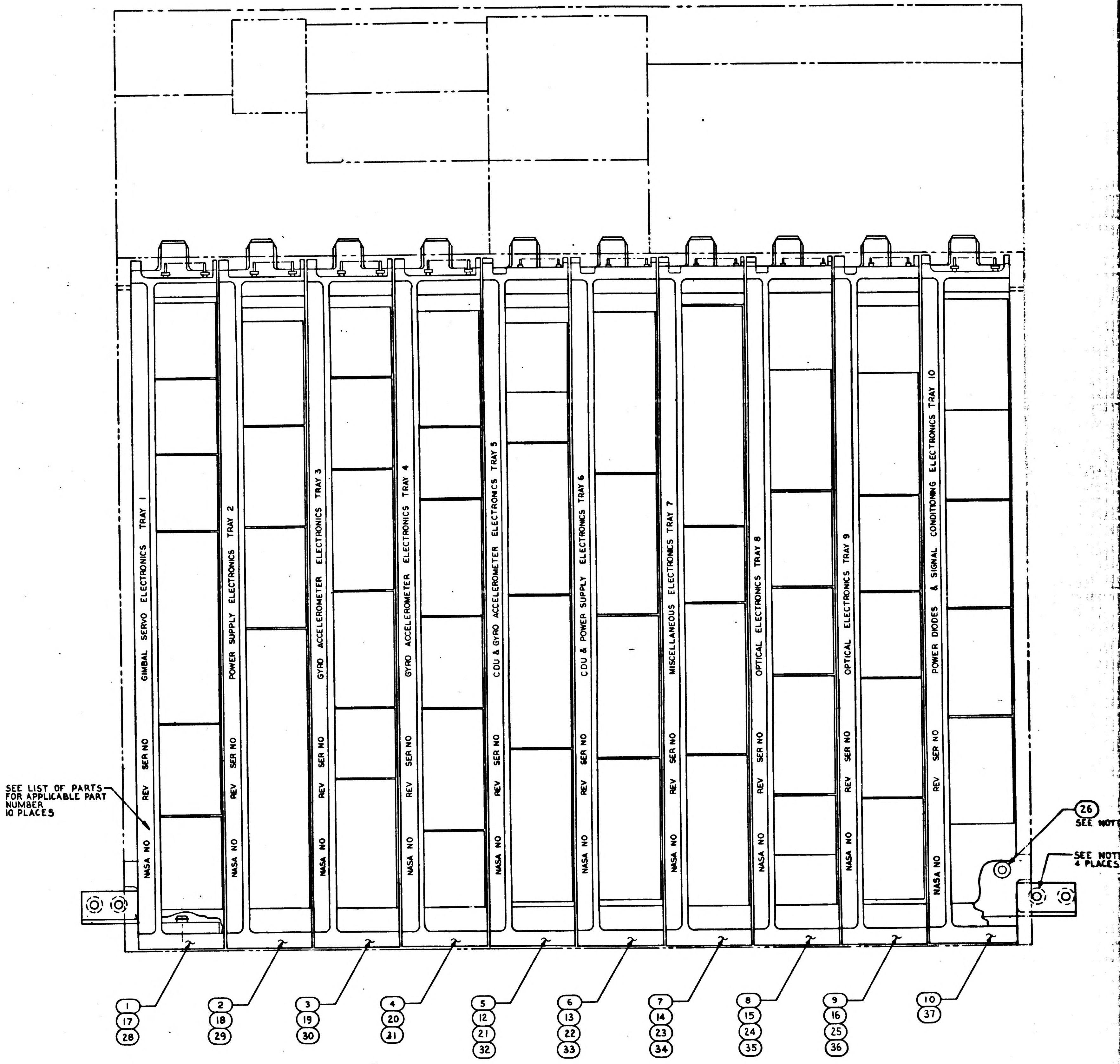
2H

E2

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TRAY ASSEMBLY TORQUE TO (11) TO BE 25-30 IN LB
3. TOE CAP HARDWARE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC
4. PSA COLDPLATE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC. REF PART NO V16-614047
5. SERIALIZE WITH TAG PER ND 1002023.
6. TEST PER ATP 1007100.
7. MOUNTING TORQUE FOR (26) TO NAA COLDPLATE (REF NO. V16-614047) TO BE 30 TO 35 IN LB.
8. IDENTIFY (26) PER ND 1002019. ITEM MAY BE SHIPPED DISASSEMBLED FROM ITEM NO (11) OR ITEM NO (27).


AGE HARNESS AND PSA END CONNECTOR ASSEMBLY DWG NO 1014606 REF
11
27


GIMBAL SERVO ELECTRONICS TRAY 1
POWER SUPPLY ELECTRONICS TRAY 2
GYRO ACCELEROMETER ELECTRONICS TRAY 3
GYRO ACCELEROMETER ELECTRONICS TRAY 4
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
CDU & POWER SUPPLY ELECTRONICS TRAY 6
MISCELLANEOUS ELECTRONICS TRAY 7
OPTICAL ELECTRONICS TRAY 8
OPTICAL ELECTRONICS TRAY 9
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
NASA NO
REV
SER NO
SEE LIST OF PARTS FOR APPLICABLE PART NUMBER 10 PLACES
26
SEE NOT
SEE NOT
4 PLACES
1
17
28
2
18
29
3
19
30
4
20
31
5
12
21
32
6
13
22
33
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24
35
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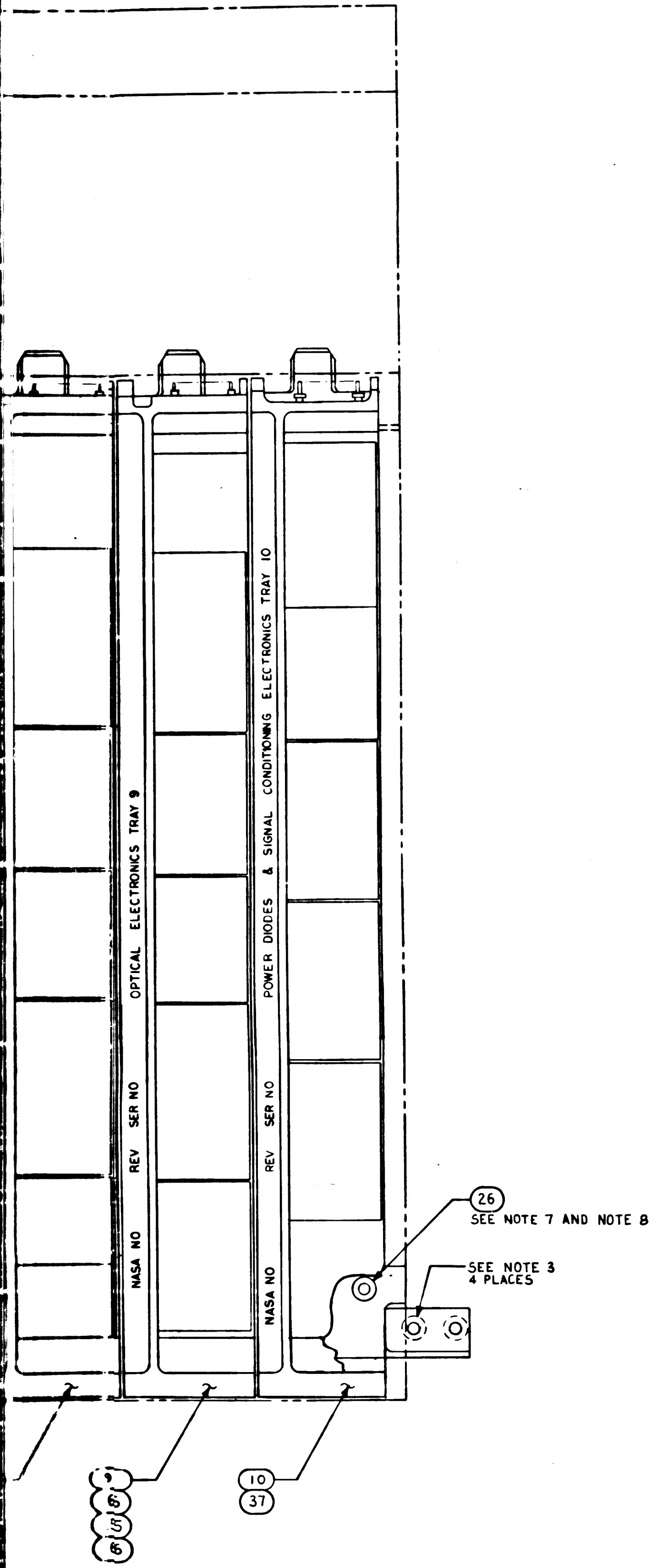
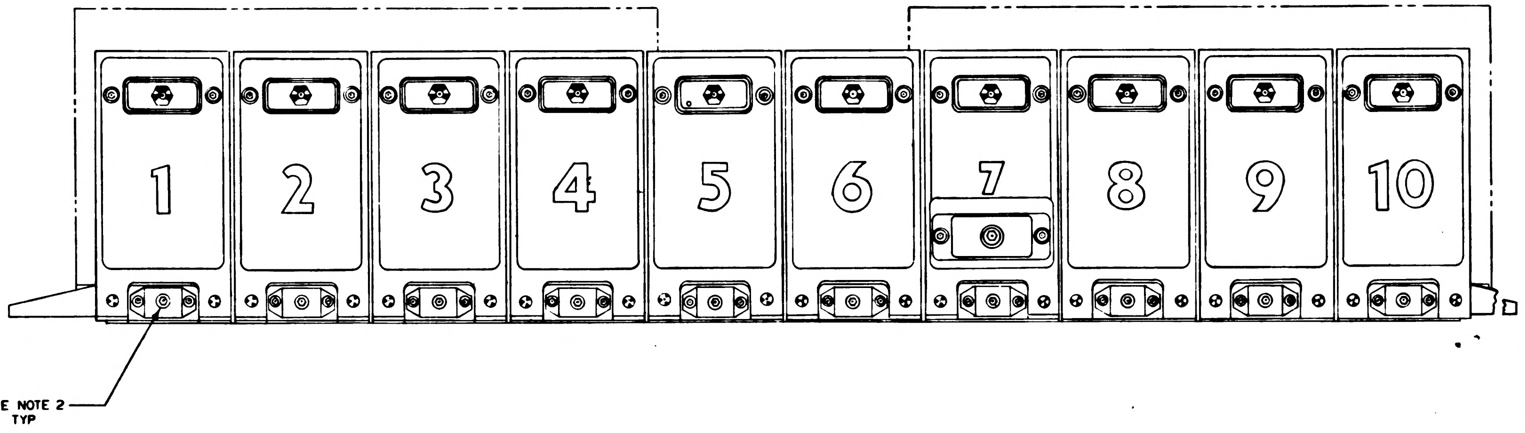
16
25
36
10
37

1007257 SH 1

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
REVISIONS TDRR 19032					
A	—	Ⓐ REVISED PER D.C 58912	—	2_ JAN 65	GM
B	—	REVISED PER DO60044	—	22 FEB 65	EF
C	—	REVISED PER TDRR 20140	—	19 JUL -65	OAS


OPTICAL ELECTRONICS TRAY 9
NASA NO
REV
SER NO
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
NASA NO
REV
SER NO
26
SEE NOTE 7 AND NOTE 8
SEE NOTE 3
4 PLACES
9
10
37



041	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
		1			39	1007262	GYRO ACCEL ELEC ASSY TRAY 4
		1			38	1007260	GYRO ACCEL ELEC ASSY TRAY 3
1	1				37	1007256 -021	PWR DIO & SIG COND ELEC ASSY, TRAY 10
1					36	1007459 - 011	OPTICAL ELEC ASSY, TRAY 9
1					35	1007458 - 011	OPTICAL ELEC ASSY, TRAY 8
1					34	1007577 - 021	MISC ELEC ASSY, TRAY 7
1					33	1007456 - 011	CDU & PWR SUP ELEC ASSY, TRAY 6
1					32	1007575 - 021	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
1					31	1007574 - 021	GYRO ACCEL ELEC ASSY, TRAY 4
1					30	1007573 - 021	GYRO ACCEL ELEC ASSY, TRAY 3
1					29	1007572 - 021	PWR SUP ELEC ASSY, TRAY 2
1					28	1007571 - 021	GIMBAL SERVO ELEC ASSY, TRAY 1
1					27	1008535	TOE CAP POWER & SERVO ASSEMBLY
6	6	6	6		26	1008591 - 011	SCREW, REWORKED
	1				25	1021229 - 011	OPTICAL ELEC ASSY, TRAY 9
	1				24	1021228 - 011	OPTICAL ELEC ASSY, TRAY 8
	1				23	1021227 - 011	MISC ELEC ASSY, TRAY 7
	1				22	1021226 - 011	CDU & PWR SUP ELEC ASSY, TRAY 6
	1				21	1021225 - 011	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
	1				20	1021224 - 011	GYRO ACCEL ELEC ASSY, TRAY 4
	1				19	1021223 - 011	GYRO ACCEL ELEC ASSY, TRAY 3
	1				18	1021222 - 011	PWR SUP ELEC ASSY, TRAY 2
	1				17	1021221 - 011	GIMBAL SERVO ELEC ASSY, TRAY 1
			1		16	1007159	OPTICAL ELEC ASSY, TRAY 9
			1		15	1007158	OPTICAL ELEC ASSY, TRAY 8
			1		14	1007157	MISC ELEC ASSY, TRAY 7
			1		13	1007156	CDU & PWR SUP ELEC ASSY, TRAY 6
			1		12	1007155	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
	1	1	1		11	1008135	TOE CAP POWER & SERVO ASSEMBLY
		1	1		10	1007256 - 011	PWR DIO & SIG COND ELEC ASSY, TRAY 10
		1			9	1007179	OPTICAL ELEC ASSY, TRAY 9
		1			8	1007178	OPTICAL ELEC ASSY, TRAY 8
		1			7	1007177	MISC ELEC ASSY, TRAY 7
		1			6	1007176	CDU & PWR SUP ELEC ASSY, TRAY 6
		1			5	1007175	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
		~~1~~	1		4	1007154	GYRO ACCEL ELEC ASSY, TRAY 4
		~~1~~	1		3	1007153	GYRO ACCEL ELEC ASSY, TRAY 3
		1	1		2	1007152	PWR SUP ELEC ASSY, TRAY 2
		1	1		1	1007151	GIMBAL SERVO ELEC ASSY, TRAY 1
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1015000		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN C.A. Kulp 31 MAR 64
CHECKED 26 AUG 64
APPROVAL 26 AUG 64
APPROVAL 1-13-65
NASA APPROVAL 5-13-65
MIT APPROVAL 12 May 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

POWER AND SERVO ASSEMBLY

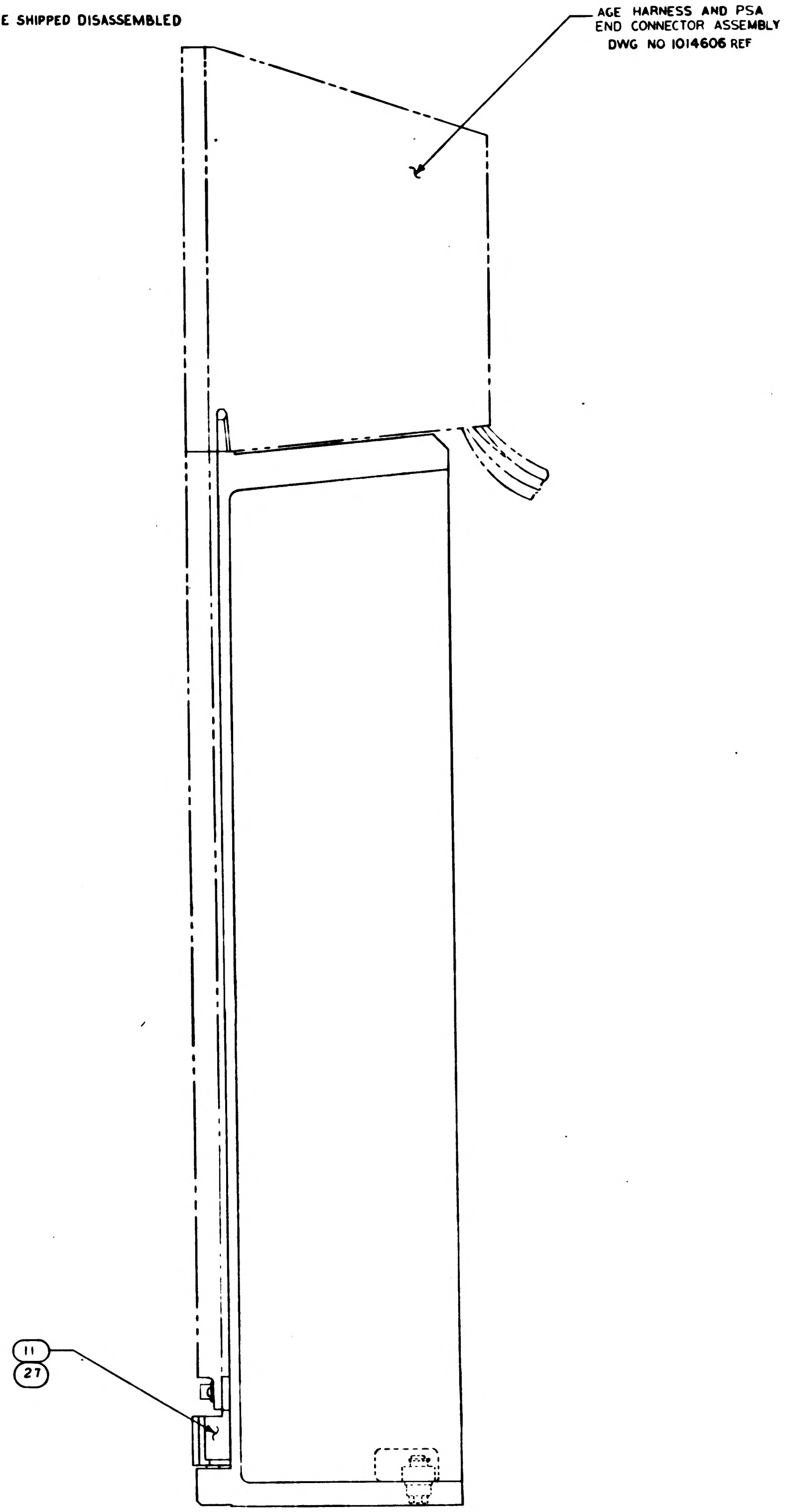
CODE IDENT NO. 99974
SIZE
1007257
SCALE FULL
SHEET 1 OF 1

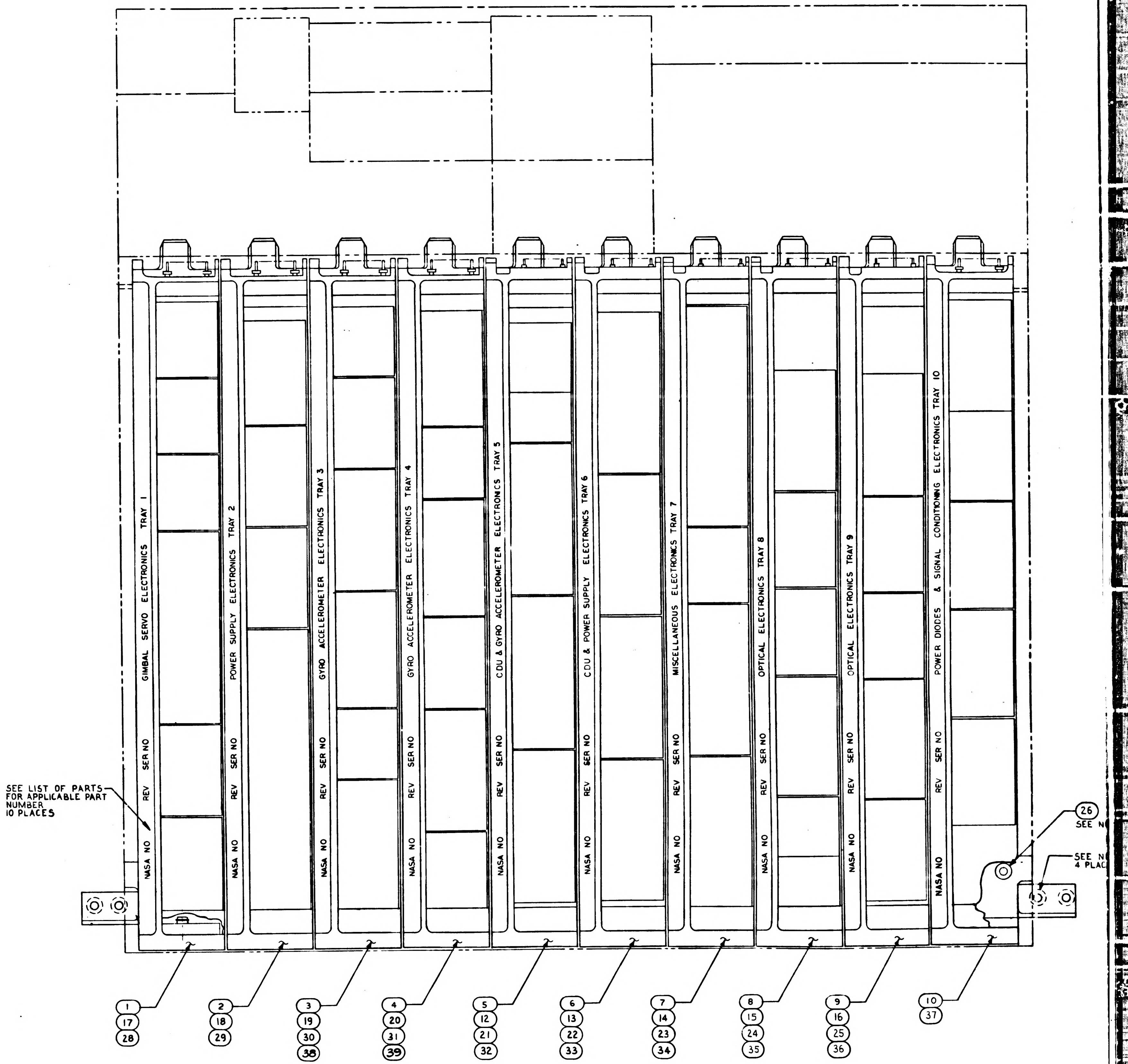
1007257 SH 1 REV LTR C

2H

2/1007257

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TRAY ASSEMBLY TORQUE TO (11) TO BE 25-30 IN LB
3. TOE CAP HARDWARE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC
4. PSA COLDPLATE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC. REF PART NO V16-614047
5. SERIALIZE WITH TAG PER ND 1002023.
6. TEST PER ATP 1007100.
7. MOUNTING TORQUE FOR (26) TO NAA COLDPLATE (REF NO. V16-614047) TO BE 30 TO 35 IN LB.
8. IDENTIFY (26) PER ND 1002019. ITEM MAY BE SHIPPED DISASSEMBLED FROM ITEM NO (11) OR ITEM NO (27).


AGE HARNESS AND PSA END CONNECTOR ASSEMBLY DWG NO 1014606 REF
11
27


GIMBAL SERVO ELECTRONICS TRAY 1
POWER SUPPLY ELECTRONICS TRAY 2
GYRO ACCELEROMETER ELECTRONICS TRAY 3
GYRO ACCELEROMETER ELECTRONICS TRAY 4
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
CDU & POWER SUPPLY ELECTRONICS TRAY 6
MISCELLANEOUS ELECTRONICS TRAY 7
OPTICAL ELECTRONICS TRAY 8
OPTICAL ELECTRONICS TRAY 9
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
NASA NO
REV
SER NO
SEE LIST OF PARTS FOR APPLICABLE PART NUMBER 10 PLACES
26
SEE N
SEE N
4 PLAC
1
17
28
2
18
29
3
19
30
38
4
20
31
39
5
12
21
32
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36
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37

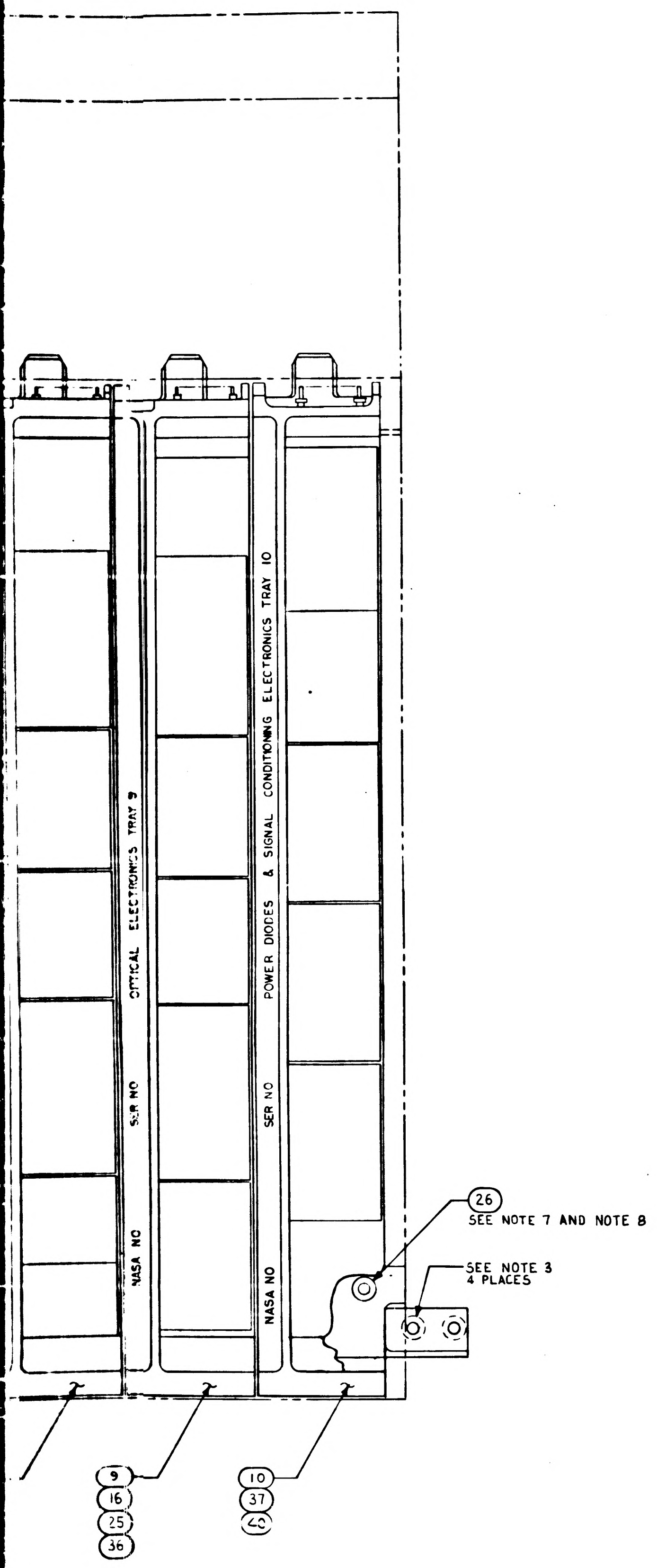
1007257	SH 1	REV LTR C

1/1007257

1007257

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A,	–	Ⓐ REVISED PER D.C 58912	—	26 JAN 65	GM
B	—	REVISED PER DO60044	—	22 FEB 65	EF
C	—	REVISED PER TDRR 20140	—	19 JUN -65	
D		REVISED PER TDRR 25363		1 FEB 66	

REVISIONS TDRR 19032


OPTICAL ELECTRONICS TRAY 9
SER NO
NASA NO
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
SER NO
NASA NO
26
SEE NOTE 7 AND NOTE 8
SEE NOTE 3
4 PLACES
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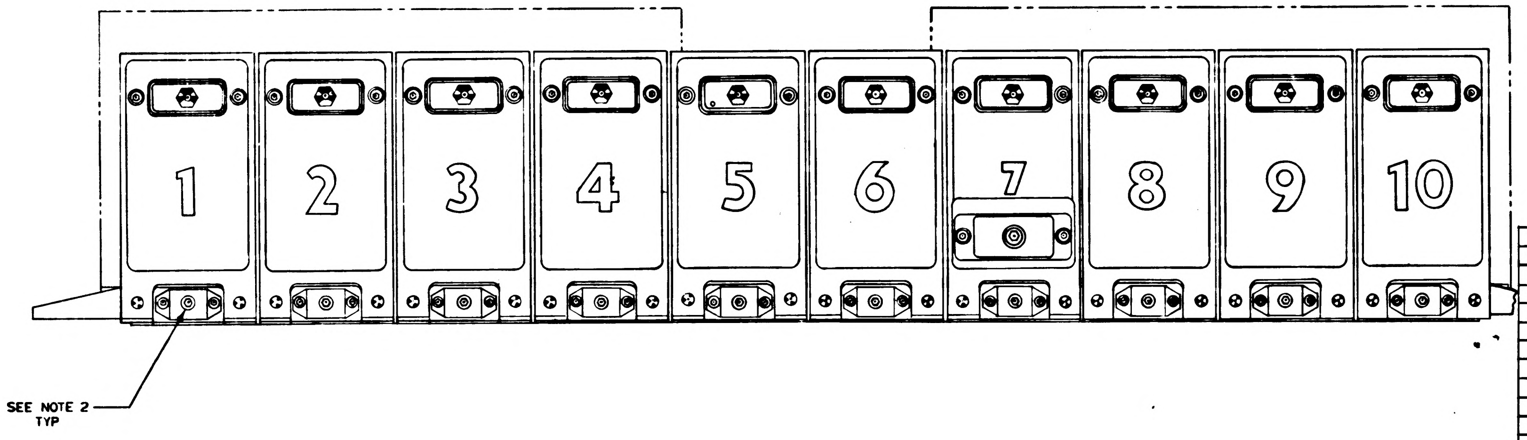
16
25
36
10
37
40



051	041	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
1						42	1007456-021	CDU & PWR SUP ELEC ASSY, TRAY 6
1						41	1007572-031	PWR SUP ELEC ASSY, TRAY 2
1						40	1007256-031	PWR DIO & SIG COND ELEC ASSY, TRAY 10
			1			39	1007262	GYRO ACCEL ELEC ASSY TRAY 4
			1			38	1007260	GYRO ACCEL ELEC ASSY TRAY 3
	1	1				37	1007256-021	PWR DIO & SIG COND ELEC ASSY, TRAY 10
1	1					36	1007459-011	OPTICAL ELEC ASSY, TRAY 9
1	1					35	1007458-011	OPTICAL ELEC ASSY, TRAY 8
1	1					34	1007577-021	MISC ELEC ASSY, TRAY 7
	1					33	1007456-011	CDU & PWR SUP ELEC ASSY, TRAY 6
1	1					32	1007575-021	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
1	1					31	1007574-021	GYRO ACCEL ELEC ASSY, TRAY 4
1	1					30	1007573-021	GYRO ACCEL ELEC ASSY, TRAY 3
	1					29	1007572-021	PWR SUP ELEC ASSY, TRAY 2
1	1					28	1007571-021	GIMBAL SERVO ELEC ASSY, TRAY 1
1	1					27	1008535	TOE CAP POWER & SERVO ASSEMBLY
6	6	6	6	6		26	1008591-011	SCREW, REWORKED
		1				25	1021229-011	OPTICAL ELEC ASSY, TRAY 9
		1				24	1021228-011	OPTICAL ELEC ASSY, TRAY 8
		1				23	1021227-011	MISC ELEC ASSY, TRAY 7
		1				22	1021226-011	CDU & PWR SUP ELEC ASSY, TRAY 6
		1				21	1021225-011	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
		1				20	1021224-011	GYRO ACCEL ELEC ASSY, TRAY 4
		1				19	1021223-011	GYRO ACCEL ELEC ASSY, TRAY 3
		1				18	1021222-011	PWR SUP ELEC ASSY, TRAY 2
		1				17	1021221-011	GIMBAL SERVO ELEC ASSY, TRAY 1
				1		16	1007159	OPTICAL ELEC ASSY, TRAY 9
				1		15	1007158	OPTICAL ELEC ASSY, TRAY 8
				1		14	1007157	MISC ELEC ASSY, TRAY 7
				1		13	1007156	CDU & PWR SUP ELEC ASSY, TRAY 6
				1		12	1007155	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
		1	1	1		11	1008135	TOE CAP POWER & SERVO ASSEMBLY
			1	1		10	1007256-011	PWR DIO & SIG COND ELEC ASSY, TRAY 10
			1			9	1007179	OPTICAL ELEC ASSY, TRAY 9
			1			8	1007178	OPTICAL ELEC ASSY, TRAY 8
			1			7	1007177	MISC ELEC ASSY, TRAY 7
			1			6	1007176	CDU & PWR SUP ELEC ASSY, TRAY 6
			1			5	1007175	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
			∓	1		4	1007154	GYRO ACCEL ELEC ASSY, TRAY 4
			±	1		3	1007153	GYRO ACCEL ELEC ASSY, TRAY 3
			1	1		2	1007152	PWR SUP ELEC ASSY, TRAY 2
			1	1		1	1007151	GIMBAL SERVO ELEC ASSY, TRAY 1
QUANTITY REQUIRED						LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1015000		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + — − — DECIMALS + — − — ANGLES + — − —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

AC ELECTRONICS DIVISION
GENERAL MOTORS CORP MILWAUKEE WIS
DRAWN C.A. Kulp 31 AUG 64
CHECKED 26 AUG 64
APPROVAL 26 AUG 64
APPROVAL 1/30/65
NASA APPROVAL 5-13-65
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

POWER AND SERVO ASSEMBLY

CODE IDENT NO. 99974
SIZE
1007257
SCALE FULL
SHEET 1 OF 1

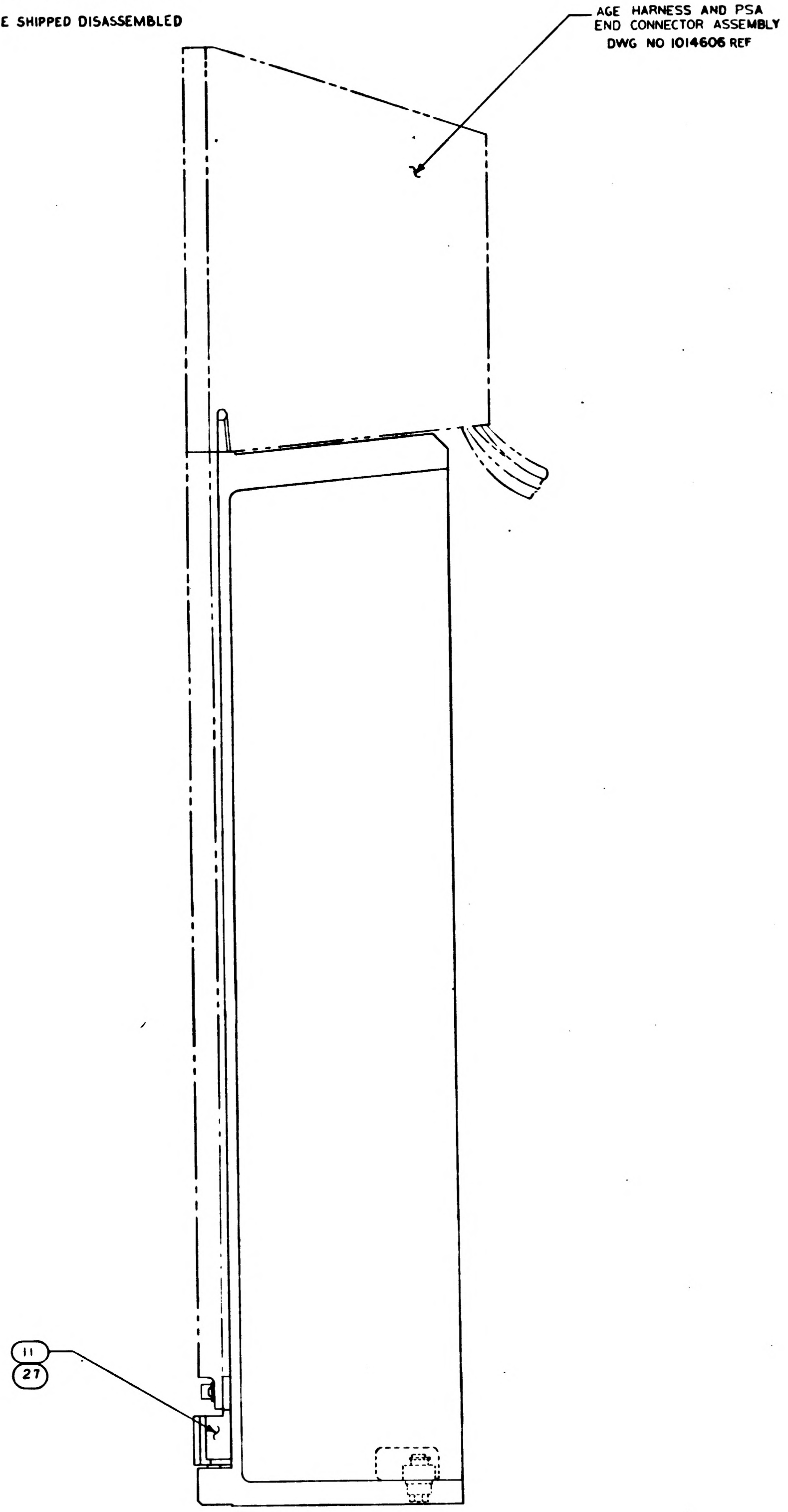
1007257 SH 1 REV LTR D

D 1007257

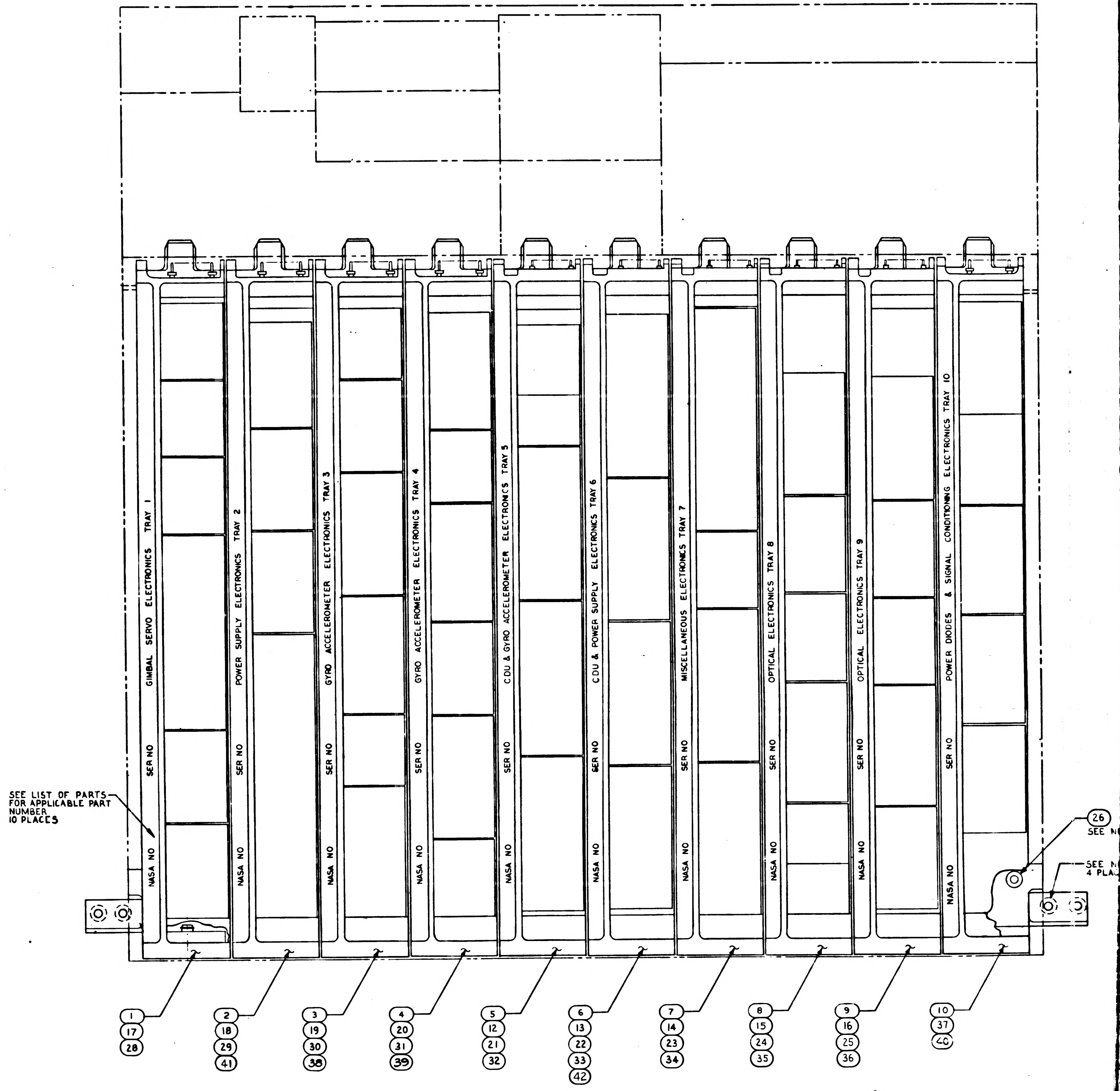
2H

27 1007257

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TRAY ASSEMBLY TORQUE TO (11) TO BE 25-30 IN LB
3. TOE CAP HARDWARE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC
4. PSA COLDPLATE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC. REF PART NO V16-614047
5. SERIALIZE WITH TAG PER ND 1002023.
6. TEST PER ATP 1007100.
7. MOUNTING TORQUE FOR (26) TO NAA COLDPLATE (REF NO. V16-614047) TO BE 30 TO 35 IN LB.
8. IDENTIFY (26) PER ND 1002019. ITEM MAY BE SHIPPED DISASSEMBLED FROM ITEM NO (11) OR ITEM NO (27).



AGE HARNESS AND PSA END CONNECTOR ASSEMBLY DWG NO 1014606 REF
11
27



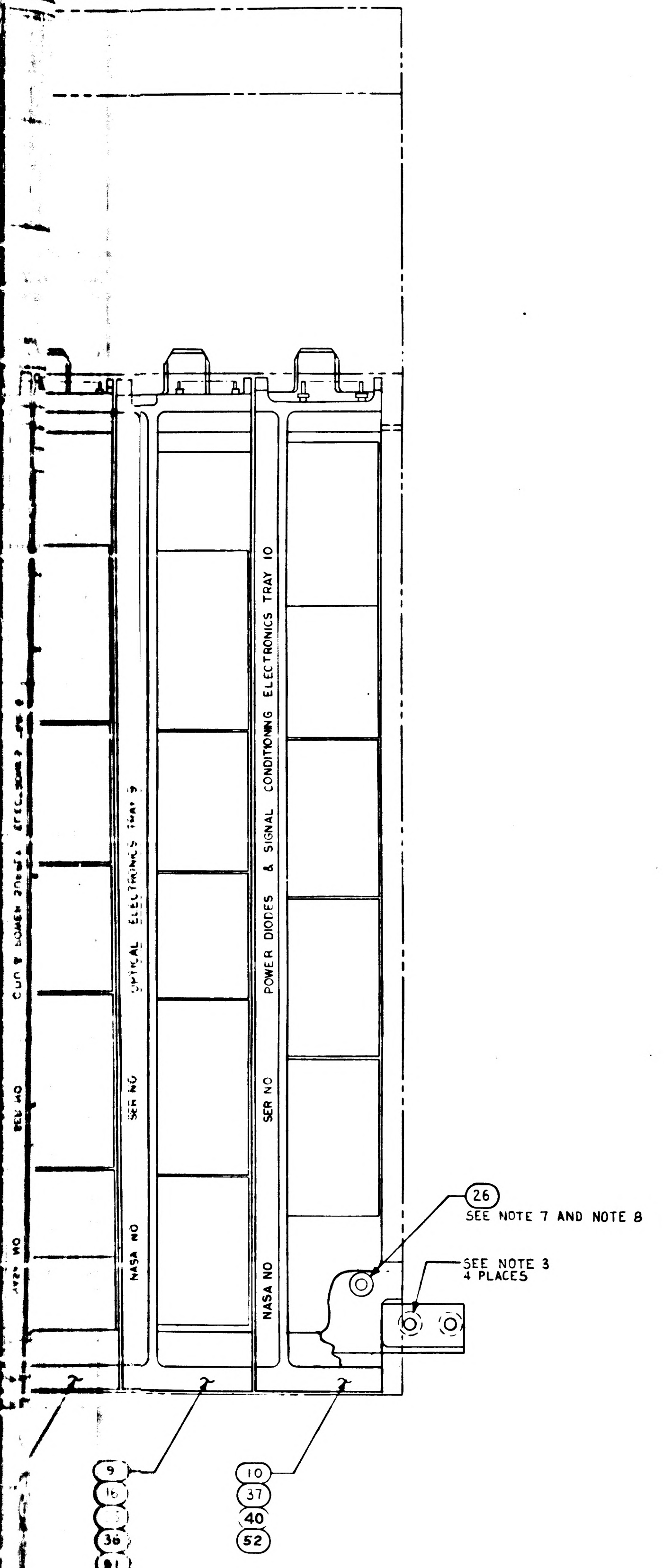
GIMBAL SERVO ELECTRONICS TRAY 1
POWER SUPPLY ELECTRONICS TRAY 2
GYRO ACCELEROMETER ELECTRONICS TRAY 3
GYRO ACCELEROMETER ELECTRONICS TRAY 4
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
CDU & POWER SUPPLY ELECTRONICS TRAY 6
MISCELLANEOUS ELECTRONICS TRAY 7
OPTICAL ELECTRONICS TRAY 8
OPTICAL ELECTRONICS TRAY 9
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
SER NO
NASA NO
SEE LIST OF PARTS FOR APPLICABLE PART NUMBER 10 PLACES
26
SEE N
SEE N
4 PLA
1 17 28
2 18 29 41
3 19 30 38
4 20 31 39
5 12 21 32
6 13 22 33 42
7 14 23 34
8 15 24 35
9 16 25 36
10 37 40

1007257	SH 1	REV LTR D

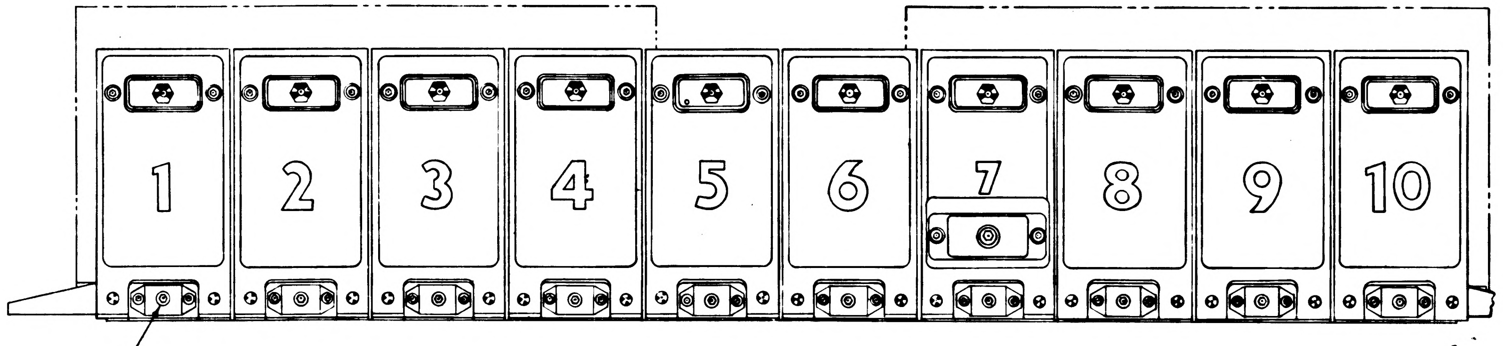
1/1007257

REVISIONS TDRR 19032

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A₁	—	Ⓐ REVISED PER DC 58912	—	26 JAN 65	GM
B	—	REVISED PER DO60044	—	22 FEB 65	
C	—	REVISED PER TDRR 20140	—	9 JUN 65	C45
D		REVISED PER TDRR 25363		1 FEB 66	
E		REVISED PER TDRR-26392		2 NOV 66	B.



CDU & POWER SUPPLY ELECTRONICS TRAY 6
OPTICAL ELECTRONICS TRAY 9
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
REV NO
SER NO
SER NO
ASSY NO
NASA NO
NASA NO
26
SEE NOTE 7 AND NOTE 8
SEE NOTE 3
4 PLACES
9
16
36
61
10
37
40
52



061	051	041	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
1							53	1007220	TOE CAP POWER AND SERVO ASSY
1							52	1007256-041	PWR DIODES & SIG COND ELEC ASSY, TRAY 10
1							51	1007459-021	OPTICAL ELEC ASSY, TRAY 9
1							50	1007458-021	OPTICAL ELEC ASSY, TRAY 8
1							49	1007577-041	MISC ELEC ASSY, TRAY 7
1							48	1007456-031	CDU & PWR SUP ELEC ASSY, TRAY 6
1							47	1007575-041	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
1							46	1007574-041	GYRO ACCEL ELEC ASSY, TRAY 4
1							45	1007573-041	GYRO ACCEL ELEC ASSY, TRAY 3
1							44	1007572-051	PWR SUP ELEC ASSY, TRAY 2
1							43	1007571-041	GIMBAL SERVO ELEC ASSY, TRAY 1
	1						42	1007456-021	CDU & PWR SUP ELEC ASSY, TRAY 6
	1						41	1007572-031	PWR SUP ELEC ASSY, TRAY 2
	1						40	1007256-031	PWR DIODES & SIG COND ELEC ASSY, TRAY 10
				1			39	1007260	GYRO ACCEL ELEC ASSY, TRAY 4
				1			38	1007260	GYRO ACCEL ELEC ASSY, TRAY 3
		1	1				37	1007256-021	PWR DIODES & SIG COND ELEC ASSY, TRAY 10
	1	1					36	1007459-011	OPTICAL ELEC ASSY, TRAY 9
QUANTITY REQUIRED							LIST OF PARTS AND MATERIALS		

061	051	041	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
	1	1					35	1007458-011	OPTICAL ELEC ASSY, TRAY 8
	1	1					34	1007577-021	MISC ELEC ASSY, TRAY 7
		1					33	1007456-011	CDU & PWR SUP ELEC ASSY, TRAY 6
	1	1					32	1007575-021	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
	1	1					31	1007574-021	GYRO ACCEL ELEC ASSY, TRAY 4
	1	1					30	1007573-021	GYRO ACCEL ELEC ASSY, TRAY 3
		1					29	1007572-021	PWR SUP ELEC ASSY, TRAY 2
	1	1					28	1007571-021	GIMBAL SERVO ELEC ASSY, TRAY 1
	1	1					27	1008535	TOE CAP POWER & SERVO ASSEMBLY
6	6	6	6	6	6		26	1008591-011	SCREW, REWORKED
			1				25	1021229-011	OPTICAL ELEC ASSY, TRAY 9
			1				24	1021228-011	OPTICAL ELEC ASSY, TRAY 8
			1				23	1021227-011	MISC ELEC ASSY, TRAY 7
			1				22	1021226-011	CDU & PWR SUP ELEC ASSY, TRAY 6
			1				21	1021225-011	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
			1				20	1021224-011	GYRO ACCEL ELEC ASSY, TRAY 4
			1				19	1021223-011	GYRO ACCEL ELEC ASSY, TRAY 3
			1				18	1021222-011	PWR SUP ELEC ASSY, TRAY 2
			1				17	1021221-011	GIMBAL SERVO ELEC ASSY, TRAY 1
					1		16	1007159	OPTICAL ELEC ASSY, TRAY 9
					1		15	1007158	OPTICAL ELEC ASSY, TRAY 8
					1		14	1007157	MISC ELEC ASSY, TRAY 7
					1		13	1007156	CDU & PWR SUP ELEC ASSY, TRAY 6
					1		12	1007155	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
			1	1	1		11	1008135	TOE CAP POWER & SERVO ASSEMBLY
				1	1		10	1007256-011	PWR DIO & SIG COND ELEC ASSY, TRAY 10
				1			9	1007179	OPTICAL ELEC ASSY, TRAY 9
				1			8	1007178	OPTICAL ELEC ASSY, TRAY 8
				1			7	1007177	MISC ELEC ASSY, TRAY 7
				1			6	1007176	CDU & PWR SUP ELEC ASSY, TRAY 6
				1			5	1007175	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
				∓	1		4	1007154	GYRO ACCEL ELEC ASSY, TRAY 4
				±	1		3	1007153	GYRO ACCEL ELEC ASSY, TRAY 3
				1	1		2	1007152	PWR SUP ELEC ASSY, TRAY 2
				1	1		1	1007151	GIMBAL SERVO ELEC ASSY, TRAY 1
QUANTITY REQUIRED							LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1015000		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS ± —
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

AC ELECTRONICS DIVISION
GENERAL MOTORS CORP MILWAUKEE WIS
DRAWN C.A. Kulp 31 Jul 64
CHECKED A. Udomoch 26 AUG 64
APPROVAL R. [illegible] 26 AUG 64
APPROVAL [illegible] 1-5-65
NASA APPROVAL [illegible] 5-2-65
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

POWER AND SERVO ASSEMBLY

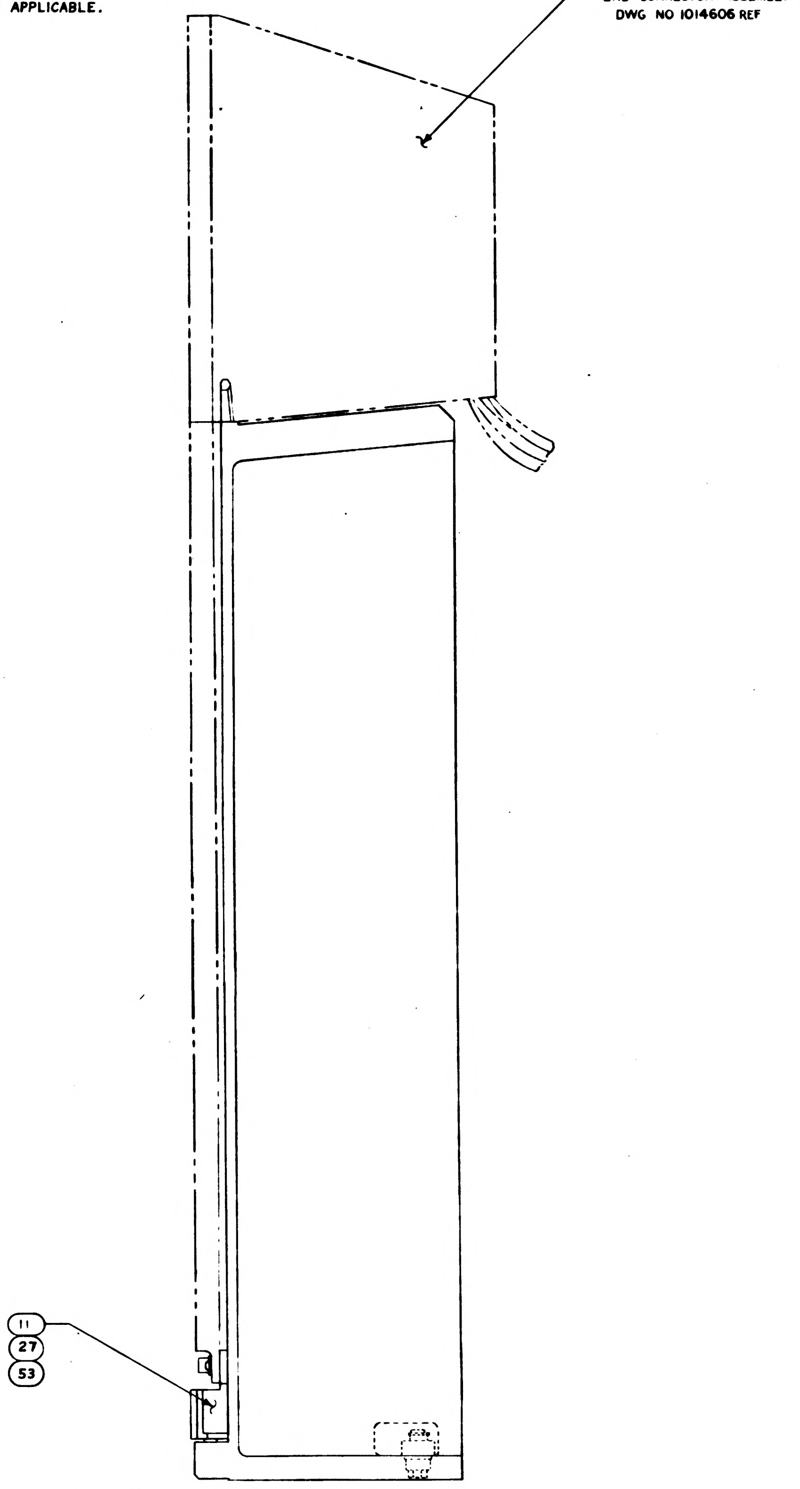
CODE IDENT NO. 99974
SIZE
1007257
SCALE FULL
SHEET 1 OF 1

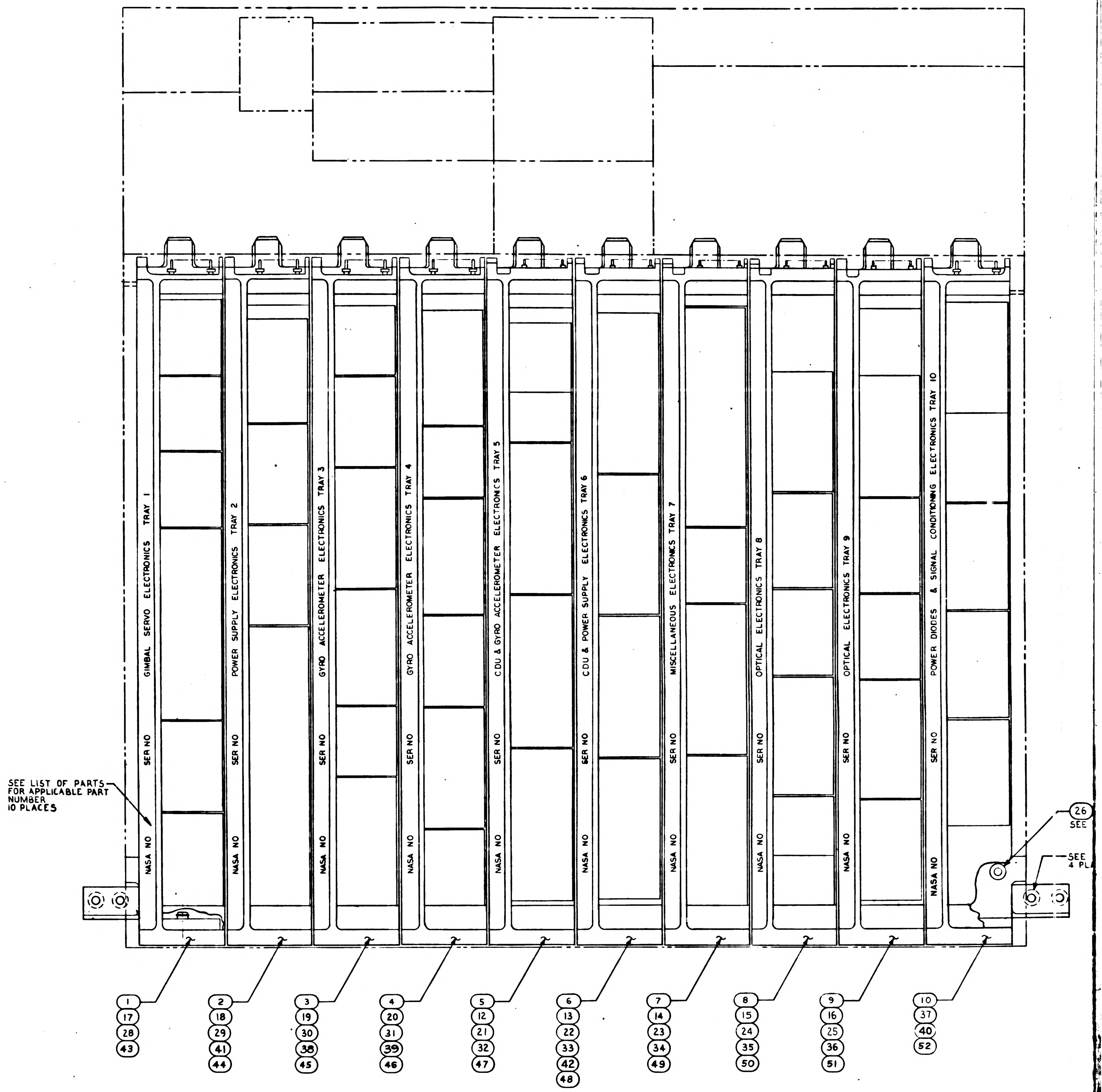
1007257 SH 1 REV LTR E

2/1007257

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TRAY ASSEMBLY TORQUE TO ⑪, ㉗ OR (53) TO BE 25-30 IN. LBS, AS APPLICABLE.
3. TOE CAP HARDWARE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC
4. PSA COLDPLATE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC. REF PART NO V16-614047
5. SERIALIZE WITH TAG PER ND 1002023.
6. TEST PER ATP 1007100.
7. MOUNTING TORQUE FOR ㉖ TO NAA COLDPLATE (REF NO. V16-614047) TO BE 30 TO 35 IN LB.
8. IDENTIFY ㉖ PER ND 1002019. ITEM MAY BE SHIPPED DISASSEMBLED FROM ITEM NO. ⑪, ㉗ OR (53) AS APPLICABLE.


AGE HARNESS AND PSA
END CONNECTOR ASSEMBLY
DWG NO 1014606 REF
11
27
53

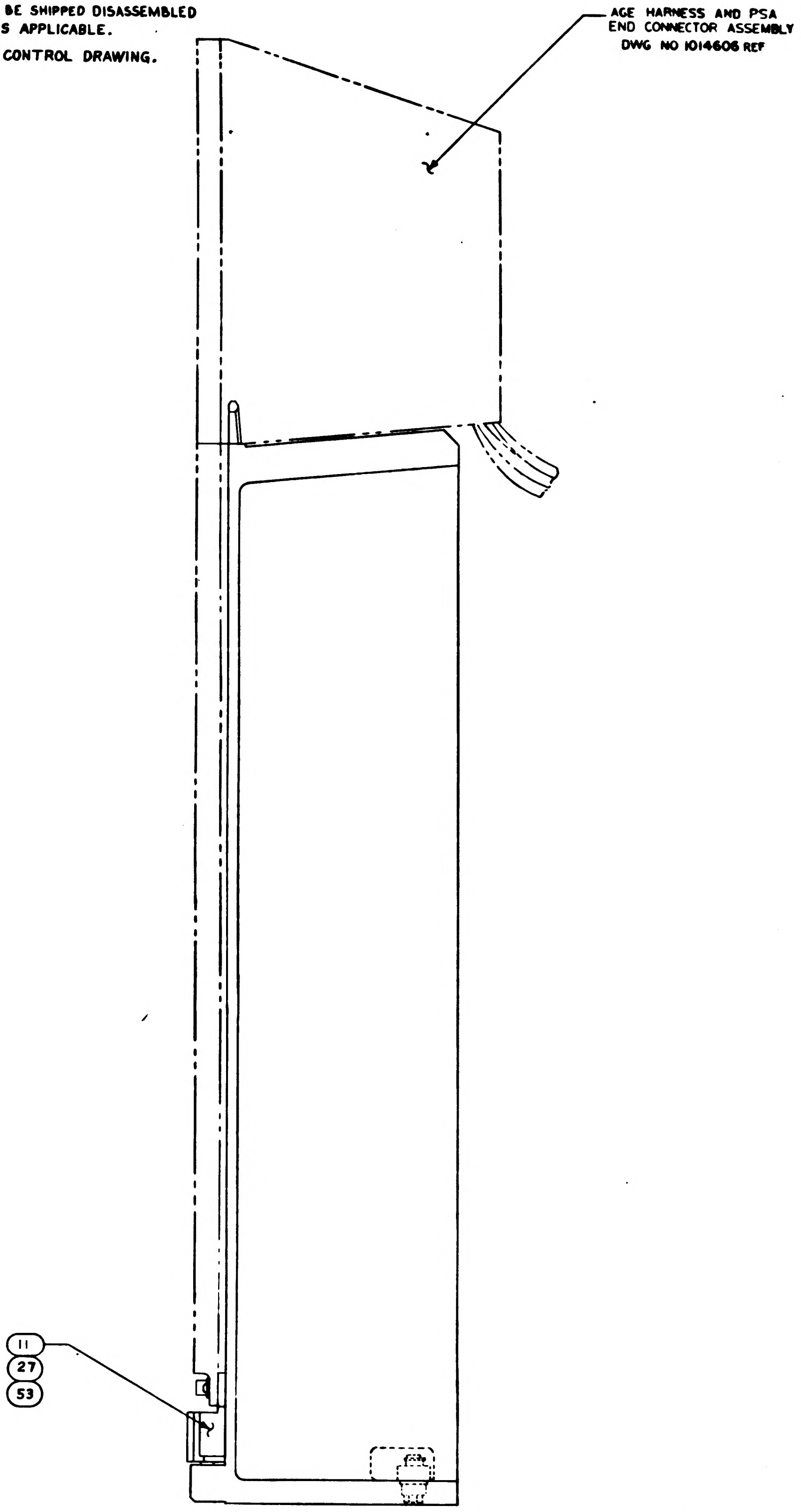

GIMBAL SERVO ELECTRONICS TRAY 1
POWER SUPPLY ELECTRONICS TRAY 2
GYRO ACCELEROMETER ELECTRONICS TRAY 3
GYRO ACCELEROMETER ELECTRONICS TRAY 4
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
CDU & POWER SUPPLY ELECTRONICS TRAY 6
MISCELLANEOUS ELECTRONICS TRAY 7
OPTICAL ELECTRONICS TRAY 8
OPTICAL ELECTRONICS TRAY 9
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
SER NO
NASA NO
SEE LIST OF PARTS FOR APPLICABLE PART NUMBER 10 PLACES
26
SEE
SEE
4 PL
1 17 28 43
2 18 29 41 44
3 19 30 38 45
4 20 31 39 46
5 12 21 32 47
6 13 22 33 42 48
7 14 23 34 49
8 15 24 35 50
9 16 25 36 51
10 37 40 52

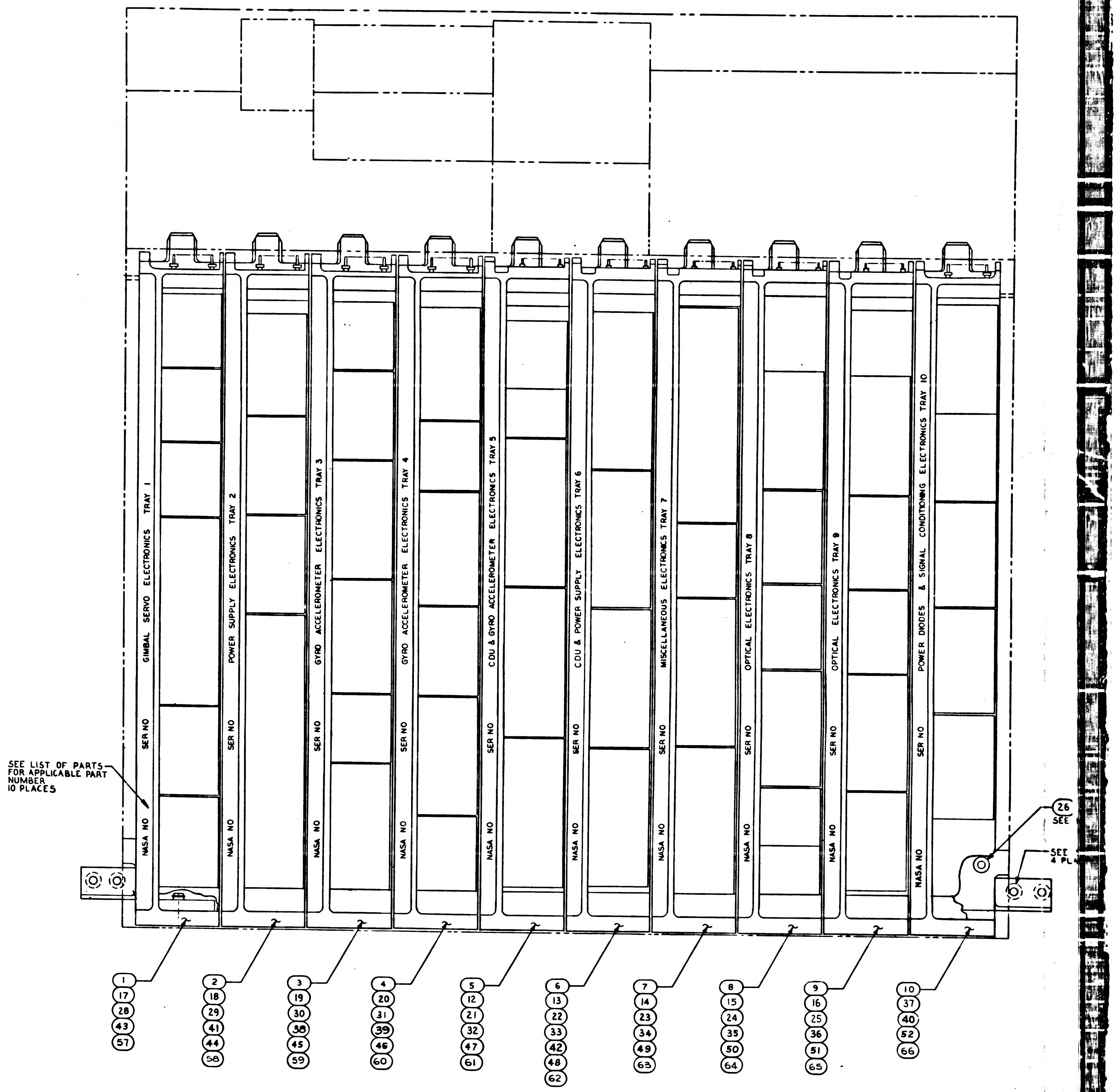
1007257 SH 1 REV LTR E

1/1007257

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TRAY ASSEMBLY TORQUE TO (11), (27) OR (53) TO BE 25-30 IN. LBS, AS APPLICABLE.
3. TOE CAP HARDWARE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC
4. PSA COLDPLATE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC. REF PART NO V16-614047
5. SERIALIZE WITH TAG PER ND 1002023.
6. TEST PER ATP 1007100.
7. MOUNTING TORQUE FOR (26) TO NAA COLDPLATE (REF NO. V16-614047) TO BE 30 TO 35 IN LB.
8. IDENTIFY (26) PER ND 1002019. ITEM MAY BE SHIPPED DISASSEMBLED FROM ITEM NO. (11), (27) OR (53) AS APPLICABLE.
9. VENDOR ITEM - SEE SPECIFICATION CONTROL DRAWING.

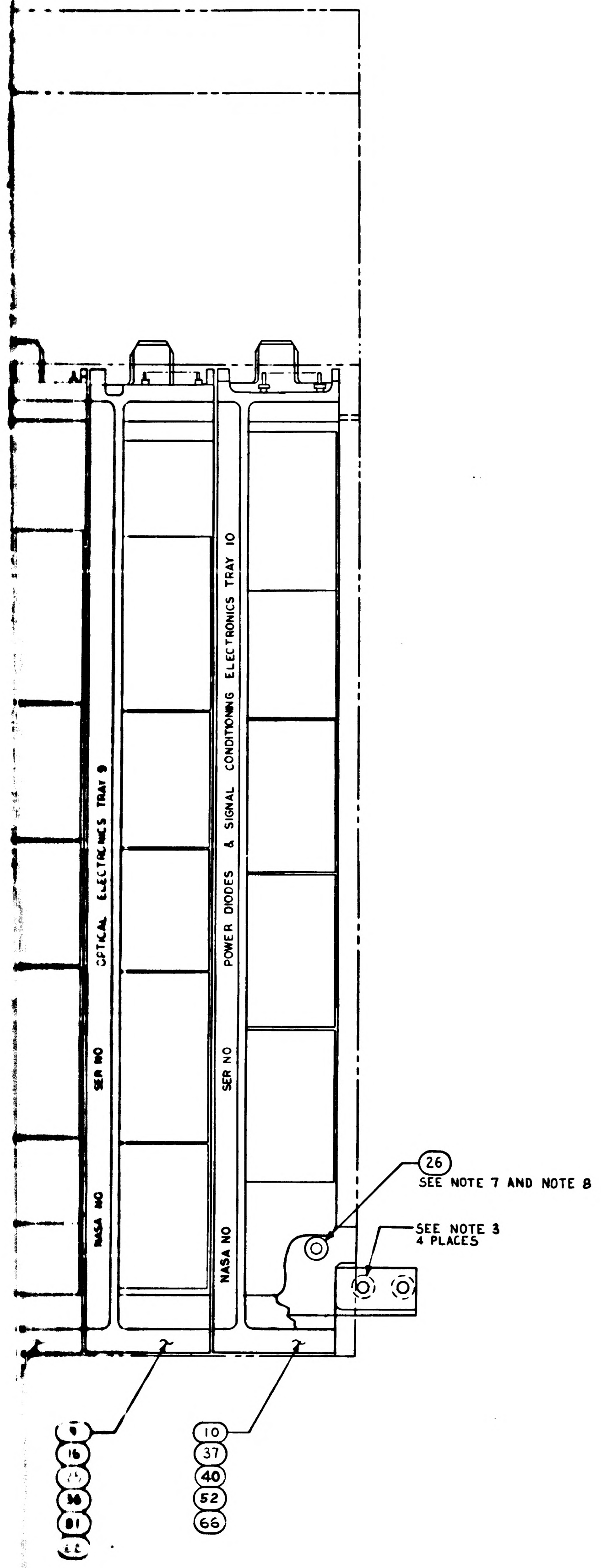

AGE HARNESS AND PSA
END CONNECTOR ASSEMBLY
DWG NO 1014606 REF
11
27
53

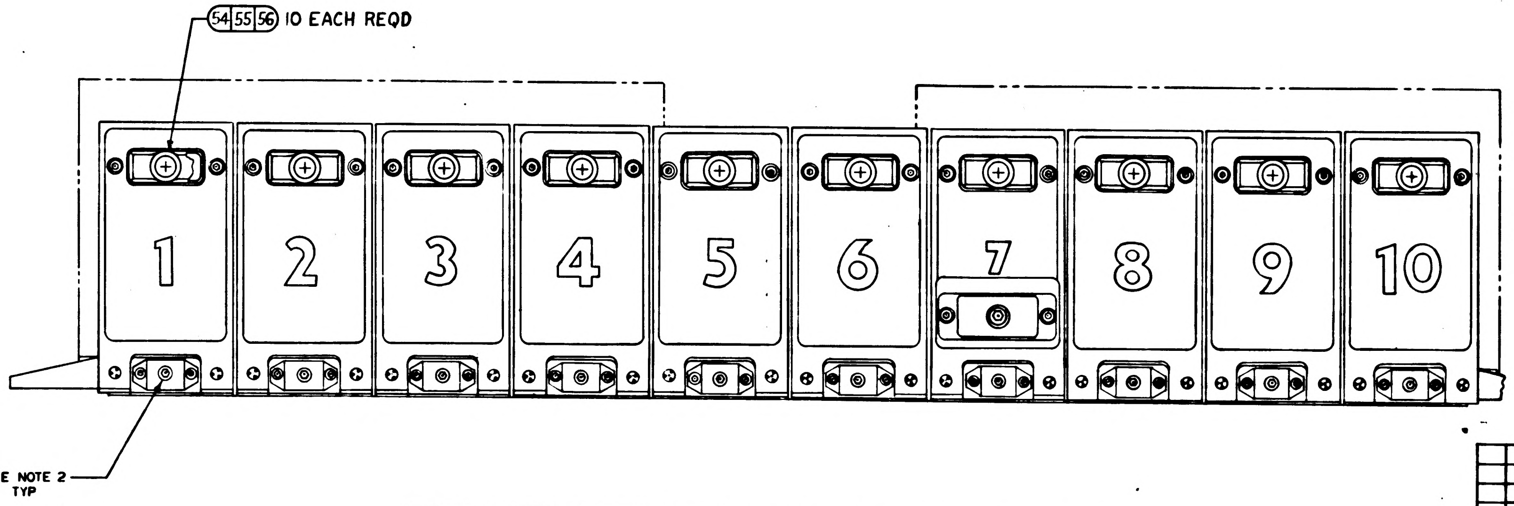

GIMBAL SERVO ELECTRONICS TRAY 1
POWER SUPPLY ELECTRONICS TRAY 2
GYRO ACCELEROMETER ELECTRONICS TRAY 3
GYRO ACCELEROMETER ELECTRONICS TRAY 4
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
CDU & POWER SUPPLY ELECTRONICS TRAY 6
MISCELLANEOUS ELECTRONICS TRAY 7
OPTICAL ELECTRONICS TRAY 8
OPTICAL ELECTRONICS TRAY 9
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
SER NO
NASA NO
SEE LIST OF PARTS FOR APPLICABLE PART NUMBER 10 PLACES
26
SEE
SEE
4 PL
1 17 28 43 57
2 18 29 41 44 58
3 19 30 38 45 59
4 20 31 39 46 60
5 12 21 32 47 61
6 13 22 33 42 48 62
7 14 23 34 49 63
8 15 24 35 50 64
9 16 25 36 51 65
10 37 40 52 66

1007257	SH 1	REV LTR G

1/1007257

REVISIONS TDRR 19032					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A₁	–	Ⓐ REVISED PER D.O 58912	—	20 JAN 65	GM
B	—	REVISED PER DO60044	—	22 FEB 65	EF
C	—	REVISED PER TDRR 20140	—	19 JUN -65	DAS
D		REVISED PER TDRR 25363		1 FEB 66	EF
E		REVISED PER TDRR-26392		2-MAR -66	B.
F		REVISED PER TDRR 27836		14-APR -66	B.
G		REVISED PER TDRR 38752		8	





SEE NOTE 9

061	051	041	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			1				66	1007256-051	POWER DIODES AND SIG. COND. ELECT. ASSY, TRAY 10
			1				65	1021229-021	OPTICAL ELECT. ASS'Y, TRAY 9
			1				64	1021228-021	OPTICAL ELECT. ASS'Y, TRAY 8
			1				63	1021227-021	MISC. ELECT. ASSY, TRAY 7
			1				62	1021226-021	CDU AND POWER SUP ELECT. ASS'Y, TRA6
			1				61	1021225-021	CDU AND GYRO ACCEL. ELECT. ASS'Y, TRAY 5
			1				60	1021224-021	GYRO ACCEL. ELECT. ASS'Y, TRAY 4
			1				59	1021223-021	GYRO ACCEL. ELECT. ASS'Y, TRAY 3
			1				58	1021222-021	POWER SUP. ELEC. ASS'Y, TRAY 2
			1				57	1021221-021	GIMBAL SERVO ELECT. ASSY, TRAY 1
10	10		10				56	1008826-002	SCREW, SELF LOCKING, SEALING
10	10		10				55	1008240	COVER, CONNECTOR
10	10		10				54	1008241	GASKET-SEAL, CONNECTOR
1							53	1007220	TOE CAP POWER AND SERVO ASSY
1							52	1007256-041	PWR DIODES & SIG COND ELEC ASSY, TRAY 10
1							51	1007459-021	OPTICAL ELEC ASSY, TRAY 9
1							50	1007458-021	OPTICAL ELEC ASSY, TRAY 8
1							49	1007577-041	MISC ELEC ASSY, TRAY 7
1							48	1007456-031	CDU & PWR SUP ELEC ASSY, TRAY 6
1							47	1007575-041	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
1							46	1007574-041	GYRO ACCEL ELEC ASSY, TRAY 4
1							45	1007573-041	GYRO ACCEL ELEC ASSY, TRAY 3
1							44	1007572-051	PWR SUP ELEC ASSY, TRAY 2
1							43	1007571-041	GIMBAL SERVO ELEC ASSY, TRAY 1
	1						42	1007456-021	CDU & PWR SUP ELEC ASSY, TRAY 6
	1						41	1007572-031	PWR SUP ELEC ASSY, TRAY 2
	1						40	1007256-031	PWR DIODES & SIG COND ELEC ASSY, TRAY 10
				1			39	1007260	GYRO ACCEL ELEC ASSY, TRAY 4
				1			38	1007260	GYRO ACCEL ELEC ASSY, TRAY 3
		1					37	1007256-021	PWR DIODES & SIG COND ELEC ASSY, TRAY 10
	1	1					36	1007459-011	OPTICAL ELEC ASSY, TRAY 9
QUANTITY REQUIRED							LIST OF PARTS AND MATERIALS		

061	051	041	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
	1	1					35	1007458-011	OPTICAL ELEC ASSY, TRAY 8
	1	1					34	1007577-021	MISC ELEC ASSY, TRAY 7
		1					33	1007456-011	CDU & PWR SUP ELEC ASSY, TRAY 6
	1	1					32	1007575-021	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
	1	1					31	1007574-021	GYRO ACCEL ELEC ASSY, TRAY 4
	1	1					30	1007573-021	GYRO ACCEL ELEC ASSY, TRAY 3
		1					29	1007572-021	PWR SUP ELEC ASSY, TRAY 2
	1	1					28	1007571-021	GIMBAL SERVO ELEC ASSY, TRAY 1
	1	1					27	1008535	TOE CAP POWER & SERVO ASSEMBLY
6	6	6	6	6	6		26	1008591-011	SCREW, REWORKED
							25	1021229-011	OPTICAL ELEC ASSY, TRAY 9
							24	1021228-011	OPTICAL ELEC ASSY, TRAY 8
							23	1021227-011	MISC ELEC ASSY, TRAY 7
							22	1021226-011	CDU & PWR SUP ELEC ASSY, TRAY 6
							21	1021225-011	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
							20	1021224-011	GYRO ACCEL ELEC ASSY, TRAY 4
							19	1021223-011	GYRO ACCEL ELEC ASSY, TRAY 3
							18	1021222-011	PWR SUP ELEC ASSY, TRAY 2
							17	1021221-011	GIMBAL SERVO ELEC ASSY, TRAY 1
					1		16	1007159	OPTICAL ELEC ASSY, TRAY 9
					1		15	1007158	OPTICAL ELEC ASSY, TRAY 8
					1		14	1007157	MISC ELEC ASSY, TRAY 7
					1		13	1007156	CDU & PWR SUP ELEC ASSY, TRAY 6
					1		12	1007155	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
			1	1	1		11	1008135	TOE CAP POWER & SERVO ASSEMBLY
				1	1		10	1007256-011	PWR DIO & SIG COND ELEC ASSY, TRAY 10
				1			9	1007179	OPTICAL ELEC ASSY, TRAY 9
				1			8	1007178	OPTICAL ELEC ASSY, TRAY 8
				1			7	1007177	MISC ELEC ASSY, TRAY 7
				1			6	1007176	CDU & PWR SUP ELEC ASSY, TRAY 6
				1			5	1007175	CDU & GYRO ACCEL ELEC ASSY, TRAY 5
				∓	1		4	1007154	GYRO ACCEL ELEC ASSY, TRAY 4
				±	1		3	1007153	GYRO ACCEL ELEC ASSY, TRAY 3
				1	1		2	1007152	PWR SUP ELEC ASSY, TRAY 2
				1	1		1	1007151	GIMBAL SERVO ELEC ASSY, TRAY 1
QUANTITY REQUIRED							LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1015000		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + — − — DECIMALS + — − — ANGLES + — − —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN C.B.K. 21 AUG 64
CHECKED 26 AUG 64
APPROVAL 26 AUG 64
APPROVAL 1/30/65
NASA APPROVAL 5-13-65
MIT APPROVAL 12 May 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

POWER AND SERVO ASSEMBLY

CODE IDENT NO. 80230
SIZE
1007257
SCALE FULL
SHEET 1 OF 1

1007257 G

)07257 SH 1 REV LTR G

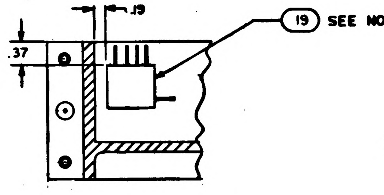
27 1007257

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A,		Ⓐ REVISED PER DO 58912		25 JAN 65	GM

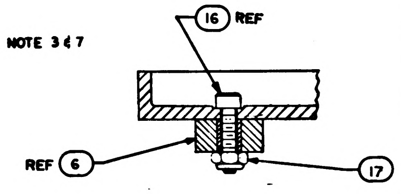
REVISIONS TORR 19032

NOTES:

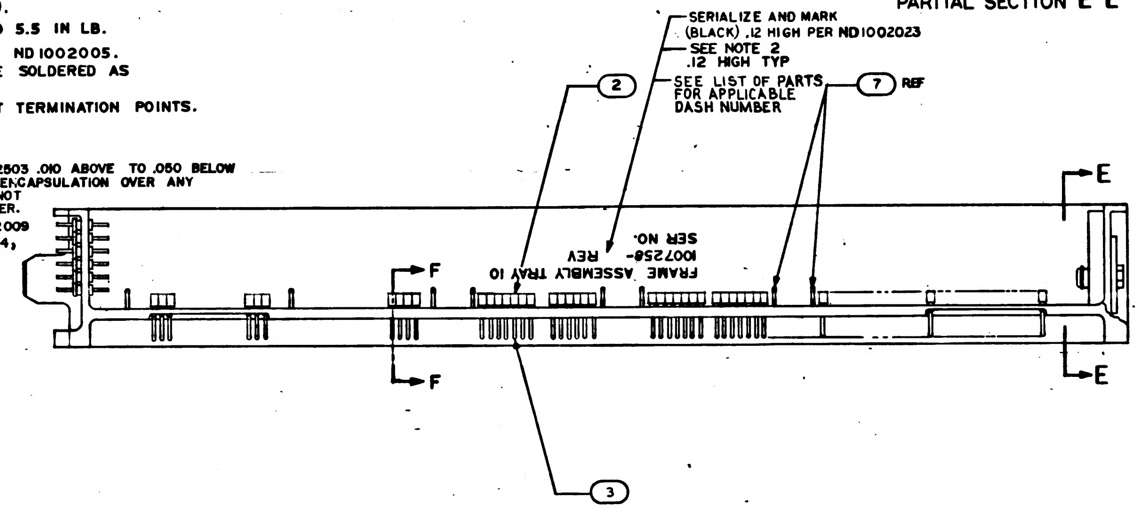
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK PER ND1002019, BLACK. CENTRALIZE AS SHOWN.
3. BOND ⑲ TO ① PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWINGS 1010657 AND 1010686.
4. ASSEMBLE ②, ③, ④ AND ⑤ PER ND1002136.
5. BOND ⑳, ㉑ AND ㉒ TO ① PER ND1002004 AS NECESSARY.
6. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
7. SEE CONDUCTOR TERMINATION CHART FOR ⑲.
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE FROM ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF ⑮ DURING ASSEMBLY TO ① USING ㉓.
10. MOUNTING TORQUE FOR ⑮ AND ⑯ TO ① TO BE FROM 5.0 TO 5.5 IN LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING ㉔. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS1007258-011.
13. BOND ⑬ AND ⑭ TO ⑤ PER ND1002237.
14. ENCAPSULATE PER ND1002236 SECTION 3.6, CURE CYCLE A OR B USING 1012503 .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUN DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
15. COAT SOCKET HOLES OF ⑥ (HOLES WITH AND WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004, TYPE I.

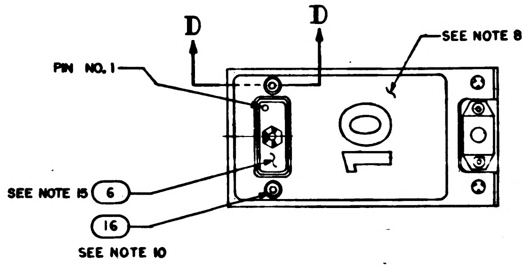


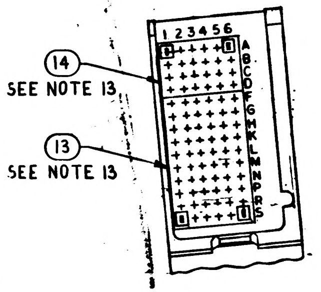
PARTIAL SECTION E-E

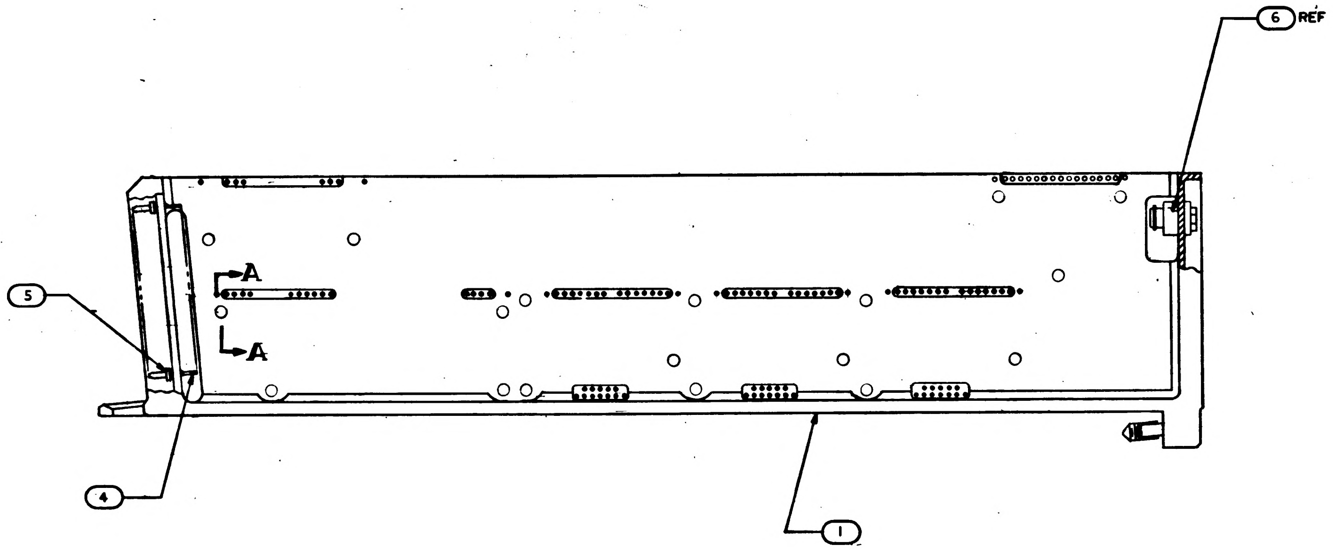


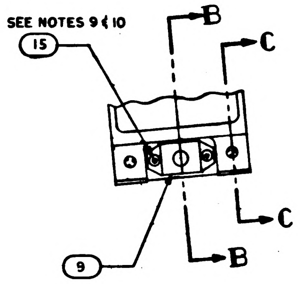
PARTIAL SECTION D-D
SCALE 2/1


SERIALIZE AND MARK (BLACK) .12 HIGH PER ND1002023
SEE NOTE 2 .12 HIGH TYP
SEE LIST OF PARTS FOR APPLICABLE DASH NUMBER
②
⑦ REF
FRAME ASSEMBLY TRAY 10
1007258- REV
SER NO.
E
E
F
F
③

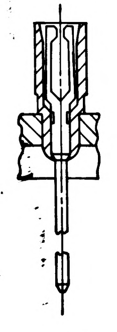




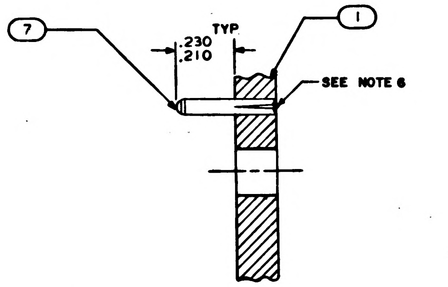




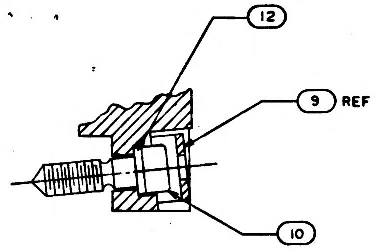
TERMINATION CHART	
FROM	TO
45A10E8	45A10J1-24
45A10E9	45A10J1-17
45A10E10	45A10J1-32
45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28



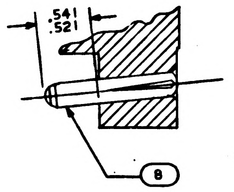
PARTIAL SECTION F-F
113 PLACES



SECTION AA
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

		021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
		X	X		25	1010233	WIRING DIAGRAM
		AR	AR		24	QQ-S-571, SN60	SOLDER
		AR	AR		23	MIL-P-8585	ZINC CHROMATE PRIMER
		1	1		22	1008260	WIRE LIST AA
		1	1		21	1008259	WIRING HARNESS B
		1	1		20	1008258	WIRING HARNESS A
		1	1		19	1007093	BUFFER RESISTORS MODULE ASSY
					18		
		2	2		17	MS21045C04	NUT, SELF-LOCKING HEX
		2	2		16	MS16995-11	SCREW, CAP, SOCKET HEAD
		3	3		15	MS16995-10	SCREW, CAP, SOCKET HEAD
		1			14	1008551	GASKET
		1			13	1008552	GASKET
		1	1		12	1008099-2	WASHER
					11		
		1	1		10	1008098	SCREW, SOCKET HEAD
		1	1		9	1001317	RETAINER, JACK SCREW
		2	2		8	1010620-5	PIN, GUIDE
		12	12		7	MS16556-604	PIN, GUIDE
		1	1		6	1010821-1	CONNECTOR, RECEPTACLE
		84	84		5	1010383-1	INSULATOR, WRAPOST, MALE
		84	84		4	1010382-1	CONTACT, BLADE EDGE, CONNECTOR
		113	113		3	1006781-2	CONTACT, WRAPOST, FEMALE
		113	113		2	1006774	INSULATOR, WRAPOST, FEMALE
		1	1		1	1008257	FRAME (INSEPARABLE ASSEMBLY)

QUANTITY REQUIRED
LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
1007256	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + — − —
DECIMALS ±.02
ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN DATE 4 Aug 64
CHECKED A. M. Udovich 25 AUG 64
APPROVAL 26 Aug 64
APPROVAL 1/9/65
NASA APPROVAL 5-2-65
MIT APPROVAL 12 May 65

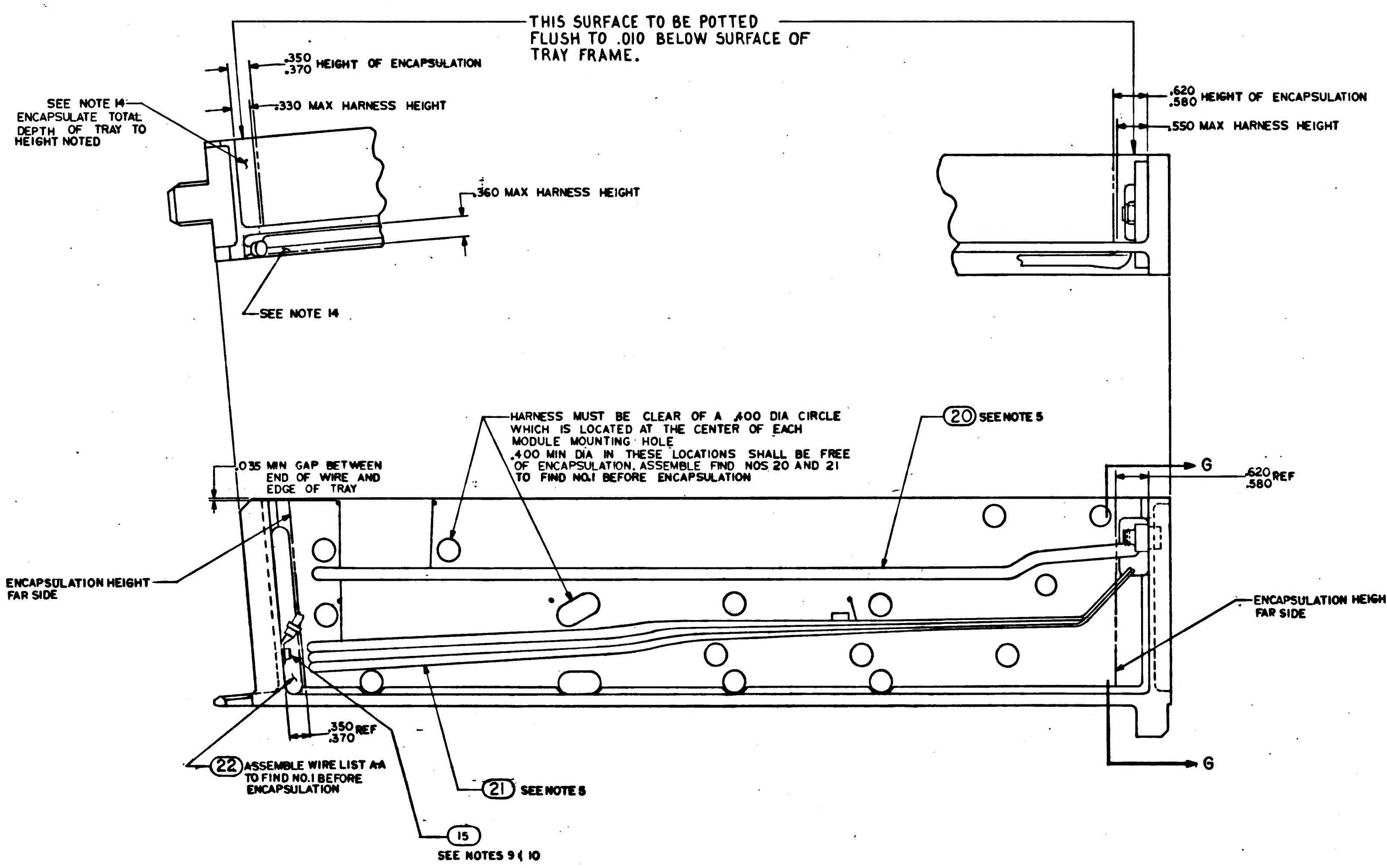
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

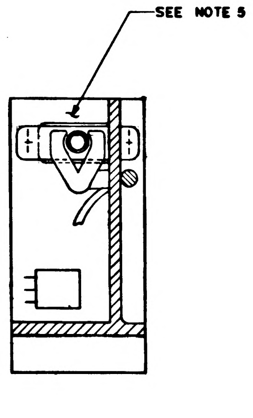
CODE IDENT NO.
SIZE E
1007258
SCALE FULL
SHEET 1 OF 2

1H

REVISIONS TURR 19032					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD.
A.		Ⓐ REVISED PER DC 58912		25 JAN 65	GM / PF


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 14 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 14
.620 .580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
20 SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
G
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350 .370 REF
22 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ENCAPSULATION
21 SEE NOTE 5
15 SEE NOTES 9 & 10
G

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11

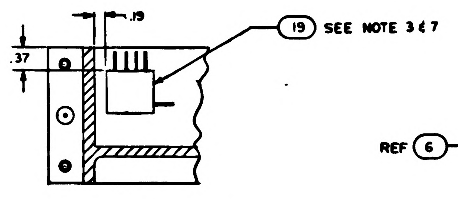


SECTION G-G

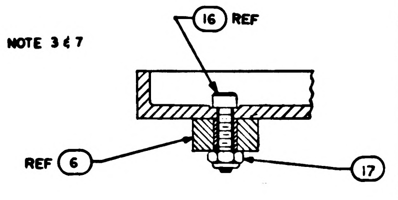
NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS + — — — DECIMALS ±.02 ANGLES + — — —	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
APPLICATION		DO NOT SCALE THIS DRAWING	ACSP PN	FRAME ASSEMBLY TRAY 10
		MATERIAL —	DRAWN C. M. Kufe DATE 4 Aug 64 CHECKED G. M. Udovich 25 AUG 64 APPROVAL R. Osberg 26 AUG 64 APPROVAL D. R. Tiat 4/9/65	CODE IDENT NO. / SIZE E / 1007258
		CONTRACT NAS 9-497	NASA APPROVAL 5-12-65 MIT APPROVAL 12 May 65	SCALE FULL / SHEET 2 OF 2

NOTES:

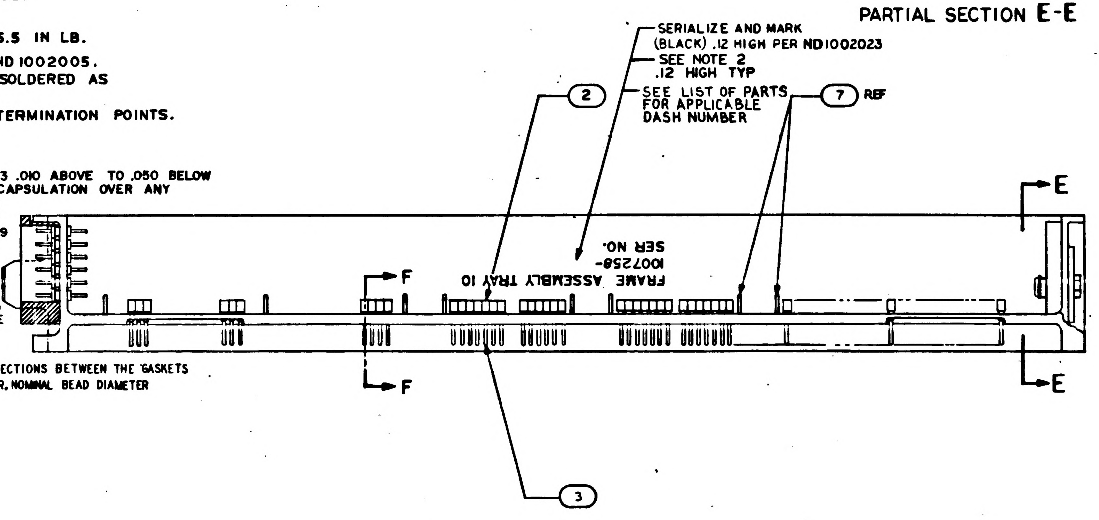
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK PER ND1002019, BLACK. CENTRALIZE AS SHOWN.
3. BOND ⑲ TO ① PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DRAWINGS 1010657 AND 1010686.
4. ASSEMBLE ②, ③, ④ AND ⑤ PER ND1002136.
5. BOND ⑳, ㉑ AND ㉒ TO ① PER ND1002004 AS NECESSARY.
6. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
7. SEE CONDUCTOR TERMINATION CHART FOR ⑲.
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE FROM ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF ⑮ DURING ASSEMBLY TO ① USING ㉓.
10. MOUNTING TORQUE FOR ⑮ AND ⑯ TO ① TO BE FROM 5.0 TO 5.5 IN LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING ㉔. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS1007258-011.
13. BOND ⑬ AND ⑭ TO ⑤ PER ND1002237.
14. ENCAPSULATE PER ND1002236 SECTION 3.6, CURE CYCLE A OR B USING 1012503 .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
15. COAT SOCKET HOLES OF ⑥ (HOLES WITH AND WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004, TYPE I.
16. FILL CAVITY PER ND1002009 METHOD J
17. BOND FIND NO. 29 TO FIND NO. 1 PER ND1002151 USING ADHESIVE MIL-A-25457.
18. PAINT THE MODULE MOUNTING SURFACE AND THE SURFACE PERPENDICULAR TO THE MODULE MOUNTING SURFACE PER ND1002292 USING MIL-C-15328 WASH PRIMER FOLLOWED BY MIL-P-8585 ZINC CHROMATE PRIMER FOLLOWED BY 1012543-003 PAINT. MODULE GUIDE PINS, CONNECTOR FEMALE PINS AND INSULATORS ARE TO BE FREE OF PAINT. SEE FIND NO. 30
19. APPLY A BEAD OF SILICONE GREASE MIL-S-8660 BETWEEN THE ROWS OF MALCO PINS IN BOTH DIRECTIONS BETWEEN THE GASKETS AND THE TRAY FRAME AND AROUND THE PERIMETER OF THE GASKETS ON THE MALCO CONNECTOR. NOMINAL BEAD DIAMETER SHALL BE 1/8 INCH.



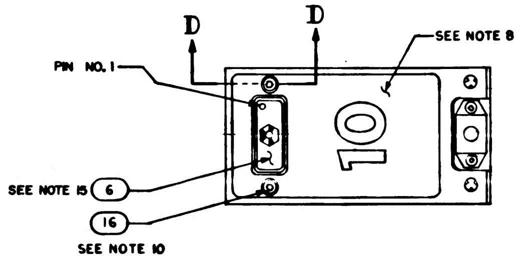
PARTIAL SECTION E-E



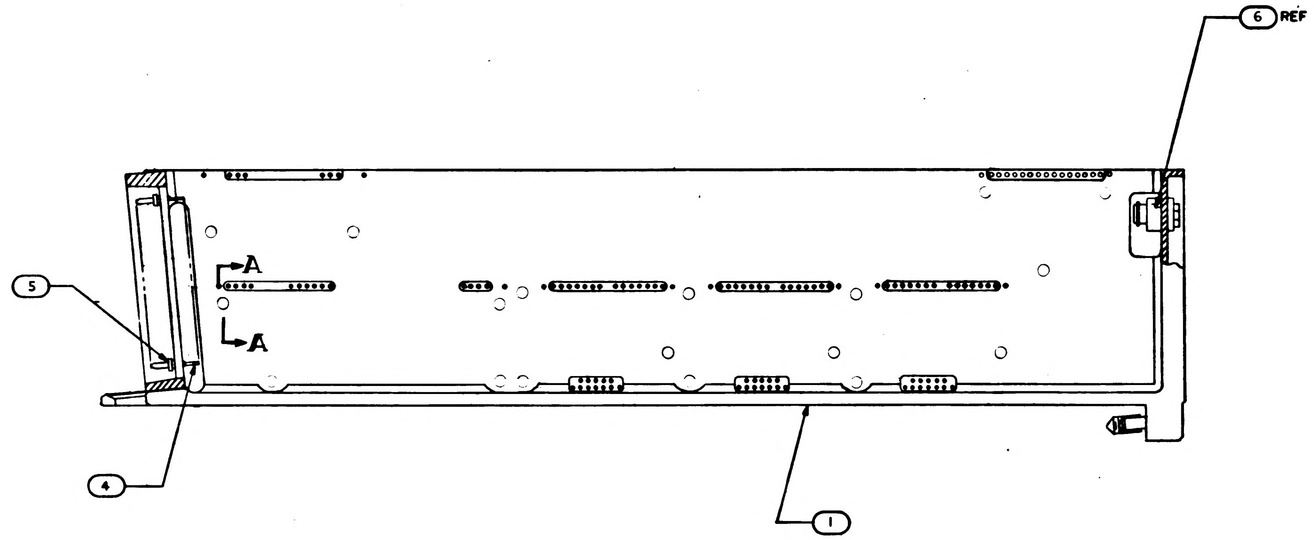
PARTIAL SECTION D-D
SCALE 2/1

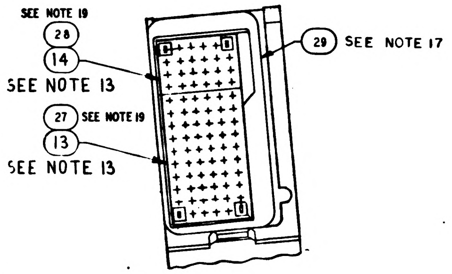


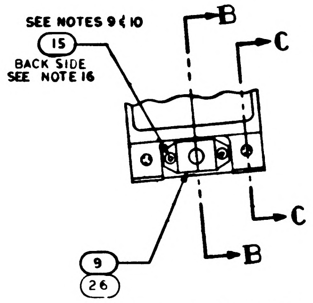
SERIALIZE AND MARK (BLACK) .12 HIGH PER ND1002023
SEE NOTE 2 .12 HIGH TYP
SEE LIST OF PARTS FOR APPLICABLE DASH NUMBER
②
⑦ REF
③
FRAME ASSEMBLY TRAY 10
1007258-
SER NO.
E
E
F
F



REVISIONS TDRR 19032					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		Ⓐ REVISED PER DO 58912		25 JAN 65	GM
B		REVISED PER TDRR 26413		MAR 66	





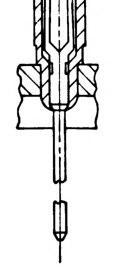


	AR	—	—		30	SEE NOTE 18	MOISTURE PROOFING
	1	—	—		29	1008335	GASKET, MINI-WASP
	1	—	—		28	1008337	GASKET, CONNECTOR
	1	—	—		27	1008338	GASKET, CONNECTOR
	1	—	—		26	1008333	RETAINER, JACK SCREW

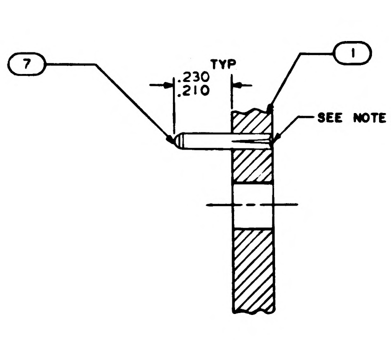
TERMINATION CHART	
FROM	TO
45A10E8	45A10J1-24
45A10E9	45A10J1-17
45A10E10	45A10J1-32
45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28

	X	X	X		25	1010233	WIRING DIAGRAM
	AR	AR	AR		24	QQ-S-571, SN60	SOLDER
	AR	AR	AR		23	MIL-P-8585	ZINC CHROMATE PRIMER
	1	1	1		22	1008260	WIRE LIST AA
	1	1	1		21	1008259	WIRING HARNESS B
	1	1	1		20	1008258	WIRING HARNESS A
	1	1	1		19	1007093	BUFFER RESISTORS MODULE ASSY
					18		
	2	2	2		17	MS21045C04	NUT, SELF-LOCKING HEX
	2	2	2		16	MS16995-11	SCREW, CAP, SOCKET HEAD
	3	3	3		15	MS16995-10	SCREW, CAP, SOCKET HEAD
	—	1	—		14	1008551	GASKET
	—	1	—		13	1008552	GASKET
	1	1	1		12	1008099-2	WASHER
					11		
	1	1	1		10	1008098	SCREW, SOCKET HEAD
	—	1	1		9	1001317	RETAINER, JACK SCREW
	2	2	2		8	1010620-5	PIN, GUIDE
	12	12	12		7	MS16556-604	PIN, GUIDE
	1	1	1		6	1010821-1	CONNECTOR, RECEPTACLE
	84	84	84		5	1010383-1	INSULATOR, WRAPOST, MALE
	84	84	84		4	1010382-1	CONTACT, BLADE EDGE, CONNECTOR
	113	113	113		3	1006781-2	CONTACT, WRAPOST, FEMALE
	113	113	113		2	1006774	INSULATOR, WRAPOST, FEMALE
	1	1	1		1	1008257	FRAME (INSEPARABLE ASSEMBLY)
	031	021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

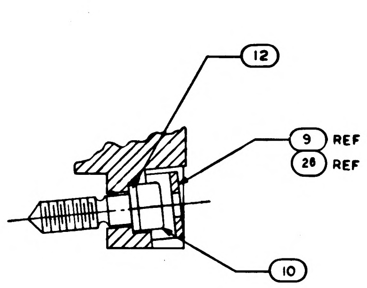
1007258



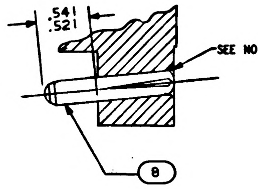
PARTIAL SECTION F-F
113 PLACES



SECTION A A
SCALE 4/1



SECTION B-B
SCALE 2/1

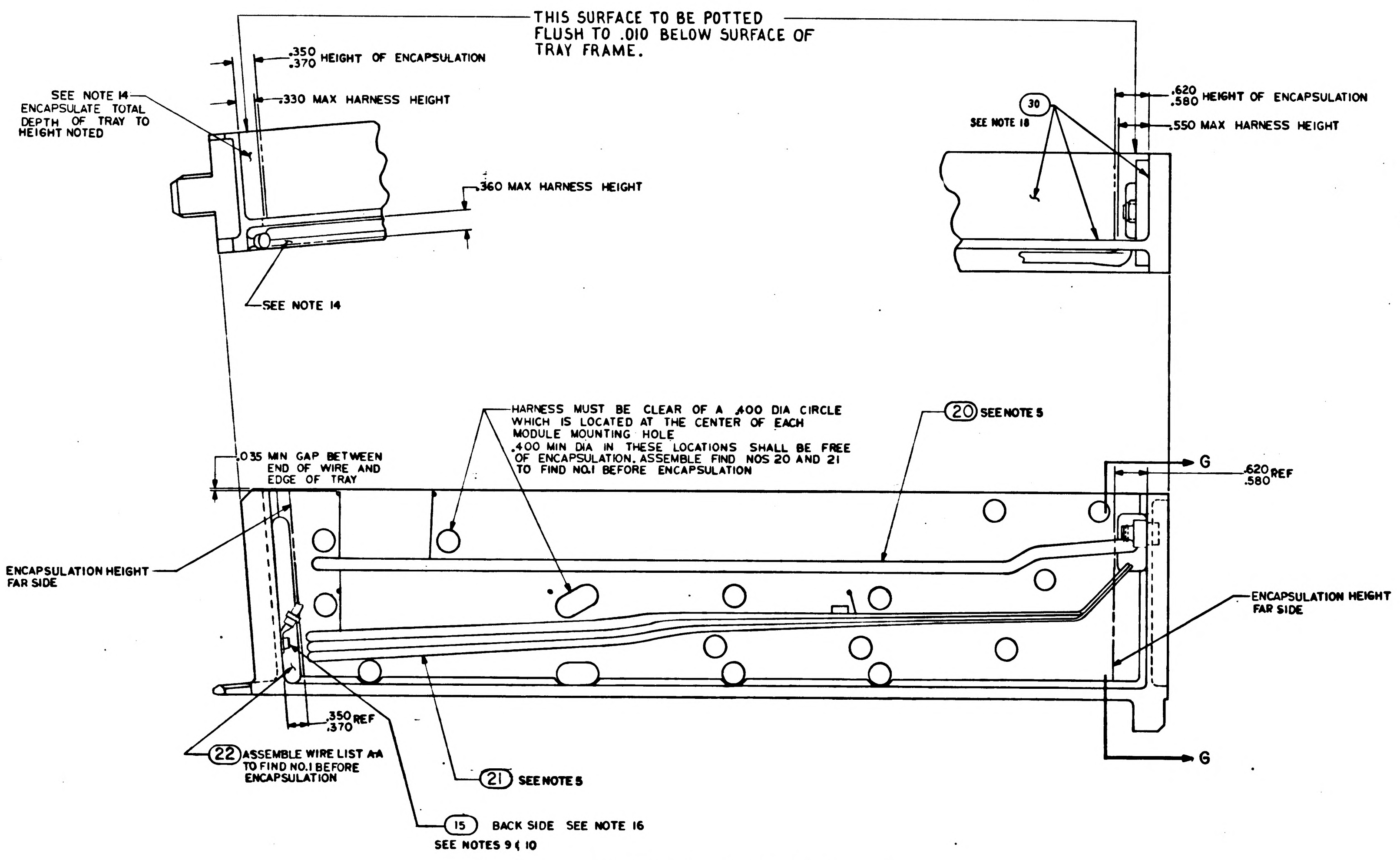


SECTION C-C
SCALE 2/1

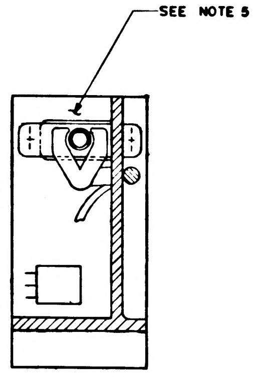
1H

1007256		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS + — — — DECIMALS ±.02 — — ANGLES ±1° — — DO NOT SCALE THIS DRAWING	AC SPARK PLUG DIVISION. GMC MILWAUKEE. WISCONSIN ACSP PN DRAWN R. M. Kaufer DATE 4 Aug 64 CHECKED A. M. Udovich 25 AUG 64 APPROVAL 26 AUG 64 APPROVAL	MANNED SPACECRAFT CENTER HOUSTON. TEXAS FRAME ASSEMBLY TRAY 10
NEXT ASSY	USED ON	MATERIAL —	NASA APPROVAL 5-2- MIT APPROVAL 12 MAY	CODE IDENT NO. SIZE E 1007258
APPLICATION		CONTRACT NAS 9-497		SCALE FULL SHEET 1 OF 2

REVISIONS TDRR 19032					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A.		Ⓐ REVISED PER DO 58912		25 JAN 65	GM
B		REVISED PER TDRR 26413		2 MAR	


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 14 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 14
30
SEE NOTE 18
.620 .580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
20 SEE NOTE 5
G
.620 .580 REF
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350 .370 REF
22 ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
21 SEE NOTE 5
15 BACK SIDE SEE NOTE 16
SEE NOTES 9 & 10
G

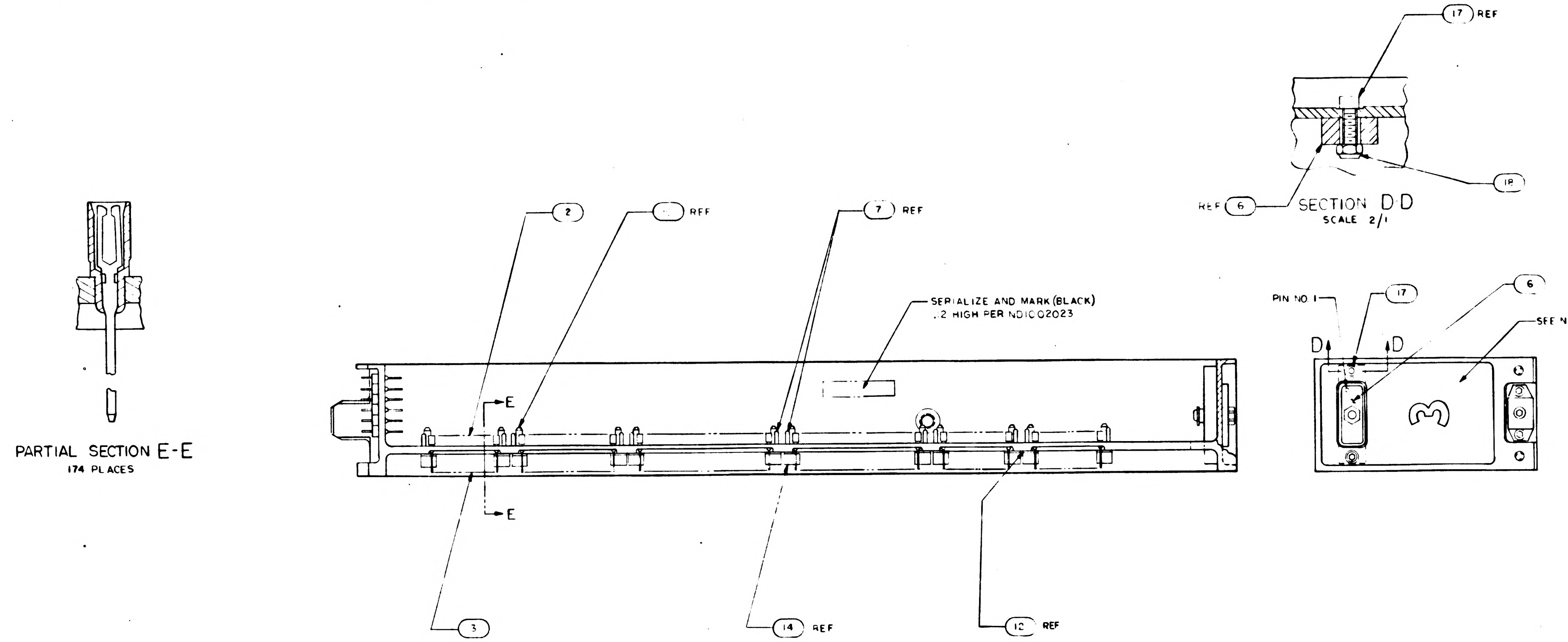
ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11

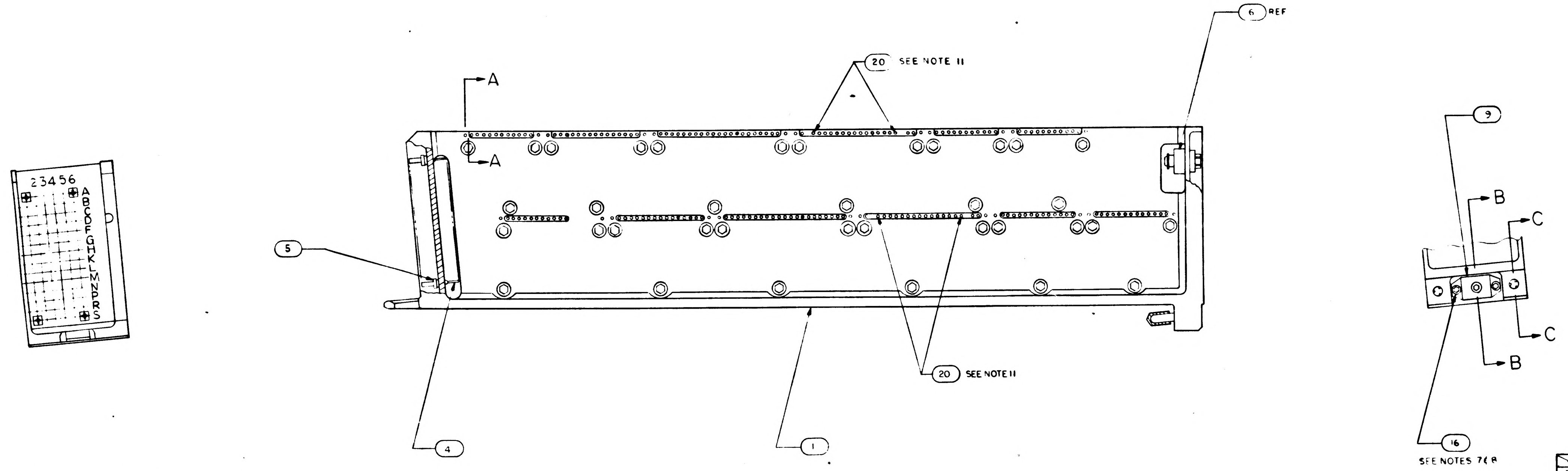


SECTION G-G

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS +— —— DECIMALS ±.02 —— ANGLES +— ——	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
DO NOT SCALE THIS DRAWING	ACSP PN			
	DRAWN G. M. Kulp DATE 4 Aug 64 CHECKED G. M. Adovich 25 AUG 64 APPROVAL R. Osberg 26 AUG 64 APPROVAL 1/3/65	FRAME ASSEMBLY TRAY 10		
MATERIAL —	NASA APPROVAL 5-12- MIT APPROVAL 12 May	CODE IDENT NO.	SIZE E	1007258
NEXT ASSY / USED ON APPLICATION				
CONTRACT NAS 9-497		SCALE FULL		SHEET 2 OF 2

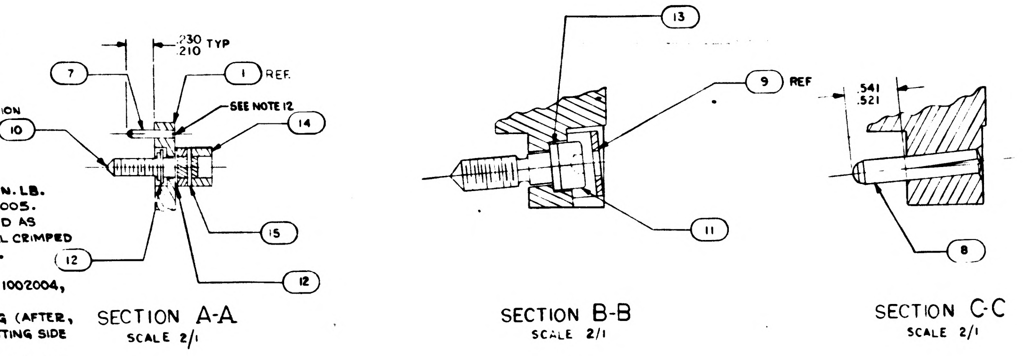
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 20118		21 JUN 65	


PARTIAL SECTION E-E
174 PLACES
2
REF
7 REF
SERIALIZE AND MARK (BLACK) .2 HIGH PER ND1002023
E
E
3
14 REF
12 REF
17 REF
18
REF 6
SECTION D-D
SCALE 2/1
PIN NO 1
17
6
SEE NOTE 6
D
D
3


6 REF
20 SEE NOTE 11
A
A
23456
ABCDEFGHKLMNPRS
5
4
1
20 SEE NOTE 11
9
B
C
C
B
16
SEE NOTES 7 & 8

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ASSEMBLE FIND NUMBERS 2.3.4 AND 5 PER ND1002136.
3. MARK PER ND1002019.
4. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 AS NECESSARY
5. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 16 DURING FINAL ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
8. MOUNTING TORQUE FOR FIND NO.'S 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
10. PROCURE PER PS 1007143.
11. BOND ITEM 20 IN HOLES, 45A3J4-3 & -17 AND 45A3J10-3 & -17 PER ND1002004, TYPE I.
12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER, GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
13. COAT FIND NO. 6 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND 1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004 TYPE I.


7
.230
.210 TYP
1 REF
SEE NOTE 12
14
10
15
12
12
SECTION A-A
SCALE 2/1
13
9 REF
11
SECTION B-B
SCALE 2/1
.541
.521
8
SECTION C-C
SCALE 2/1

NO. REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
	1008452	WIRING DIAGRAM	REF
4	1008256	PIN, POLARIZING	20
1	10 5735	WIRING HARNESS A	19
2	MS21045C04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW CAP SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
36	MS171433	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	010620-5	PIN, GUIDE	8
24	MS16556-604	PIN, GUIDE	7
	010622-1	CONNECTOR, RECEPTACLE	6
64	010383-1	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
174	006781-2	CONTACT, WRAPOST, FEMALE MIN	3
174	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008523	FRAME	1

LIST OF PARTS AND MATERIALS

1007260	1007170
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT VA-3 497

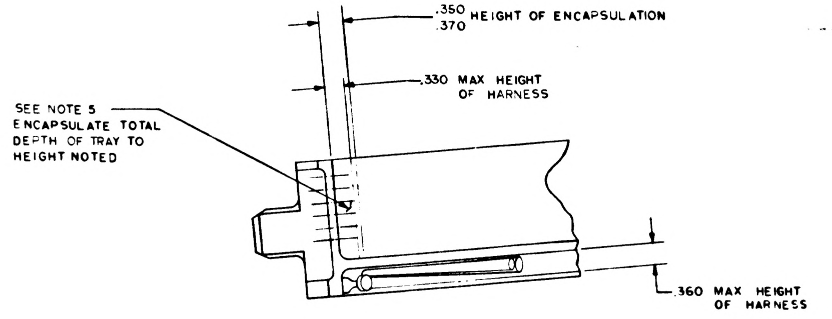
AC ~~SPARK PLUG DIVISION, GMC~~
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN C. Kostela DATE 15 JAN 65
CHECKED Ed Foster 20 JAN65
APPROVAL 20 JAN65
APPROVAL 20 JAN65
NASA APPROVAL
MIT APPROVAL W Kay 18 Feb 65

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

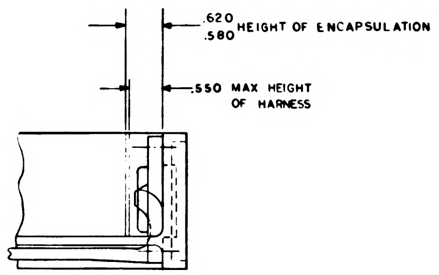
FRAME ASSEMBLY
TRAY 3

CODE IDENT NO
SIZE E
1007259
SCALE FULL
SHEET 1 OF 2

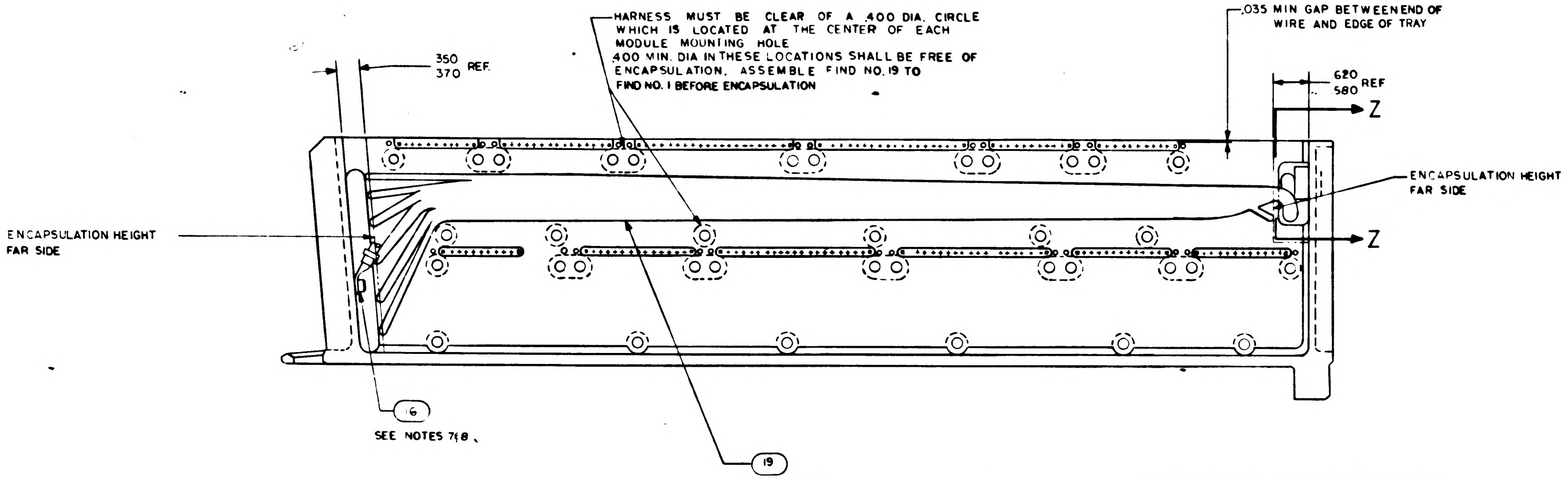
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISION STATUS CHANGED		2 JUN 65	



.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 5 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS

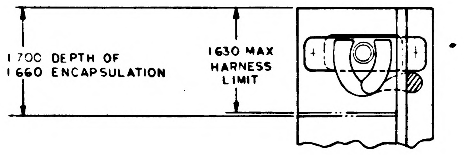


.620 .580 HEIGHT OF ENCAPSULATION
.550 MAX HEIGHT OF HARNESS



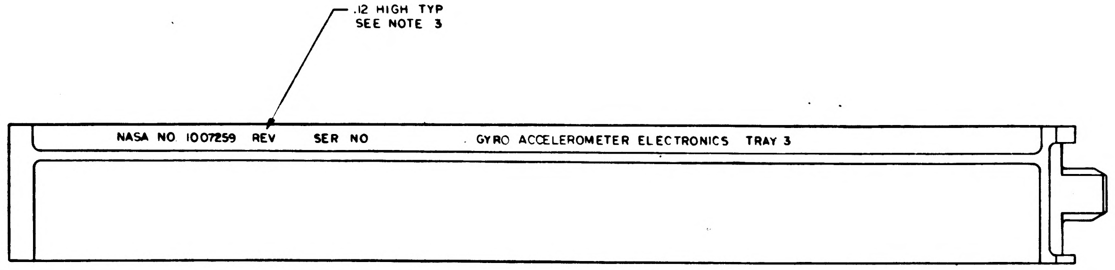
HARNESS MUST BE CLEAR OF A .400 DIA. CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN. DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO. 19 TO FIND NO. 1 BEFORE ENCAPSULATION
.350 .370 REF
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.620 .580 REF
Z
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
6
SEE NOTES 7 & 8
19
SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9



1.700 DEPTH OF
1.660 ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z

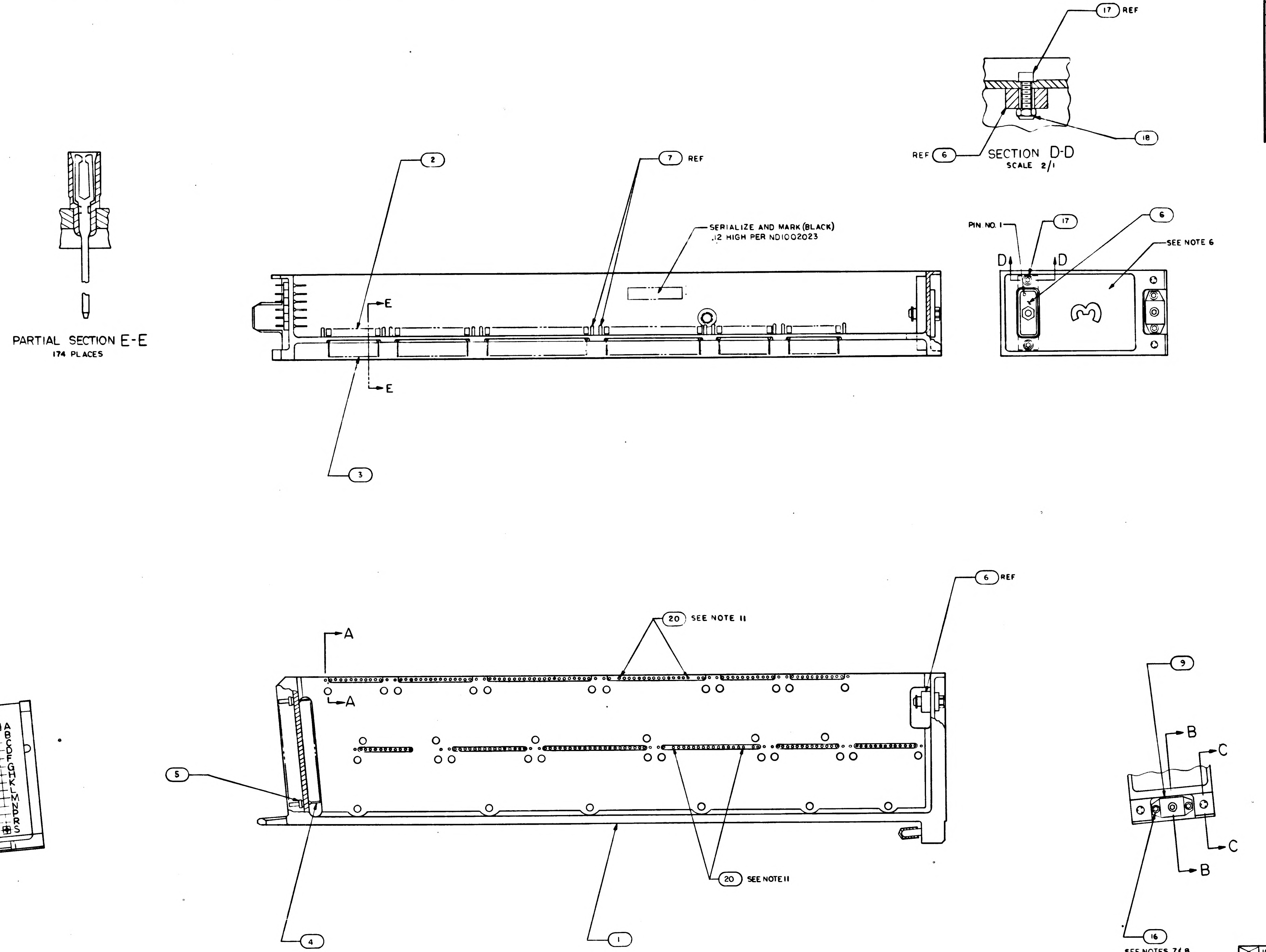


.12 HIGH TYP SEE NOTE 3
NASA NO 1007259 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY 3

MARKING VIEW AFTER ENCAPSULATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ± ± ±	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
	ACSP PN	
DO NOT SCALE THIS DRAWING	DRAWN Knotek DATE 13 JAN 65 CHECKED Ed Foster 20 JAN 65 APPROVAL R. 20 JAN 65 APPROVAL JAN 65	FRAME ASSEMBLY TRAY 3
MATERIAL	NASA APPROVAL	CODE IDENT NO. SIZE E 1007259
CONTRACT NAS 9-497	MIT APPROVAL	SCALE FULL SHEET 2 of 2

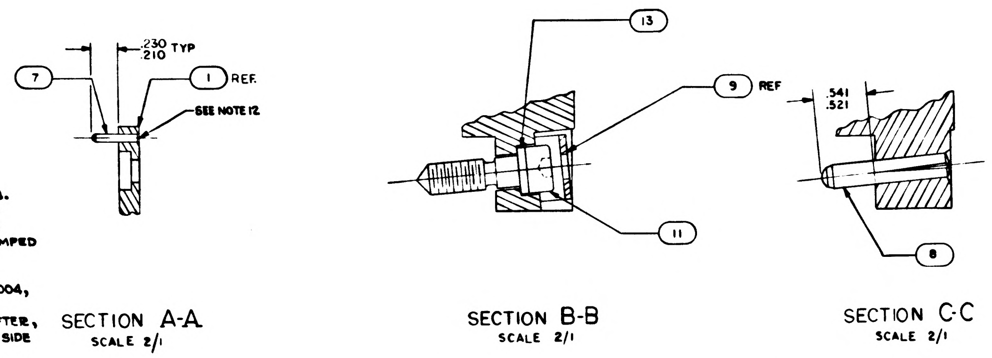
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 20118		21 JUN 65	RG / mkm
B		REVISED PER TDRR 20119		23 JUN 65	RG / mkm



17 REF
18
REF 6
SECTION D-D
SCALE 2/1
PIN NO. 1
17
6
SEE NOTE 6
D
D
3
2
7 REF
SERIALIZE AND MARK (BLACK) .12 HIGH PER ND1002023
E
E
3
PARTIAL SECTION E-E
174 PLACES
6 REF
20 SEE NOTE 11
A
A
23456
ABCDEFGHJKLMNPRS
5
4
1
20 SEE NOTE 11
9
B
C
C
B
16
SEE NOTES 7 & 8

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136.
3. MARK PER ND1002019.
4. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 AS NECESSARY.
5. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 16 DURING FINAL ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
8. MOUNTING TORQUE FOR FIND NO.'S 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN.LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
10. PROCURE PER PS 1007143.
11. BOND ITEM 20 IN HOLES, 45A3J4-3 & 17 AND 45A3J10-3 & 17 PER ND1002004, TYPE I.
12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER, GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
13. COAT FIND NO. 6 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004 TYPE I.



.230
.210 TYP
7
1 REF.
SEE NOTE 12
SECTION A-A
SCALE 2/1
13
9 REF
11
SECTION B-B
SCALE 2/1
.541
.521
8
SECTION C-C
SCALE 2/1

NO. REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1008452	WIRING DIAGRAM	REF
4	1008256	PIN, POLARIZING	20
1	1015735	WIRING HARNESS A	19
2	MS21045C04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW CAP SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
~~36~~	~~MS171433~~	~~PIN, SPRING~~	15
~~36~~	~~1004207~~	~~DRIVE CYLINDER~~	14
1	1008099-2	WASHER	13
~~72~~	~~1004266~~	~~WASHER, THRUST~~	12
1	1008098	SCREW, SOCKET HEAD	11
~~36~~	~~1008172~~	~~SCREW, JACK~~	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
24	MS16556-604	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
174	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
174	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008523	FRAME	1

LIST OF PARTS AND MATERIALS

1007260	1007170
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

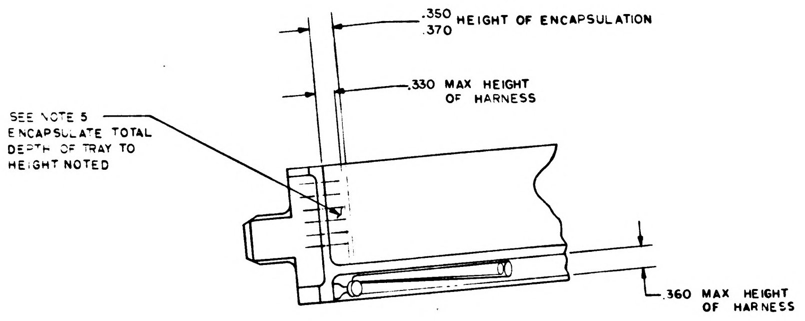
AC ~~SPARK PLUG DIVISION, GMC~~
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN C. Knotek DATE 15 JAN 65
CHECKED Ed Foster 20 JAN 65
APPROVAL 20 JAN 65
APPROVAL 20 JAN 65
NASA APPROVAL
MIT APPROVAL 18 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

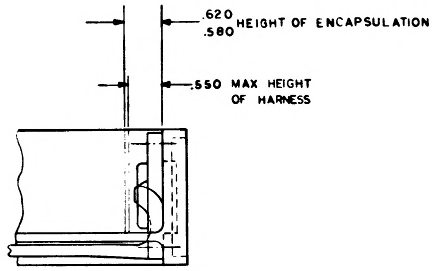
FRAME ASSEMBLY
TRAY 3

CODE IDENT NO.
SIZE E
1007259
SCALE FULL
SHEET 1 OF 2

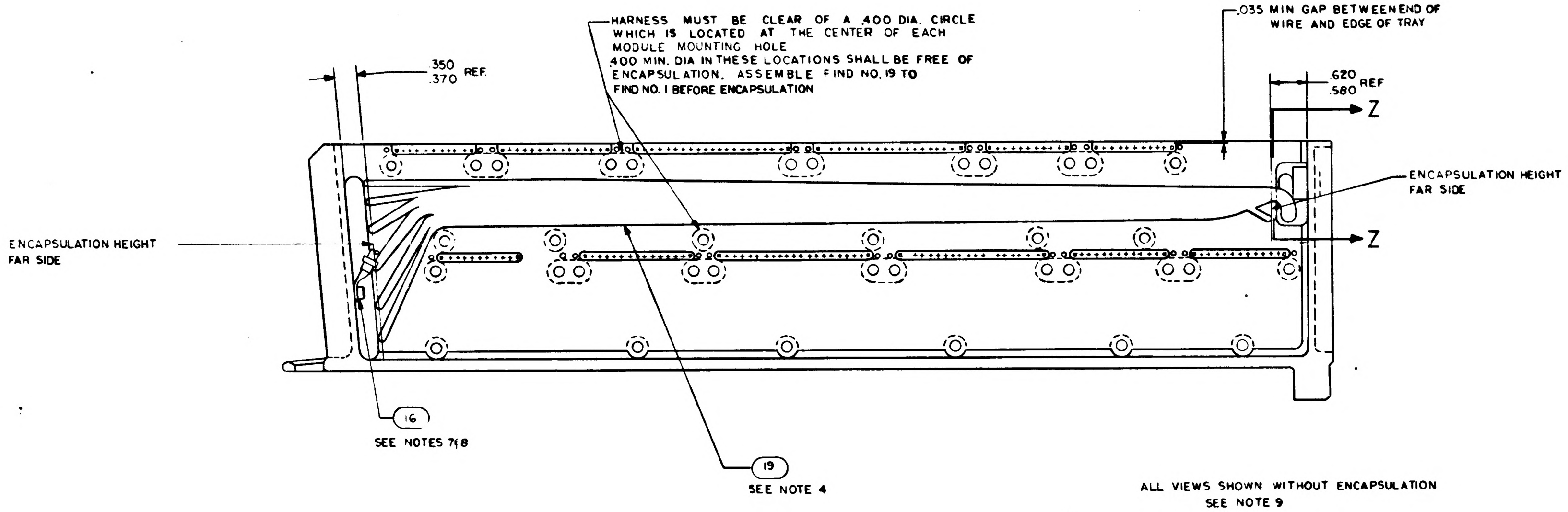
REVISIONS					
SYM	ZONE	DESCRIPTION		DATE	APPD
A		REVISION STATUS CHANGED	CHG NO	2 JUN 65	24 / MCM
B		REVISION STATUS CHANGED		23 JUN 65	21B / MCM



.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 5 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS

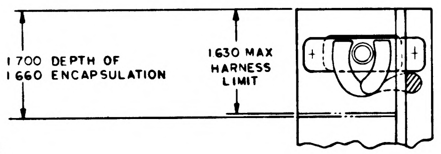


.620 .580 HEIGHT OF ENCAPSULATION
.550 MAX HEIGHT OF HARNESS



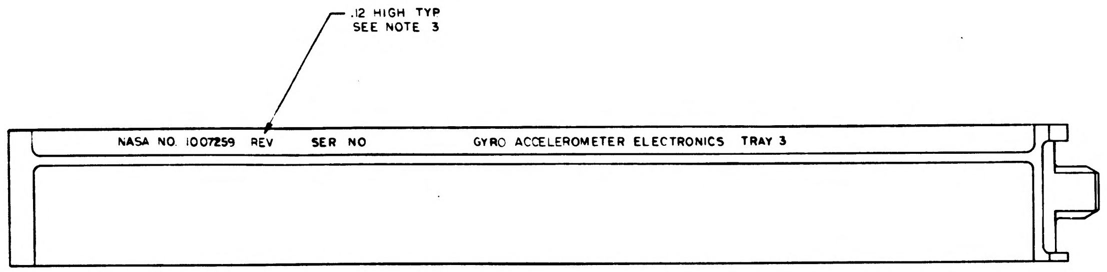
HARNESS MUST BE CLEAR OF A .400 DIA. CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN. DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO. 19 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350 .370 REF
.620 .580 REF
Z
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
16
SEE NOTES 7 & 8
19
SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9



1.700 DEPTH OF
1.660 ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z

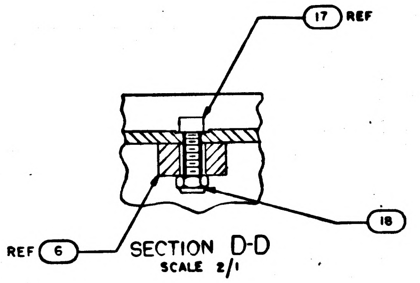


.12 HIGH TYP SEE NOTE 3
NASA NO. 1007259 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY 3

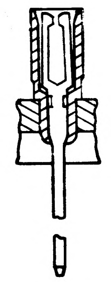
MARKING VIEW AFTER ENCAPSULATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ± ± ±	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN ACSP PN	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
DO NOT SCALE THIS DRAWING	DRAWN Knotek DATE 13 JAN 65 CHECKED Ed Foster 20 JAN 65 APPROVAL 20 JAN 65 APPROVAL 20 JAN 65	FRAME ASSEMBLY TRAY 3
MATERIAL	NASA APPROVAL	CODE IDENT NO · SIZE E · 1007259
CONTRACT NAS 9-497	MIT APPROVAL 18 Feb 65	SCALE FULL · SHEET 2 OF 2

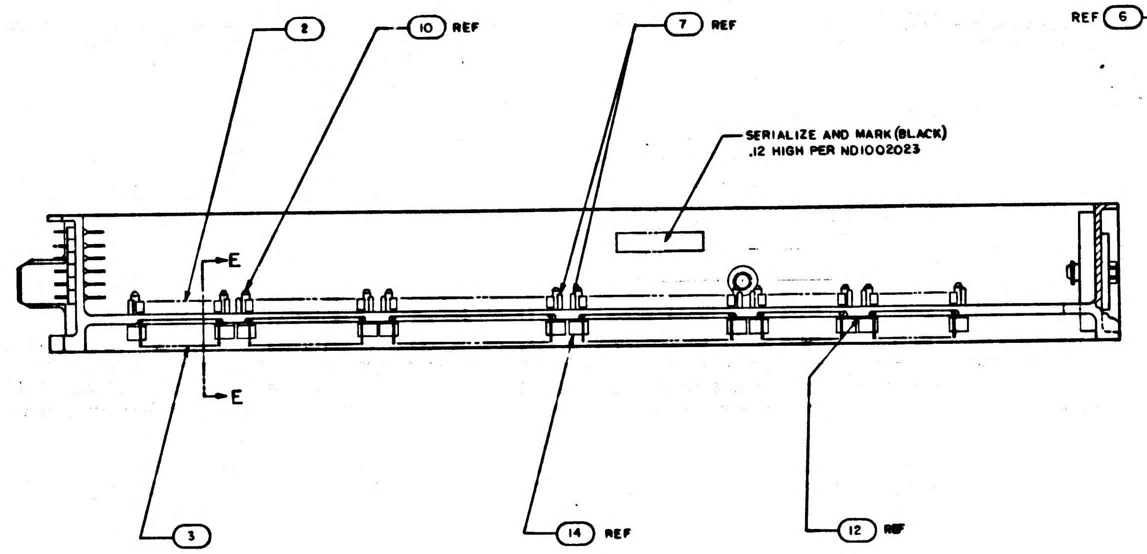
SYM	ZONE	DESCRIPTION REVISIONS 16647	CHG NO.	DATE	APPD.

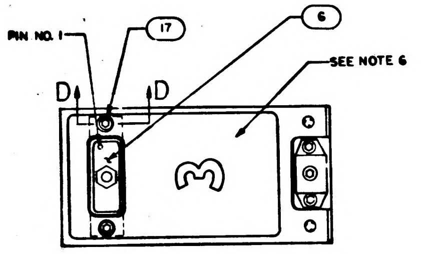


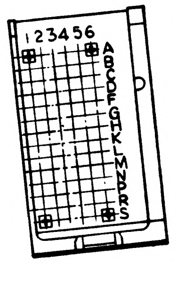
SECTION D-D
SCALE 2/1

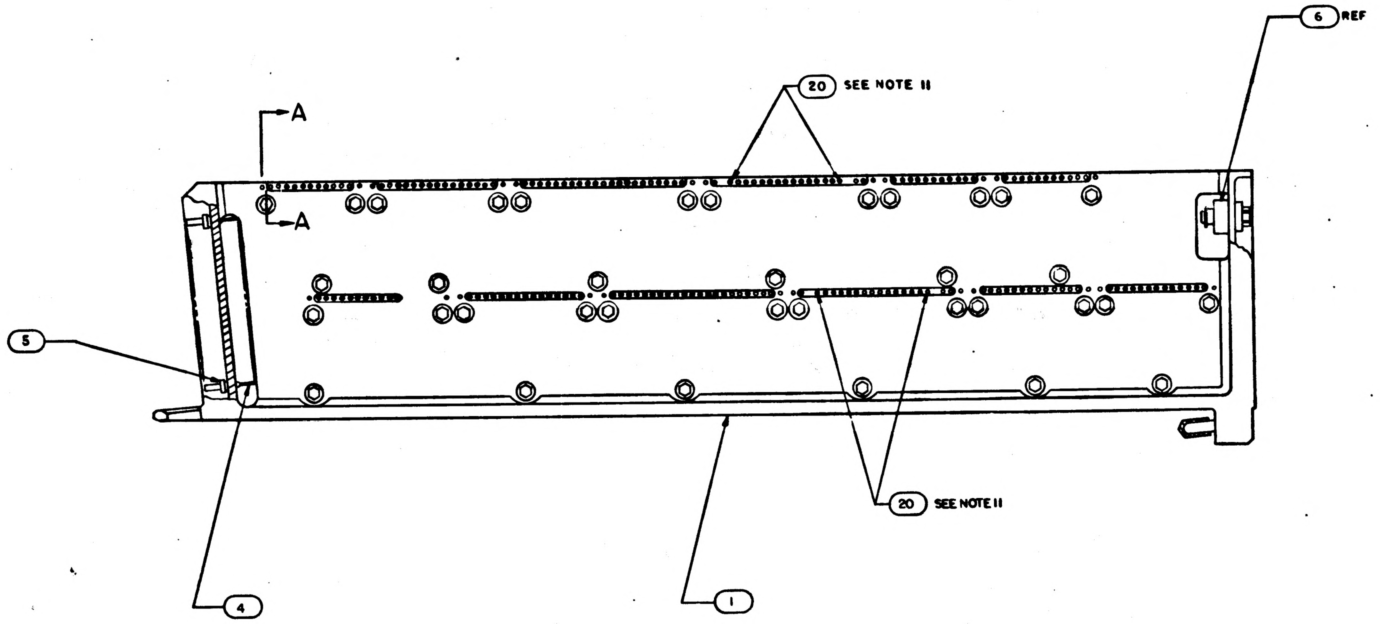


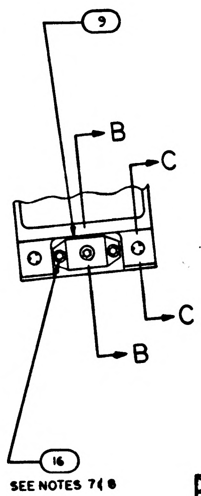
PARTIAL SECTION E-E
174 PLACES





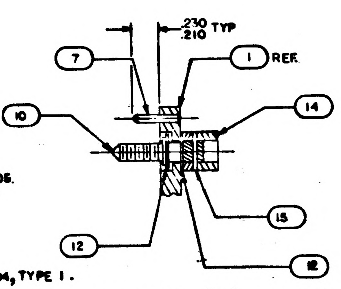




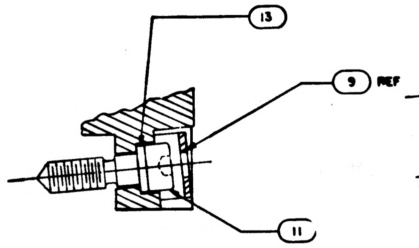


NOTES:

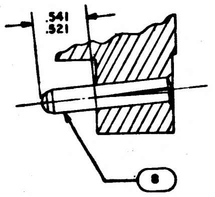
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136.
3. MARK PER ND1002019.
4. BOND FIND NO.19 TO FIND NO. 1 PER ND1002004 AS NECESSARY.
5. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 16 DURING FINAL ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
8. MOUNTING TORQUE FOR FIND NO'S 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60 ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
10. PROCURE PER PS 1007L43.
11. BOND ITEM 20 IN HOLES, 45A3J4-3 & -17 AND 45A3J10-3 & -17 PER ND 1002004, TYPE 1.



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

MASTER

NO. REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
	1008452	WIRING DIAGRAM	REF
4	1008256	PIN, POLARIZING	20
1	1015735	WIRING HARNESS A	19
2	MS21045C04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW CAP SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
36	MS171433	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	[illegible]
36	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
24	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
174	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
174	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008623	FRAME	1

LIST OF PARTS AND MATERIALS

1007260	1007170
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

AC ~~SPARK PLUG DIVISION, GMC~~
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN C. [illegible] DATE 15 JAN 65
CHECKED Ed Foster 20 JAN 65
APPROVAL [illegible] 20 JAN 65
APPROVAL [illegible] 20 JAN 65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

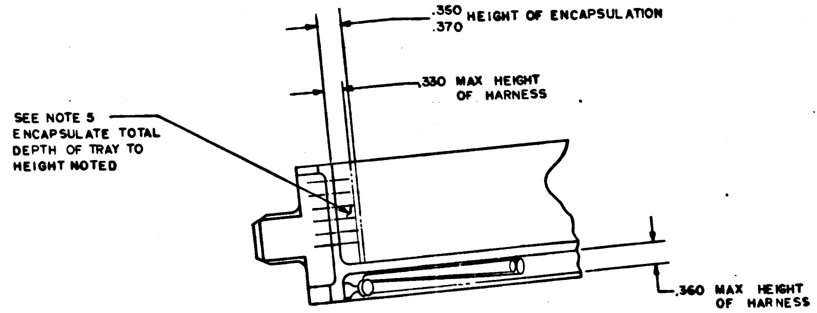
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

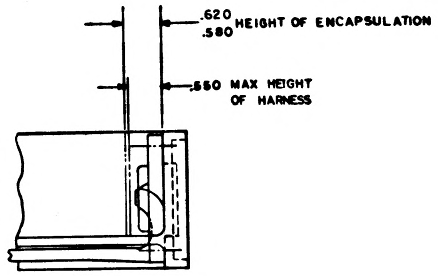
FRAME ASSEMBLY
TRAY 3

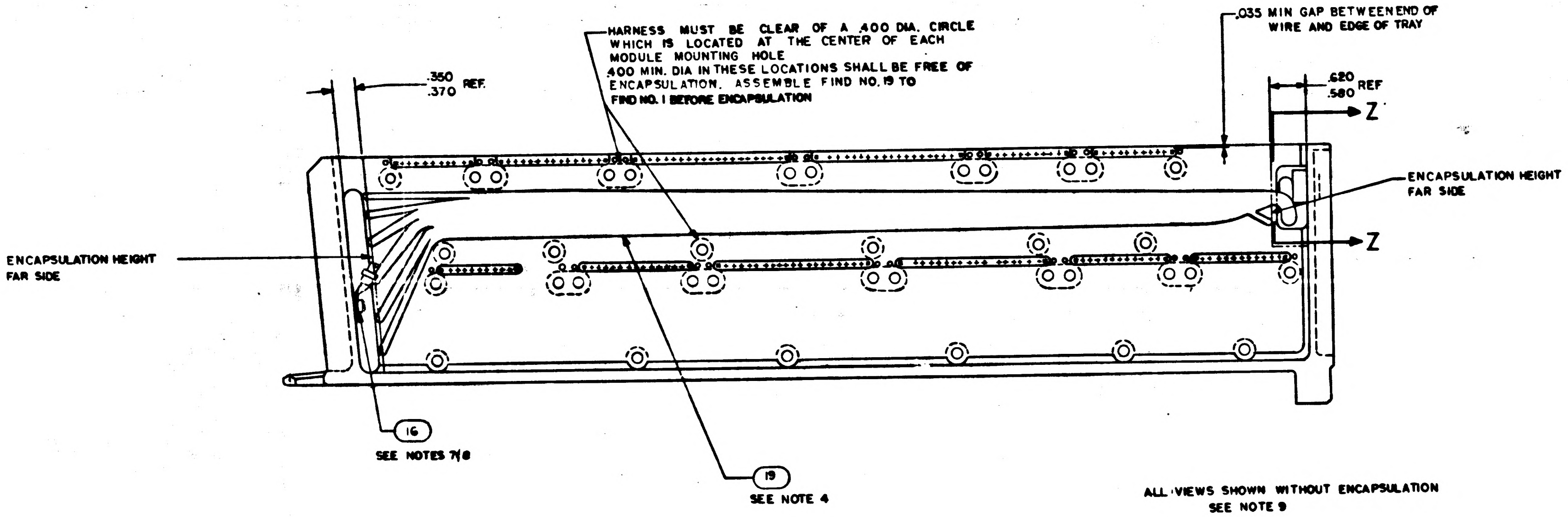
CODE IDENT NO.
SIZE E
1007259
SCALE FULL
SHEET 1 OF 2

1007259

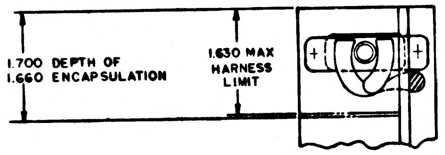
REVISIONS 16647					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 5 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS

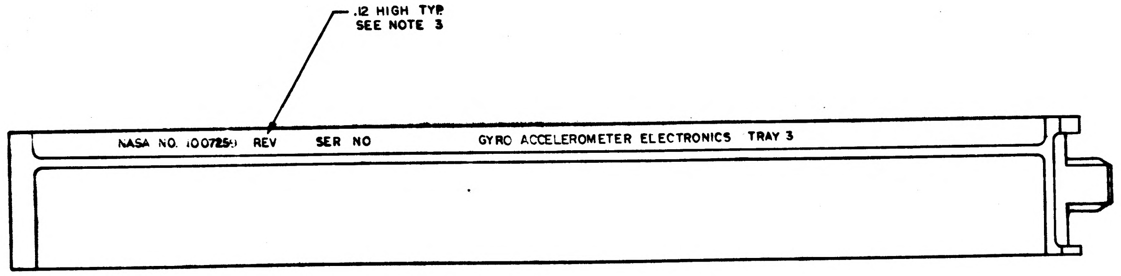

.620
.580 HEIGHT OF ENCAPSULATION
.580 MAX HEIGHT OF HARNESS


HARNESS MUST BE CLEAR OF A .400 DIA. CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN. DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO. 19 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.350
.370 REF.
.620
.580 REF
Z
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
16
SEE NOTES 7/8
19
SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


1.700 DEPTH OF
1.660 ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z


.12 HIGH TYP.
SEE NOTE 3
NASA NO. 1007259 REV SER NO GYRO ACCELEROMETER ELECTRONICS TRAY 3

MARKING VIEW AFTER ENCAPSULATION

MASTER

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN C. Knotek DATE 13 JAN 65
CHECKED Ed Foster 20 JAN 65
APPROVAL R. [illegible] 20 JAN 65
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

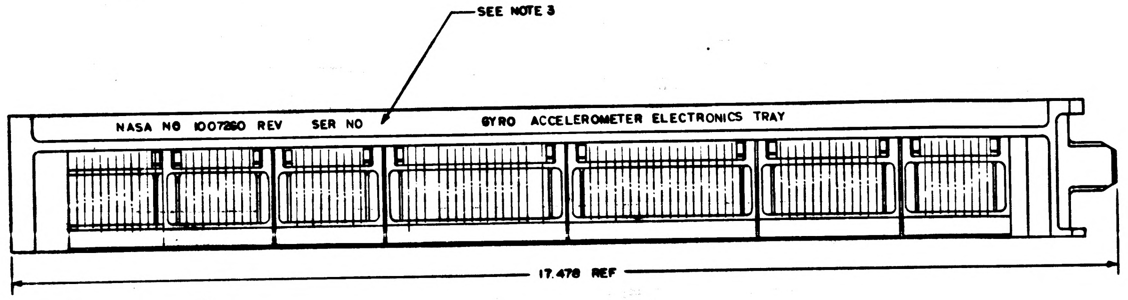
FRAME ASSEMBLY
TRAY 3

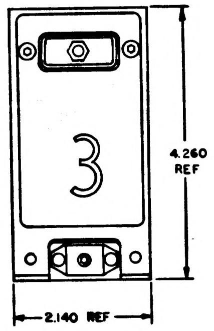
CODE IDENT NO.
SIZE E
1007259
SCALE FULL
SHEET 2 of 2

1007259

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.

REVISIONS


SEE NOTE 3
NASA NO 1007260 REV SER NO
GYRO ACCELEROMETER ELECTRONICS TRAY
17.478 REF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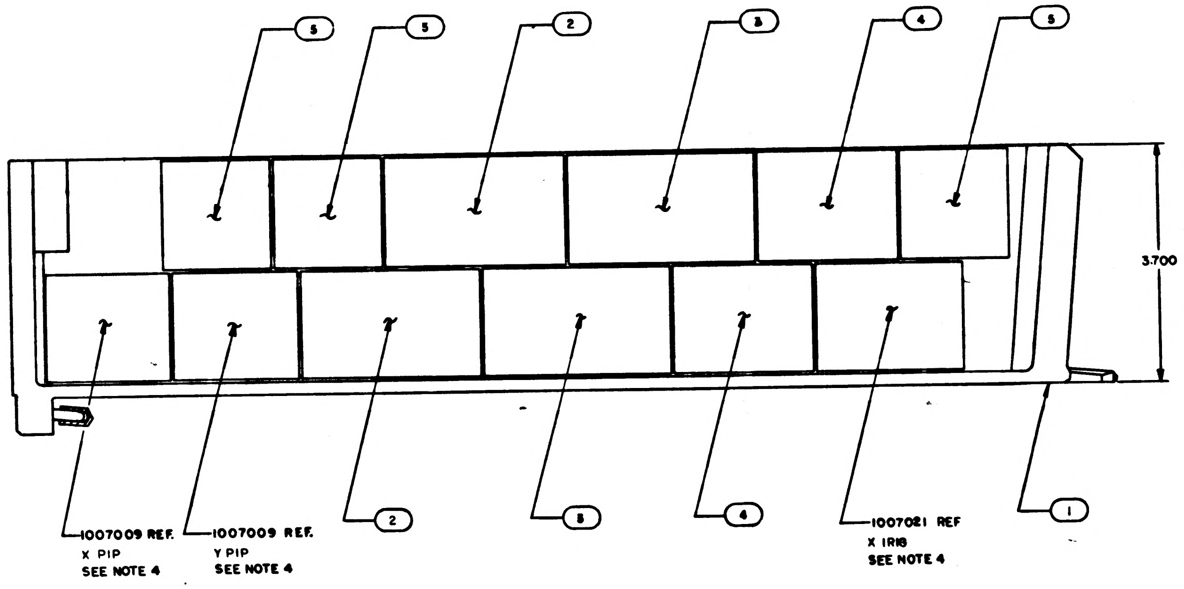
4.260 REF
2.140 REF


5
5
2
3
4
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3.700 REF
1007009 REF.
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SEE NOTE 4
1007009 REF.
Y PIP
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2
3
4
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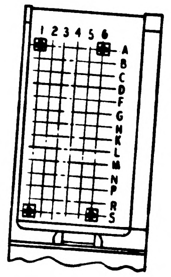
X IRIG
SEE NOTE 4
1


1 2 3 4 5 6
A B C D E F G H K L M N P R S

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MOUNTING TORQUE TO SECURE 2,3,4, AND 5 TO FIND NO. 1 TO BE 13/17 IN. LB. SAME TORQUE APPLIES TO REFERENCED MODULES.
3. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND 1002023.
4. REFERENCED MODULES TO BE ASSEMBLED TO FIND NO. 1 AS SHOWN. MODULES ARE DEFINED AS PART OF INERTIAL MEASURING UNIT ALONG WITH THE ASSOCIATED SERIALIZED INERTIAL COMPONENTS. REF. DWG. 1001598 AND 1001599.

SEE NOTE 2

NO. REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO.
3	1007007	D.C. DIFF AMPLIFIER & POWER	5
2	1007017	A.C. DIFFERENTIAL AMPLIFIER	4
2	007019	INTERROGATOR	3
2	1007027	BINARY CURRENT SWITCH	2
1	007259	FRAME ASSY.	1

LIST OF PARTS AND MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN C. J. Krotek DATE 12 JAN 65
CHECKED Ed Foster 20 JAN 65
APPROVAL 20 Jan 65
APPROVAL 20 JAN 65
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

GYRO-ACCELEROMETER ELECTRONICS ASSEMBLY TRAY 3

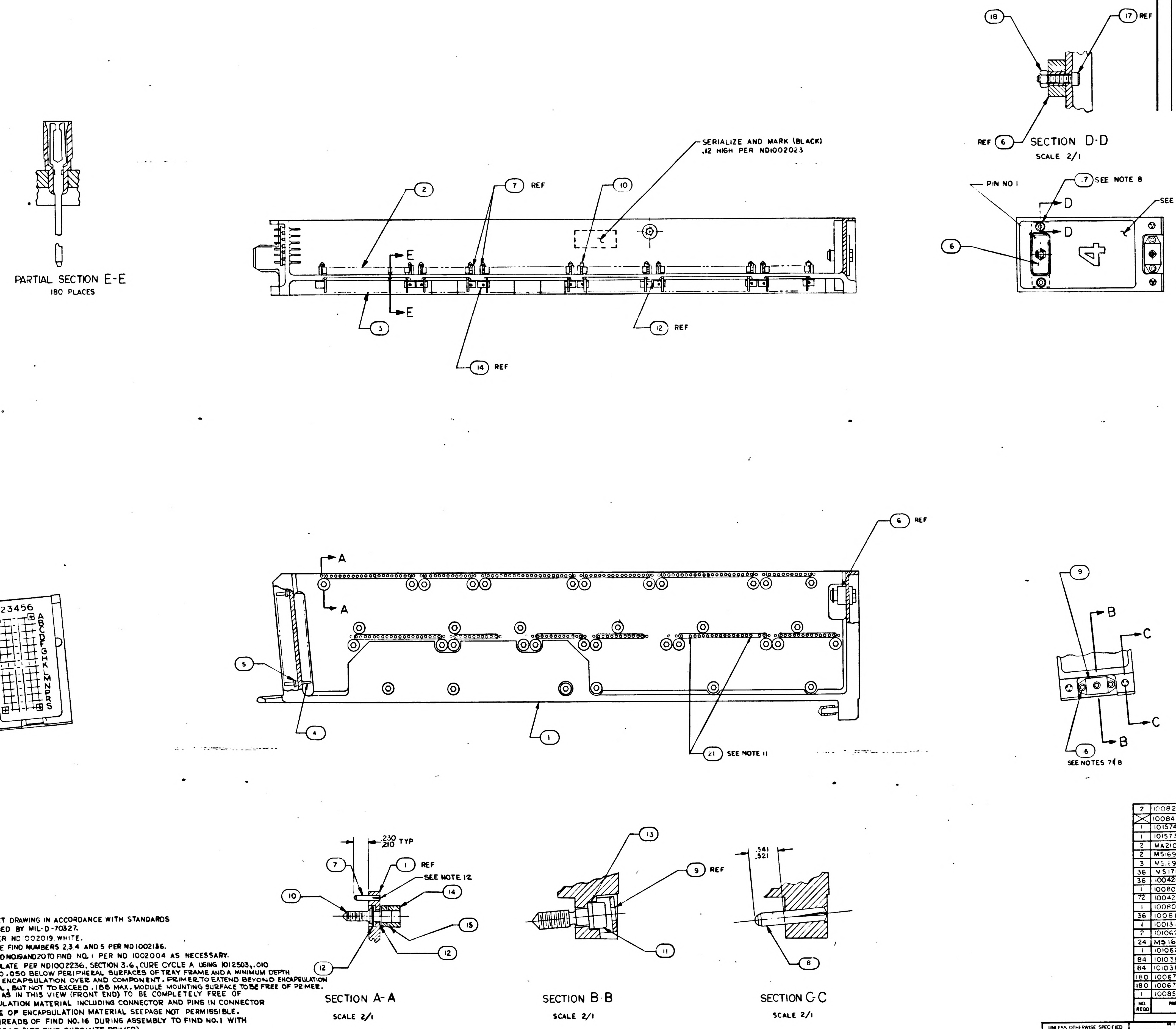
CODE IDENT NO.
SIZE E
1007260
SCALE FULL
SHEET 1 OF 1

1007170	1007170
NEXT ASSY	USED ON

APPLICATION

MASTER

1007261
SHEET 1 OF 2



REVISIONS					
SYM	ZONE	DESCRIPTION		DATE	APPD
A		REVISED PER TDRR 20118	CHG NO	21 JUN 65	

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK PER ND1002019, WHITE.
3. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136.
4. BOND FIND NO.19 AND 20 TO FIND NO. 1 PER ND 1002004 AS NECESSARY.
5. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER AND COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
8. MOUNTING TORQUE FOR FIND NO'S 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
10. PROCURE PER PS1007144.
11. BOND FIND NO. 21 IN HOLES 45A4J9-3 AND -17 PER ND1002004, TYPE I.
12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER, GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
13. COAT FIND NO. 6 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004 TYPE I.

NO. REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
2	1008256	PIN, POLARIZING	21
╳	1008453	WIRING DIAGRAM	REF
1	1015742	WIRE LIST AA	20
1	1015736	WIRING HARNESS A	19
2	MA21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
36	MS171433	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
24	MS16556-604	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
180	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
180	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008524	FRAME	1

LIST OF PARTS AND MATERIALS

1007262	1007170
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + ___ DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL ———
CONTRACT NAS 9-497

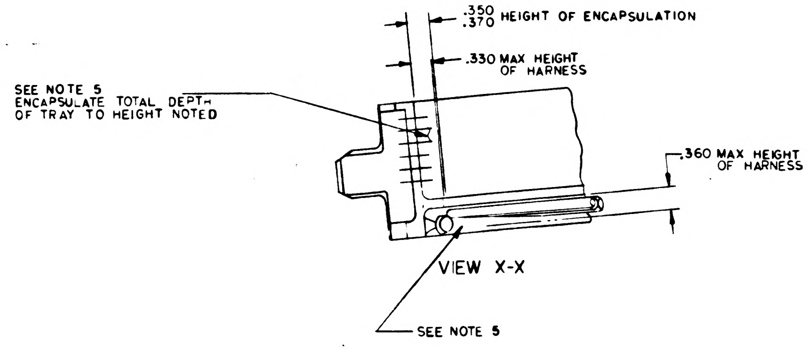
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN A.J. Linden DATE 5 JAN 65
CHECKED Ed Foster 20 JAN 65
APPROVAL 20 JAN 65
APPROVAL 20 JAN 65
2/15/65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

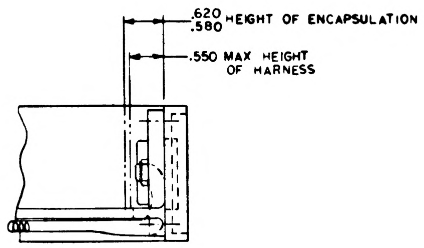
FRAME ASSEMBLY
TRAY 4

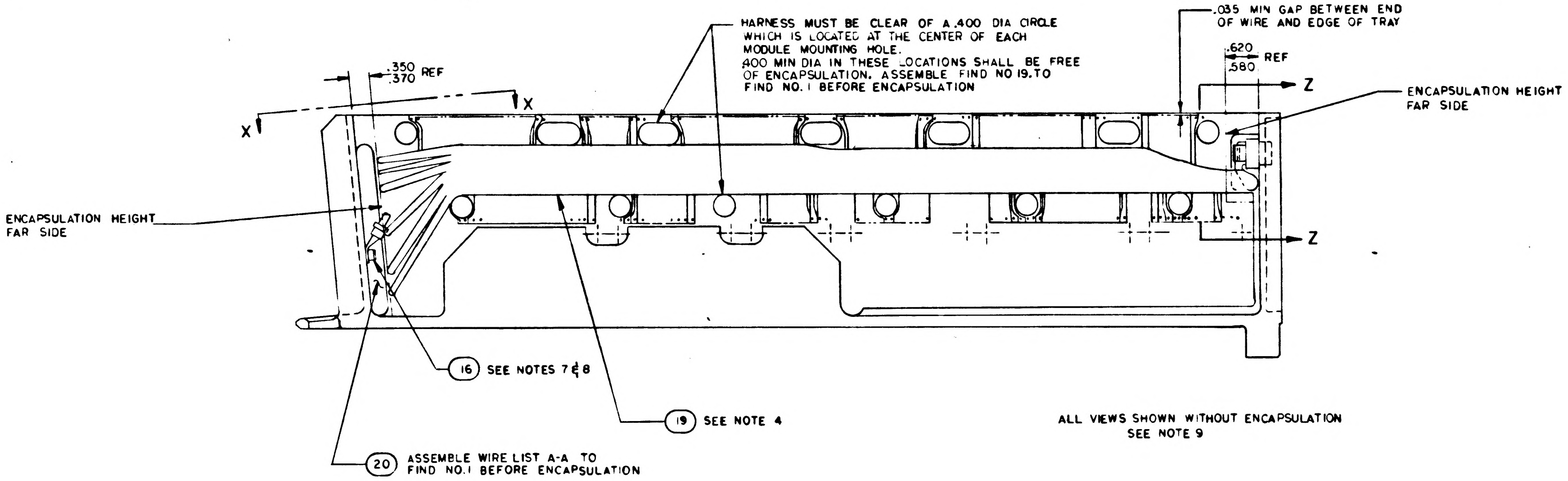
CODE IDENT NO 80230
SIZE E
1007261
SCALE 1/1
SHEET 1 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISION STATUS CHANGED		21 JUN 65	RGB/ACM

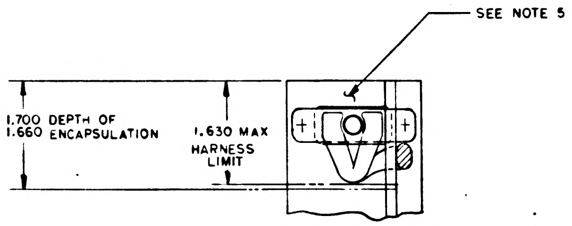

.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 5 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 5

VIEW X-X

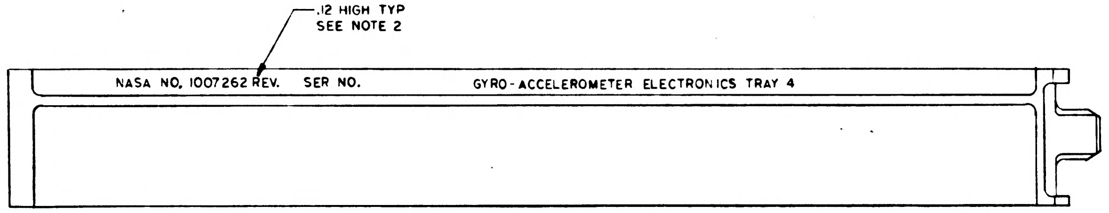

.620 .580 HEIGHT OF ENCAPSULATION
.550 MAX HEIGHT OF HARNESS


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE.
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 19. TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.620 .580 REF
Z
ENCAPSULATION HEIGHT FAR SIDE
.350 .370 REF
X
X
Z
ENCAPSULATION HEIGHT FAR SIDE
16 SEE NOTES 7 & 8
19 SEE NOTE 4
20 ASSEMBLE WIRE LIST A-A TO FIND NO. 1 BEFORE ENCAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


SEE NOTE 5
1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z


.12 HIGH TYP SEE NOTE 2
NASA NO. 1007262 REV. SER NO. GYRO-ACCELEROMETER ELECTRONICS TRAY 4

MARKING VIEW AFTER ENCAPSULATION

1007261 A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ± — ANGLES ± —	MIT INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
DO NOT SCALE THIS DRAWING	DRAWN D. J. Ehrlen DATE 13 JAN 65 CHECKED Ed Foster 20 JAN 65 APPROVAL R Canning 20 JAN 65 APPROVAL [illegible] 20 JAN 65	FRAME ASSEMBLY TRAY 4
MATERIAL —	NASA APPROVAL [illegible]	CODE IDENT NO 80230 · SIZE E · 1007261
CONTRACT NAS9-497	MIT APPROVAL [illegible] 65	SCALE 1/1 · SHEET 2 OF 2

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
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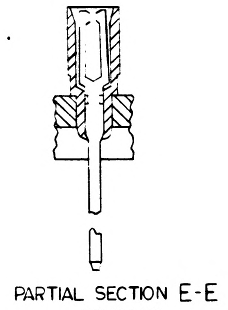
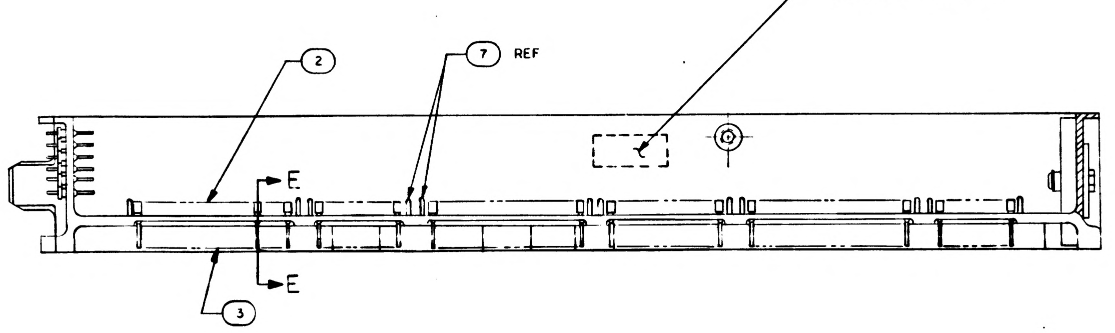
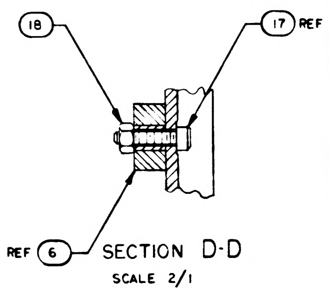
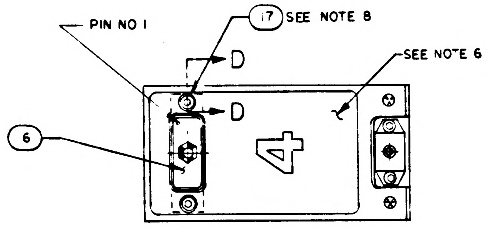
B		REVISED PER TDRR 20119		22 JUN 65	RWT / MEF

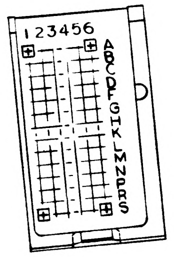

PARTIAL SECTION E-E
180 PLACES

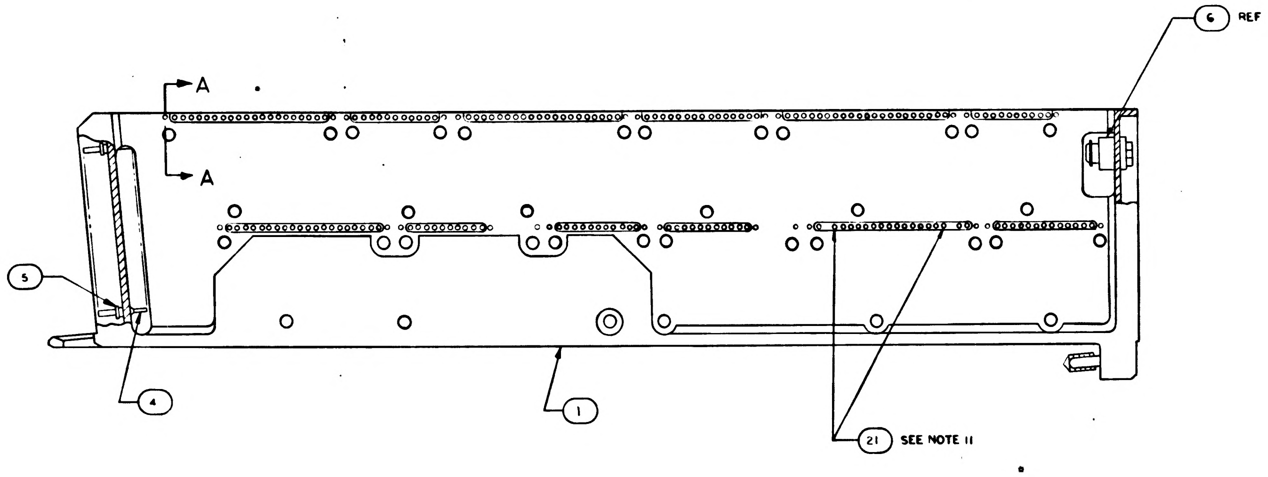


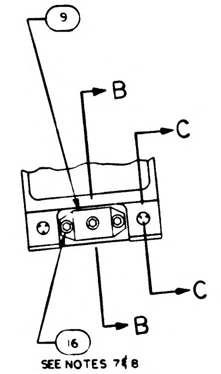


SECTION D-D
SCALE 2/1



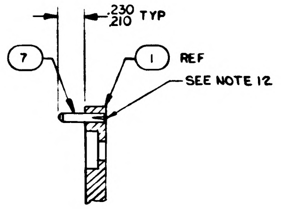




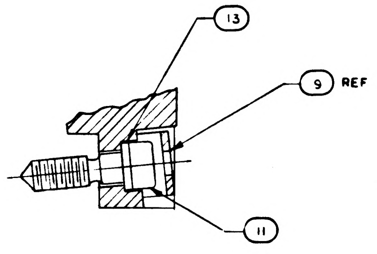


NOTES

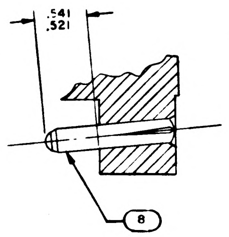
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK PER ND1002019 WHITE.
3. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136.
4. BOND FIND NO.19 AND 20 TO FIND NO. 1 PER ND 1002004 AS NECESSARY.
5. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAME AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER AND COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL, BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
8. MOUNTING TORQUE FOR FIND NOS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
10. PROCURE PER PS1007144.
11. BOND FIND NO. 21 IN HOLES 45A4J9-3 AND -17 PER ND1002004, TYPE I.



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER, GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
13. COAT FIND NO. 6 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004 TYPE I.

LIST OF PARTS AND MATERIALS

NO. REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND
2	1008256	PIN, POLARIZING	21
	1008453	WIRING DIAGRAM	REF
	1015742	WIRE LIST A	20
1	1015736	WIRING HARNESS A	19
2	MA21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS 6995-11	SCREW, CAP, SOCKET HEAD	17
3	MS 16995-10	SCREW, CAP, SOCKET HEAD	16
~~36~~	~~MS171433~~	~~PIN, SPRING~~	15
~~36~~	~~1004207~~	~~DRIVE CYLINDER~~	14
1	1008099-2	WASHER	13
~~72~~	~~1004206~~	~~WASHER, THRUST~~	12
1	1008098	SCREW, SOCKET HEAD	11
~~36~~	~~1008172~~	~~SCREW, JACK~~	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
24	MS 16556-604	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
180	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
180	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
	1008524	FRAME	

1007261 B

NEXT ASSY	USED ON
1007262	1007170

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + — DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN A.J. Fludu DATE 13 JAN 65
CHECKED Ed Foster 20 JAN 65
APPROVAL P. Osberg 20 JAN 65
APPROVAL 20 JAN 65
2/15/65
NASA APPROVAL
MIT APPROVAL 16 Feb 65

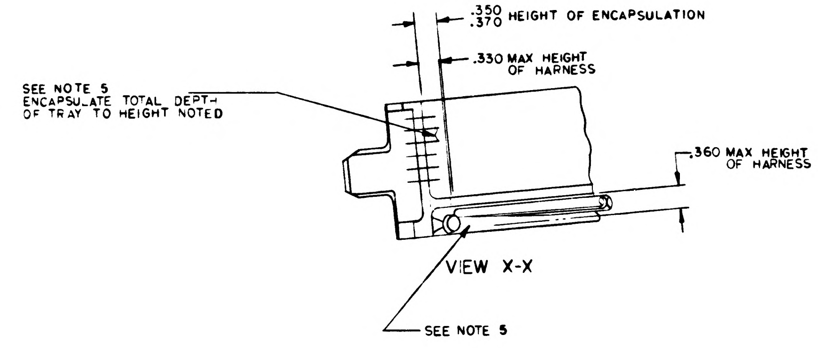
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 4

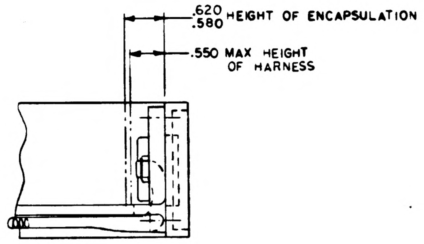
CODE IDENT NO 80230
SIZE E
1007261
SCALE 1/1
SHEET 1 OF 2

SHEET 2 OF 2
1007261

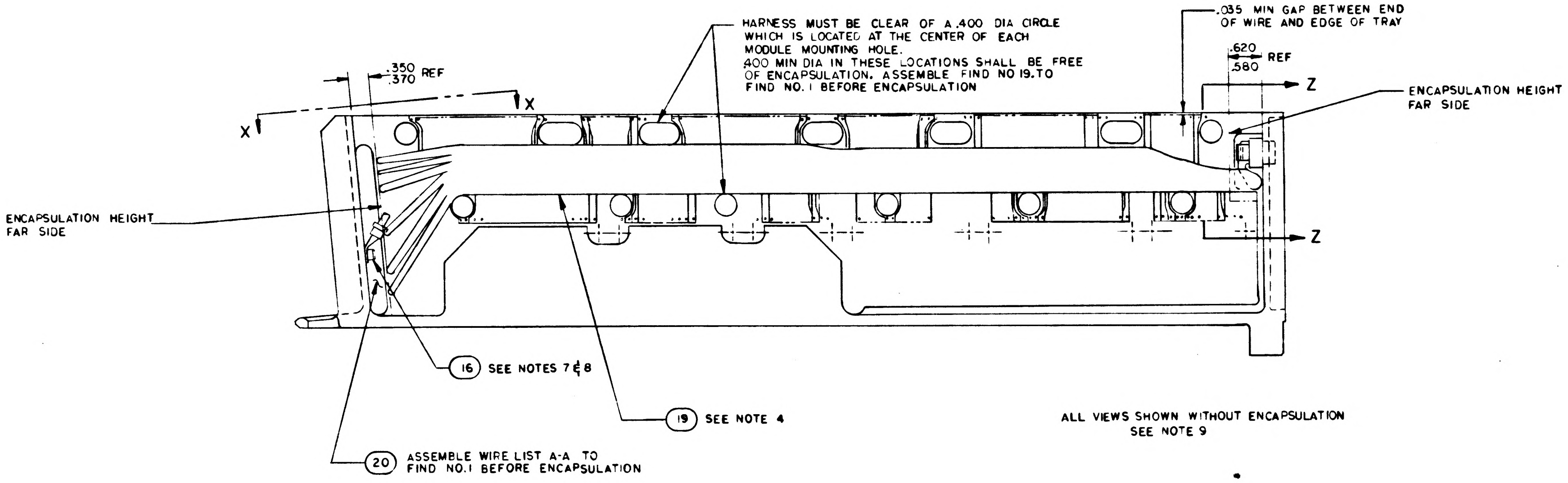
REVISIONS					
SYM	ZONE	DESCRIPTION		DATE	APPD
A		REVISION STATUS CHANGED	CHG NO	2 JUN 65	ZGB / ALM
B		REVISION STATUS CHANGED		22 JUN 65	RMT



.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
VIEW X-X
SEE NOTE 5

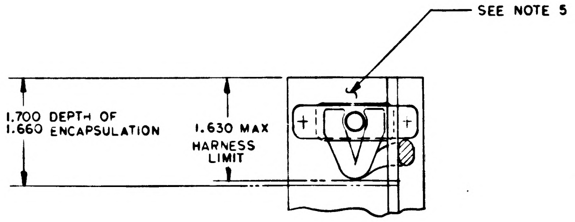


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HEIGHT OF HARNESS



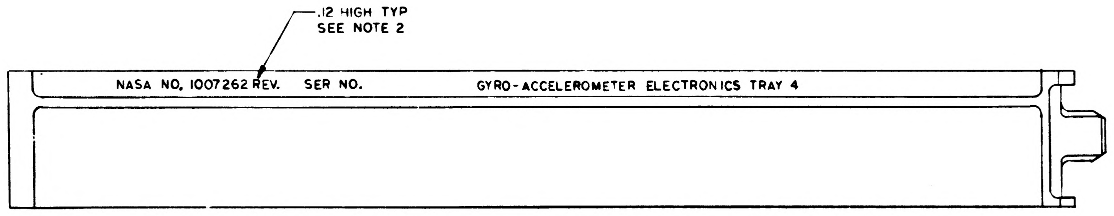
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE.
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 19 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.620
.580 REF
Z
ENCAPSULATION HEIGHT FAR SIDE
.350
.370 REF
X
X
ENCAPSULATION HEIGHT FAR SIDE
Z
16 SEE NOTES 7 & 8
19 SEE NOTE 4
20 ASSEMBLE WIRE LIST A-A TO FIND NO. 1 BEFORE ENCAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9



SEE NOTE 5
1.700 DEPTH OF
1.660 ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z



.12 HIGH TYP
SEE NOTE 2
NASA NO. 1007262 REV. SER NO.
GYRO-ACCELEROMETER ELECTRONICS TRAY 4

MARKING VIEW AFTER ENCAPSULATION

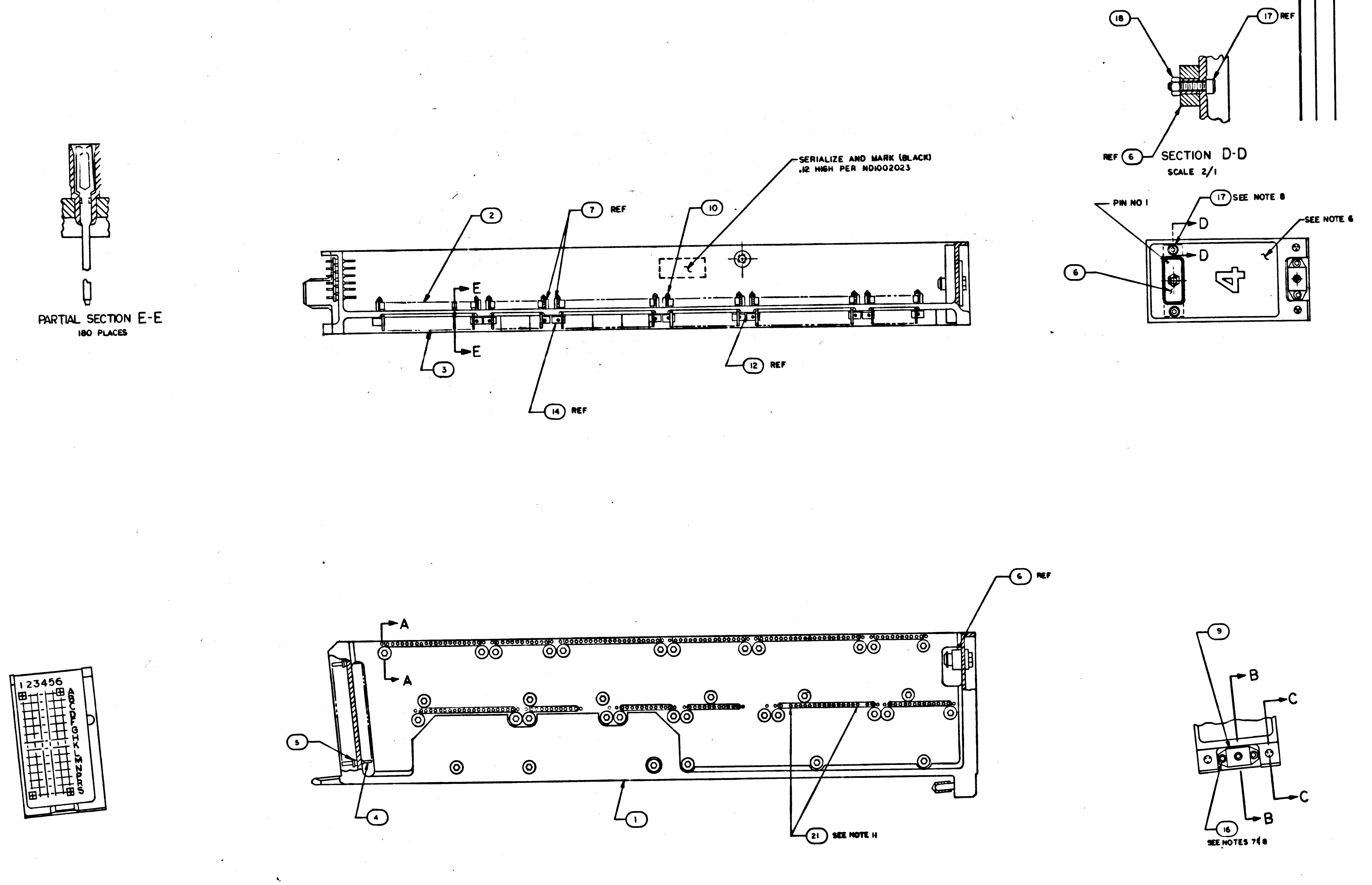
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ±	M I T INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON TEXAS
DO NOT SCALE THIS DRAWING	DRAWN D. J. Fluder DATE 8 JAN 65 CHECKED Ed Foster 20 JAN 65 APPROVAL 20 JAN 65 APPROVAL 20 JAN 65	FRAME ASSEMBLY TRAY 4
MATERIAL —	NASA APPROVAL	CODE IDENT NO 80230 · SIZE E · 1007261
CONTRACT NAS9-497	MIT APPROVAL	SCALE 1/1 · SHEET 2 OF 2

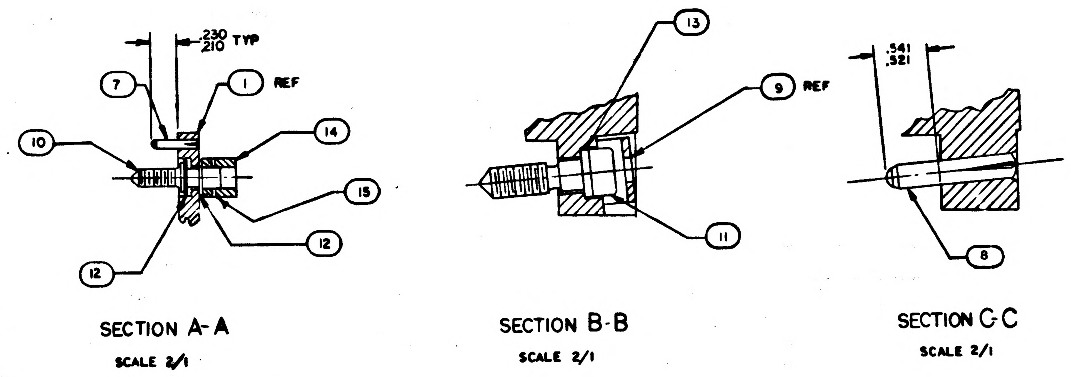
1007261 B

1007261
SHEET 1 OF 2

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.


18
17 REF
REF 6
SECTION D-D
SCALE 2/1
SERIALIZE AND MARK (BLACK) .12 HIGH PER ND1002023
2
7 REF
10
E
E
3
14 REF
12 REF
PARTIAL SECTION E-E
180 PLACES
PIN NO 1
17 SEE NOTE 8
SEE NOTE 6
D
D
6
4
6 REF
A
A
5
4
1
21 SEE NOTE 11
123456
ABCDEFGHKLMNPRS
9
B
C
B
C
16
SEE NOTES 7 & 8


.230
.210 TYP
7
1 REF
14
10
15
12
12
SECTION A-A
SCALE 2/1
13
9 REF
11
SECTION B-B
SCALE 2/1
.541
.521
8
SECTION C-C
SCALE 2/1

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK PER ND1002019, WHITE.
3. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136.
4. BOND FIND NO.19 AND 20 TO FIND NO. 1 PER ND 1002004 AS NECESSARY.
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
8. MOUNTING TORQUE FOR FIND NOS 16 & 17 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER MIL-S-6872 USING SOLDER PER QQ-S-571, SN 60. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
10. PROCURE PER PS1007144.
11. BOND FIND NO. 21 IN HOLES 45A4J9-3 AND -17 PER ND1002004, TYPE I.

MASTER

NO. REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
2	1008256	PIN, POLARIZING	21
☒	1008453	WIRING DIAGRAM	REF.
1	1015742	WIRE LIST AA	20
1	1015736	WIRING HARNESS A	19
2	MA21045 C 04	NUT, SELF-LOCKING HEX	18
2	MS16995-11	SCREW, CAP, SOCKET HEAD	17
3	MS16995-10	SCREW, CAP, SOCKET HEAD	16
36	MS171433	PIN, SPRING	15
36	1004207	DRIVE CYLINDER	14
1	1008099-2	WASHER	13
72	1004206	WASHER, THRUST	12
1	1008098	SCREW, SOCKET HEAD	11
36	1008172	SCREW, JACK	10
1	1001317	RETAINER, JACK SCREW	9
2	1010620-5	PIN, GUIDE	8
24	1010620-4	PIN, GUIDE	7
1	1010622-1	CONNECTOR, RECEPTACLE	6
84	1010383-1	INSULATOR, WRAPOST, MALE	5
84	1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
180	1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
180	1006774	INSULATOR, WRAPOST, FEMALE MIN	2
1	1008524	FRAME	1

LIST OF PARTS AND MATERIALS

1007262	1007170
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + — DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

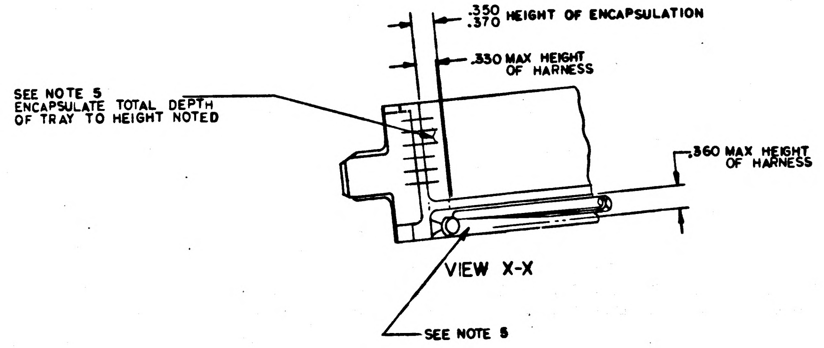
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN DATE 65
CHECKED Ed Foster 20 JAN 65
APPROVAL 20 JAN 65
APPROVAL 20 JAN 65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 4

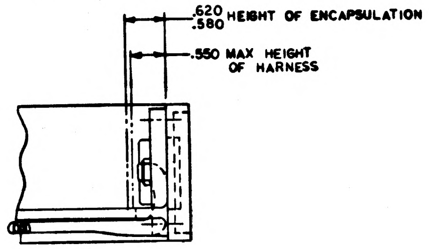
CODE IDENT NO.
SIZE E
1007261
SCALE 1/1
SHEET 1 OF 2

REVISIONS 16641					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.

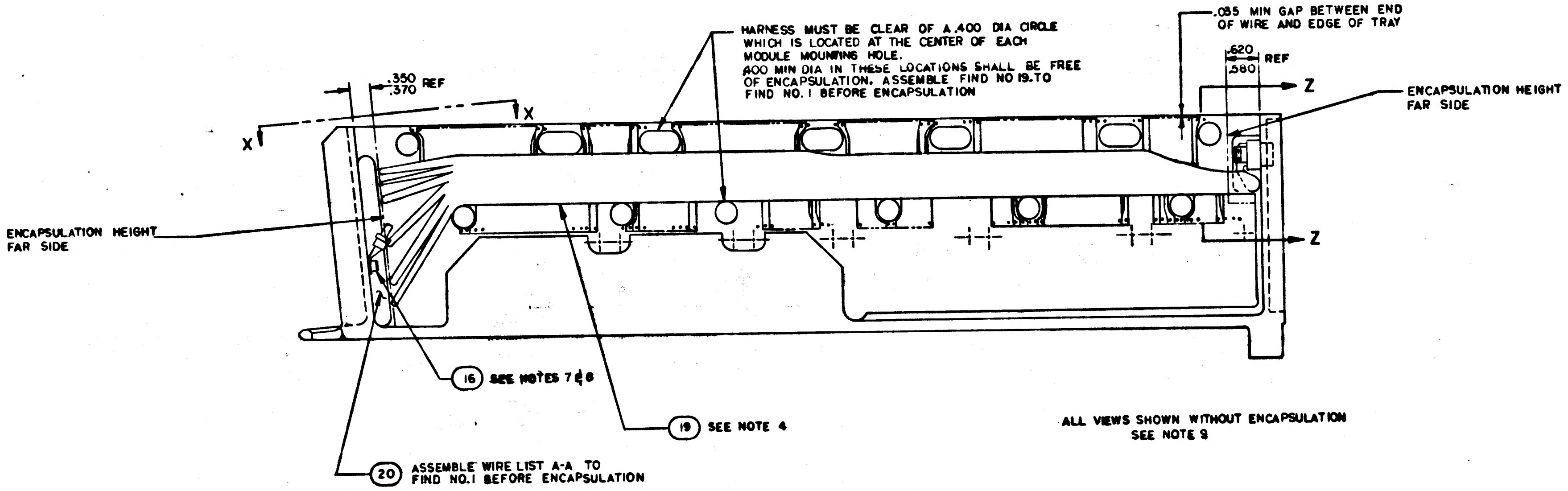


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 5

VIEW X-X

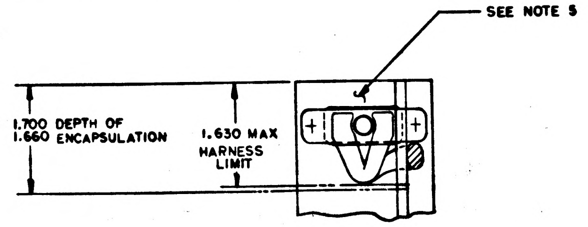


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HEIGHT OF HARNESS



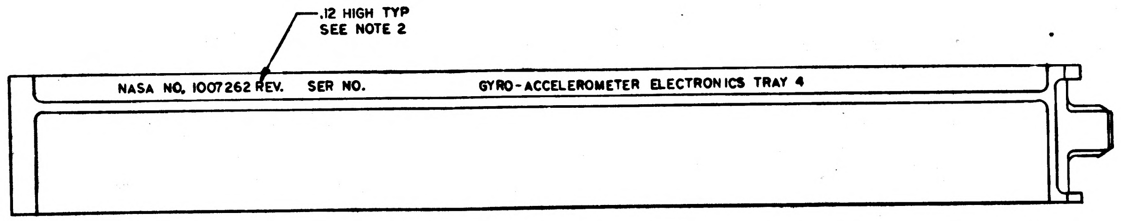
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE.
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO 19. TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.620
.580 REF
Z
ENCAPSULATION HEIGHT FAR SIDE
.350
.370 REF
X
X
Z
ENCAPSULATION HEIGHT FAR SIDE
16 SEE NOTES 7 & 8
19 SEE NOTE 4
20 ASSEMBLE WIRE LIST A-A TO FIND NO. 1 BEFORE ENCAPSULATION

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9



SEE NOTE 5
1.700 DEPTH OF
1.660 ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z



.12 HIGH TYP
SEE NOTE 2
NASA NO. 1007262 REV. SER NO. GYRO-ACCELEROMETER ELECTRONICS TRAY 4

MARKING VIEW AFTER ENCAPSULATION

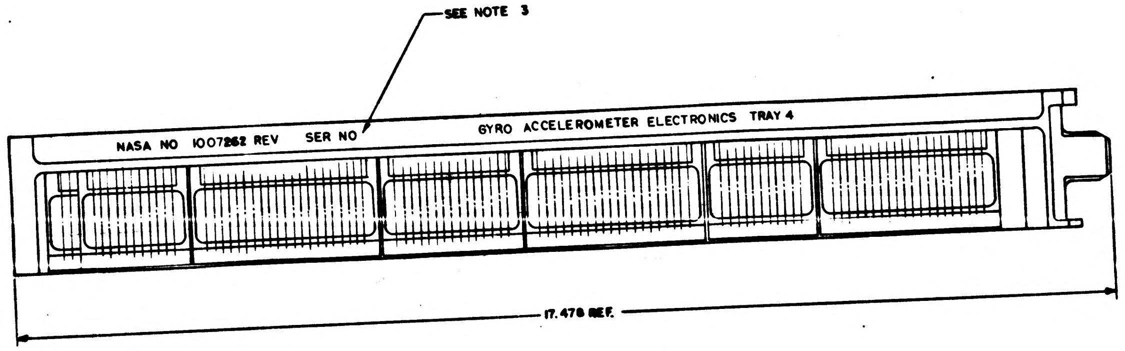
MASTER

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ± — ANGLES ± —	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
	ACSP PN	
	DRAWN DATE 65	FRAME ASSEMBLY TRAY 4
	CHECKED Ed Foster 20 JAN 65	
	APPROVAL 20 JAN 65	
DO NOT SCALE THIS DRAWING	APPROVAL 20 JAN 65	
MATERIAL —	NASA APPROVAL	CODE IDENT NO. / SIZE E / 1007261
CONTRACT NAS9-497	MIT APPROVAL 18 Feb 65	SCALE 1/1 / SHEET 2 OF 2

1007261

REVISIONS 1664

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.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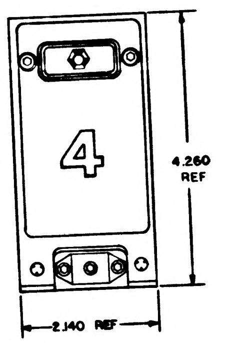
GYRO ACCELEROMETER ELECTRONICS TRAY 4
17.478 REF.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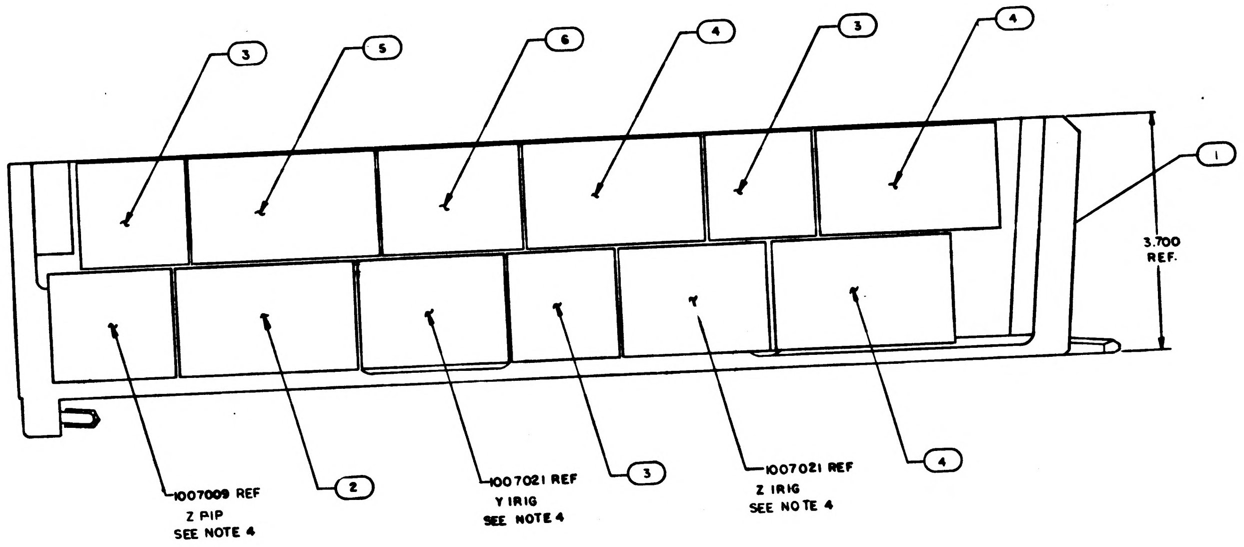
2.140 REF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5
6
4
3
4
1
3.700 REF.
1007009 REF
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SEE NOTE 4
2
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SEE NOTE 4
3
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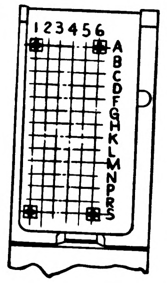
Z IRIG
SEE NOTE 4
4


1 2 3 4 5 6
A B C D E F G H K L M N P R S

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MOUNTING TORQUE TO SECURE 2,3,4,5 AND 6 TO FIND NO 1 TO BE 13/17 IN. LB. SAME TORQUE APPLIES TO REFERENCED MODULES.
3. SERIALIZE AND MARK (WHITE) .14/.10 HIGH PER ND 1002023.
4. REFERENCED MODULES TO BE ASSEMBLED TO FIND NO. 1 AS SHOWN. MODULES ARE DEFINED AS PART OF INERTIAL MEASURING UNIT ALONG WITH THE ASSOCIATED SERIALIZED INERTIAL COMPONENTS. REF DWG. 1001598 AND 1001599.

SEE NOTE 2

NO. REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1007017	AC DIFF AMPL	6
1	1007019	INTERROGATOR	5
3	1007016	TERNARY CURRENT SWITCH	4
3	1007007	DC DIFF AMPL & PVR	3
1	1007027	BINARY CURRENT SWITCH	2
1	1007261	FRAME, ASSEMBLY	1

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON
1007170	1007170

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

~~AC SPARK PLUG DIVISION, GMC~~
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN C. Kutch DATE 18 JAN 65
CHECKED Ed Foster 20 JAN 65
APPROVAL R Oyberg 20 JAN 65
APPROVAL 20 JAN 65
NASA APPROVAL 4/6/65
MIT APPROVAL 18 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

GYRO-ACCELEROMETER
ELECTRONICS ASSEMBLY
TRAY 4

CODE IDENT NO.
SIZE E
1007262
SCALE FULL
SHEET 1 OF 1

1007262

MASTER

1007263

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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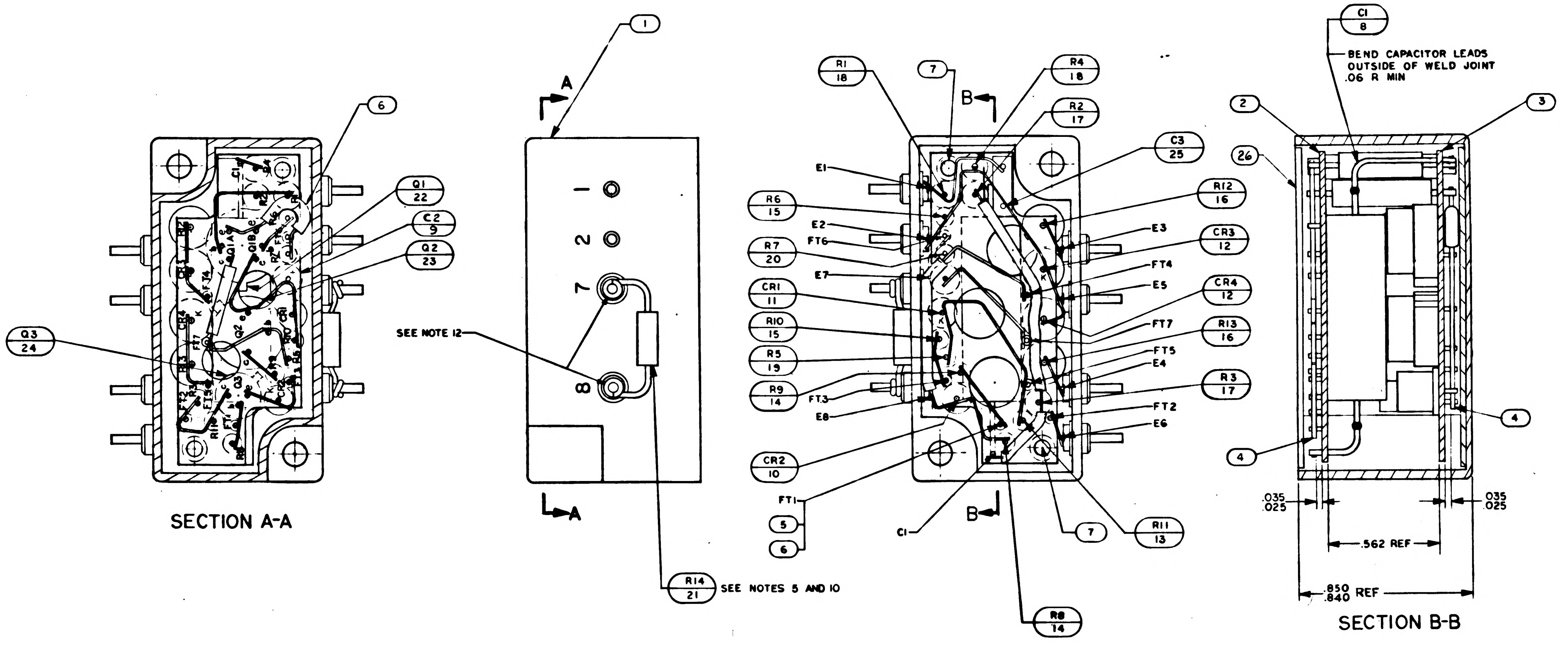
SECTION A-A
SECTION B-B
A
A
B
B
1
2
7
8
SEE NOTE 12
R14
21
SEE NOTES 5 AND 10
6
Q1
22
C2
9
Q2
23
Q3
24
R1
18
R4
18
R2
17
7
C3
25
R12
16
CR3
12
CR4
12
R13
16
R3
17
R11
13
R8
14
R6
15
R7
20
CR1
11
R10
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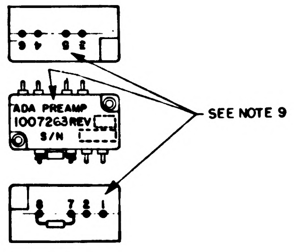
R5
19
R9
14
CR2
10
E1
E2
E3
E4
E5
E6
E7
E8
FT1
FT2
FT3
FT4
FT5
FT6
FT7
C1
5
6
C1
8
BEND CAPACITOR LEADS OUTSIDE OF WELD JOINT .06 R MIN
2
3
26
4
4
.035
.025
.035
.025
.562 REF
.850
.840 REF

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. WELD PER ND-1002005
4. BOND FIND NUMBERS 22,23, AND 24 TO FIND NO. 3 PER ND1002004, TYPE I.
5. BOND FIND NO. 21 TO FIND NO. 1 PER ND1002004, TYPE I
6. FIND NO. 26 TO BE HELD IN PLACE BY ENCAPSULANT, FLUSH WITH BOTTOM OF FIND NO. 1 WITHIN -.015 +.005.
7. CENTRALIZE MODULE IN HOUSING, WELD E1 THRU E8, AND ENCAPSULATE PER ND-1002002.
8. K DENOTES CATHODE SIDE OF DIODE
9. MARK CHARACTERS .100/.140 HIGH YELLOW PER ND1002019 & SERIALIZE PER ND1002023, CENTRALIZE ON INDICATED SURFACES AS SHOWN
10. R14 TO BE SELECTED FROM SELECTION CHART
11. AR DENOTES AS REQUIRED
12. SOLDER PER ND1002071, USING QQ-S-571 COMPOSITION Sn60
13. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S.1007025

R14	
1010885-1	360K
-2	390K
-3	430K
-4	470K
-5	510K
-6	560K
-7	620K
-8	680K
-9	750K
-10	820K
-11	910K
-12	1000K
-13	1100K
-14	1200K
-15	1300K
-16	1500K


ADA PREAMP
1007263REV
S/N
SEE NOTE 9
8
7
2
1

MARKING VIEW
SCALE 1/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010234	SCHEMATIC DIAGRAM, ELEC	REF
1	1008275	INSULATOR	26
1	1010359-29	CAPACITOR	25
1	1010397-1	TRANSISTOR	24
1	1010345-1	TRANSISTOR	23
1	1010252-1	TRANSISTOR	22
1	SEE NOTE 10	RESISTOR	21
1	1010369-98	RESISTOR	20
1	1010369-96	RESISTOR	19
2	1010364-501	RESISTOR	18
2	1010321-398	RESISTOR	17
2	1010312-030	RESISTOR	16
2	1006750-64	RESISTOR	15
2	1006750-63	RESISTOR	14
1	1006750-60	RESISTOR	13
2	1010265-012	DIODE	12
1	1010372-20	DIODE	11
1	1010372-1	DIODE	10
1	1006755-57	CAPACITOR	9
1	1010320-13	CAPACITOR	8
2	1008043	SPACER	7
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	6
AR	1006787-2	WIRE, ELECTRICAL, NICKEL, IRON	5
AR	1006757-1	WIRE, ELECTRICAL, NICKEL, RECT	4
1	1007265	WIRING BOARD, BOTTOM	3
1	1007264	WIRING BOARD, TOP	2
1	1008279-011	HOUSING ASSY	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
	DL1000201
1000005	DL1000001
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS ± .03
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT
DRAWN [illegible] DATE [illegible] 65
CHECKED [illegible] 1 FEB 65
APPROVAL [illegible] 1 FEB 65
APPROVAL [illegible] 2 FEB 65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
Charleston 2 FEB 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

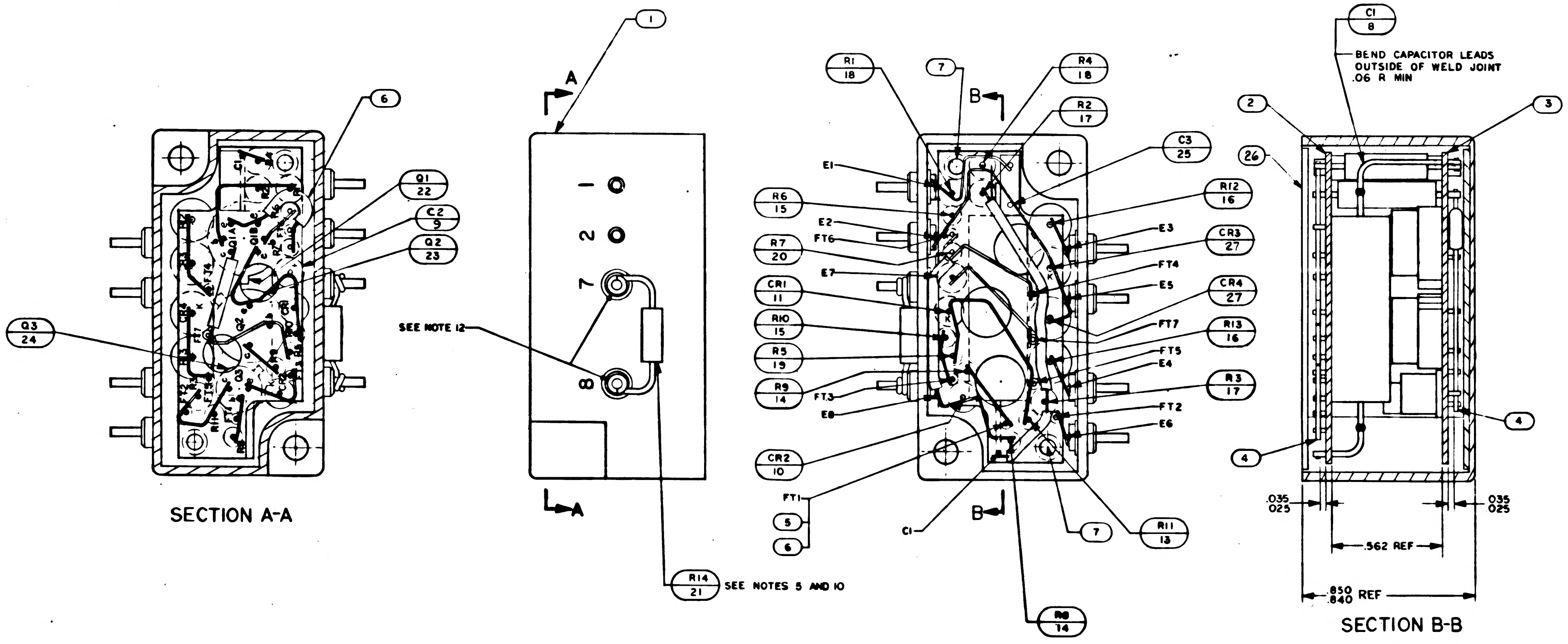
ADA PREAMP ASSY
(STABLE MEMBER)

CODE IDENT NO. —
SIZE E
1007263
SCALE 4/1
WT —
SHEET 1 OF 1

1007263 A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 16975.	2 MAR 65	RLM
B	REVISED PER TDRR 18107	APR 65	HTC REM



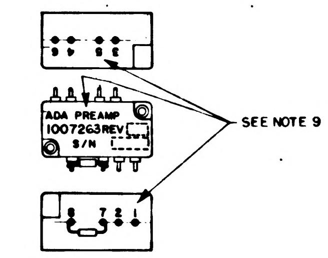
SECTION A-A

SECTION B-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. WELD PER ND-1002005
4. BOND FIND NUMBERS 22,23,AND 24 TO FIND NO. 3 PER ND1002004, TYPE I.
5. BOND FIND NO. 21 TO FIND NO. 1 PER ND1002004, TYPE I
6. FIND NO. 26 TO BE HELD IN PLACE BY ENCAPSULANT, FLUSH WITH BOTTOM OF FIND NO. 1 WITHIN -.018 +.005.
7. CENTRALIZE MODULE IN HOUSING, WELD E1 THRU E8, AND ENCAPSULATE PER ND-1002002.
8. K DENOTES CATHODE SIDE OF DIODE
9. MARK CHARACTERS .100/.140 HIGH YELLOW PER ND1002019 & SERIALIZE PER ND1002023, CENTRALIZE ON INDICATED SURFACES AS SHOWN
10. R14 TO BE SELECTED FROM SELECTION CHART
11. AR DENOTES AS REQUIRED
12. SOLDER PER ND1002071, USING QQ-S-571 COMPOSITION Sn60
13. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S.1007025

R14		
1010885-1		360K
	-2	390K
	-3	430K
	-4	470K
	-5	510K
	-6	560K
	-7	620K
	-8	680K
	-9	750K
	-10	820K
	-11	910K
	-12	1000K
	-13	1100K
	-14	1200K
	-15	1300K
	-16	1500K



MARKING VIEW
SCALE 1/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010234	SCHEMATIC DIAGRAM, ELEC	REF
2	1010829-012	DIODE	27
1	1008275	INSULATOR	26
1	1010359-29	CAPACITOR	25
1	1010397-1	TRANSISTOR	24
1	1010345-1	TRANSISTOR	23
1	1010252-1	TRANSISTOR	22
1	SEE NOTE 10	RESISTOR	21
1	1010369-98	RESISTOR	20
1	1010369-96	RESISTOR	19
2	1010364-501	RESISTOR	18
2	1010321-398	RESISTOR	17
2	1010312-030	RESISTOR	16
2	1006750-64	RESISTOR	15
2	1006750-63	RESISTOR	14
1	1006750-60	RESISTOR	13
~~2~~	~~1010[illegible]-012~~	~~DIODE~~	12
1	1010372-20	DIODE	11
1	1010372-1	DIODE	10
1	1006755-57	CAPACITOR	9
1	1010320-13	CAPACITOR	8
2	1008043	SPACER	7
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	6
AR	1006787-2	WIRE, ELECTRICAL, NICKEL, IRON	5
AR	1006757-1	WIRE, ELECTRICAL, NICKEL, RECT	4
1	1007265	WIRING BOARD, BOTTOM	3
1	1007264	WIRING BOARD, TOP	2
1	1008279-011	HOUSING ASSY	1
011	LIST OF MATERIALS		

	DL1000201
1000005	DL1000001
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS ± .03 ANGLES ± //
DO NOT SCALE THIS DRAWING
MATERIAL //
HEAT TREATMENT //
FINAL FINISH //

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 65
CHECKED 1 FEB 65
APPROVAL 1 FEB 65
APPROVAL 2 FEB 65
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

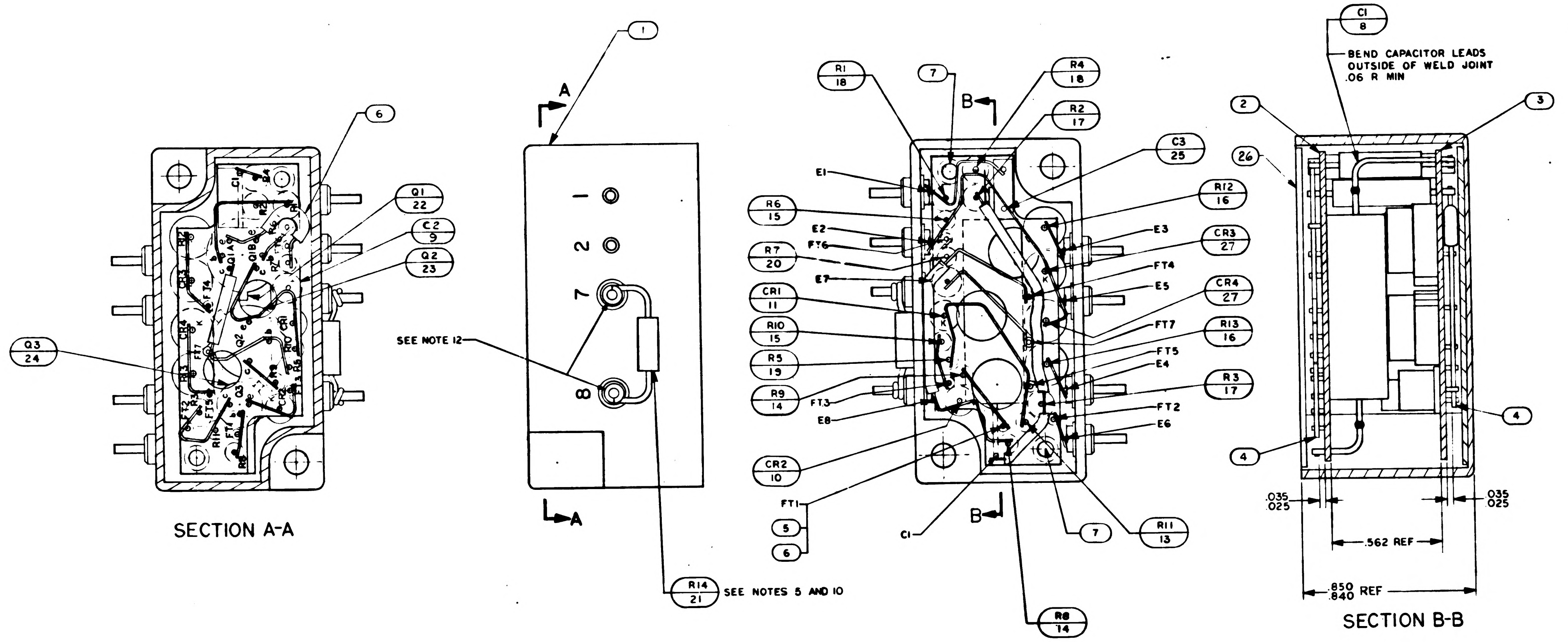
ADA PREAMP ASSY
(STABLE MEMBER)

CODE IDENT NO. —— SIZE E 1007263
SCALE 4/1 WT —— SHEET 1 OF 1

2 FEB 65

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

SYM	DESCRIPTION	DATE	APPROVAL
REVISIONS			
A	REVISED PER TDRR 6975.	25 MAR 65	MLA
B	REVISED PER TDRR 18107	9 APR 65	HTO
C	REVISED PER TDRR 23516	1 NOV 65	RWH



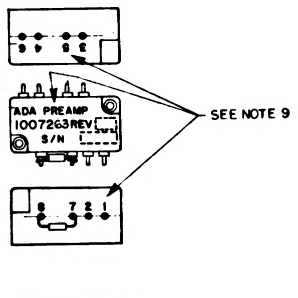
SECTION A-A

SECTION B-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. WELD PER ND-1002005
4. BOND FIND NUMBERS 22,23,AND 24 TO FIND NO. 3 PER ND1002004, TYPE I.
5. BOND FIND NO. 21 TO FIND NO. 1 PER ND1002004, TYPE I
6. FIND NO. 26 TO BE HELD IN PLACE BY ENCAPSULANT, FLUSH WITH BOTTOM OF FIND NO. 1 WITHIN -.015 +.005.
7. CENTRALIZE MODULE IN HOUSING, WELD E1 THRU E8, AND ENCAPSULATE PER ND-1002002.
8. K DENOTES CATHODE SIDE OF DIODE
9. MARK CHARACTERS .100/.140 HIGH, WHITE PER ND1002019 & SERIALIZE PER ND1002023, CENTRALIZE ON INDICATED SURFACES AS SHOWN
10. R14 TO BE SELECTED FROM SELECTION CHART
11. AR DENOTES AS REQUIRED
12. SOLDER PER ND1002071, USING QQ-S-571 COMPOSITION Sn60
13. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 1007025

R 14	
1010885-1	360K
-2	390K
-3	430K
-4	470K
-5	510K
-6	560K
-7	620K
-8	680K
-9	750K
-10	820K
-11	910K
-12	1000K
-13	1100K
-14	1200K
-15	1300K
-16	1500K



MARKING VIEW
SCALE 1/1

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1010234	SCHEMATIC DIAGRAM, ELEC	REF
2	1010829-012	DIODE	27
1	1008215	INSULATOR	26
1	1010359-29	CAPACITOR	25
1	1010397-1	TRANSISTOR	24
1	1010345-1	TRANSISTOR	23
1	1010252-1	TRANSISTOR	22
1	SEE NOTE 10	RESISTOR	21
1	1010369-98	RESISTOR	20
1	1010369-96	RESISTOR	19
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2	1010321-398	RESISTOR	17
2	1010312-030	RESISTOR	16
2	1006750-64	RESISTOR	15
2	1006750-63	RESISTOR	14
1	1006750-60	RESISTOR	13
~~2~~	~~1010285-012~~	~~DIODE~~	12
1	1010372-20	DIODE	11
1	1010372-1	DIODE	10
1	1006755-57	CAPACITOR	9
1	1010320-13	CAPACITOR	8
2	1008043	SPACER	7
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	6
AR	1006787-2	WIRE, ELECTRICAL, NICKEL, IRON	5
AR	1006757-1	WIRE, ELECTRICAL, NICKEL, RECT	4
1	1007265	WIRING BOARD, BOTTOM	3
1	1007264	WIRING BOARD, TOP	2
1	1008279-011	HOUSING ASSY	1
011	LIST OF MATERIALS		

1007263 C

	DL1000201
1000005	DL1000001
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS ± .03 ANGLES ± //
DO NOT SCALE THIS DRAWING
MATERIAL //
HEAT TREATMENT //
FINAL FINISH //

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN [illegible] DATE 65
CHECKED [illegible] FEB 65
APPROVAL [illegible] 1 FEB 65
APPROVAL Lavensley 2 FEB 65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 17 Feb
[illegible] 2 FEB 65

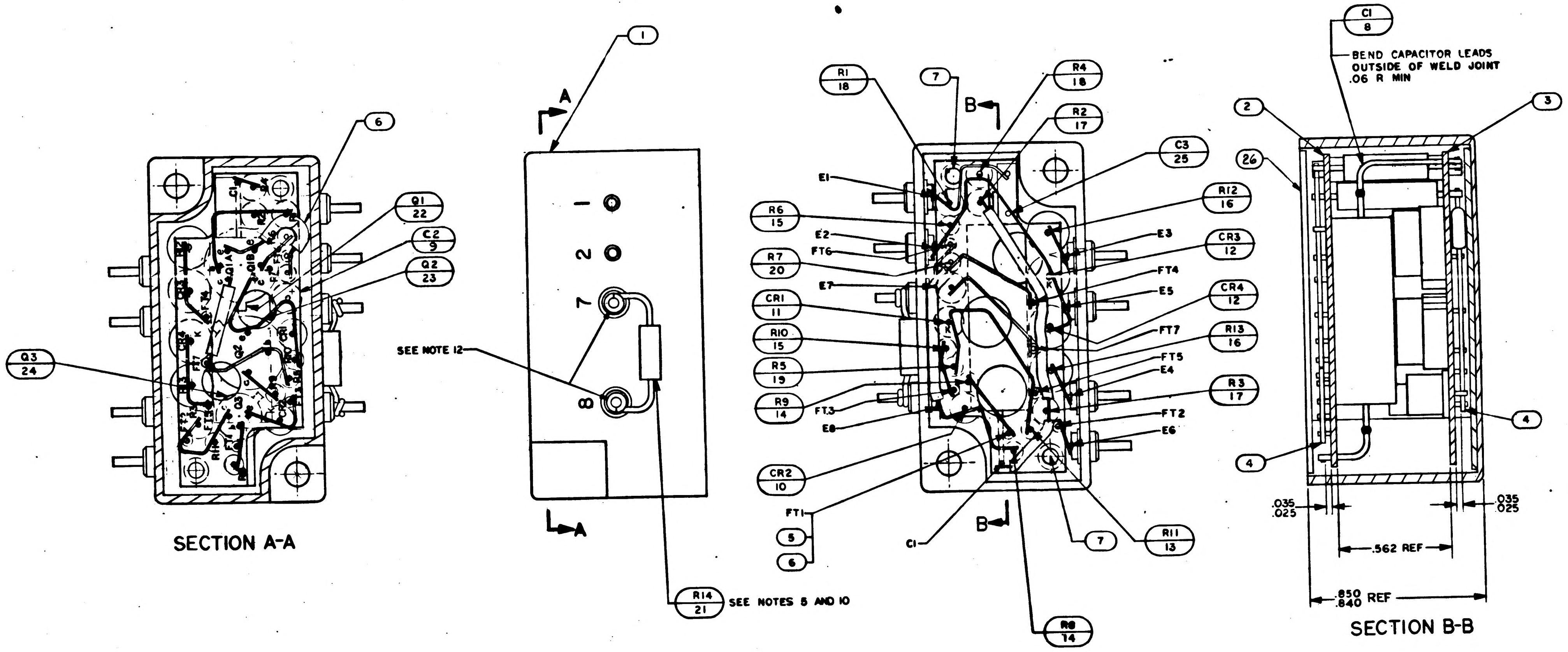
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADA PREAMP ASSY
(STABLE MEMBER)

CODE IDENT NO. —— SIZE E 1007263
SCALE 4/1 WT —— SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

SYM	REVISIONS DESCRIPTION	DATE	APPROVAL


6
Q1 22
C2 9
Q2 23
Q3 24
1
A
SEE NOTE 12
7
8
2
1
R14 21
SEE NOTES 5 AND 10
R1 18
7
B
R4 18
R2 17
C3 25
R12 16
E1
R6 15
E2
FT6
R7 20
E7
CR1 11
R10 15
R5 19
R9 14
FT3
E8
CR2 10
FT1
5
6
C1
E3
CR3 12
FT4
E5
CR4 12
FT7
R13 16
FT5
E4
R3 17
FT2
E6
R11 13
R8 14
C1 8
BEND CAPACITOR LEADS OUTSIDE OF WELD JOINT .06 R MIN
2
3
26
4
4
.035 .025
.035 .025
.562 REF
.850 .840 REF

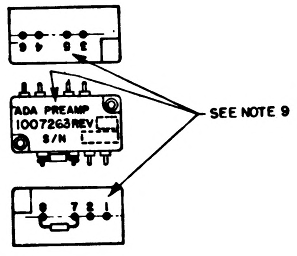
SECTION A-A

SECTION B-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. WELD PER ND-1002005
4. BOND FIND NUMBERS 22,23, AND 24 TO FIND NO. 3 PER ND100200 TYPE I.
5. BOND FIND NO. 21 TO FIND NO. 1 PER ND1002004, TYPE I
6. FIND NO. 26 TO BE HELD IN PLACE BY ENCAPSULANT, FLUSH WITH BOTTOM OF FIND NO. 1 WITHIN -.015 +.005.
7. CENTRALIZE MODULE IN HOUSING, WELD E1 THRU E8, AND ENCAPSULATE PER ND-1002002.
8. K DENOTES CATHODE SIDE OF DIODE
9. MARK CHARACTERS .100/.140 HIGH YELLOW PER ND1002019 & SERIALIZE PER ND1002023, CENTRALIZE ON INDICATED SURFACES AS SHOWN
10. R14 TO BE SELECTED FROM SELECTION CHART
11. AR DENOTES AS REQUIRED
12. SOLDER PER ND1002071, USING QQ-S-571 COMPOSITION Sn60
13. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S.1007025

R14	
1010369-94	360K
-95	390K
-96	430K
-97	470K
-98	510K
-99	560K
-100	620K
-101	680K
-102	750K
-103	820K
-104	910K
-105	1000K
-106	1100K
-107	1200K
-108	1300K
-109	1500K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ADA PREAMP
1007263 REV
S/N
8 7 2 1
SEE NOTE 9

MARKING VIEW
SCALE 1/1

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☒	1010234	SCHEMATIC DIAGRAM, ELEC	REF
1	1008275	INSULATOR	26
1	1010359-29	CAPACITOR	25
1	1010357-1	TRANSISTOR	24
1	1010345-1	TRANSISTOR	23
1	1010252-1	TRANSISTOR	22
1	SEE NOTE 10	RESISTOR	21
1	1010369-98	RESISTOR	20
1	1010369-96	RESISTOR	19
2	1010364-501	RESISTOR	18
2	1010321-398	RESISTOR	17
2	1010312-030	RESISTOR	16
2	1006750-64	RESISTOR	15
2	1006750-63	RESISTOR	14
1	1006750-60	RESISTOR	13
2	1010265-012	DIODE	12
1	1010372-20	DIODE	11
1	1010372-1	DIODE	10
1	1006755-57	CAPACITOR	9
1	1010320-13	CAPACITOR	8
2	1008043	SPACER	7
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	6
AR	1006787-2	WIRE, ELECTRICAL, NICKEL, IRON	5
AR	1006757-1	WIRE, ELECTRICAL, NICKEL, RECT	4
1	1007265	WIRING BOARD, BOTTOM	3
1	1007264	WIRING BOARD, TOP	2
1	1008279-011	HOUSING ASSY	1

011 LIST OF MATERIALS

1007263

NEXT ASSY	USED ON
	DL1000201
1000005	DL1000001

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS ± .03 ANGLES ± //
DO NOT SCALE THIS DRAWING
MATERIAL //
HEAT TREATMENT //
FINAL FINISH //

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN D. J. Flerke DATE 1-26-65
CHECKED Fesler 1FEB65
APPROVAL 1FEB65
APPROVAL 2FEB65
NASA APPROVAL
MIT APPROVAL 17Feb65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADA PREAMP ASSY
(STABLE MEMBER)

CODE IDENT NO. SIZE E 1007263
SCALE 4/1 WT SHEET 1 OF 1

Charleston 2-24-65

REVISION			
SYM	DESCRIPTION	DATE	APPROVAL
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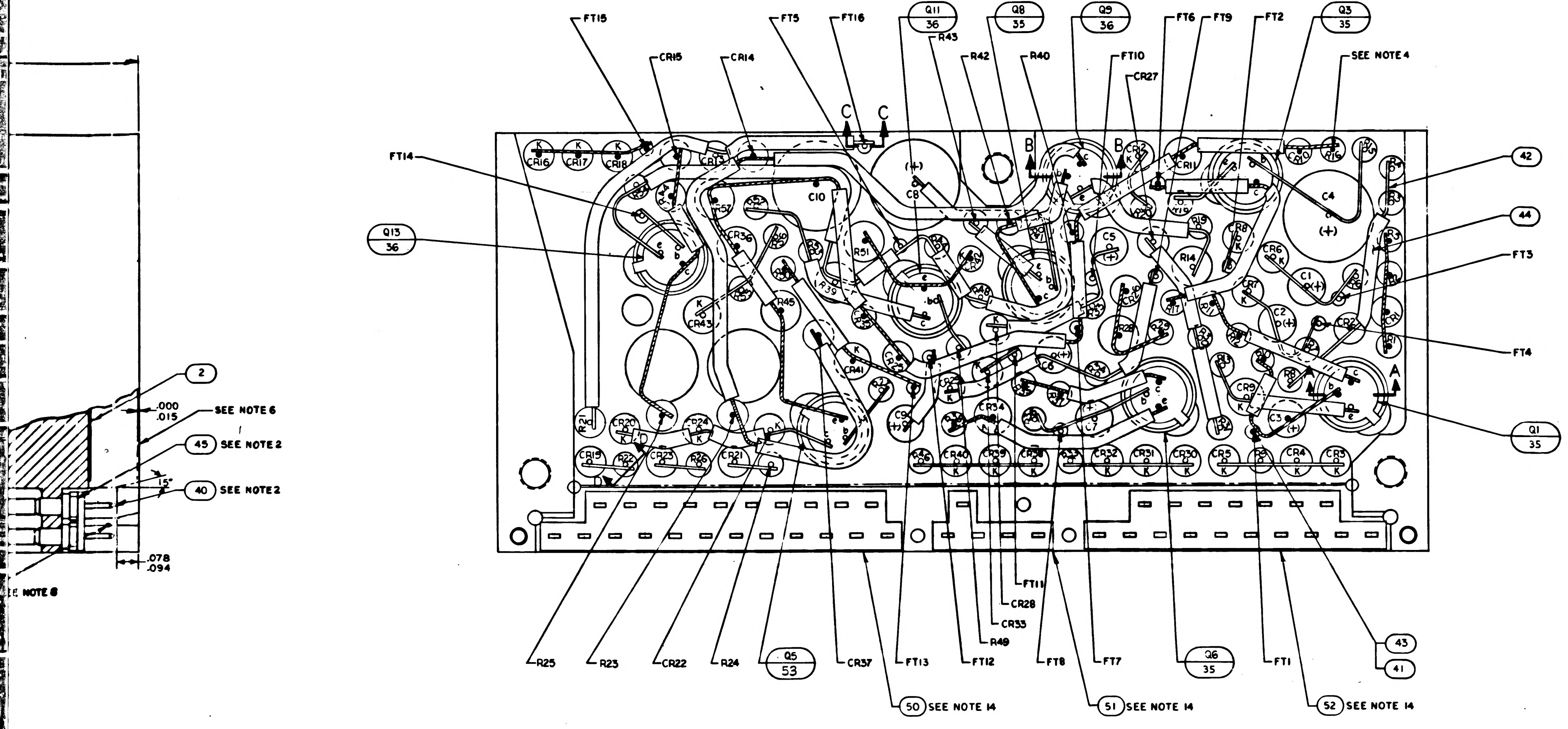
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SEE NOTE 4
CR15
CR14
C C
B B
FT14
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Q13 36
FT4
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2
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45 SEE NOTE 2
15°
40 SEE NOTE 2
.078 .094
E NOTE 8
R25
R23
CR22
R24
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FT11
CR28
CR33
R49
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FT7
Q6 35
FT1
50 SEE NOTE 14
51 SEE NOTE 14
52 SEE NOTE 14
CR16
CR17
CR18
C10
C8
C4
C5
C1
C2
C3
C9
CR36
CR43
R45
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CR54
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CR6
CR7
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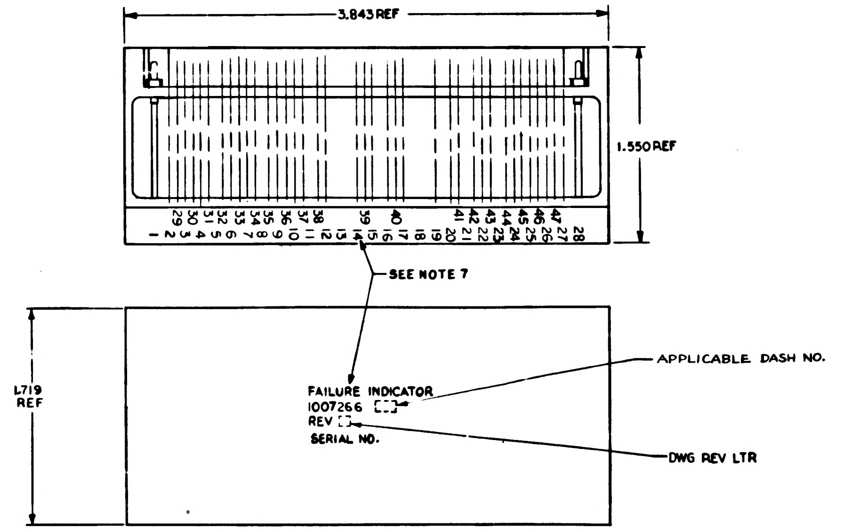
CR3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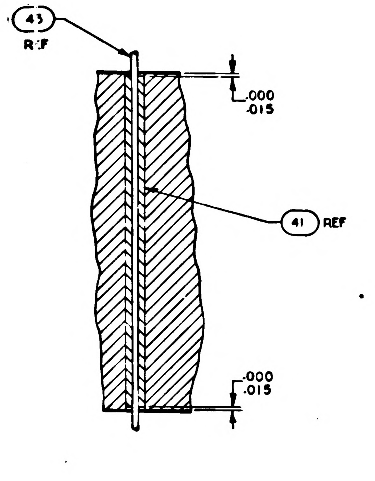
1.550 REF
SEE NOTE 7
1.719 REF
FAILURE INDICATOR
1007266
REV
SERIAL NO.
APPLICABLE DASH NO.
DWG REV LTR

MARKING VIEW
SCALE 2/1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41 REF
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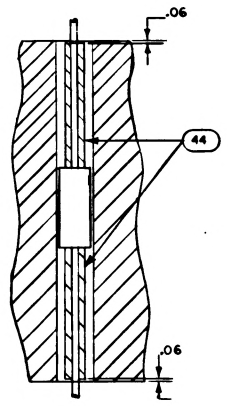
SECTION C-C
TYP FT1 THRU FT16



SECTION D-D
SEE NOTE 11

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1010966-1	TRANSISTOR	53
╳	1010033	SCHEMATIC	REF
1	1008542	GASKET CONNECTOR MINIATURE	52
1	1008541	GASKET CONNECTOR MINIATURE	51
1	1008543	GASKET CONNECTOR MINIATURE	50
~~1~~	~~1006752~~	~~TRANSISTOR~~	49
1	1006750-51	RESISTOR	48
AR	1006776-20	INSULATION, SLEEVING ELECT	47
13	1008025 - 1	INSULATOR, BUSHING	46
38	1006775	INSULATOR, WRAPOST-MALE, MIN	45
A/R	1006776 - 21	INSULATION SLEEVING	44
A/R	1006757 - 8	WIRE ELEC .020 DIA	43
A/R	1006757 - 1	WIRE ELEC .010 X .020	42
A/R	1006776 - 22	INSULATION, SLEEVING ELECT	41
38	1006782 - 5	CONTACT, WRAPOST-MALE, MIN	40
1	1010353 - 4	RELAY	39
			38
2	1010467	TRANSFORMER	37
6	1010285	TRANSISTOR	36
6	1010397-1	TRANSISTOR	35
1	1010372 - 9	DIODE	34
1	1010372 - 4	DIODE	33
3	1010372 - 16	DIODE	32
3	1010286 - 009	DIODE	31
1	1010372 - 8	DIODE	30
35	1010385	DIODE	29
			28
1	1006755 - 57	CAPACITOR	27
3	1006755 - 89	CAPACITOR	26
6	1006755 - 69	CAPACITOR	25
2	1006760 - 43	RESISTOR	24
1	1006750 - 39	RESISTOR	23
1	1010369 - 101	RESISTOR	22
2	1006750 - 48	RESISTOR	21
1	1006760 - 48	RESISTOR	20
1	1006750 - 15	RESISTOR	19
3	1010604 - 3	RESISTOR	18
1	1006750 - 43	RESISTOR	17
3	1006750 - 53	RESISTOR	16
3	1006760 - 32	RESISTOR	15
6	1006750 - 49	RESISTOR	14
5	1006750 - 80	RESISTOR	13
╳	1010369 SEE NOTE 12	RESISTOR	12
3	1006750 - 73	RESISTOR	11
7	1006750 - 32	RESISTOR	10
7	1006750 - 75	RESISTOR	9
╳	1006750 SEE NOTE 12	RESISTOR	8
╳	1006750 SEE NOTE 12	RESISTOR	7
1	1006750 - 45	RESISTOR	6
4	1006750 - 56	RESISTOR	5
1	1006750 - 44	RESISTOR	4
1	1008089	INSULATOR BOTTOM	3
1	1008088	INSULATOR TOP	2
1	1007038	HEATSINK	1

C11 LIST OF MATERIALS

1007152	
NEXT ASSY	USED ON
APPLICATION	

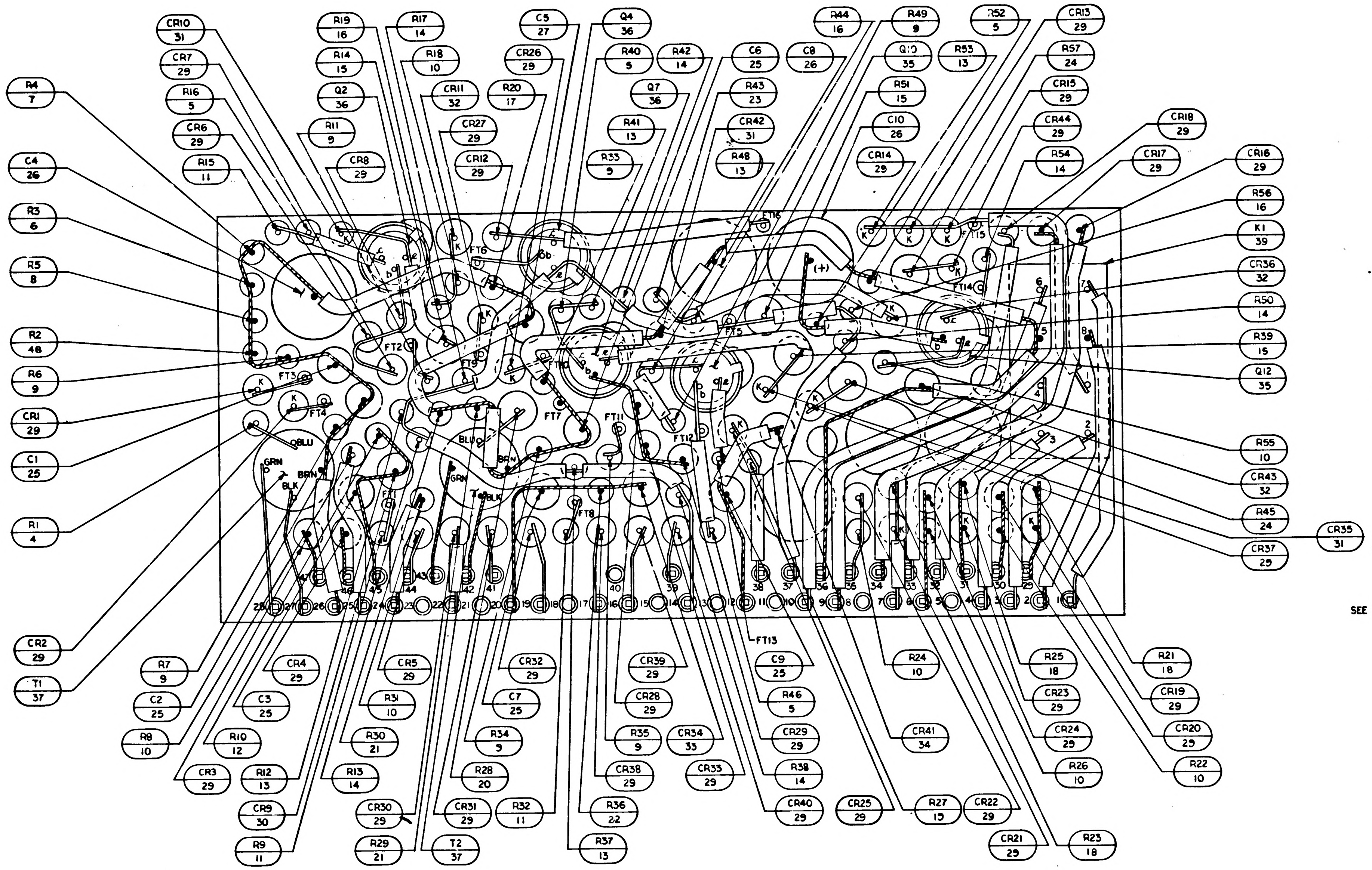
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN RWKeisel DATE 23 FEB 65
CHECKED [illegible] 24 FEB 65
APPROVAL [illegible] 24 FEB 65
APPROVAL [illegible] 24 FEB 65
[illegible] 2/26/65
NASA APPROVAL [illegible] 3-2-65
MIT APPROVAL WKay 2 Mar 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FAILURE INDICATOR MODULE ASSEMBLY

CODE IDENT NO.
SIZE J
NASA DRAWING NO 1007266
SCALE 5/1
WT
SHEET 1 OF 1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R4 7
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R3 6
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R2 48
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R1 4
CR2 29
T1 37
R19 16
R14 15
Q2 36
R11 9
CR8 29
R17 14
R18 10
CR11 32
CR27 29
CR12 29
C5 27
CR26 29
R20 17
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R40 5
R42 14
Q7 36
R41 13
R33 9
C6 25
C8 26
R43 23
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CR16 29
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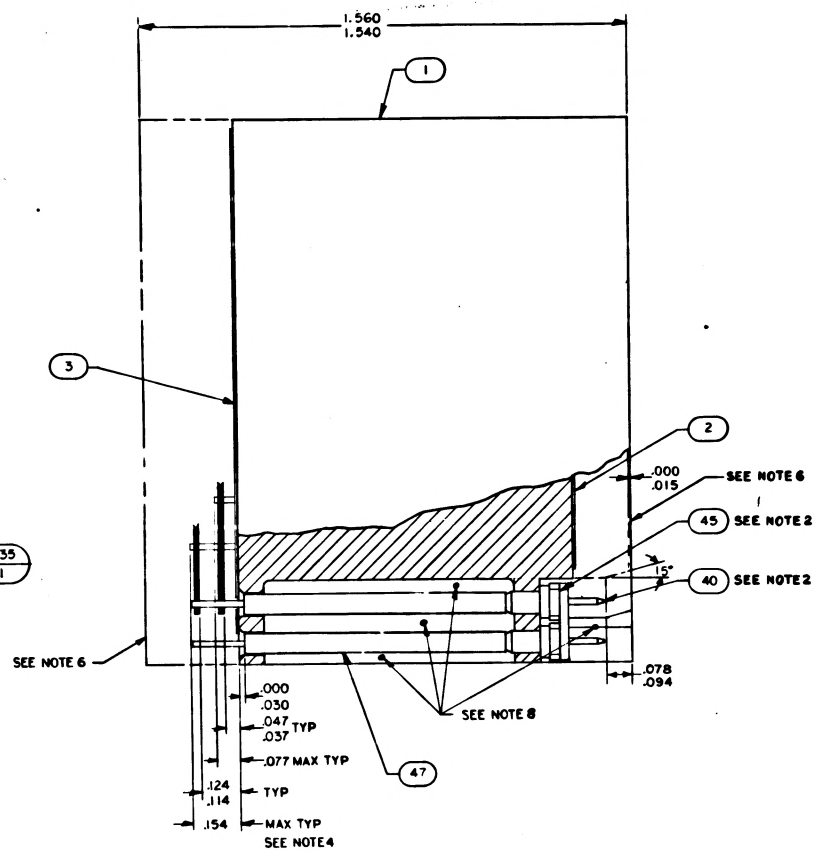
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SEE NOTE 6
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SEE NOTE4
47
SEE NOTE 8

Q13 36

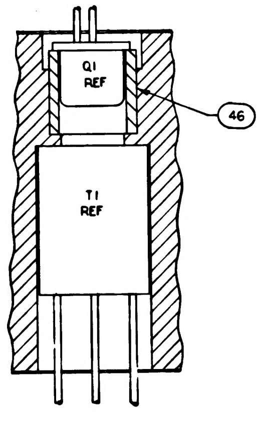
FT14

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 40 AND 45 PER ND 1002136
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
4. BLACK DOT AND CROSSHATCHED RIBBONS INDICATE SECOND LEVEL WIRING
5. K INDICATES CATHODE SIDE OF DIODE
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBERS .08 HIGH (WHITE) AND SERIALIZE AND MARK ALL OTHER CHARACTERS .12 HIGH (WHITE) PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
9. STAKE FIND NO. 4 THRU 39 PER ND1002009
10. AR DENOTES AS REQUIRED
11. TYPICAL SLEEVING FOR R1 THRU R13, R15 THRU R27, R29 THRU R38, R40 THRU R44 R46, R48 THRU R50, R52 THRU R56, CR10, CR35 AND CR48
12. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP1007C51 PART TO BE SELECTED FROM CHART

13. PROCURE PER PS1007051.
4. BOND FIND NO. 50, 51, AND 52 TO 45 PER ND 1002237
5. BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.

R4		R5		R10	
PART NO.	VALUE	PART NO.	VALUE	PART NO	VALUE
1006750 - 45	3.6K	1006750 - 60	15K	1010369 - 93	330
- 46	3.9K	- 61	16K	- 94	360
- 47	4.3K	- 62	18K	- 95	390
- 48	4.7K	- 63	20K	- 96	430
- 49	5.1K	- 64	22K	- 97	470
- 50	5.6K	- 65	24K	- 98	510
- 51	6.2K	- 66	27K	- 99	560
- 52	6.8K	- 67	30K	- 100	620
- 53	7.5K	- 68	33K	- 101	680
- 54	8.2K	- 69	36K	- 102	750
- 55	9.1K	- 70	39K	- 103	820
- 56	10K	- 71	43K	- 104	910
- 57	11K	- 72	47K	- 105	1 MEG
- 58	12K	- 73	51K	1010369 - 106	1.1MEG
- 59	13K	- 74	56K		
- 60	15K	- 75	62K		
- 61	16K	- 76	68K		
- 62	18K	- 77	75K		
- 63	20K	1006750 - 78	82K		
- 64	22K				
- 65	24K				
- 66	27K				
- 67	30K				
- 68	33K				
- 69	36K				
- 70	39K				
- 71	43K				
1006750 - 72	47K				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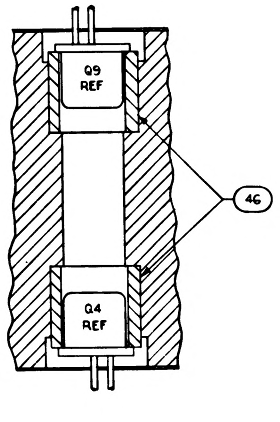
SECTION A-A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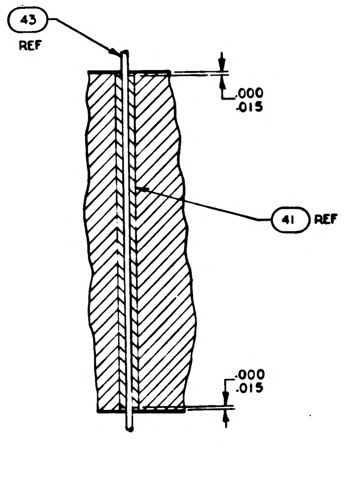
SECTION B-B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SECTION C-C
TYP FT1 THRU FT16

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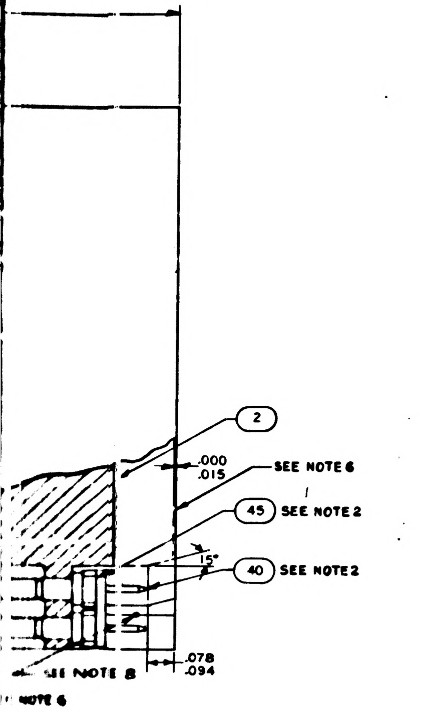
B	REVISED PER TDRR 25117	66	EF



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SEE NOTE 6
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40 SEE NOTE 2
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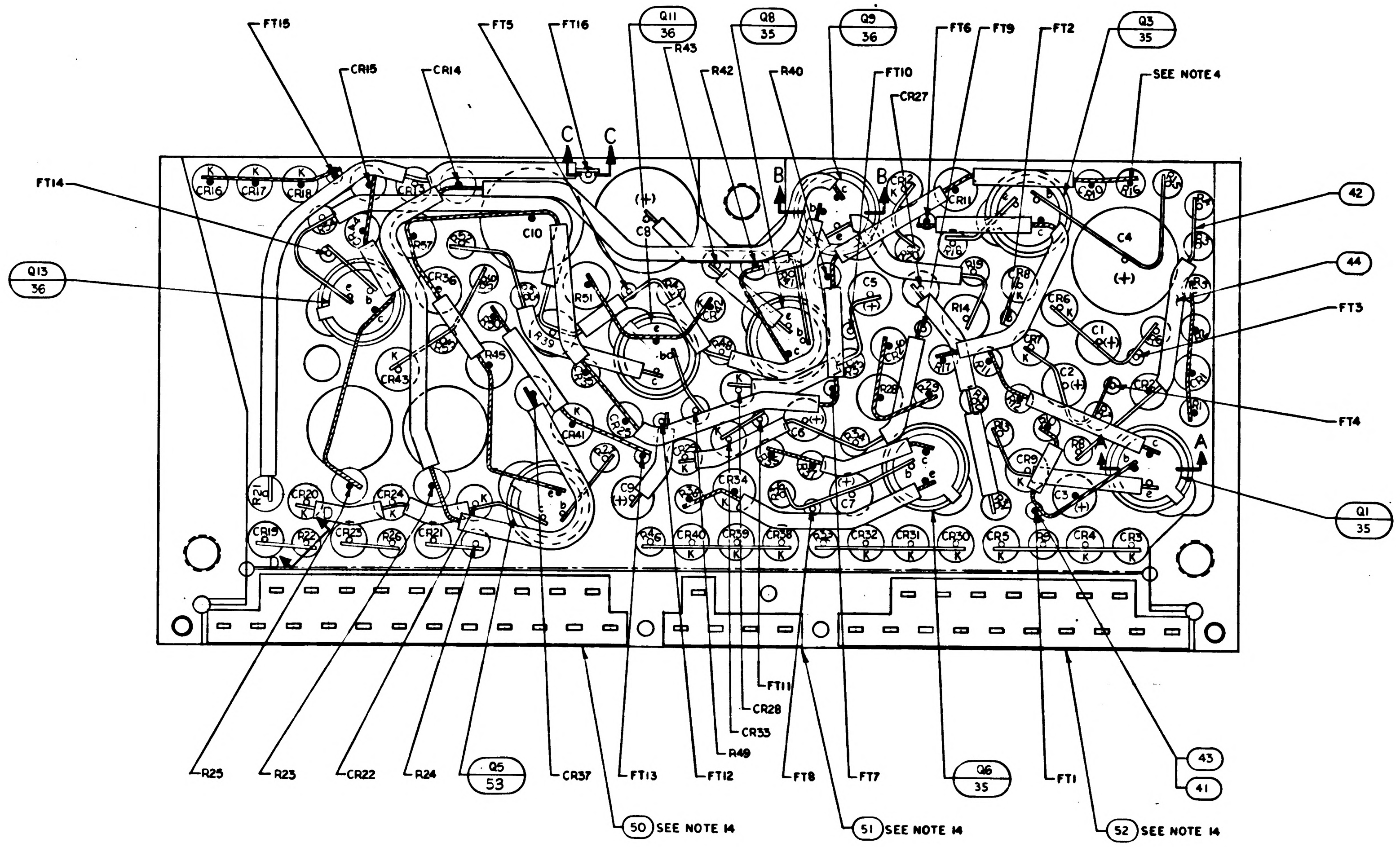
SEE NOTE 8
NOTE 6



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FT9
FT2
Q3 35
SEE NOTE 4
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C4
C5
C1
C2
C3
C7
C9
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R45
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CR3
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CR17
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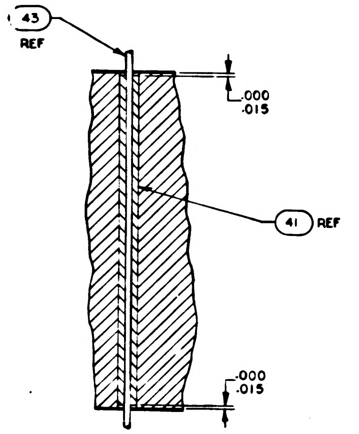

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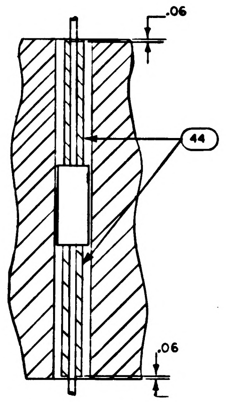
SECTION C-C
TYP FT1 THRU FT16



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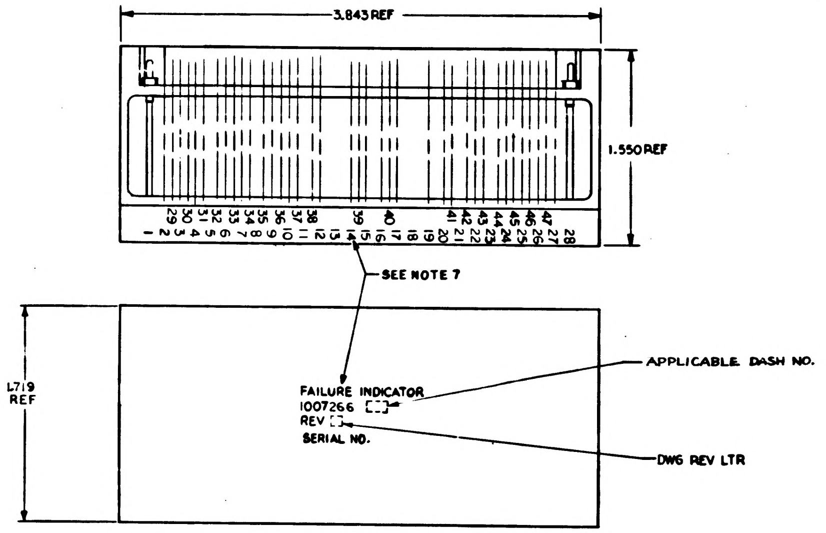
SEE NOTE 11



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1.550 REF
SEE NOTE 7
1.719 REF
FAILURE INDICATOR
1007266
REV
SERIAL NO.
APPLICABLE DASH NO.
DWG REV LTR

MARKING VIEW
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1010966-1	TRANSISTOR	53
☒	1010033	SCHEMATIC	REF
1	1008542	GASKET CONNECTOR MINIATURE	52
1	1008541	GASKET CONNECTOR MINIATURE	51
1	1008543	GASKET CONNECTOR MINIATURE	50
~~1~~	~~1006752~~	~~TRANSISTOR~~	49
1	1006750-51	RESISTOR	48
AR	1006776-20	INSULATION,SLEEVING ELECT	47
13	1008025 - 1	INSULATOR, BUSHING	46
38	1006775	INSULATOR,WRAPOST-MALE, MIN	45
A/R	1006776 - 21	INSULATION SLEEVING	44
A/R	1006757 - 8	WIRE ELEC .020 DIA	43
A/R	1006757 - 1	WIRE ELEC .010 X .020	42
A/R	1006776 - 22	INSULATION,SLEEVING ELECT	41
38	1006782 - 5	CONTACT, WRAPOST-MALE, MIN	40
1	1010353 - 4	RELAY	39
			38
2	1010467	TRANSFORMER	37
6	1010285	TRANSISTOR	36
6	1010397-1	TRANSISTOR	35
1	1010372 - 9	DIODE	34
1	1010372 - 4	DIODE	33
3	1010372 - 16	DIODE	32
3	1010286 - 009	DIODE	31
1	1010372 - 8	DIODE	30
35	1010385	DIODE	29
			28
1	1006755 - 57	CAPACITOR	27
3	1006755 - 89	CAPACITOR	26
6	1006755 - 69	CAPACITOR	25
2	1006760 - 43	RESISTOR	24
1	1006750 - 39	RESISTOR	23
1	1010369 - 101	RESISTOR	22
2	1006750 - 48	RESISTOR	21
1	1006760 - 48	RESISTOR	20
1	1006750 - 15	RESISTOR	19
3	1010604 - 3	RESISTOR	18
1	1006750 - 43	RESISTOR	17
3	1006750 - 53	RESISTOR	16
3	1006760 - 32	RESISTOR	15
6	1006750 - 49	RESISTOR	14
5	1006750 - 80	RESISTOR	13
☒	1010369 SEE NOTE 12	RESISTOR	12
3	1006750 - 73	RESISTOR	11
7	1006750 - 32	RESISTOR	10
7	1006750 - 75	RESISTOR	9
☒	1006750 SEE NOTE 12	RESISTOR	8
☒	1006750 SEE NOTE 12	RESISTOR	7
1	1006750 - 45	RESISTOR	6
4	1006750 - 56	RESISTOR	5
1	1006750 - 44	RESISTOR	4
1	1008089	INSULATOR BOTTOM	3
1	1008088	INSULATOR TOP	2
1	1007038	HEATSINK	1

C11 LIST OF MATERIALS

1007266 B

NEXT ASSY	USED ON
1007152	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

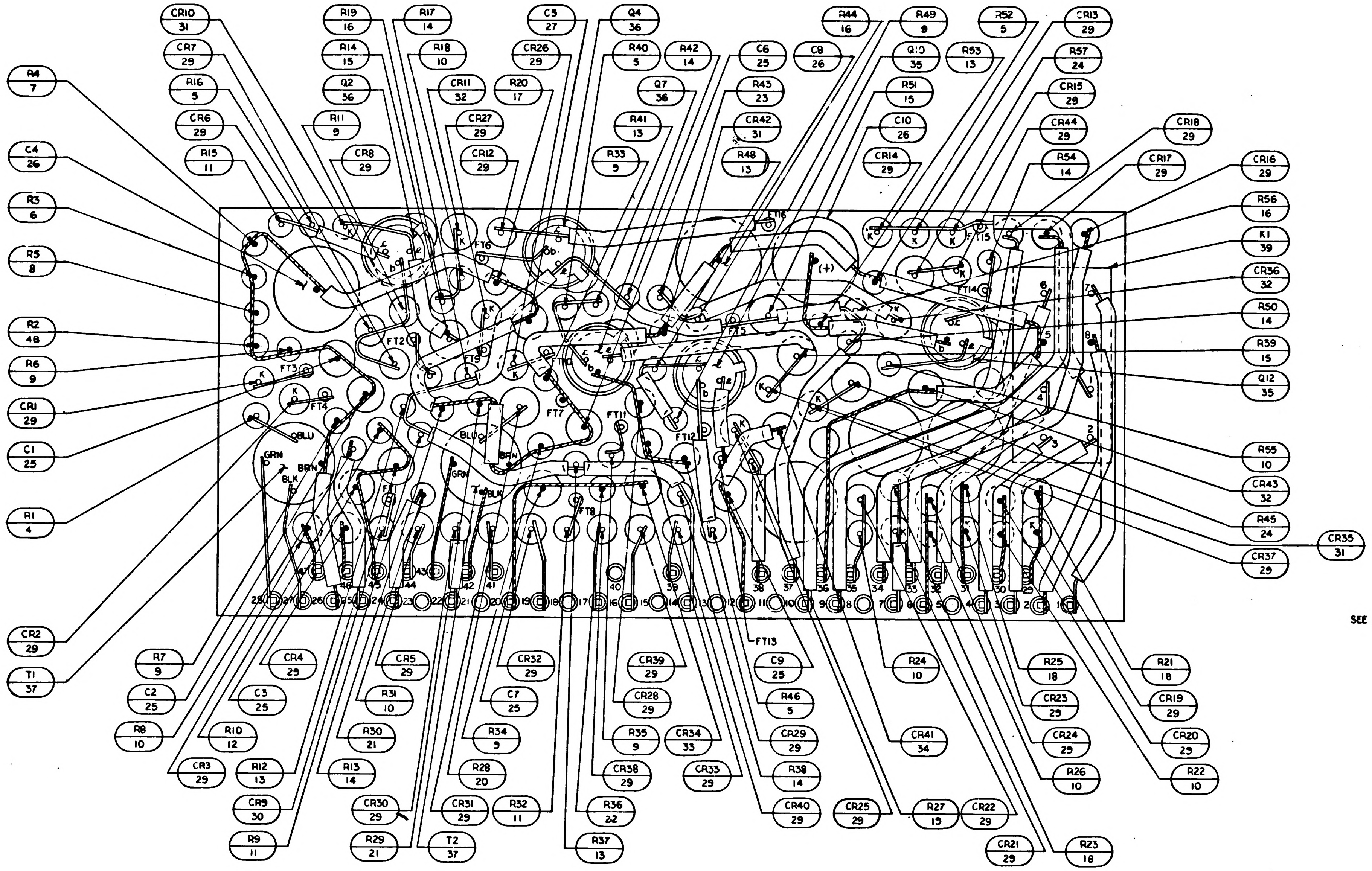
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN DATE 23 FEB 65
CHECKED 24 FEB 65
APPROVAL 24 FEB 65
APPROVAL 24 FEB 65
2/24/65
NASA APPROVAL 3-2-65
MIT APPROVAL 2 Mar 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FAILURE INDICATOR
MODULE ASSEMBLY

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007266
SCALE 5/1 WT
SHEET 1 OF 1

271007266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CR4 29
R8 10
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R10 12
CR3 29
R12 13
CR9 30
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CR5 29
R31 10
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R13 14
CR30 29
R29 21
CR32 29
C7 25
R34 9
R28 20
CR31 29
T2 37
R32 11
CR39 29
CR28 29
R35 9
CR34 33
CR38 29
R36 22
R37 13
CR33 29
C9 25
R46 5
CR29 29
R38 14
CR40 29
CR25 29
CR41 34
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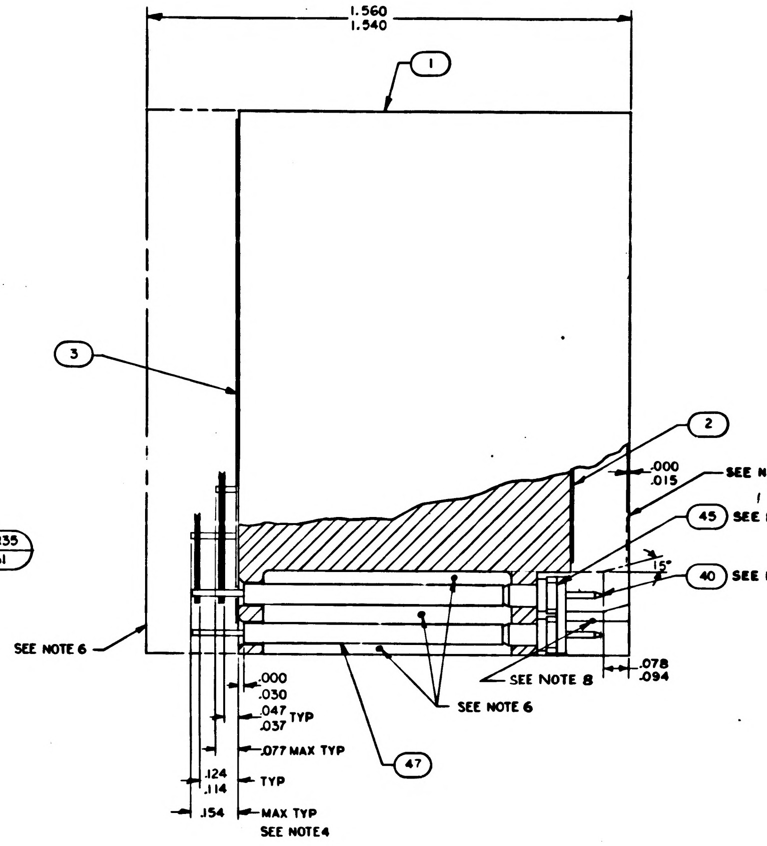
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47
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.077 MAX TYP
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.114 TYP
.154 MAX TYP
SEE NOTE4

FT14

Q13 36

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 40 AND 45 PER ND 1002136
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
4. BLACK DOT AND CROSSHATCHED RIBBONS INDICATE SECOND LEVEL WIRING
5. K INDICATES CATHODE SIDE OF DIODE
6. ENCAPSULATE MODULE PER ND 1002002(BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF.005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBERS .08 HIGH (WHITE) AND MARK ALL OTHER CHARACTERS .12 HIGH (WHITE) PER ND1002019. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE. SERIALIZE PER ND1002023.
8. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
9. STAKE FIND NO. 4 THRU 39 PER ND1002009 METHOD J.
10. AR DENOTES AS REQUIRED
11. TYPICAL SLEEVING FOR R1 THRU R13, R15 THRU R27, R29 THRU R38, R40 THRU R44 R46, R48 THRU R50, R52 THRU R56, CR10, CR35 AND CR48
12. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP1007051 PART TO BE SELECTED FROM CHART
13. PROCURE PER PS1007051.
14. BOND FIND NO. 50, 51, AND 52 TO 45 PER ND 1002237
15. BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002167 TYPE I.
16. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
17. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN-BLADES AND INSULATORS TO BE FREE OF PAINT.

R4		R5		R10	
PART NO.	VALUE	PART NO.	VALUE	PART NO	VALUE
1006750 -45	3.6K	1006750 -60	15K	1010369 -93	330
-46	3.9K	-61	16K	-94	360
-47	4.3K	-62	18K	-95	390
-48	4.7K	-63	20K	-96	430
-49	5.1K	-64	22K	-97	470
-50	5.6K	-65	24K	-98	510
-51	6.2K	-66	27K	-99	560
-52	6.8K	-67	30K	-100	620
-53	7.5K	-68	33K	-101	680
-54	8.2K	-69	36K	-102	750
-55	9.1K	-70	39K	-103	820
-56	10K	-71	43K	-104	910
-57	11K	-72	47K	-105	1MEG
-58	12K	-73	51K	1010369 -106	1.1MEG
-59	13K	-74	56K		
-60	15K	-75	62K		
-61	16K	-76	68K		
-62	18K	-77	75K		
-63	20K	1006750 -78	82K		
-64	22K				
-65	24K				
-66	27K				
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-68	33K				
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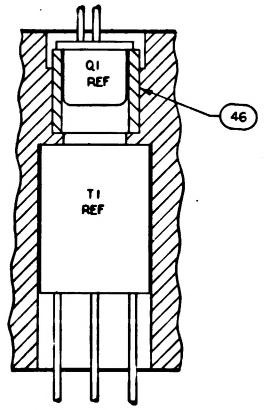
-70	39K				
-71	43K				
1006750 -72	47K				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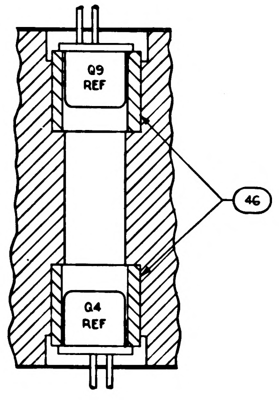
SECTION A-A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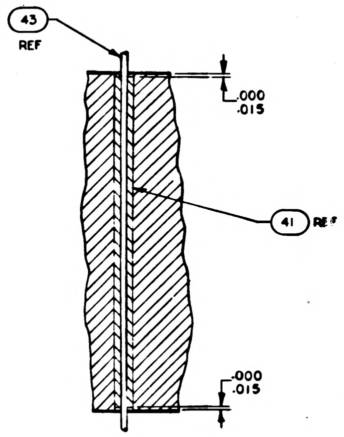
SECTION B-B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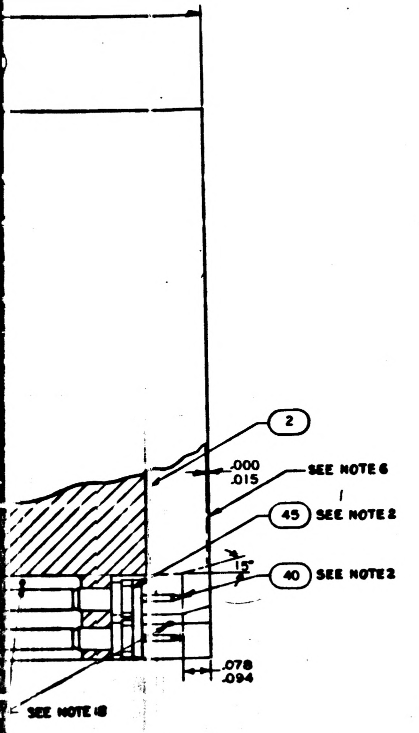
SECTION C-C
TYP FT1 THRU FT16

1007266 REV SH. 1

1/1007266

REVISION			
SYM	DESCRIPTION	DATE	APPROVAL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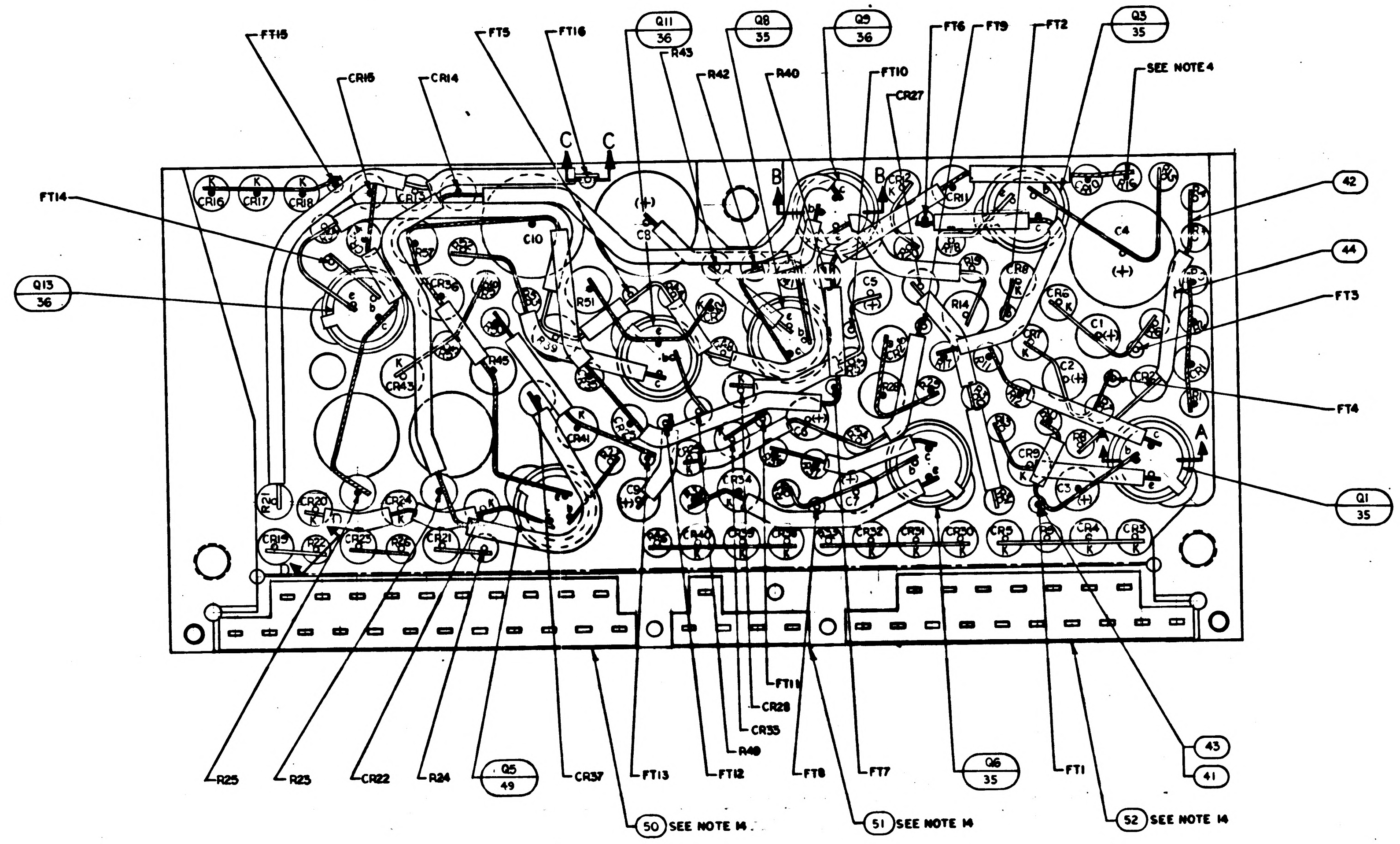
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CR14
FT5
FT16
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R43
Q8 35
R42
R40
Q9 36
FT10
CR27
FT6
FT9
FT2
Q3 35
SEE NOTE 4
C C
B B
A
FT14
Q13 36
C10
C8
C4
C5
C1
C2
C3
42
44
FT3
FT4
Q1 35
R25
R23
CR22
R24
Q5 49
CR37
FT13
FT12
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CR33
CR29
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50 SEE NOTE 14
51 SEE NOTE 14
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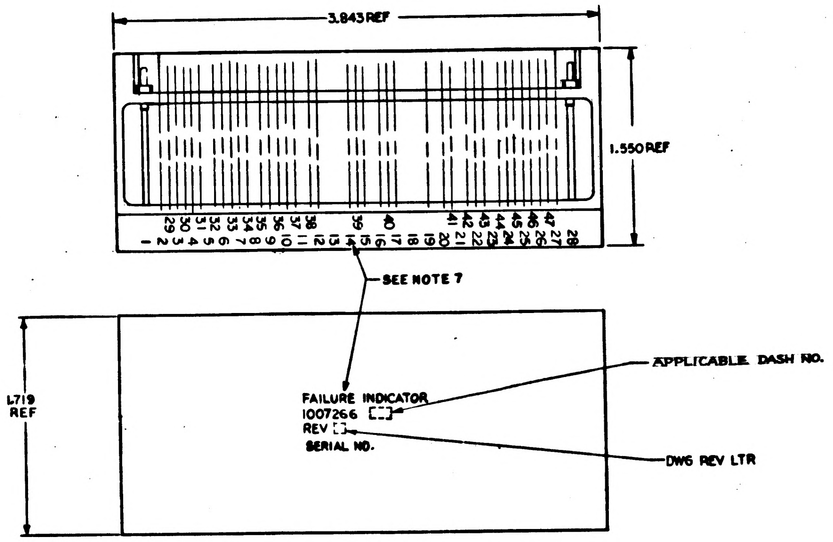
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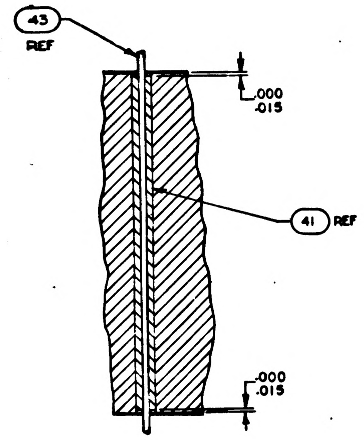
1.719 REF
SEE NOTE 7
FAILURE INDICATOR
1007266 [ ]
REV [ ]
SERIAL NO.
APPLICABLE DASH NO.
DWG REV LTR

MARKING VIEW
SCALE 2/1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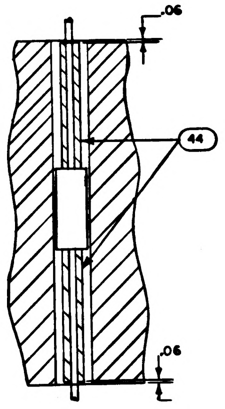
SECTION C-C
TYP FT1 THRU FT16



SECTION D-D
SEE NOTE 11

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1010033	SCHEMATIC	REF
1	1008542	GASKET CONNECTOR MINIATURE	52
1	1008541	GASKET CONNECTOR MINIATURE	51
1	1008543	GASKET CONNECTOR MINIATURE	50
1	1006752	TRANSISTOR	49
1	1006750-51	RESISTOR	48
AR	1006776-20	INSULATION, SLEEVING ELECT	47
13	1008025 - 1	INSULATOR, BUSHING	46
38	1006775	INSULATOR, WRAPOST-MALE, MIN	45
A/R	1006776 - 21	INSULATION SLEEVING	44
A/R	1006757 - 8	WIRE ELEC .020 DIA	43
A/R	1006757 - 1	WIRE ELEC .010 X .020	42
A/R	1006776 - 22	INSULATION, SLEEVING ELECT	41
38	1006782 - 5	CONTACT, WRAPOST-MALE, MIN	40
1	1010353 - 4	RELAY	39
			38
2	1010467	TRANSFORMER	37
6	1010285	TRANSISTOR	36
6	1010397-1	TRANSISTOR	35
1	1010372 - 9	DIODE	34
1	1010372 - 4	DIODE	33
3	1010372 - 16	DIODE	32
3	1010286 - 009	DIODE	31
1	1010372 - 8	DIODE	30
35	1010385	DIODE	29
			28
1	1006755 - 57	CAPACITOR	27
3	1006755 - 89	CAPACITOR	26
6	1006755 - 69	CAPACITOR	25
2	1006760 - 43	RESISTOR	24
1	1006750 - 39	RESISTOR	23
1	1010369 - 101	RESISTOR	22
2	1006750 - 48	RESISTOR	21
1	1006760 - 48	RESISTOR	20
1	1006750 - 15	RESISTOR	19
3	1010604 - 3	RESISTOR	18
1	1006750 - 43	RESISTOR	17
3	1006750 - 53	RESISTOR	16
3	1006760 - 32	RESISTOR	15
6	1006750 - 49	RESISTOR	14
5	1006750 - 80	RESISTOR	13
☒	1010369 SEE NOTE 12	RESISTOR	12
3	1006750 - 73	RESISTOR	11
7	1006750 - 32	RESISTOR	10
7	1006750 - 75	RESISTOR	9
☒	1006750 SEE NOTE 12	RESISTOR	8
☒	1006750 SEE NOTE 12	RESISTOR	7
1	1006750 - 45	RESISTOR	6
4	1006750 - 56	RESISTOR	5
1	1006750 - 44	RESISTOR	4
1	1008089	INSULATOR BOTTOM	3
1	1008088	INSULATOR TOP	2
1	1007038	HEATSINK	1

011 LIST OF MATERIALS

1007266

NEXT ASSY	USED ON
1007152	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ± .02 XXX ± .005 ANGLES ±
DO NOT SCALE THIS DRAWING
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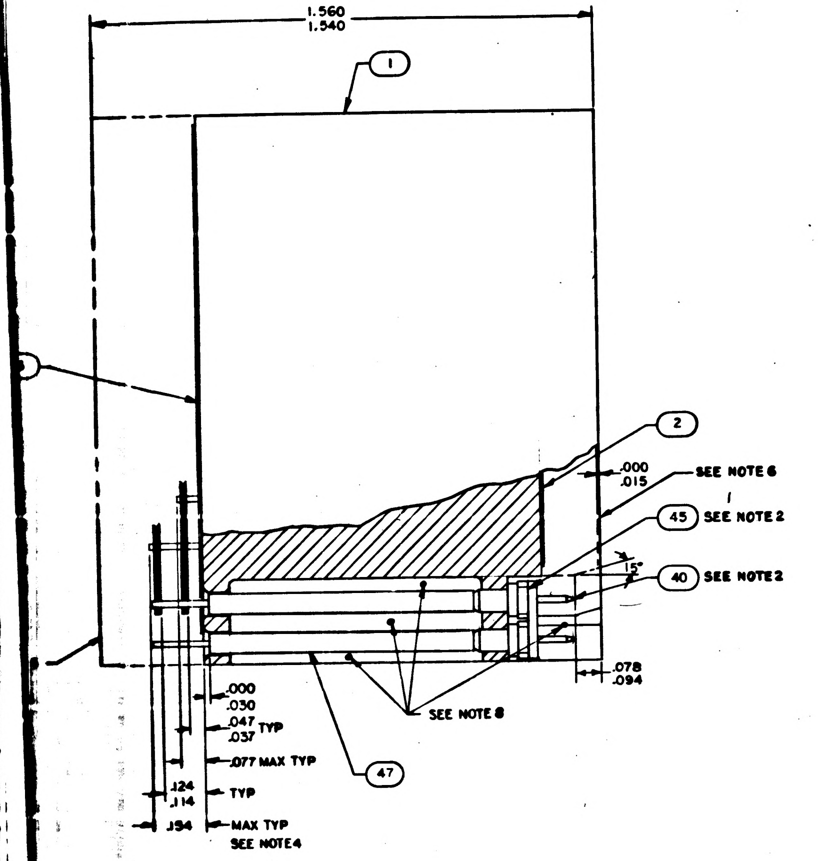
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN R.W. Kuid DATE 23 FEB 65
CHECKED A. Udovich 24 FEB 65
APPROVAL 24 FEB 65
APPROVAL 24 FEB 65
D. B. Test 2/26/65
NASA APPROVAL 3-2-65
MIT APPROVAL W Kupf 2 Mar 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FAILURE INDICATOR MODULE ASSEMBLY

CODE IDENT NO. SIZE J NASA DRAWING NO. 1007266
SCALE 5/1 WT SHEET 1 OF 1

1007266



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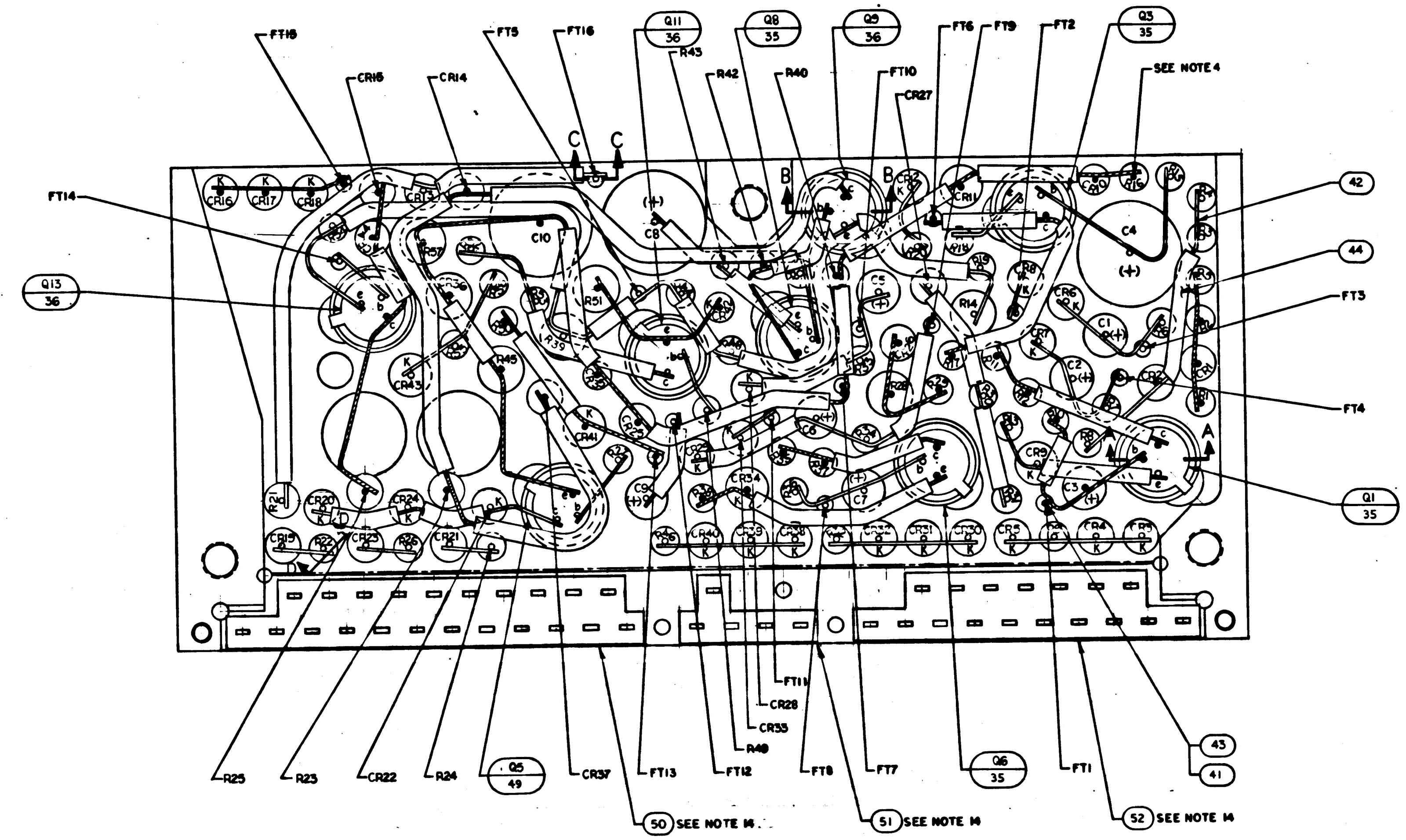
SEE NOTE 4



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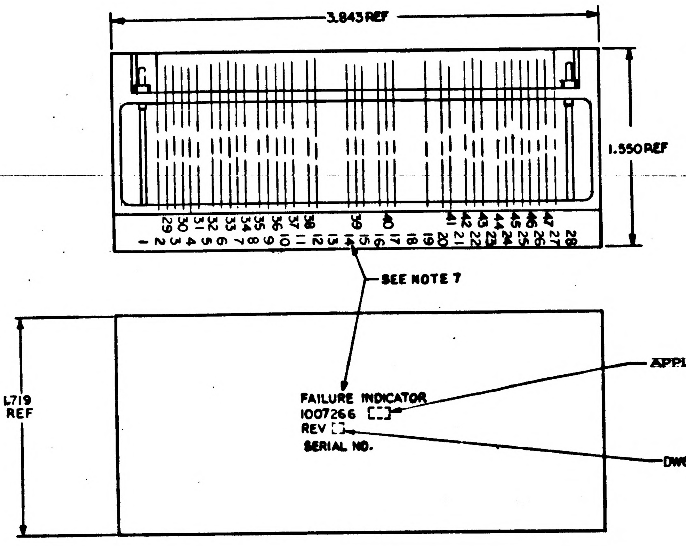

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SEE NOTE 7
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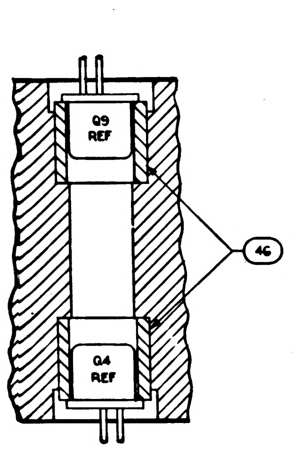
REV
SERIAL NO.
APPLICABLE DASH NO.
DWG REV LTR

MARKING VIEW
SCALE 2/1



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Q4 REF
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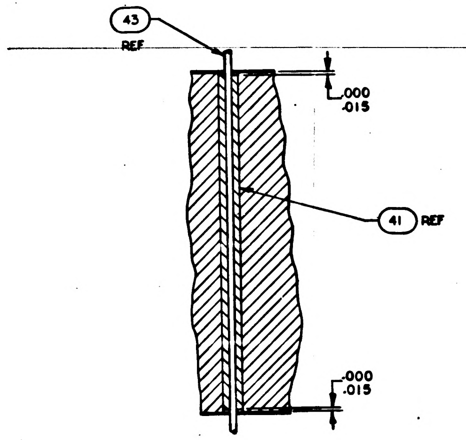
SECTION B-B



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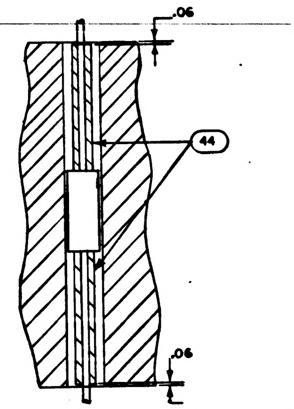
SECTION C-C
TYP FT1 THRU FT16



SECTION D-D
SEE NOTE 11

QTY REQD	PART OR IDENTIFYING NO.	
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1	1008541	GASKE
1	1008543	GASKE
1	1006752	TRANS
1	1006750-51	RESIS
AR	1006776-20	INSUL
13	1008025 - 1	INSUL
38	1006775	INSUL
A/R	1006776 - 21	INSUL
A/R	1006757 - 8	WIRE
A/R	1006757 - 1	WIRE
A/R	1006776 - 22	INSULA
38	1006782 - 5	CONTA
1	1010353 - 4	RELAY
2	1010467	TRANS
6	1010285	TRANS
6	1010397-1	TRANS
1	1010372 - 9	DIODE
1	1010372 - 4	DIODE
3	1010372 - 16	DIODE
3	1010286 - 009	DIODE
1	1010372 - 8	DIODE
35	1010385	DIODE
1	1006755 - 57	CAPA
3	1006755 - 89	CAPA
6	1006755 - 69	CAPA
2	1006760 - 43	RESIST
1	1006750 - 39	RESIST
1	1010369 - 101	RESIST
2	1006750 - 48	RESIST
1	1006760 - 48	RESIST
1	1006750 - 15	RESIT
3	1010604 - 3	RESIT
1	1006750 - 43	RESIT
3	1006750 - 53	RESIT
3	1006760 - 32	RESIT
6	1006750 - 49	RESIT
5	1006750 - 80	RESIT
☒	1010369 SEE NOTE 12	RESIST
3	1006750 - 73	RESIT
7	1006750 - 32	RESIT
7	1006750 - 75	RESIT
☒	1006750 SEE NOTE 12	RESIST
☒	1006750 SEE NOTE 12	RESIST
1	1006750 - 45	RESIST
4	1006750 - 56	RESIST
1	1006750 - 44	RESIST
1	1008089	INSU
1	1008088	INSULA
1	1007038	HEAT S

LIST OF MAT

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NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX±.02 XXX±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN DATE 23 FEB 65
CHECKED 24 FEB 65
APPROVAL 24 FEB 65
APPROVAL 24 FEB 65
NASA APPROVAL 3-2-65
MIT APPROVAL 2 Mar 6

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SCALE 5/1

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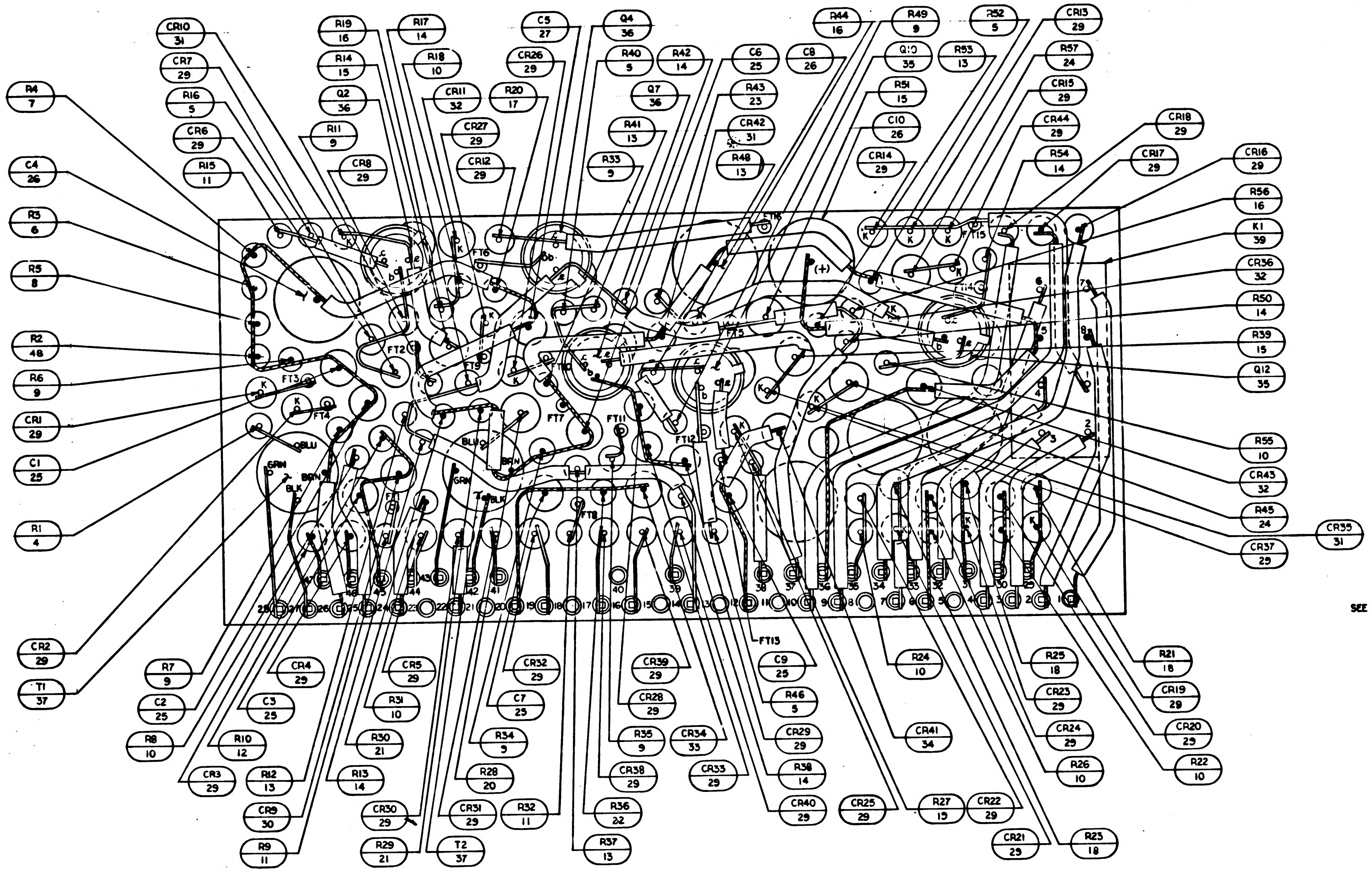
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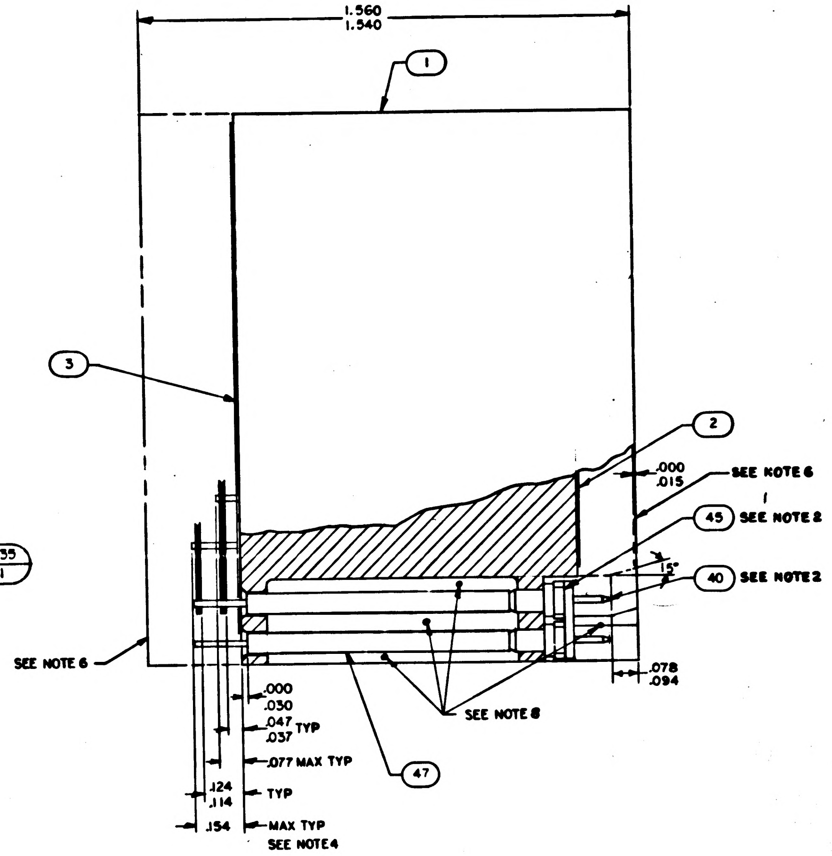
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SEE NOTE 8
47
.124
.114 TYP
.154 MAX TYP
SEE NOTE 4

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 40 AND 45 PER ND 1002136
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
4. BLACK DOT AND CROSSHATCHED RIBBONS INDICATE SECOND LEVEL WIRING
5. K INDICATES CATHODE SIDE OF DIODE
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBERS .08 HIGH (WHITE) AND SERIALIZE AND MARK ALL OTHER CHARACTERS .12 HIGH (WHITE) PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
9. STAKE FIND NO. 4 THRU 39 PER ND1002009
10. AR DENOTES AS REQUIRED
11. TYPICAL SLEEVING FOR R1 THRU R13, R15 THRU R27, R29 THRU R38, R40 THRU R44 R46, R48 THRU R50, R52 THRU R56, CR10, CR35 AND CR48
12. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP1007051. PART TO BE SELECTED FROM CHART
13. PROCURE PER PS1007051.
14. BOND FIND NO. 50, 51, AND 52 TO 45 PER ND 1002237
15. BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.

R4		R5		R10	
PART NO.	VALUE	PART NO.	VALUE	PART NO	VALUE
1006750 -45	3.6K	1006750 -60	15K	1010369 -93	330
-46	3.9K	-61	16K	-94	360
-47	4.3K	-62	18K	-95	390
-48	4.7K	-63	20K	-96	430
-49	5.1K	-64	22K	-97	470
-50	5.6K	-65	24K	-98	510
-51	6.2K	-66	27K	-99	560
-52	6.8K	-67	30K	-100	620
-53	7.5K	-68	33K	-101	680
-54	8.2K	-69	36K	-102	750
-55	9.1K	-70	39K	-103	820
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-58	12K	-73	51K	1010369 -106	1.1MEG
-59	13K	-74	56K		
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-61	16K	-76	68K		
-62	18K	-77	75K		
-63	20K	1006750 -78	82K		
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-65	24K				
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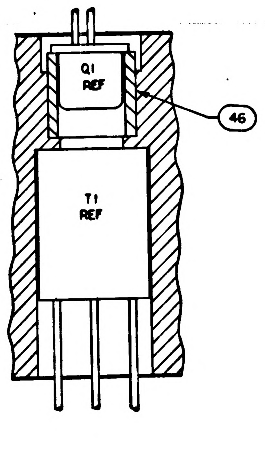
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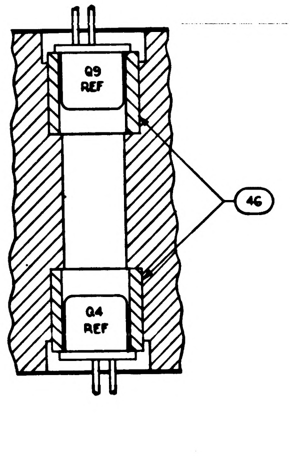
T1 REF
46

SECTION A-A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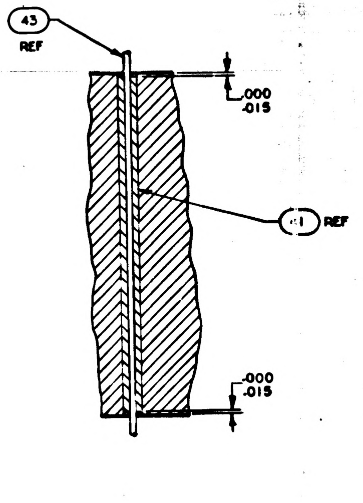
SECTION B-B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SECTION C-C
TYP FT1 THRU FT16

1007266

REVISIONS						27186
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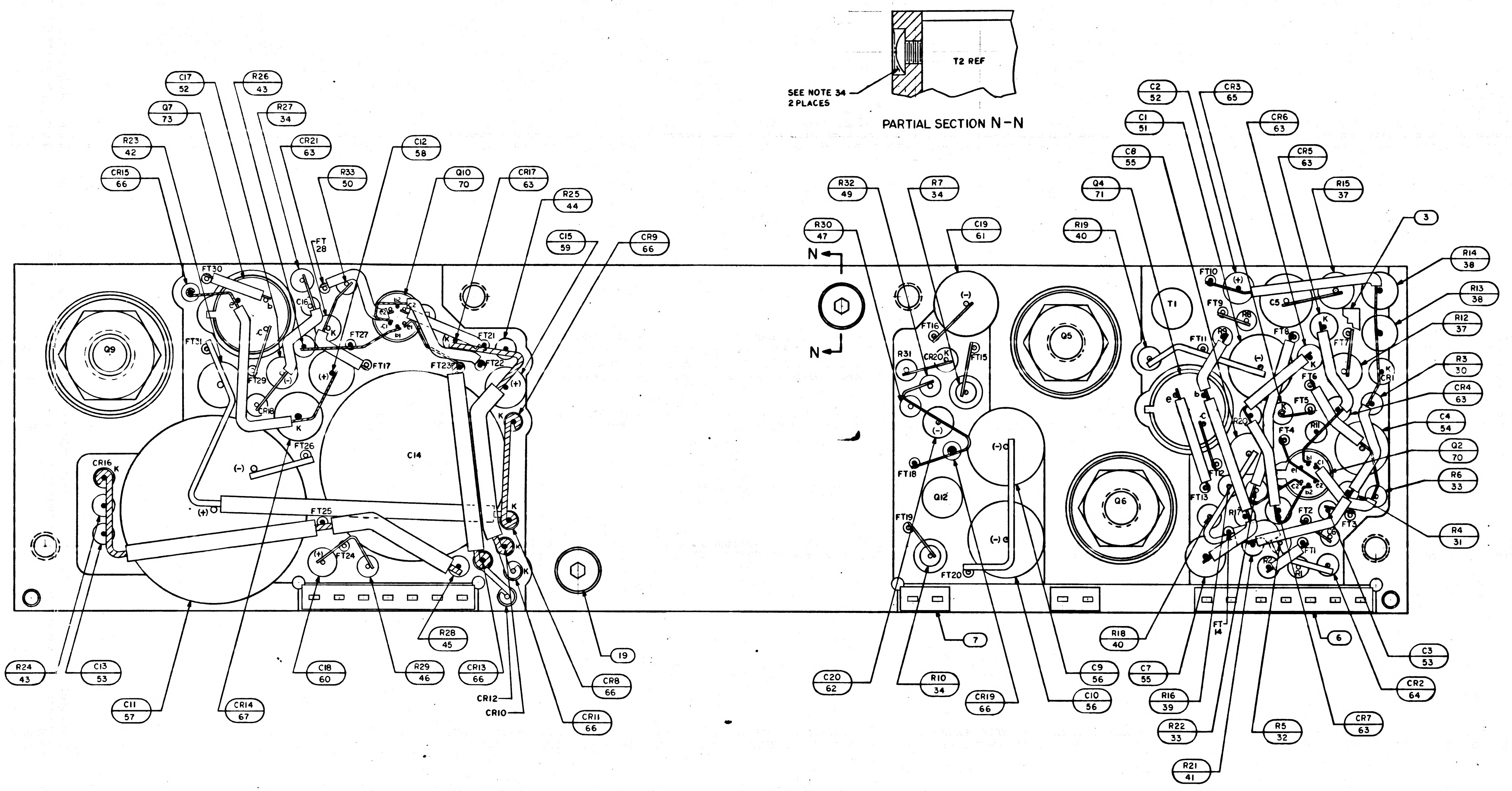
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R33 50
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CR9 66
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FT30
FT31
FT29
C16
FT27
FT17
FT21
FT22
FT23
CR18
FT26
C14
Q9
CR16
FT25
FT24
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CR12
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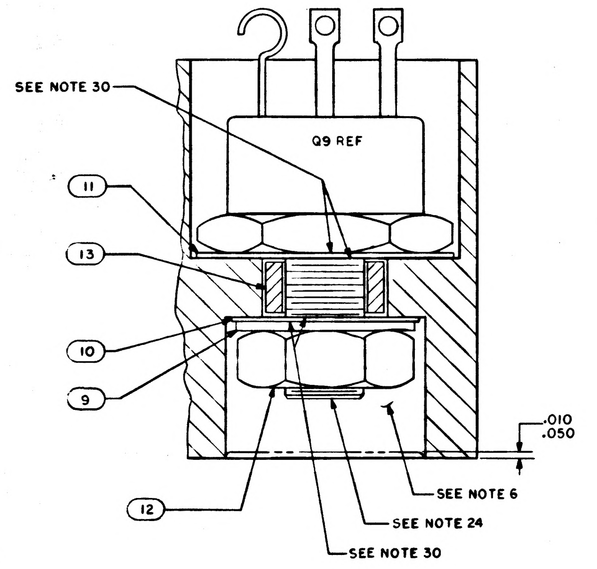
PARTIAL SECTION N-N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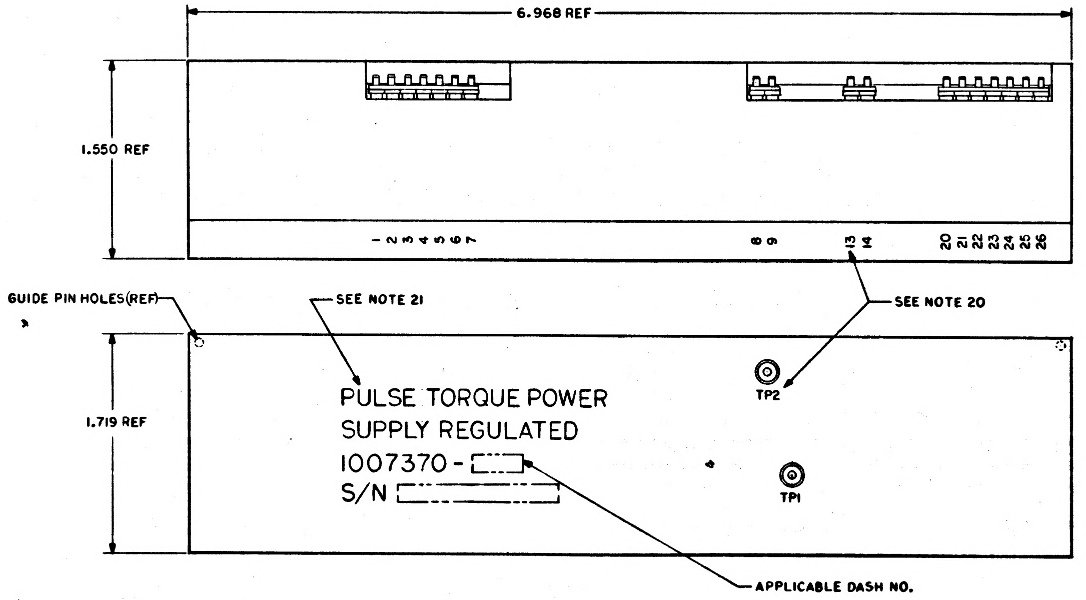
SEE NOTE 24
SEE NOTE 30

PARTIAL SECTION M-M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GUIDE PIN HOLES(REF)
SEE NOTE 21
SEE NOTE 20
1.719 REF
PULSE TORQUE POWER
SUPPLY REGULATED
1007370 -
S/N
TP2
TP1
APPLICABLE DASH NO.

MARKING VIEWS

SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
⊠	1009583	SCHEMATIC	REF
1	1008880	TRANSFORMER	78
1	1010315-2	TRANSFORMER	77
1	1010342	TRANSISTOR	76
1	1010713-1	TRANSISTOR	75
1	1010273-1	TRANSISTOR	74
2	1010747-1	TRANSISTOR	73
2	1010499-2	TRANSISTOR	72
2	1010398-3	TRANSISTOR	71
3	1010652-1	TRANSISTOR	70
1	1010372-15	DIODE	69
1	1010830-29	DIODE	68
1	1010829-26	DIODE	67
9	1010497	DIODE	66
1	1010830-9	DIODE	65
1	1010830-5	DIODE	64
7	1010385	DIODE	63
1	1006755-53	CAPACITOR	62
1	1006755-133	CAPACITOR	61
1	1006755-118	CAPACITOR	60
1	1006755-122	CAPACITOR	59
1	1010438-103	CAPACITOR	58
2	1010769-001	CAPACITOR	57
2	1006755-134	CAPACITOR	56
2	1006777-39	CAPACITOR	55
2	1010316-1	CAPACITOR	54
4	1006777-16	CAPACITOR	53
2	1006755-69	CAPACITOR	52
1	1006755-85	CAPACITOR	51
1	1006750-73	RESISTOR	50
1	1010369-94	RESISTOR	49
1	1010369-100	RESISTOR	48
1	1010369-99	RESISTOR	47
1	1006750-49	RESISTOR	46
1	1006750-63	RESISTOR	45
1	1006750-48	RESISTOR	44
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1	1010389-73	RESISTOR	42
1	1006750-15	RESISTOR	41
2	1006802-1	RESISTOR	40
2	1006750-31	RESISTOR	39
2	1010377-314	RESISTOR	38
2	1010377-110	RESISTOR	37
2	1006750-56	RESISTOR	36
2	1006750-18	RESISTOR	35
3	1006750-32	RESISTOR	34
2	1006750-74	RESISTOR	33
1	1006750-12	RESISTOR	32
1	1006750-51	RESISTOR	31
1	1006750-62	RESISTOR	30
1	1006750-65	RESISTOR	29
1	1006750-25	RESISTOR	28
AR	1006776-21	INSULATION SLEEVING	27
AR	1006776-20	INSULATION SLEEVING	26
AR	1006757-1	WIRE ELECTRICAL	25
AR	1010848-2	WIRE ELECTRICAL, INSULATED	24
AR	1006757-9	WIRE ELECTRICAL	23
2	1010292-2	TERMINAL FEEDTHRU, INSULATED	22
5	1008025-2	INSULATOR, BUSHING	21
1	1008025-1	INSULATOR, BUSHING	20
2	1010618-14	SCREW, BUTTON HEAD	19
2	2008020-1	INSULATOR, BUSHING	18
2	MS-20341-10B	NUT	17
2	1008024-2	WASHER INSULATOR	16
2	1008024-1	WASHER, INSULATOR	15
2	1008071-2	WASHER, FLAT	14
1	2008020-2	INSULATOR BUSHING	13
1	MS-20341-416B	NUT	12
1	1008024-3	WASHER INSULATOR	11
1	1008024-4	WASHER INSULATOR	10
1	1008071-5	WASHER, FLAT	9
AR	MIL-I-15126	INSUL TAPE, TYPE MFT, 2.5, 1/2 IN WIDE	8
2	1008540-2	GASKET	7
2	1008540-7	GASKET	6
18	1006775	INSULATOR, WRAPOST, MALE MINAT	5
18	1006782-5	CONTACT, WRAPOST, MALE MINAT	4
1	1008357	INSULATOR, BOTTOM	3
1	1008358	INSULATOR, TOP	2
1	1008359	HEATSINK	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN W. Horgan
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

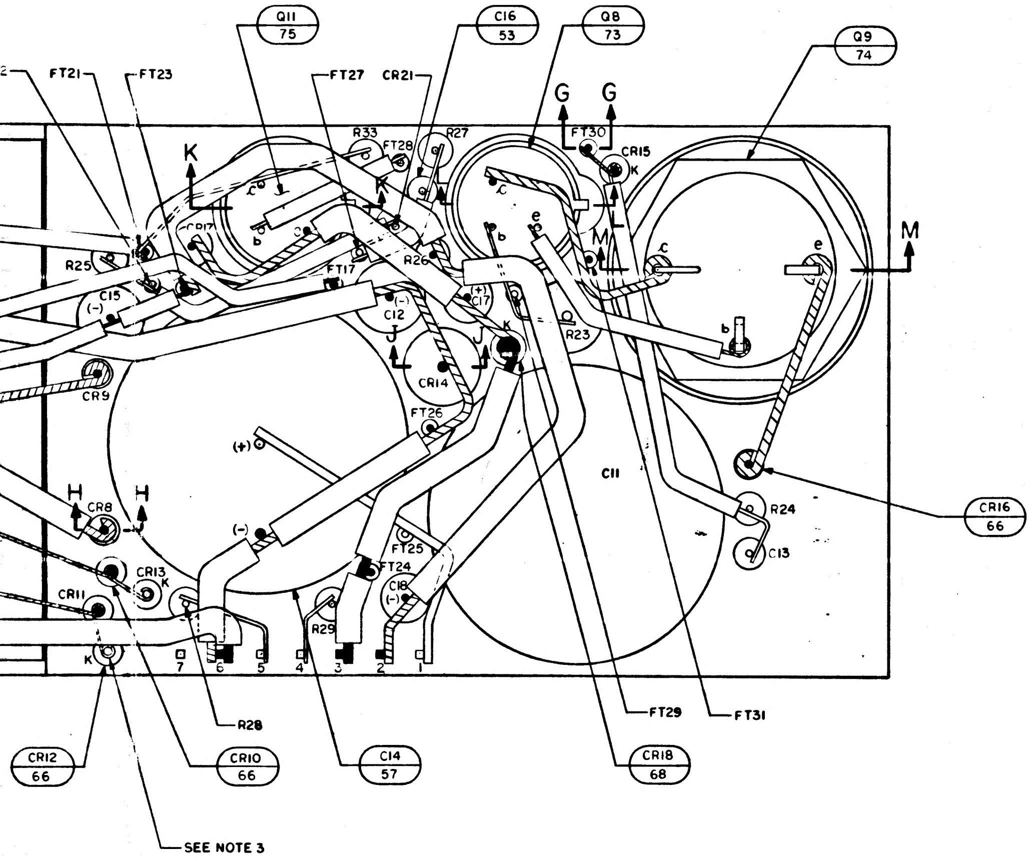
PULSE TORQUE POWER
SUPPLY REGULATED
ASSEMBLY

CODE IDENT NO. 80230 SIZE J DRAWING NO. 1007370

SCALE 5/1 SHEET 1 OF 1

1007370 A

MASTER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M
M
R25
C15
C17
R26
C12
R23
CR9
CR14
FT26
(+)
C11
CR16 66
R24
C13
H
H
CR8
(-)
FT25
FT24
CR13
CR11
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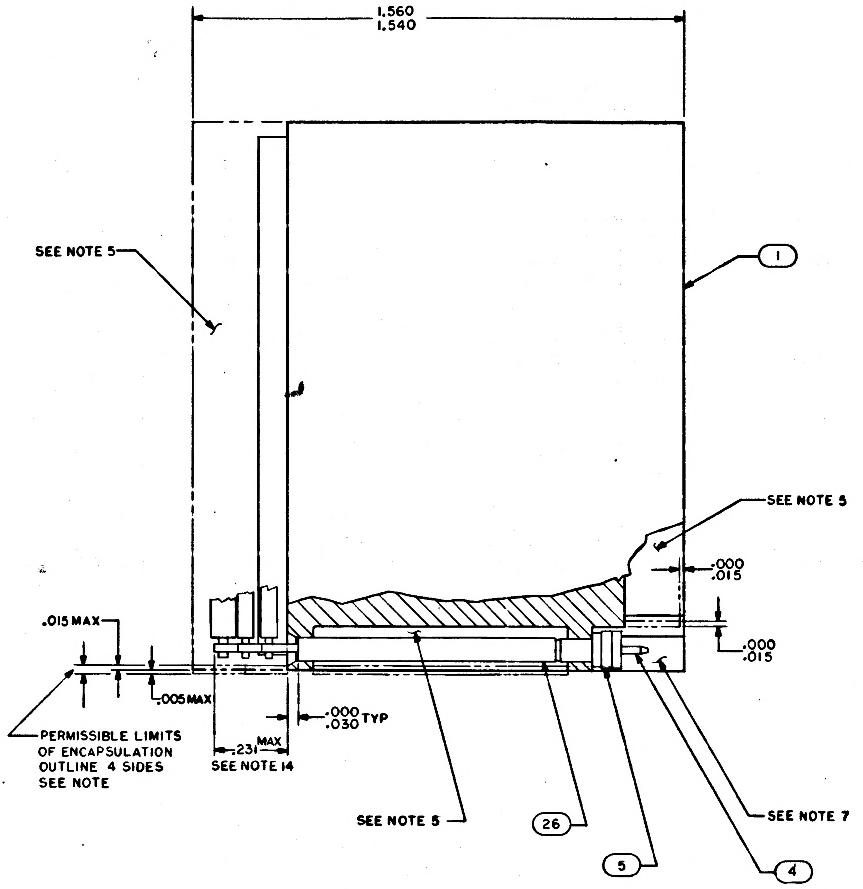
SEE NOTE 3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SEE NOTE 14
PERMISSIBLE LIMITS OF ENCAPSULATION OUTLINE 4 SIDES SEE NOTE
SEE NOTE 5
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5
SEE NOTE 7
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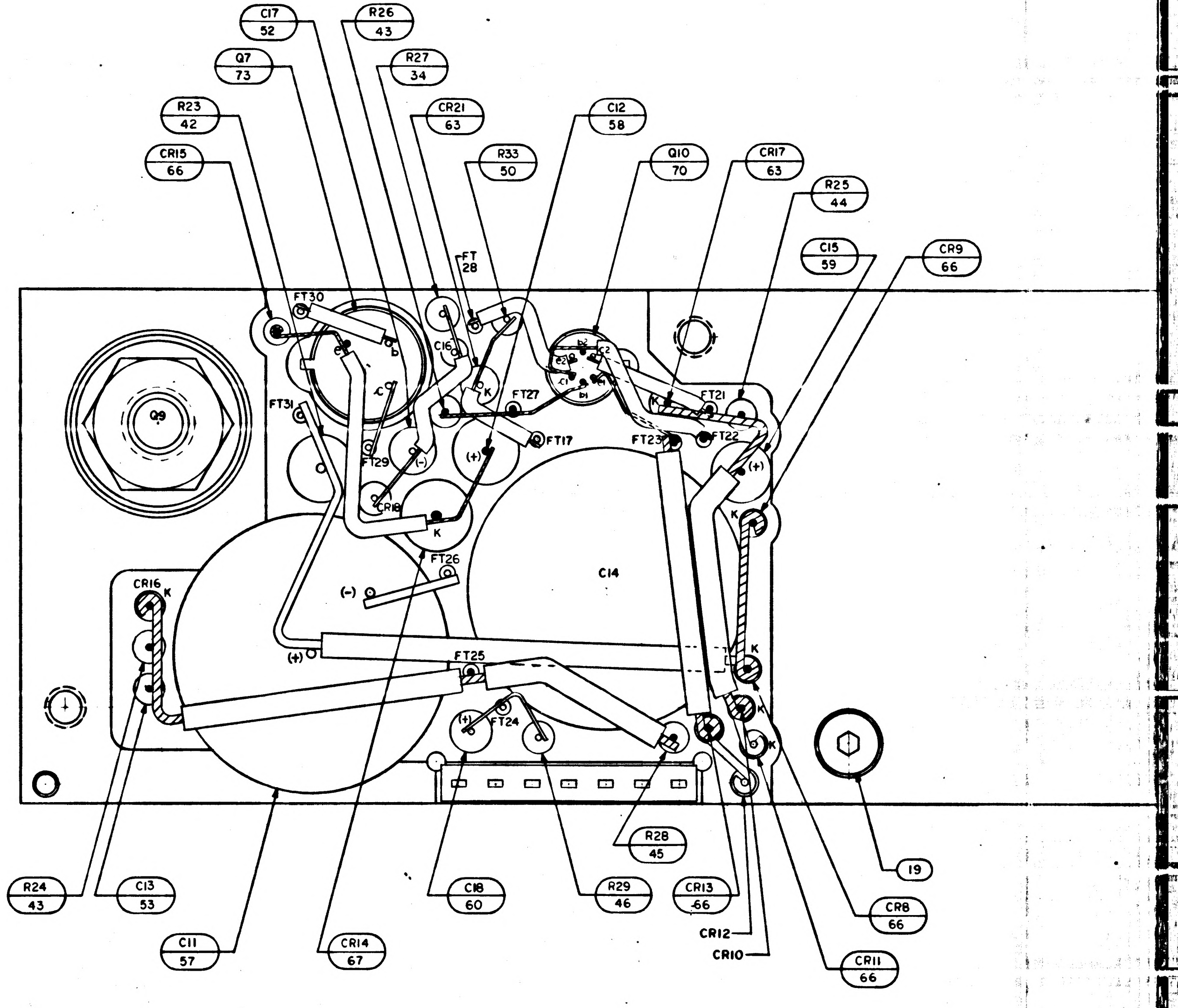
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Q9
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CR18
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CR16
C14
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FT25
FT24
19
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R29 46
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CR10
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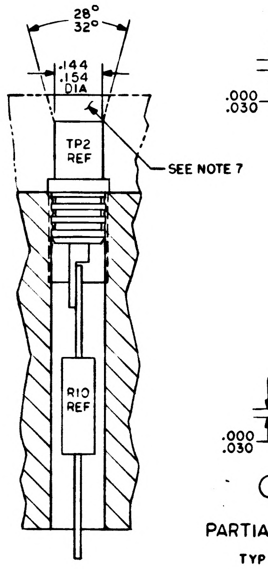
C11 57
CR14 67

D-D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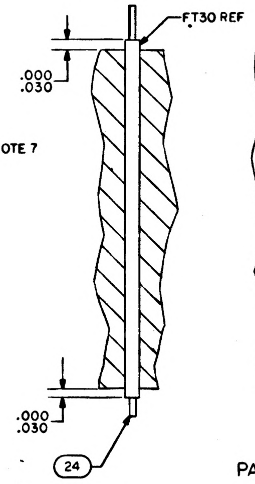
SEE NOTE 7
R10 REF

PARTIAL SECTION E-E

TYP TP1, R7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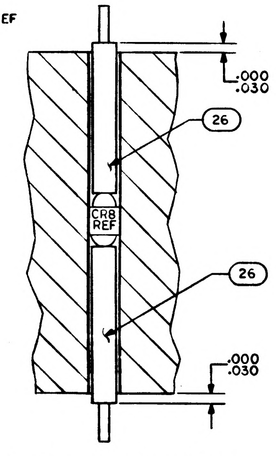
PARTIAL SECTION G-G

TYP FT1 THRU FT31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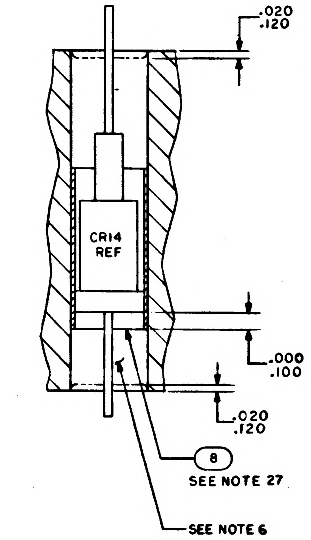
PARTIAL SECTION H-H

SEE NOTE 22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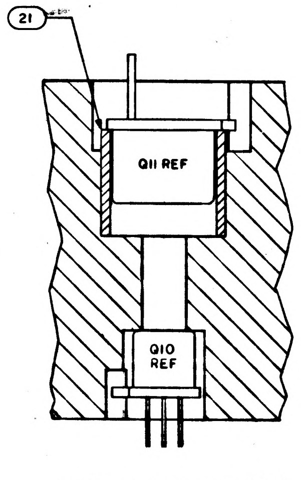
SEE NOTE 27
SEE NOTE 6

PARTIAL SECTION J-J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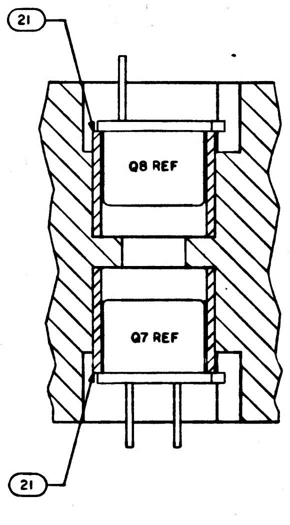
PARTIAL SECTION K-K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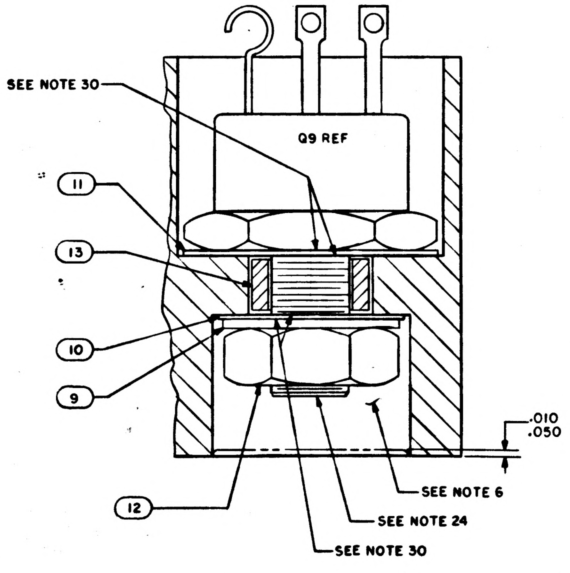
PARTIAL SECTION L-L

TYP Q3, Q4,


SEE NOTE 30
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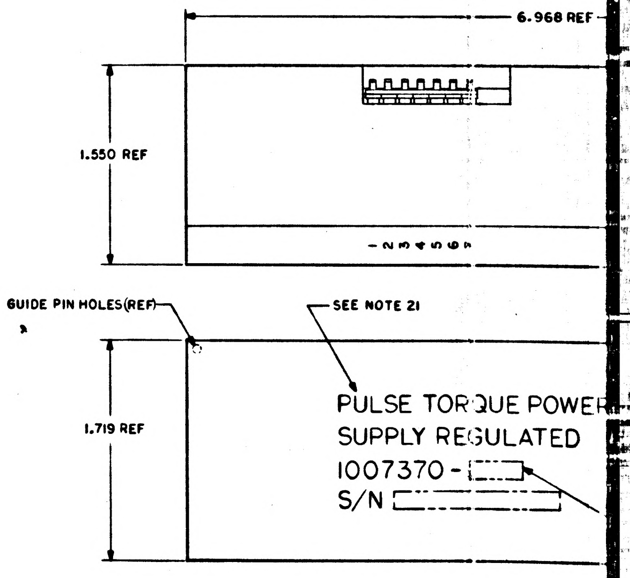
12
SEE NOTE 6
SEE NOTE 24
SEE NOTE 30

PARTIAL SECTION M-M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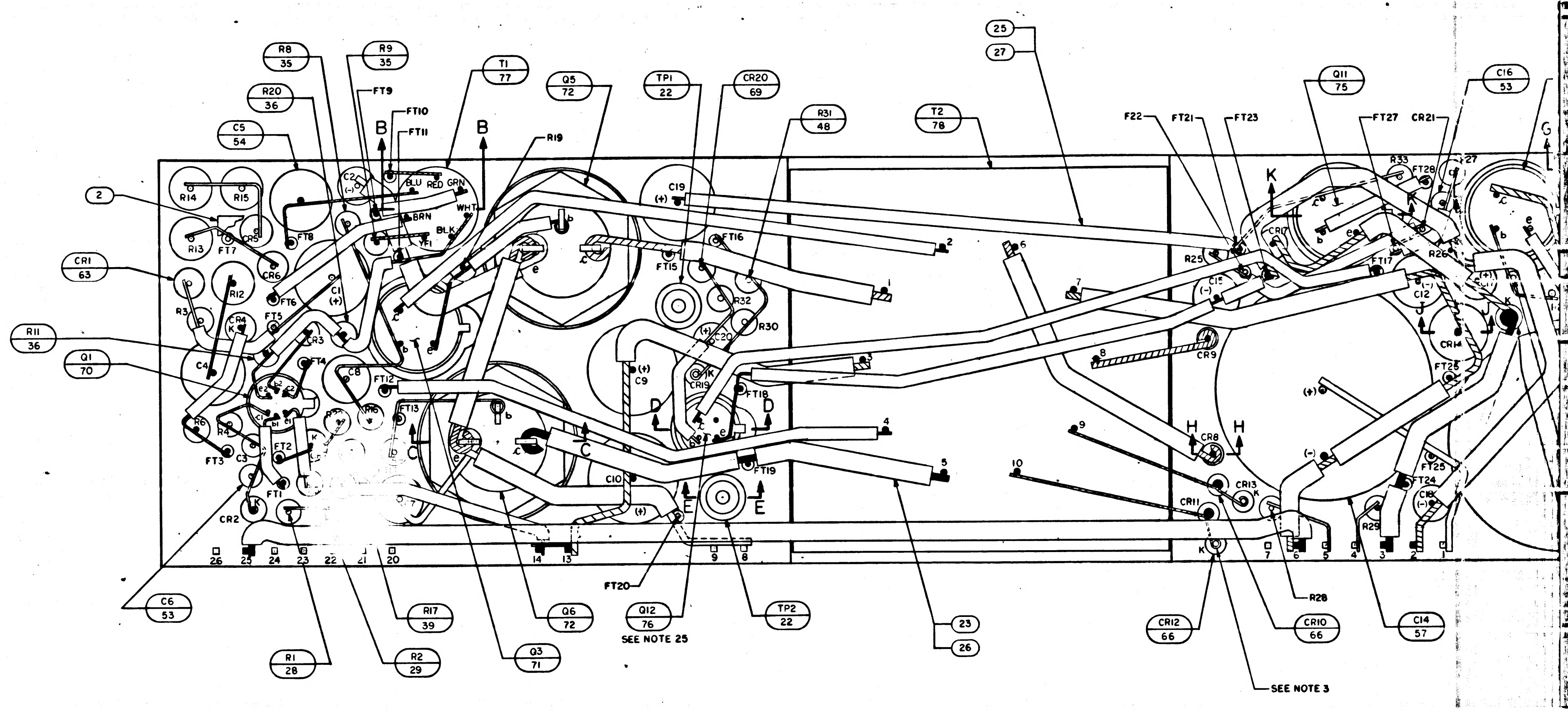
GUIDE PIN HOLES(REF)
SEE NOTE 21
1.719 REF
PULSE TORQUE POWER
SUPPLY REGULATED
1007370-
S/N

MARKIN

SCAL

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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FT10
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R13
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CR6
FT8
C2
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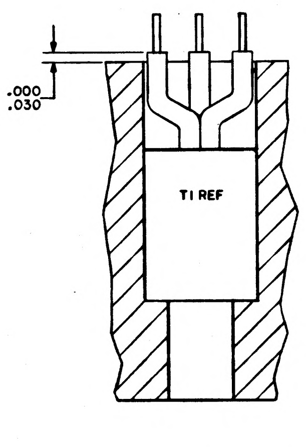
R2 29
Q3 71
Q6 72
Q12 76
SEE NOTE 25
FT20
TP2 22
23
26
CR12 66
SEE NOTE 3
R28
CR10 66
C14 57

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. SOLDER PER ND1002071
4. ASSEMBLE FIND NO. 4 AND FIND NO. 5 TO FIND NO. 1 PER ND1002136
5. ENCAPSULATE PER ND1002002. REMOVE FLASHING
6. ENCAPSULATE PER ND1002117
7. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
8. AR DENOTES AS REQUIRED
9. FT DENOTES FEED THRU
10. K DENOTES CATHODE SIDE OF DIODE
11. (+) DENOTES POSITIVE SIDE OF CAPACITOR
12. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
13. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
14. BLACK DOT AND BLACK WIRING INDICATES SPECIAL LEVEL WIRING
15. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
16. MOUNTING TORQUE FOR FIND NO. 74 TO BE 24-26 INCH POUNDS
17. CARE MUST BE TAKEN WHILE STAKING FIND NO. 66 THAT ENCAPSULATION IS FREE OF AIR BUBBLES
18. MOUNTING TORQUE FOR FIND NO. 72 TO BE 12-14 INCH POUNDS
19. BOND FIND NO. 78 TO FIND NO. 1 PER ND1002004, TYPE I
20. MARK .060/.100 HIGH WHITE CHARACTERS PER ND1002019. CENTRALIZE AS SHOWN
21. MARK .100/.140 HIGH WHITE CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
22. TYPICAL SLEEVING FOR FIND NO. 28 THRU 36, 39, 40, 41 43 THRU 50, 53, 63, 64, 65, 66, 68 AND 69
23. STAKE FIND NO. 71, 73 AND 75 TO FIND NO. 21 PER ND1002009 METHOD J
24. APPLY SEALING COMPOUND MIL-S-22473 GRADE AV TO FIND NO. 72, 74
25. TRIM UNUSED LEAD OF Q12 .010/.030 FROM CASE
26. STAKE FIND NO. 13, 18, 20, 21 AND 28 THRU 70 TO FIND NO. 1 PER ND1002009 METHOD J
27. BOND FIND NO. 8 TO FIND NO. 67 PER MIL-I-15126 CONDITION C-2/23/50 BEFORE ASSEMBLING TO FIND NO. 1
28. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISOPROPYL ALCOHOL PRIOR TO ENCAPSULATION
29. EXCEPT FOR THE MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279 USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES TO BE FREE OF PAINT.
30. APPLY SILICONE GREASE 1006879 TO INDICATED AREAS
31. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2007106
32. MOISTUREPROOF PER ND1002292-001 AFTER PAINTING AND MARKING
33. STAKE FIND NO. 76 TO FIND NO. 20 PER ND1002009 METHOD J
34 FILL PER ND1002009 METHOD J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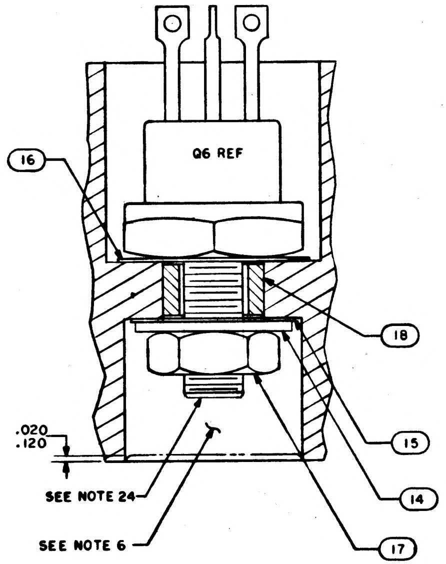
PARTIAL SECTION B-B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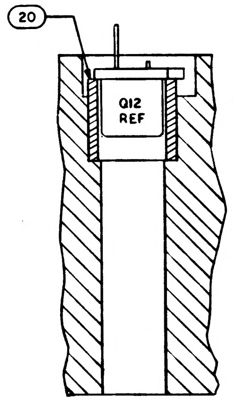
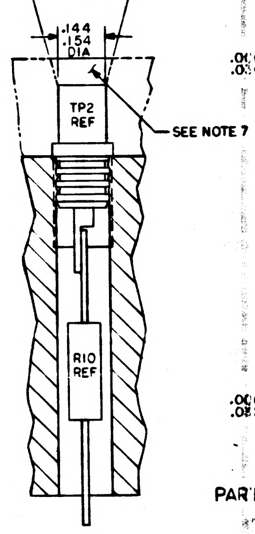
SEE NOTE 24
SEE NOTE 6

PARTIAL SECTION C-C



PARTIAL SECTION D-D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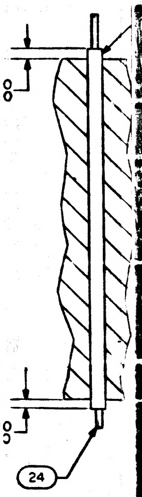
REF

PARTIAL SECTION E-E

TYP TP1, R7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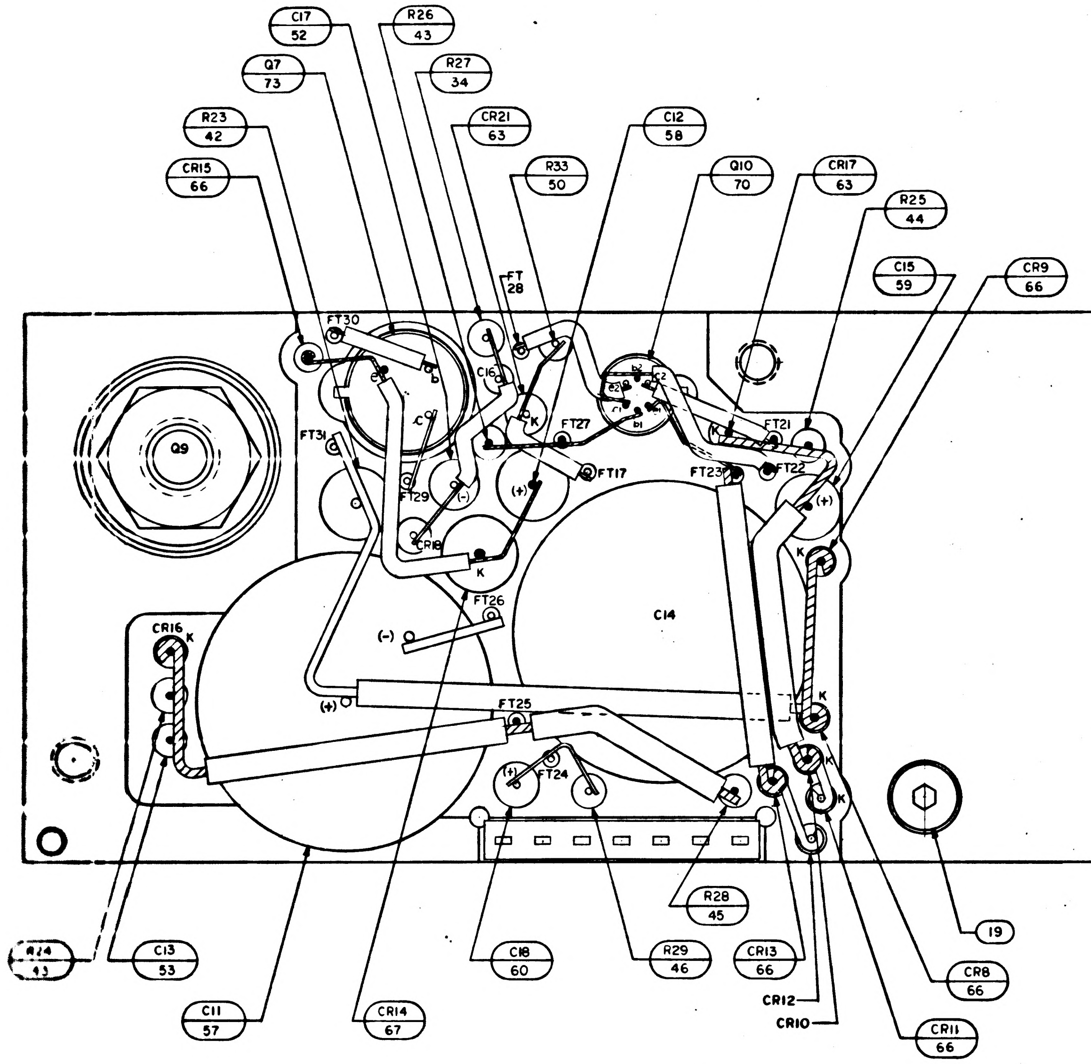
PARTIAL SECTION

TYP FT1 THRU FT3

1007370 A

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		REVISIONS 27186				



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CR12
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CR11 66
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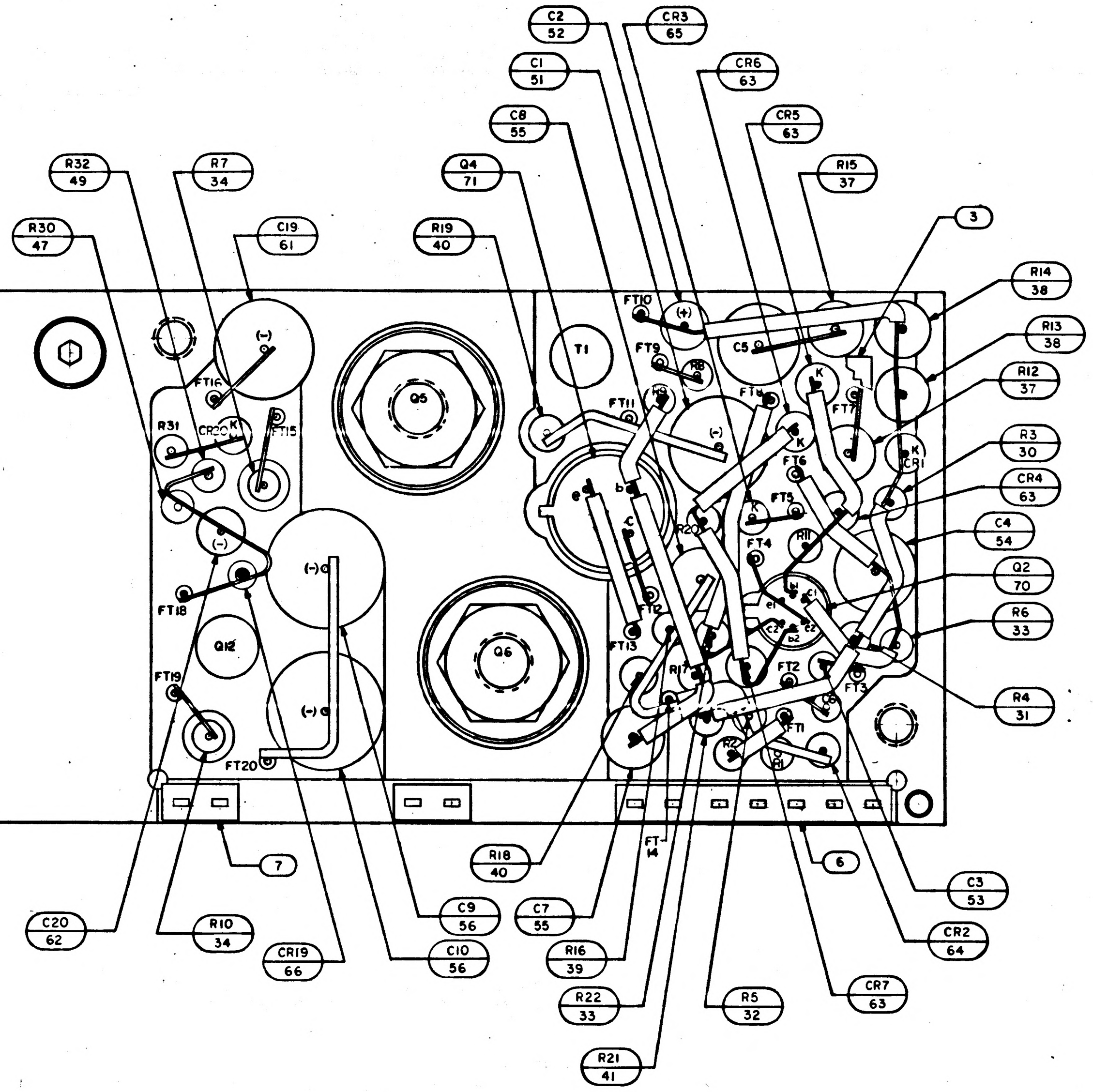

R32 49
R7 34
C19 61
R30 47
R19 40
Q4 71
C8 55
C1 51
C2 52
CR3 65
CR6 63
CR5 63
R15 37
3
R14 38
R13 38
R12 37
R3 30
CR4 63
C4 54
Q2 70
R6 33
R4 31
C3 53
CR2 64
CR7 63
R5 32
6
R21 41
R22 33
R16 39
C7 55
R18 40
C9 56
C10 56
CR19 66
R10 34
C20 62
7
FT10
FT9
FT11
FT12
FT13
FT14
FT16
FT15
FT18
FT19
FT20
FT1
FT2
FT3
FT4
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FT6
FT7
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R8
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C5
Q5
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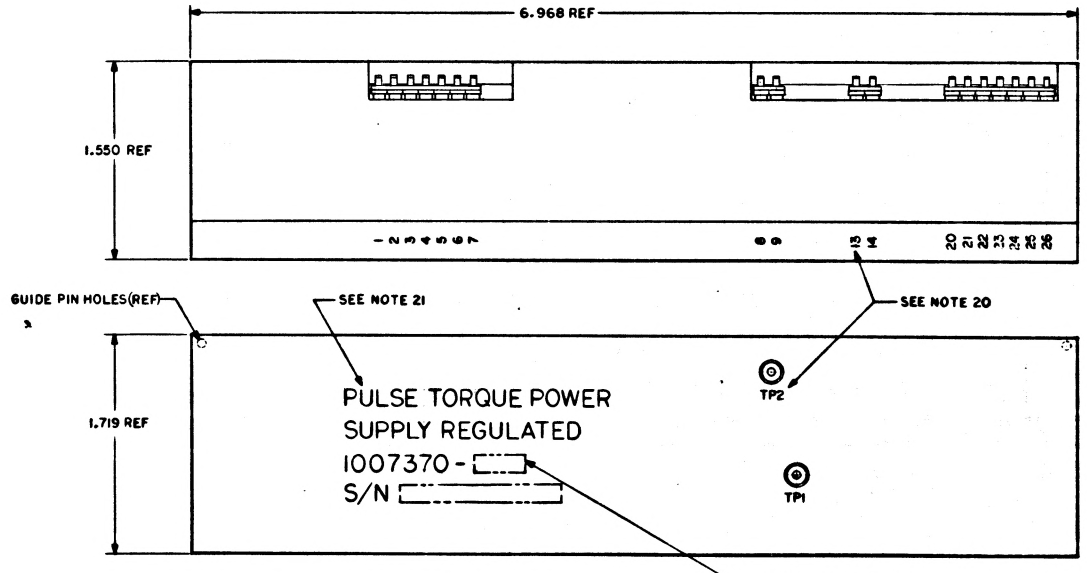
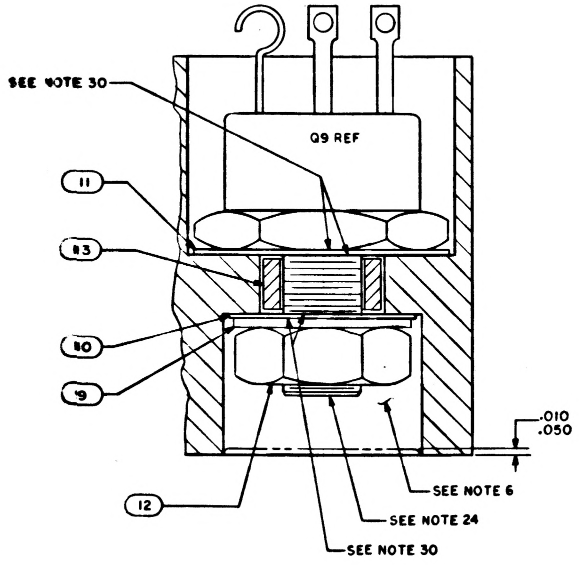


6.968 REF
1.550 REF
1 2 3 4 5 6 7
8 9
13 14
20 21 22 23 24 25 26
GUIDE PIN HOLES(REF)
SEE NOTE 21
SEE NOTE 20
1.719 REF
PULSE TORQUE POWER
SUPPLY REGULATED
1007370-
S/N
TP2
TP1
APPLICABLE DASH NO.

MARKING VIEWS
SCALE 2/1



SEE NOTE 30
Q9 REF
11
13
10
9
12
.010
.050
SEE NOTE 6
SEE NOTE 24
SEE NOTE 30

PARTIAL SECTION M-M

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1009583	SCHEMATIC	REF
1	1008880	TRANSFORMER	78
1	1010315-2	TRANSFORMER	77
1	1010342	TRANSISTOR	76
1	1010713-1	TRANSISTOR	75
1	1010273-1	TRANSISTOR	74
2	1010747-1	TRANSISTOR	73
2	1010499-2	TRANSISTOR	72
2	1010398-3	TRANSISTOR	71
3	1010652-1	TRANSISTOR	70
1	1010372-15	DIODE	69
1	1010830-29	DIODE	68
1	1010829-26	DIODE	67
9	1010497	DIODE	66
1	1010830-9	DIODE	65
1	1010830-5	DIODE	64
7	1010385	DIODE	63
1	1006755-53	CAPACITOR	62
1	1006755-133	CAPACITOR	61
1	1006755-118	CAPACITOR	60
1	1006755-122	CAPACITOR	59
1	1010438-103	CAPACITOR	58
2	1010769-001	CAPACITOR	57
2	1006755-134	CAPACITOR	56
2	1006777-39	CAPACITOR	55
2	1010316-1	CAPACITOR	54
4	1006777-16	CAPACITOR	53
2	1006755-69	CAPACITOR	52
1	1006755-85	CAPACITOR	51
1	1006750-73	RESISTOR	50
1	1010369-94	RESISTOR	49
1	1010369-100	RESISTOR	48
1	1010369-99	RESISTOR	47
1	1006750-49	RESISTOR	46
1	1006750-63	RESISTOR	45
1	1006750-48	RESISTOR	44
2	1006750-39	RESISTOR	43
1	1010389-73	RESISTOR	42
1	1006750-15	RESISTOR	41
2	1006802-1	RESISTOR	40
2	1006750-31	RESISTOR	39
2	1010377-314	RESISTOR	38
2	1010377-110	RESISTOR	37
2	1006750-56	RESISTOR	36
2	1006750-18	RESISTOR	35
3	1006750-32	RESISTOR	34
2	1006750-74	RESISTOR	33
1	1006750-12	RESISTOR	32
1	1006750-51	RESISTOR	31
1	1006750-62	RESISTOR	30
1	1006750-65	RESISTOR	29
1	1006750-25	RESISTOR	28
AR	1006776-21	INSULATION SLEEVING	27
AR	1006776-20	INSULATION SLEEVING	26
AR	1006757-1	WIRE ELECTRICAL	25
AR	1010848-2	WIRE ELECTRICAL, INSULATED	24
AR	1006757-9	WIRE ELECTRICAL	23
2	1010292-2	TERMINAL FEEDTHRU, INSULATED	22
5	1008025-2	INSULATOR, BUSHING	21
1	1008025-1	INSULATOR, BUSHING	20
2	1010618-14	SCREW, BUTTON HEAD	19
2	2008020-1	INSULATOR, BUSHING	18
2	MS-20341-10B	NUT	17
2	1008024-2	WASHER INSULATOR	16
2	1008024-1	WASHER, INSULATOR	15
2	1008071-2	WASHER, FLAT	14
1	2008020-2	INSULATOR BUSHING	13
1	MS-20341-416B	NUT	12
1	1008024-3	WASHER INSULATOR	11
1	1008024-4	WASHER INSULATOR	10
1	1008071-5	WASHER, FLAT	9
AR	MIL-I-15126	INSUL TAPE, TYPE MFT, 2.5, 1/2 IN WIDE	8
2	1008540-2	GASKET	7
2	1008540-7	GASKET	6
18	1006775	INSULATOR, WRAPOST, MALE MINAT	5
18	1006782-5	CONTACT, WRAPOST, MALE MINAT	4
1	1008357	INSULATOR, BOTTOM	3
1	1008358	INSULATOR, TOP	2
1	1008359	HEATSINK	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

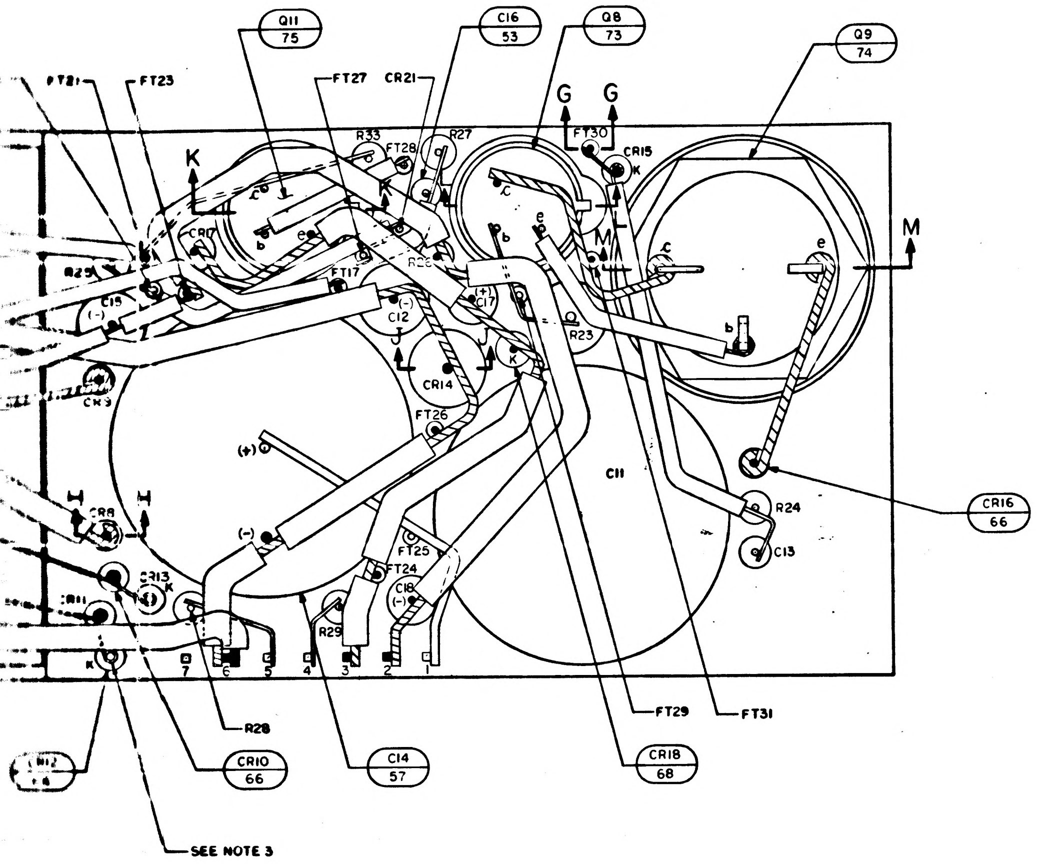
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN W. Horgan
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC A. C. METZGER

PULSE TORQUE POWER SUPPLY REGULATED ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 1007370
SCALE 5/1
SHEET 1 OF 1

1007370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M
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R25
CR15
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R26
C17
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R23
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CR3
C11
CR8
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FT25
FT24
C18
CR13
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R28
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FT31
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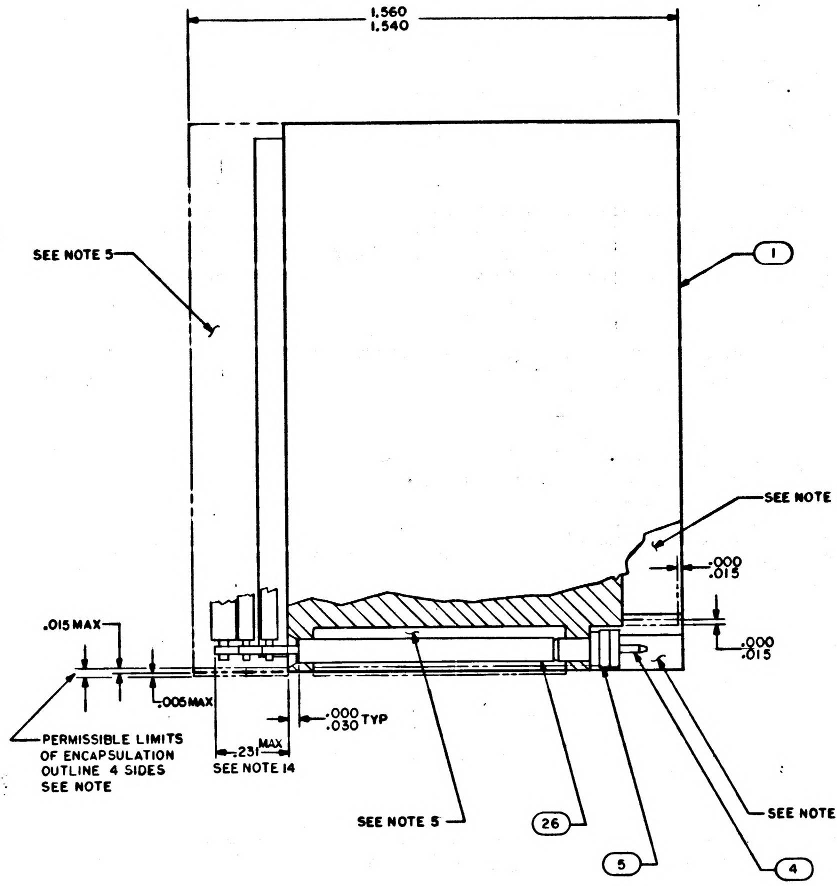
CR18 68
SEE NOTE 3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SEE NOTE 5
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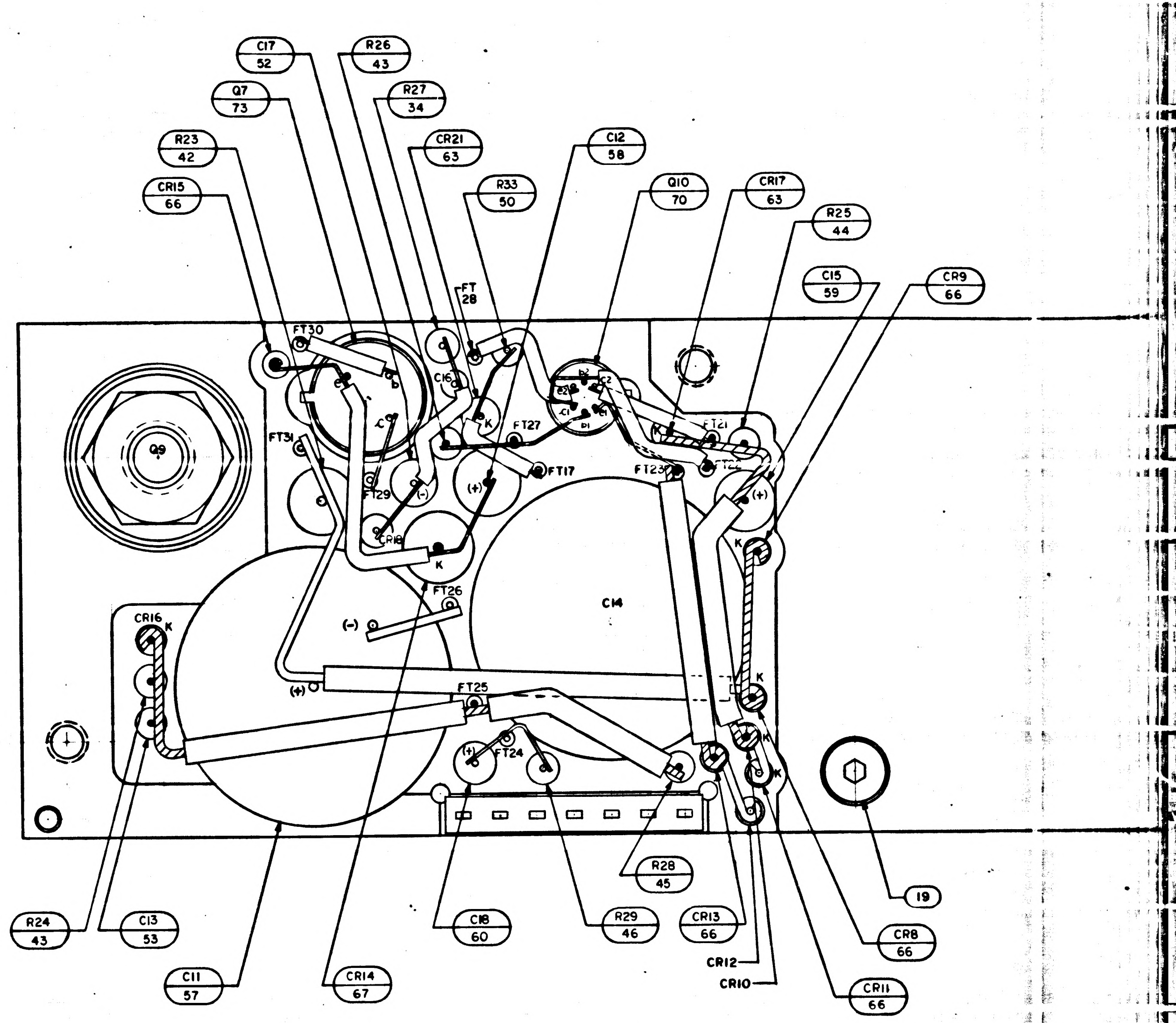
SEE NOTE 5
.000
.015
.000
.015
.015 MAX
.005 MAX
.231 MAX
.000
.030 TYP
SEE NOTE 14
PERMISSIBLE LIMITS OF ENCAPSULATION OUTLINE 4 SIDES SEE NOTE
SEE NOTE 5
26
SEE NOTE 7
5
4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CR17 63
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FT 28
FT30
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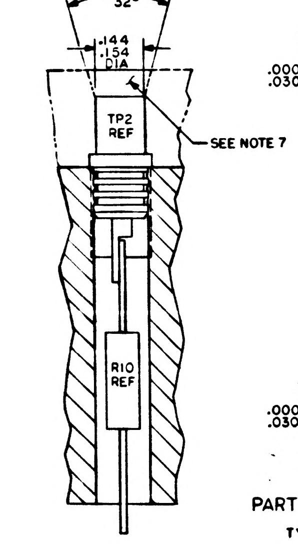
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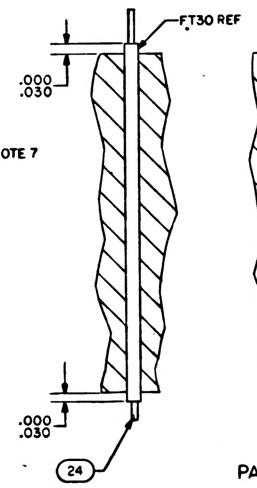
TP2 REF
SEE NOTE 7
R10 REF

PARTIAL SECTION E-E

TYP TP1, R7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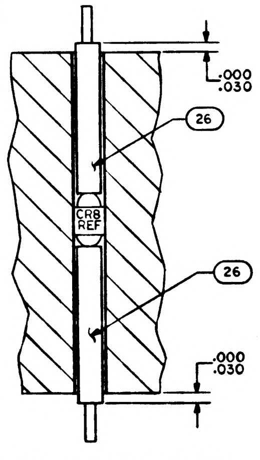
PARTIAL SECTION G-G

TYP FT1 THRU FT31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CR8 REF
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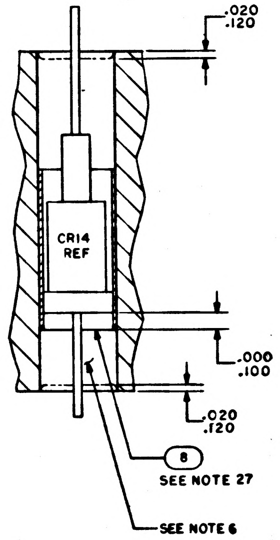
.030

PARTIAL SECTION H-H

SEE NOTE 22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.120
CR14 REF
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.100
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.120
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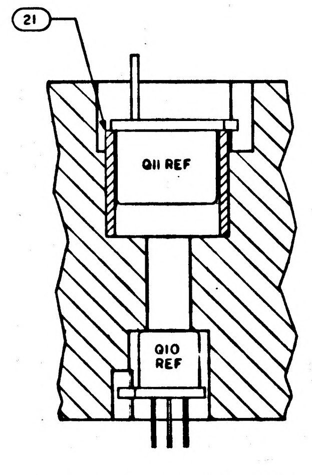
SEE NOTE 27
SEE NOTE 6

PARTIAL SECTION J-J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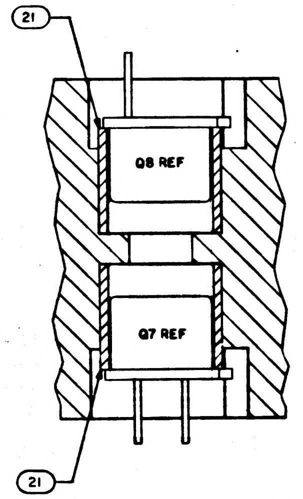
Q11 REF
Q10 REF

PARTIAL SECTION K-K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Q8 REF
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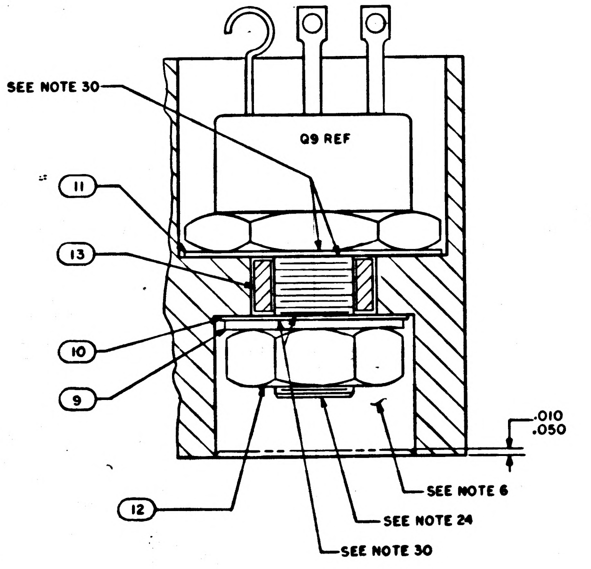
PARTIAL SECTION L-L

TYP Q3, Q4,


SEE NOTE 30
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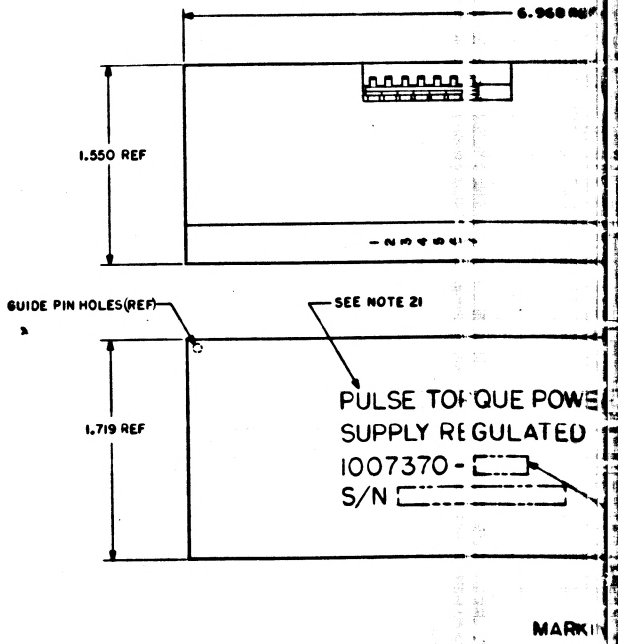
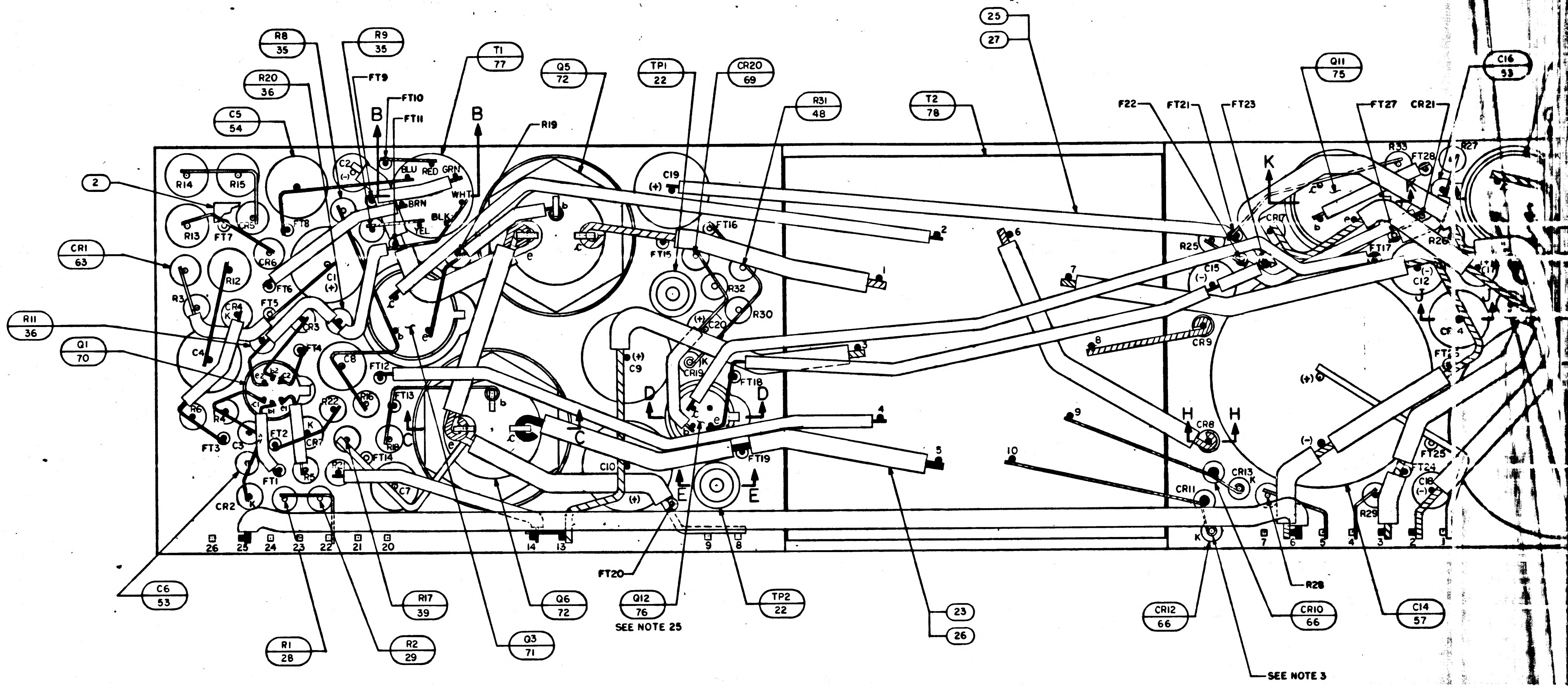
9
.010
.050
12
SEE NOTE 6
SEE NOTE 24
SEE NOTE 30

PARTIAL SECTION M-M


6.968 REF
1.550 REF
GUIDE PIN HOLES (REF)
SEE NOTE 21
1.719 REF
PULSE TORQUE POWE
SUPPLY REGULATED
1007370-
S/N
MARKI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T1
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R31
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T2
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Q11
75
C16
53
R20
36
C5
54
FT9
FT10
FT11
B
B
R19
F22
FT21
FT23
FT27
CR21
2
CR1
63
R11
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Q1
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C6
53
R1
28
R2
29
R17
39
Q3
71
Q12
76
SEE NOTE 25
Q6
72
TP2
22
23
26
CR12
66
CR10
66
C14
57
SEE NOTE 3
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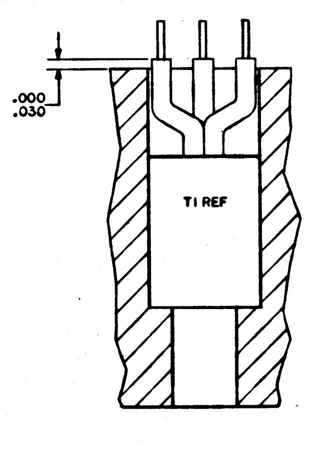
R28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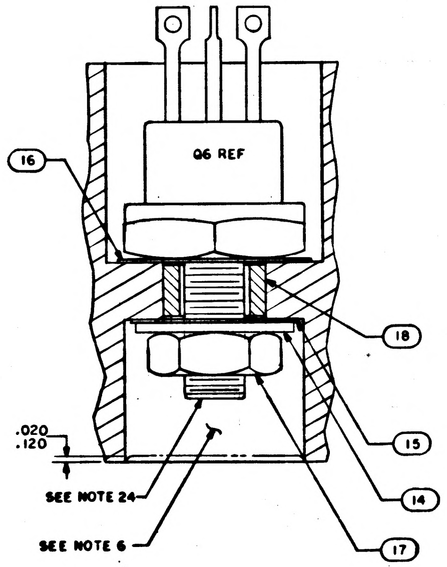
T1 REF

PARTIAL SECTION B-B


Q6 REF
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14
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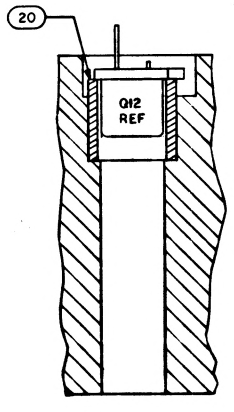
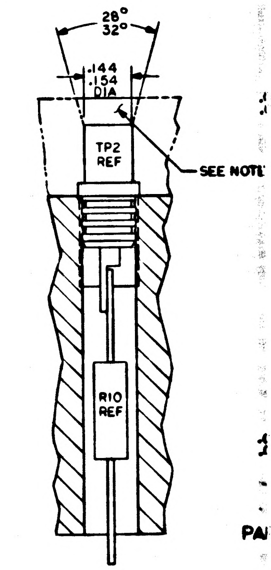
SEE NOTE 24
SEE NOTE 6

PARTIAL SECTION C-C



PARTIAL SECTION D-D


28°
32°
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.154
DIA
TP2
REF
SEE NOTE 7
R10
REF

PARTIAL SECTION E-E
TYP TP1, 27

.00
.30
.00
.30
24

PARTIAL SECTI
TYP FN THRU

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. SOLDER PER ND1002071
4. ASSEMBLE FIND NO. 4 AND FIND NO. 5 TO FIND NO. 1 PER ND1002136
5. ENCAPSULATE PER ND1002002. REMOVE FLASHING
6. ENCAPSULATE PER ND1002117
7. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
8. AR DENOTES AS REQUIRED
9. FT DENOTES FEED THRU
10. K DENOTES CATHODE SIDE OF DIODE
11. (+) DENOTES POSITIVE SIDE OF CAPACITOR
12. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
13. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
14. BLACK DOT AND BLACK WIRING INDICATES SPECIAL LEVEL WIRING
15. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
16. MOUNTING TORQUE FOR FIND NO. 74 TO BE 24-26 INCH POUNDS
17. CARE MUST BE TAKEN WHILE STAKING FIND NO. 66 THAT ENCAPSULATION IS FREE OF AIR BUBBLES
18. MOUNTING TORQUE FOR FIND NO. 72 TO BE 12-14 INCH POUNDS
19. BOND FIND NO. 78 TO FIND NO. 1 PER ND1002004, TYPE I
20. MARK .060/.100 HIGH WHITE CHARACTERS PER ND1002019. CENTRALIZE AS SHOWN
21. MARK .100/.140 HIGH WHITE CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
22. TYPICAL SLEEVING FOR FIND NO. 28 THRU 36, 39, 40, 41 43 THRU 50, 53, 63, 64, 65, 66, 68 AND 69
23. STAKE FIND NO. 71, 73 AND 75 TO FIND NO. 21 PER ND1002009 METHOD J
24. APPLY SEALING COMPOUND MIL-S-22473 GRADE AV TO FIND NO. 72, 74
25. TRIM UNUSED LEAD OF Q12 .010/.030 FROM CASE
26. STAKE FIND NO. 13, 18, 20, 21 AND 28 THRU 70 TO FIND NO. 1 PER ND1002009 METHOD J
27. BOND FIND NO. 8 TO FIND NO. 67 PER MIL-I-15126 CONDITION C-2/23/50 BEFORE ASSEMBLING TO FIND NO. 1
28. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISOPROPYL ALCOHOL PRIOR TO ENCAPSULATION
29. EXCEPT FOR THE MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279 USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES TO BE FREE OF PAINT.
30. APPLY SILICONE GREASE 1006879 TO INDICATED AREAS
31. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2007106
32. MOISTUREPROOF PER ND1002292-001 AFTER PAINTING AND MARKING
33. STAKE FIND NO. 76 TO FIND NO. 20 PER ND1002009 METHOD J

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 13060

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 13190			10-6-64	WL.

PART NO.	DESCRIPTION	DASH NO. 011 REQ'D.
1007571-021	Gimbal Servo Electronics Assembly, Tray 1	1
1007572-021	Power Supply Electronics Assembly, Tray 2	1
1007573-021	Gyro-Accelerometer Electronics Assembly, Tray 3	1
1007574-021	Gyro-Accelerometer Electronics Assembly, Tray 4	1
1007575-021	CDU & Gyro-Accelerometer Electronics Assembly, Tray 5	1
1007456-011	CDU & Power Supply Electronics Assembly, Tray 6	1
1007577-021	Miscellaneous Electronics Assembly, Tray 7	1
1007458-011	Optical Electronics Assembly, Tray 8	1
1007459-011	Optical Electronics Assembly, Tray 9	1
1007460-011	Power Diodes & Signal Conditioning Electronics Assembly, Tray 10	1
1008535	Toe Cap	

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MASTER

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN B Biggajo 9-25-64
CHECKED
APPROVED
APPROVED 9/30/64
APPROVED MIT 29 Sep 64
APPROVED MSC W J Rhine 9-29-64
DATE

POWER & SERVO ASSEMBLY (50 SERIES)

CODE IDENT NO. ——
SIZE C
DRAWING NO. 1007400
SCALE NONE
SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 13060

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 13190			10-6-61	Wl.
B		REPLACED BY CONFIGURATION DWG REV C PER TDRR 14590			12/1/64	Wl

DASH NO. 011

PART NO.	DESCRIPTION	REQ'D.
1007571-021	Gimbal Servo Electronics Assembly, Tray 1	1
1007572-021	Power Supply Electronics Assembly, Tray 2	1
1007573-021	Gyro-Accelerometer Electronics Assembly, Tray 3	1
1007574-021	Gyro-Accelerometer Electronics Assembly, Tray 4	1
1007575-021	CDU & Gyro-Accelerometer Electronics Assembly, Tray 5	1
1007456-011	CDU & Power Supply Electronics Assembly, Tray 6	1
1007577-021	Miscellaneous Electronics Assembly, Tray 7	1
1007458-011	Optical Electronics Assembly, Tray 8	1
1007459-011	Optical Electronics Assembly, Tray 9	1
1007460-011	Power Diodes & Signal Conditioning Electronics Assembly, Tray 10	1
1008535	Toe Cap	

Ⓑ REPLACED BY CONFIGURATION DWG REV C

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN B Riggio 9-25-61
CHECKED
APPROVED
APPROVED 9/30/61
APPROVED MIT 29 Sep 61
APPROVED MSC W J Rhine 9-29-61
DATE

POWER & SERVO ASSEMBLY
(50 SERIES)

CODE IDENT NO.
SIZE C
DRAWING NO. 1007400
SCALE NONE
SHEET 1 OF 1

INCHES
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PHOTOGRAPHIC SCALE ONLY

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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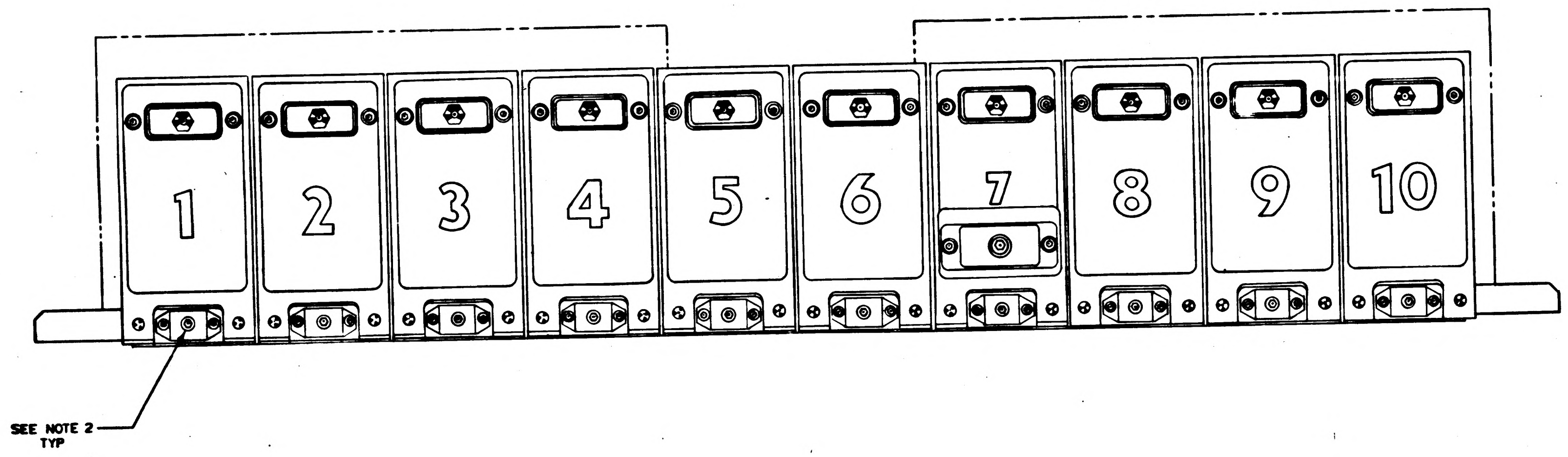


NOTE 8

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			ON				
			6		1008591	SCREW, REWORKED	12
			1		1008535	TOE CAP POWER & SERVO ASSY	11
			1		1007460-011	PWR DIODES & SIG COND ELEC ASSY, TRAY 10	10
			1		1007459-011	OPTICAL ELECTRONICS ASSY, TRAY 9	9
			1		1007458-011	OPTICAL ELECTRONICS ASSY, TRAY 8	8
			1		1007577-021	MISC ELECTRONICS ASSY, TRAY 7	7
			1		1007456-011	CDU & PWR SUPP ELECTRONICS ASSY, TRAY 6	6
			1		1007575-021	CDU & GYRO ACCEL ELECTRONICS ASSY, TRAY 5	5
			1		1007574-021	GYRO ACCEL ELECTRONICS ASSY, TRAY 4	4
			1		1007573-021	GYRO ACCEL ELECTRONICS ASSY, TRAY 3	3
			1		1007572-021	PWR SUPP ELECTRONICS ASSY, TRAY 2	2
			1		1007571-021	GIMBAL SERVO ELECT. ASSY, TRAY 1	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1015000		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS ± // ANGLES ± //
DO NOT SCALE THIS DRAWING
MATERIAL //
HEAT TREATMENT //
FINAL FINISH //

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497
DRAWN DATE 28 SEP 64
CHECKED 5 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL 12-1-64
MIT APPROVAL

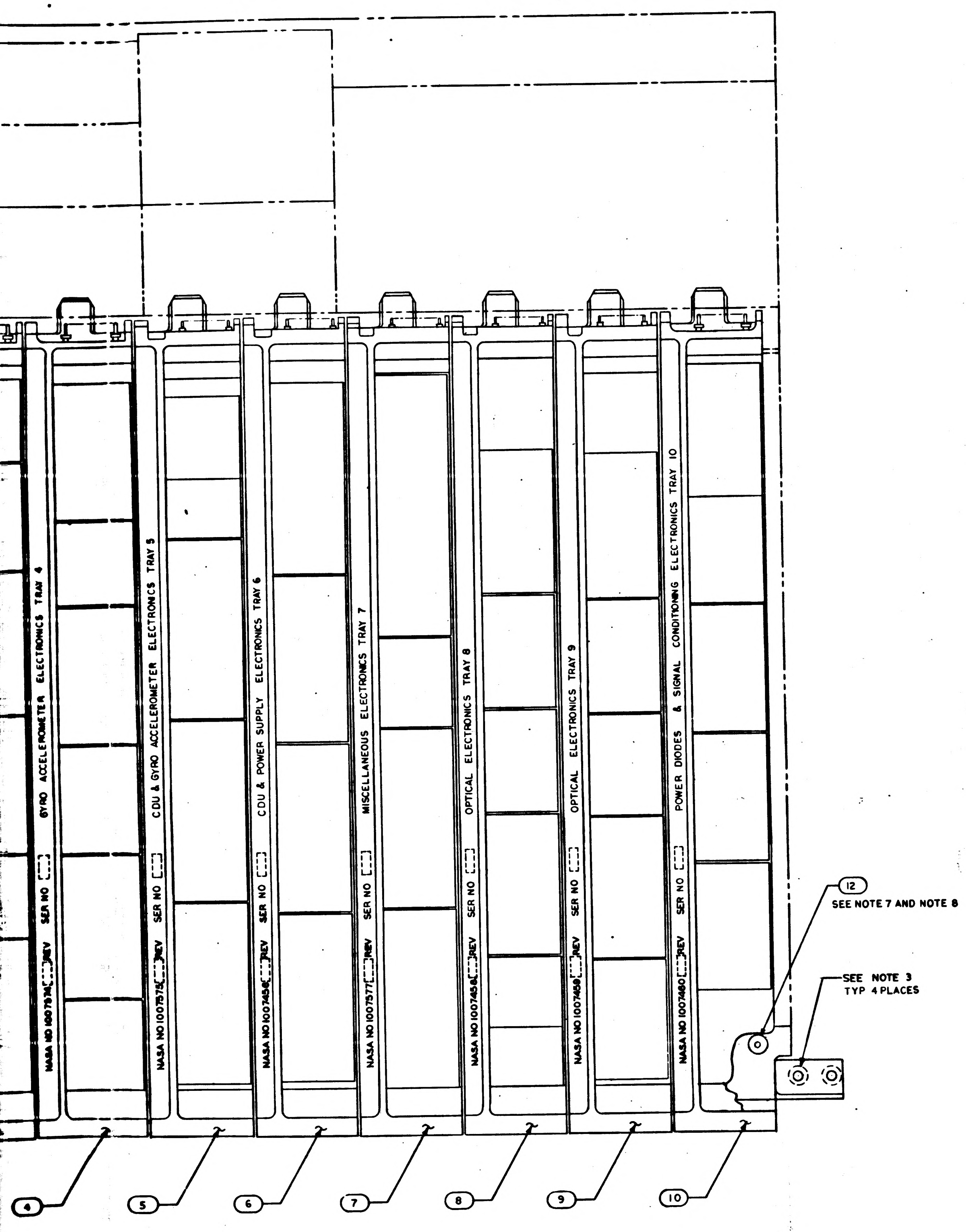
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

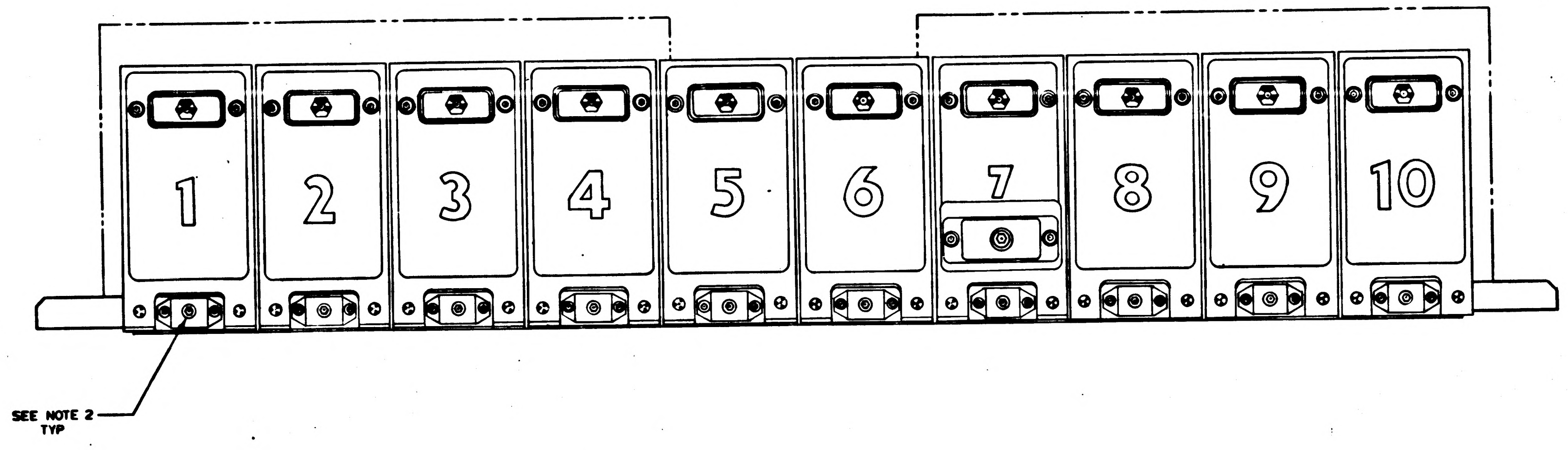
POWER AND SERVO ASSEMBLY

CODE IDENT NO.
SIZE J
NASA DRAWING NO 1007400
SCALE 1/1
WT
SHEET 1 OF 1

1007400 C

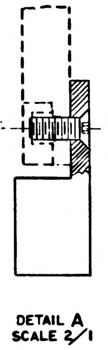
(34)

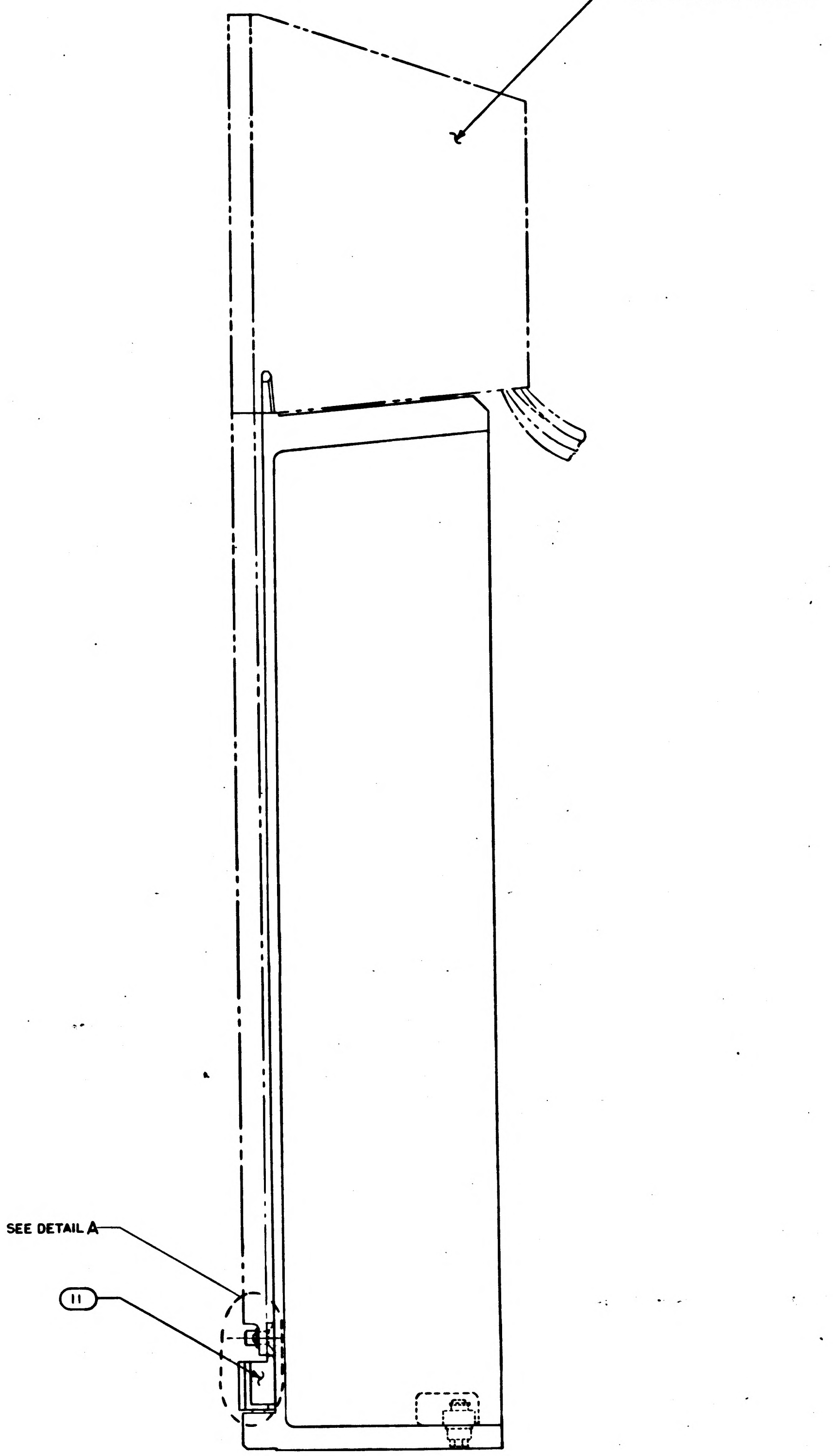

NASA NO 1007574 [ ] REV SER NO [ ] GYRO ACCELEROMETER ELECTRONICS TRAY 4
NASA NO 1007575 [ ] REV SER NO [ ] CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
NASA NO 1007456 [ ] REV SER NO [ ] CDU & POWER SUPPLY ELECTRONICS TRAY 6
NASA NO 1007577 [ ] REV SER NO [ ] MISCELLANEOUS ELECTRONICS TRAY 7
NASA NO 1007458 [ ] REV SER NO [ ] OPTICAL ELECTRONICS TRAY 8
NASA NO 1007459 [ ] REV SER NO [ ] OPTICAL ELECTRONICS TRAY 9
NASA NO 1007460 [ ] REV SER NO [ ] POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
12
SEE NOTE 7 AND NOTE 8
SEE NOTE 3
TYP 4 PLACES
2
4
5
6
7
8
9
10

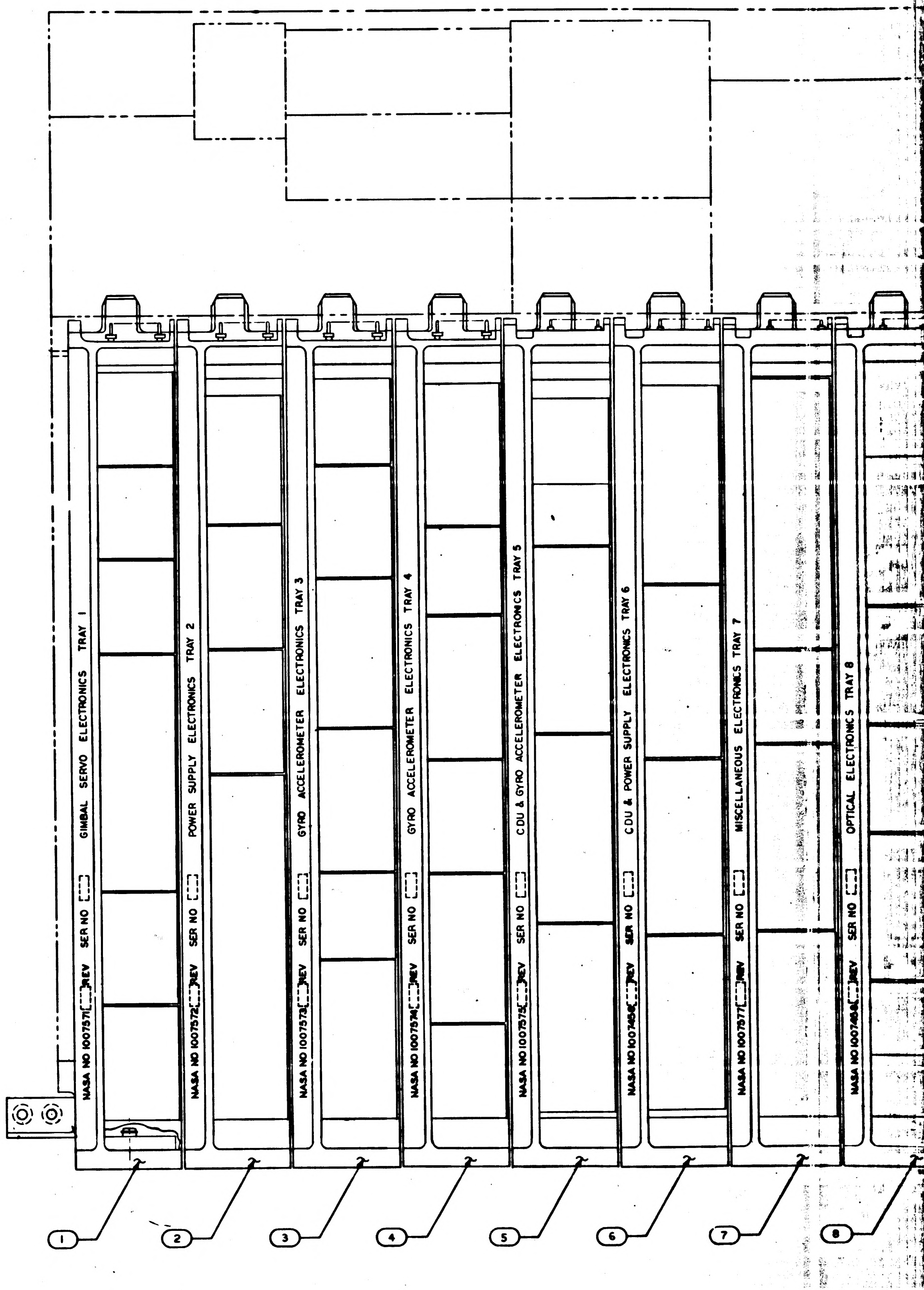

SEE NOTE 2
TYP

MASTER

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


DETAIL A
SCALE 2/1


AGE HARNESS AND PSA END CONNECTOR ASSEMBLY
SEE DETAIL A
11


GIMBAL SERVO ELECTRONICS TRAY 1
NASA NO 1007571 REV SER NO
POWER SUPPLY ELECTRONICS TRAY 2
NASA NO 1007572 REV SER NO
GYRO ACCELEROMETER ELECTRONICS TRAY 3
NASA NO 1007573 REV SER NO
GYRO ACCELEROMETER ELECTRONICS TRAY 4
NASA NO 1007574 REV SER NO
CDU & GYRO ACCELEROMETER ELECTRONICS TRAY 5
NASA NO 1007575 REV SER NO
CDU & POWER SUPPLY ELECTRONICS TRAY 6
NASA NO 1007456 REV SER NO
MISCELLANEOUS ELECTRONICS TRAY 7
NASA NO 1007577 REV SER NO
OPTICAL ELECTRONICS TRAY 8
NASA NO 1007468 REV SER NO
1
2
3
4
5
6
7
8

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO. 1 THRU FIND NO. 10 TO FIND NO. 11 TO BE 25 TO 30 IN. LB.
3. TOE CAP HARDWARE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC.
4. PSA COLDPLATE TO BE SUPPLIED BY NORTH AMERICAN AVIATION INC. REF PART NO V16-614047
5. SERIALIZE WITH TAG PER ND 1002023.
6. TEST PER ATP 1007100.
7. IDENTIFY FIND NO. 12 PER ND1002019. FIND NO. 12 MAY BE SHIPPED DISASSEMBLED FROM FIND NO. 11
8. MOUNTING TORQUE FOR FIND NO. 12 TO NAA COLDPLATE. (REF PART NO. V16-614047) TO BE 30 TO 35 IN. LBS.

3

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

REVISIONS 13060

DASH NO. 011

PART NO.	DESCRIPTION	REQ'D.
1007571-011	Gimbal Servo Electronics Assembly, Tray 1	1
1007572-011	Power Supply Electronics Assembly, Tray 2	1
1007573-011	Gyro-Accelerometer Electronics Assembly, Tray 3	1
1007574-011	Gyro-Accelerometer Electronics Assembly, Tray 4	1
1007575-011	CDU & Gyro-Accelerometer Electronics Assembly, Tray 5	1
1007456-011	CDU & Power Supply Electronics Assembly, Tray 6	1
1007577-011	Miscellaneous Electronics Assembly, Tray 7	1
1007458-011	Optical Electronics Assembly, Tray 8	1
1007459-011	Optical Electronics Assembly, Tray 9	1
1007460-011	Power Diodes & Signal Conditioning Electronics Assembly, Tray 10	1
1008535	Toe Cap	

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN B Riggio 9-25-68
CHECKED
APPROVED
APPROVED 9/30/68
APPROVED MIT 27 Sep 68
APPROVED MSC W J Rhine 9-28-69
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER & SERVO ASSEMBLY
(50 SERIES)

CODE IDENT NO.
SIZE C
DRAWING NO. 1007400
SCALE NONE
SHEET 1 OF 1

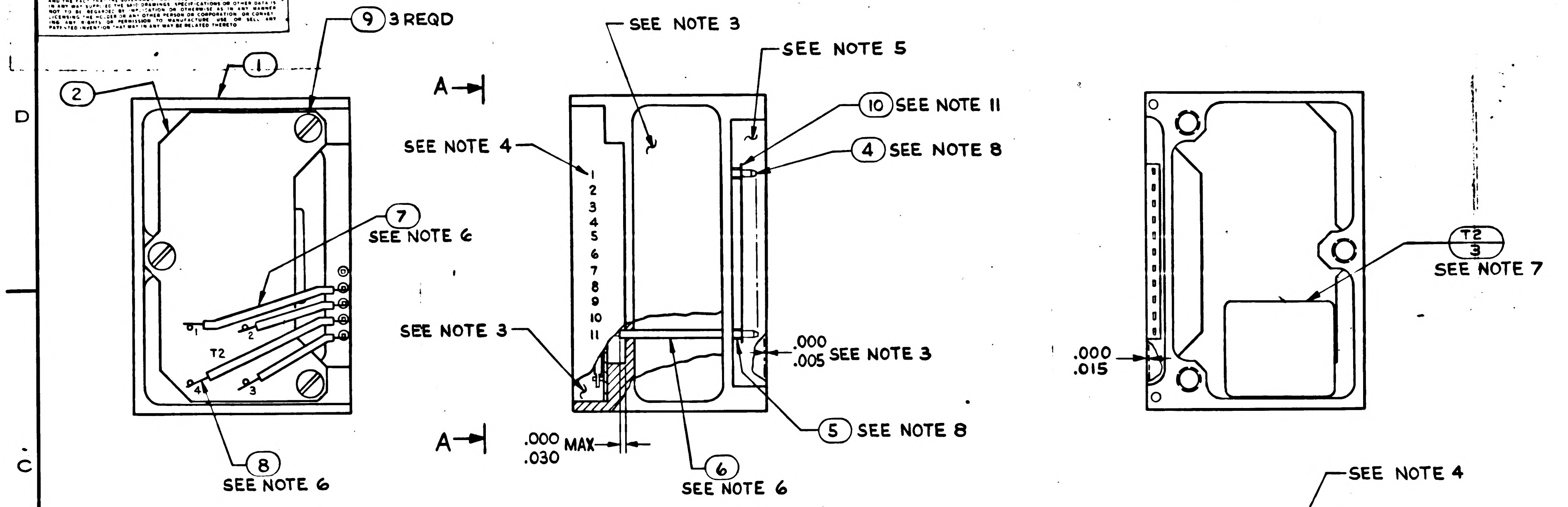
1007400

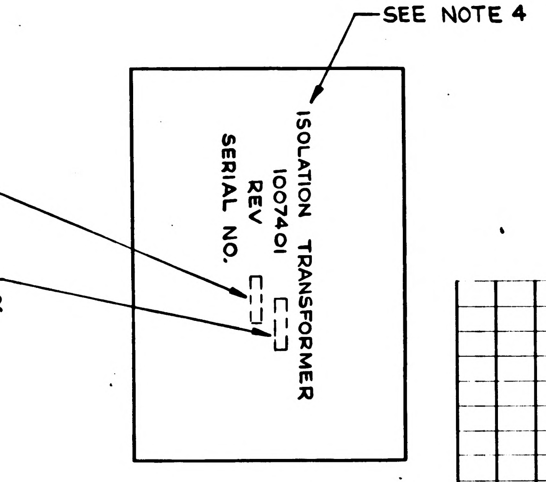
INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

A | 1007401

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
REVISIONS 1344					
A		REVISED PER TDRR 19420		1 JUN 65	EF

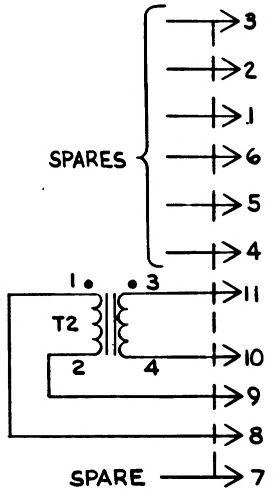




VIEW A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005
3. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
4. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
5. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
6. AR DENOTES AS REQUIRED
7. COMPONENTS TO BE CEMENTED IN PLACE PER ND1002004, TYPE I
8. ASSEMBLE PER ND1002136.
9. PROCURE PER PS1015138.
10. UNLESS OTHERWISE SPECIFIED: WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
11. BOND ITEM 10 TO ITEM 5 PER ND1002237.
12. ON ITEM 2 BROKEN PATHS INDICATE INSULATION SLEEVING
13. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ±.03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN. IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.



SCHEMATIC

QUANTITY REQUIRED			011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			1		10	1008540-11	GASKET CONNECTOR MINIATURE
			3		9	AN500D-4-4	SCREW, PAN HEAD
			AR		8	1006757-1	WIRE NICKEL RIBBON .010 x .020
			AR		7	1006776-21	SLEEVING, ELECTRICAL INS
			AR		6	1006776-20	SLEEVING, ELECTRICAL INS
			11		5	1006775	INSULATOR WRAP-POST MALE MIN
			11		4	1006782-5	CONTACT BLADE EDGE CONN
			1		3	1010605	TRANSFORMER
			1		2	1015167	WAFER BOARD
			1		1	1015159	FRAME ASSEMBLY

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + −
DECIMALS ±.005 ±.020
ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS.
DRAWN E. Miller DATE 22 SEP 64
CHECKED A. Udovich 23 SEP 64
APPROVAL
APPROVAL C. B. Trat 11-8-64
NASA APPROVAL W J Rhine 10-14-64
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ISOLATION TRANSFORMER
MODULE ASSEMBLY

CODE IDENT NO 80230
SIZE D
1007401
SCALE 2:1
SHEET 1 OF 1

MIL 10780-F

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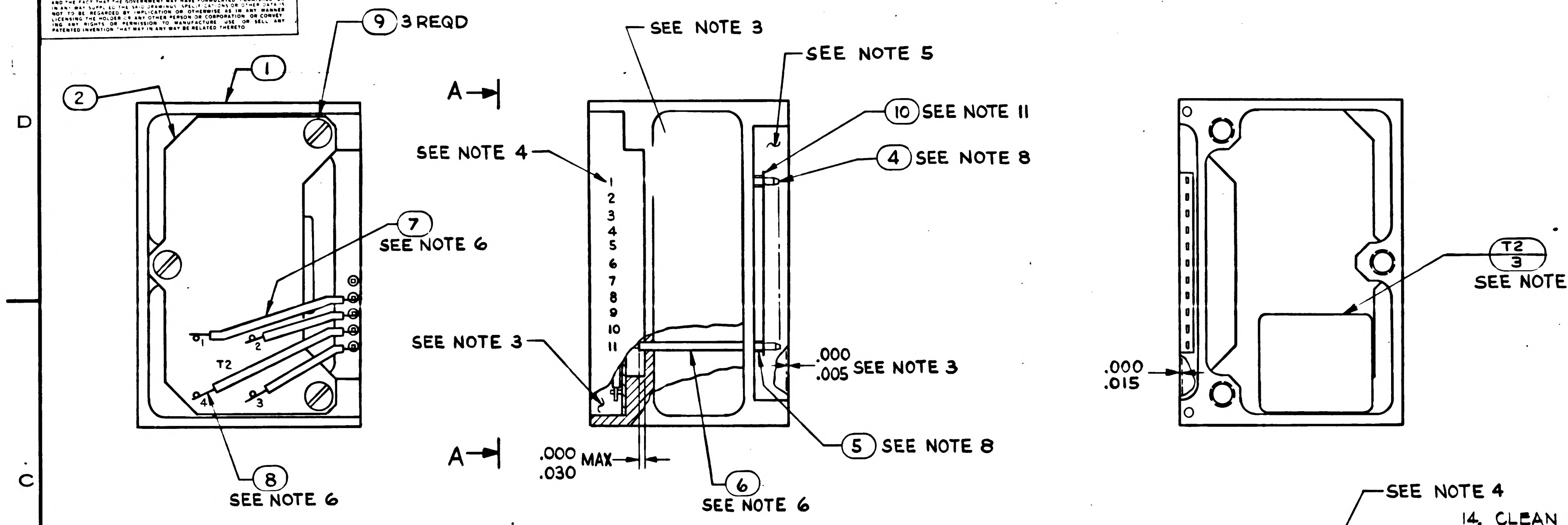
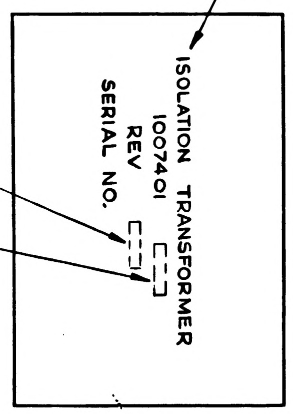
B 1007401 2

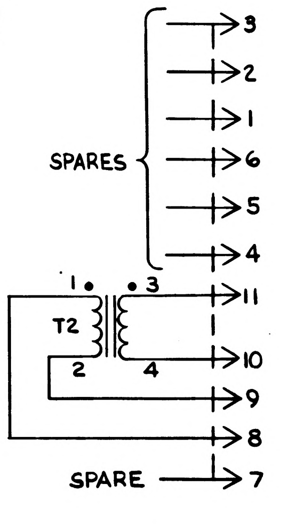
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 19420		1 JUN 65	EF
B		REVISED PER TDRR 19532		2-1-65	





VIEW A-A

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005
3. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
4. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
5. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
6. AR DENOTES AS REQUIRED
7. COMPONENTS TO BE CEMENTED IN PLACE PER ND1002004, TYPE I
8. ASSEMBLE PER ND1002136.
9. PROCURE PER PS1015138.
10. UNLESS OTHERWISE SPECIFIED: WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
11. BOND ITEM 10 TO ITEM 5 PER ND1002237.
12. ON ITEM 2 BROKEN PATHS INDICATE INSULATION SLEEVING
13. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ±.03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN. IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
14. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
15. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.



SCHEMATIC

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			1		10	1008540-11	GASKET CONNECTOR MINIATURE
			3		9	AN500D-4-4	SCREW, PAN HEAD
			AR		8	1006757-1	WIRE NICKEL RIBBON .010 x .020
			AR		7	1006776-21	SLEEVING, ELECTRICAL INS
			AR		6	1006776-20	SLEEVING, ELECTRICAL INS
			11		5	1006775	INSULATOR WRAP-POST MALE MIN
			11		4	1006782-5	CONTACT BLADE EDGE CONN
			1		3	1010605	TRANSFORMER
			1		2	1015167	WAFER BOARD
			1		1	1015159	FRAME ASSEMBLY

LIST OF PARTS AND MATERIALS

1007459		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + − DECIMALS ±.005 ±.020 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS.
DRAWN E. Miller DATE 22 SEP 64
CHECKED A. Udovich 23 SEP 64
APPROVAL
APPROVAL C. B. Fost 11-9-64
NASA APPROVAL W J Rhine 10-14-64
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ISOLATION TRANSFORMER
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE D
1007401
SCALE 2:1
SHEET 1 OF 1

MIL 10783-P

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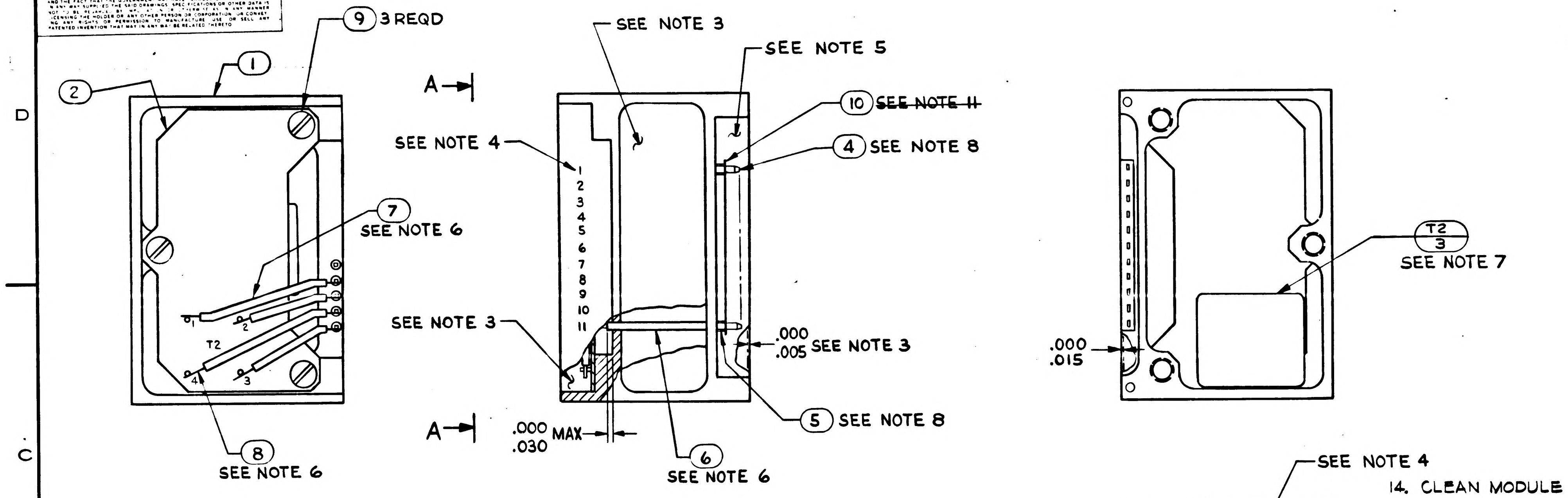
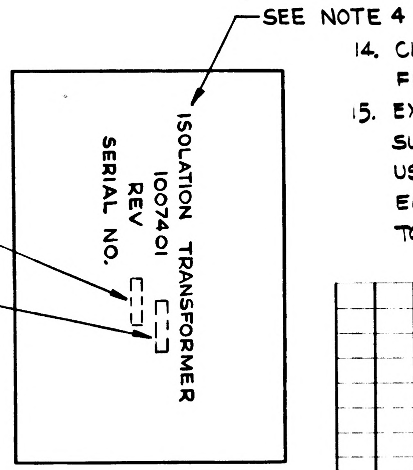
C 1007401 2

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 19420		1 JUN 65	EF
B		REVISED PER TDRR 19532		2 [illegible] 65	
C		REVISED PER TDRR 20143		18 JUN 65	

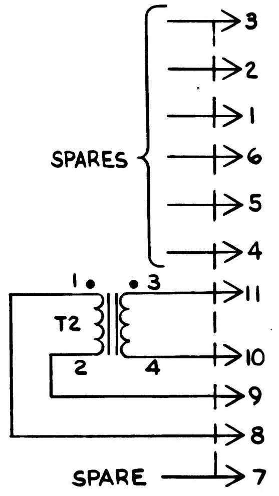




VIEW A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005
3. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
4. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
5. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
6. AR DENOTES AS REQUIRED
7. COMPONENTS TO BE CEMENTED IN PLACE PER ND1002004. TYPE I
8. ASSEMBLE PER ND1002136.
9. PROCURE PER PS1015138.
10. UNLESS OTHERWISE SPECIFIED: WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
11. ~~BOND ITEM 10 TO ITEM 5 PER ND1002237.~~
12. ON ITEM 2 BROKEN PATHS INDICATE INSULATION SLEEVING
13. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ±.03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN. IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
14. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
15. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.



SCHEMATIC

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			1		10	1008540-11	GASKET CONNECTOR MINIATURE
			3		9	AN500D-4-4	SCREW, PAN HEAD
			AR		8	1006757-1	WIRE NICKEL RIBBON .010 x .020
			AR		7	1006776-21	SLEEVING, ELECTRICAL INS
			AR		6	1006776-20	SLEEVING, ELECTRICAL INS
			11		5	1006775	INSULATOR WRAP-POST MALE MIN
			11		4	1006782-5	CONTACT BLADE EDGE CONN
			1		3	1010605	TRANSFORMER
			1		2	1015167	WAFER BOARD
			1		1	1015159	FRAME ASSEMBLY

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
+	±.005	+ 2°
−	±.020	−

DO NOT SCALE THIS DRAWING

MATERIAL

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS.

DRAWN E. Miller DATE 22 SEP 64
CHECKED A. Udovich 23 SEP 64
APPROVAL [illegible]
APPROVAL C. R. Test 11-8-64
NASA APPROVAL W. J. [illegible] 10-14-64
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

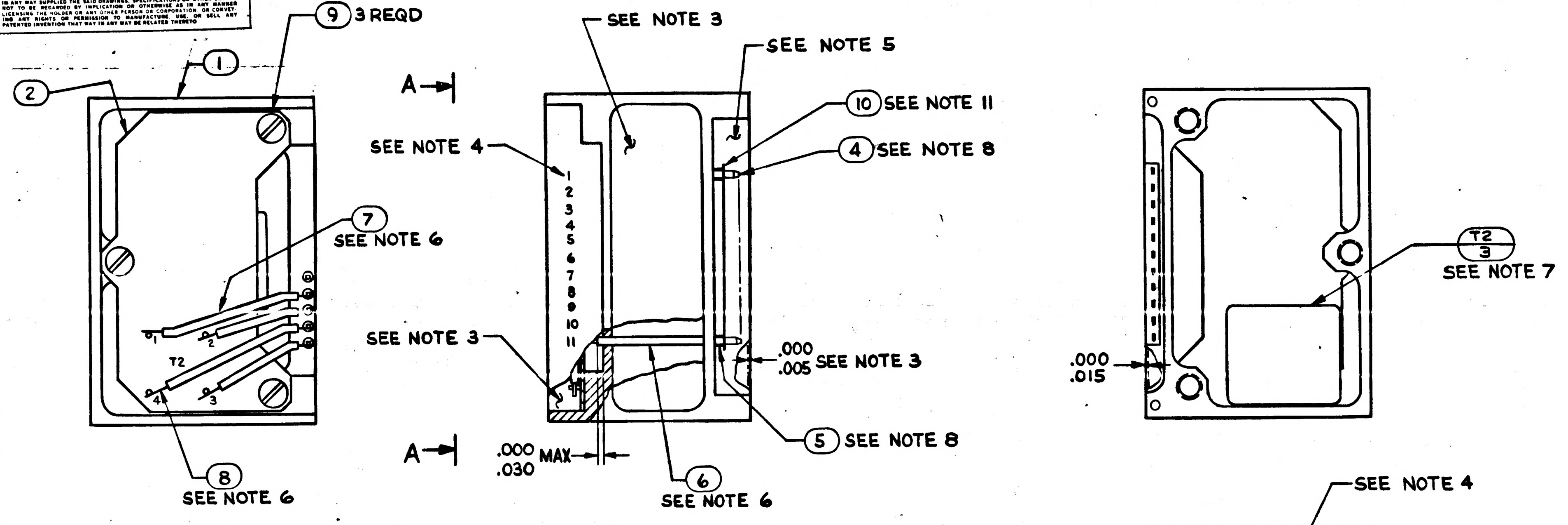
ISOLATION TRANSFORMER
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE D
1007401
SCALE 2:1
SHEET 1 OF 1

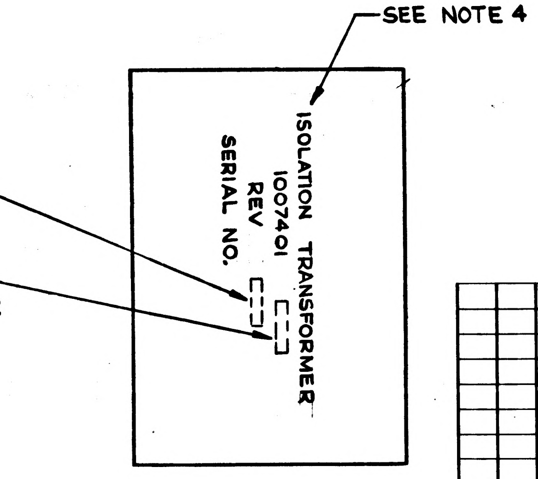
MIL 10780—P

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

SYM	ZONE	REVISIONS 13403 DESCRIPTION	CHG NO.	DATE	APPD.

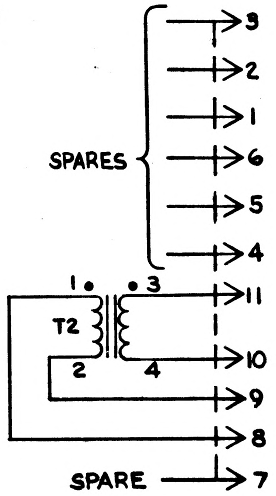


9 3 REQD
1
2
7 SEE NOTE 6
T2
1
2
3
4
8 SEE NOTE 6
A
A
SEE NOTE 3
SEE NOTE 5
10 SEE NOTE 11
4 SEE NOTE 8
SEE NOTE 4
1 2 3 4 5 6 7 8 9 10 11
SEE NOTE 3
.000 .005 SEE NOTE 3
.000 MAX .030
6 SEE NOTE 6
5 SEE NOTE 8
.000 .015
T2 3 SEE NOTE 7



SEE NOTE 4
DRAWING REVISION LETTER
APPLICABLE DASH NUMBER
ISOLATION TRANSFORMER
1007401
REV
SERIAL NO.

VIEW A-A



3
2
1
6
5
4
SPARES
1
3
T2
2
4
11
10
9
8
SPARE
7

SCHEMATIC

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005
3. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
4. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
5. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
6. AR DENOTES AS REQUIRED
7. COMPONENTS TO BE CEMENTED IN PLACE PER ND1002004, TYPE I
8. ASSEMBLE PER ND1002136.
9. PROCURE PER PS1015138.
10. UNLESS OTHERWISE SPECIFIED: WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
11. BOND ITEM 10 TO ITEM 5 PER ND1002237.
12. ON ITEM 2 BROKEN PATHS INDICATE INSULATION SLEEVING

QUANTITY REQUIRED					EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				LIST OF PARTS AND MATERIALS	
			1			10	1008540-11	GASKET CONNECTOR MINIATURE
			3			9	AN500D-4-4	SCREW, PAN HEAD
			AR			8	1006757-1	WIRE NICKEL RIBBON .010 x .020
			AR			7	1006776-21	SLEEVING, ELECTRICAL INS
			AR			6	1006776-20	SLEEVING, ELECTRICAL INS
			11			5	1006775	INSULATOR WRAP-POST MALE MIN
			11			4	1006782-5	CONTACT BLADE EDGE CONN
			1			3	1010605	TRANSFORMER
			1			2	1015167	WAFER BOARD
			1			1	1015159	FRAME ASSEMBLY

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: ±
DECIMALS: ±.005 ±.020
ANGLES: ±2°
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN E. Miller DATE 22 SEP 64
CHECKED A. Udovich 23 SEP 64
APPROVAL [illegible]
APPROVAL D. B. Stat 10-8-64
NASA APPROVAL W. J. Rhine 10-14-64
MIT APPROVAL [illegible] 10/16/64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ISOLATION TRANSFORMER
MODULE ASSEMBLY

CODE IDENT NO.
SIZE D
1007401
SCALE 2:1
SHEET 1 OF 1

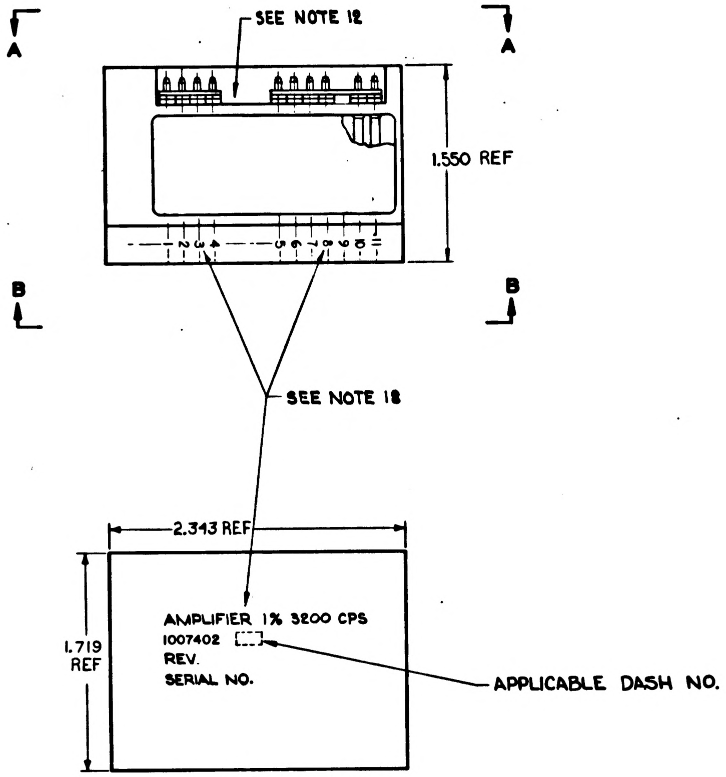
INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

REVISIONS					
SYM	ZONE	DESCRIPTION		DATE	APPD.
A		REVISED PER TDRR 17348	CHG NO.		

NOTES.

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. SOLDER CONNECTIONS TO EMITTER(E), BASE (B) AND COLLECTOR (C) OF Q4 AND Q5 PER ND1002071.
3. COMPONENTS TO BE CEMENTED IN PLACE PER ND 1002009 METHOD C AND CENTRALIZE
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. BOND ITEM 43 AND ITEM 44 TO ITEM 5 PER ND 1002237.
7. PROCURE PER PS1007044.
8. MOUNTING TORQUE 12 INCH POUNDS ± 2 IN. LBS.
9. MARKING ON ITEMS 2 & 3 INDICATES THE FOLLOWING:
   BROKEN PATHS INDICATES INSULATION SLEEVING.

   K: CATHODE SIDE OF DIODE
   FT( ): FEED THRU
   PLUS(+): POSITIVE SIDE OF CAPACITOR
   C: COLLECTOR LEAD OF TRANSISTOR
   B: BASE
   E: EMITTER
   C( ): COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B( ): BASE
   E( ): EMITTER
10. BOND ITEM 39 TO ITEM 15. CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM 1.
11. UNLESS OTHERWISE SPECIFIED:
    A. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
    B. WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
12. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
13. USE AS REQUIRED
14. TYPICAL SLEEVING FOR: R3, R4, R5, R10, R11, R12, R14, R15, R16 & R18.
15. TYPICAL SLEEVING & WIRE FOR FT1 THRU FT11.
16. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007044 PART TO BE SELECTED FROM TABLE "A", VALUE IS IN OHMS.
17. FILL PER ND1002117
18. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002033 CENTRALIZE AS SHOWN.
20. ASSEMBLE PER ND 1002136.
21. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
22. INSULATION TAPE PER MIL-I-15126 TYPE MFT, ½ WIDE
23. BOND A .25 MINIMUM WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MINIMUM WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATOR PER ND1002187 TYPE I.



MARKING VIEW

TABLE "A"
SELECTION CHART FOR R7

PART NUMBER	VALUE
1010364-337	2800
-345	3090
-351	3320
-359	3650
-365	3920
-371	4220
-377	4530
-381	4750
-387	5110
-391	5360
-395	5620
-397	5760
-401	6040
-405	6340
-409	6650
-411	6810
-415	7150
-419	7500
-421	7680
-425	8060

QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
X		REF	1010048	SCHEMATIC
1		44	1008540-7	GASKET, CONNECTOR-MINIATURE
1		43	1008540-4	GASKET, CONNECTOR-MINIATURE
2		42	1006750-17	RESISTOR, FIXED
2		41	1000093-14	SCREW
1		40	1010264-21	CAPACITOR, FIXED
AR		39	SEE NOTE 22	INSULATION TAPE, ELECT
AR		38	1006776-20	INSULATION, SLEEVING, ELECT
AR		37	1006776-21	INSULATION, SLEEVING, ELECT
AR		36	1006776-22	INSULATION, SLEEVING, ELECT
AR		35	1006757-9	WIRE, ELEC
AR		34	1006757-8	WIRE, ELEC
AR		33	1006757-1	WIRE, ELEC
1		32	1010337	TRANSFORMER
1		31	1010324	TRANSFORMER
1		30	1010269-2	TRANSISTOR
1		29	1010345-2	TRANSISTOR
1		28	1010431	TRANSISTOR
1		27	1010278-80	RESISTOR
1		26	1010278-8	
1		25	1006750-73	
1		24	1006750-49	
2		23	1006750-12	
2		22	1006750-26	
2		21	1006750-1	
2		20	1010364-385	
1		19	1010364-335	
1		18	1010364-381	
1		17	1010364-251	
1		16	SEE NOTE 16	
1		15	1010265-3	SEMICONDUCTOR DEVICE, DIODE
1		14	1010372-16	SEMICONDUCTOR DEVICE, DIODE
2		13	1010264-29	CAPACITOR, FIXED
2		12	1010410-9	CAPACITOR, FIXED
2		11	1008025-2	INSULATOR, BUSHING
2		10	1008021-1	BUSHING, INSULATOR
2		9	1008071-4	WASHER, FLAT
2		8	1008024-2	WASHER, INSULATOR
2		7	1008024-1	WASHER, INSULATOR
2		6	MS20341-10B	NUT
10		5	1006775	INSULATOR
10		4	1006782-5	CONTACT, WRAPOST-MALE
1		3	1015722	INSULATOR
1		2	1015721	INSULATOR
1		1	1015720	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007571		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS .XXX ±.005 .XX ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN DATE 12 AUG 64
CHECKED
APPROVAL
APPROVAL 10-5-64
NASA APPROVAL 10-6-64
MIT APPROVAL

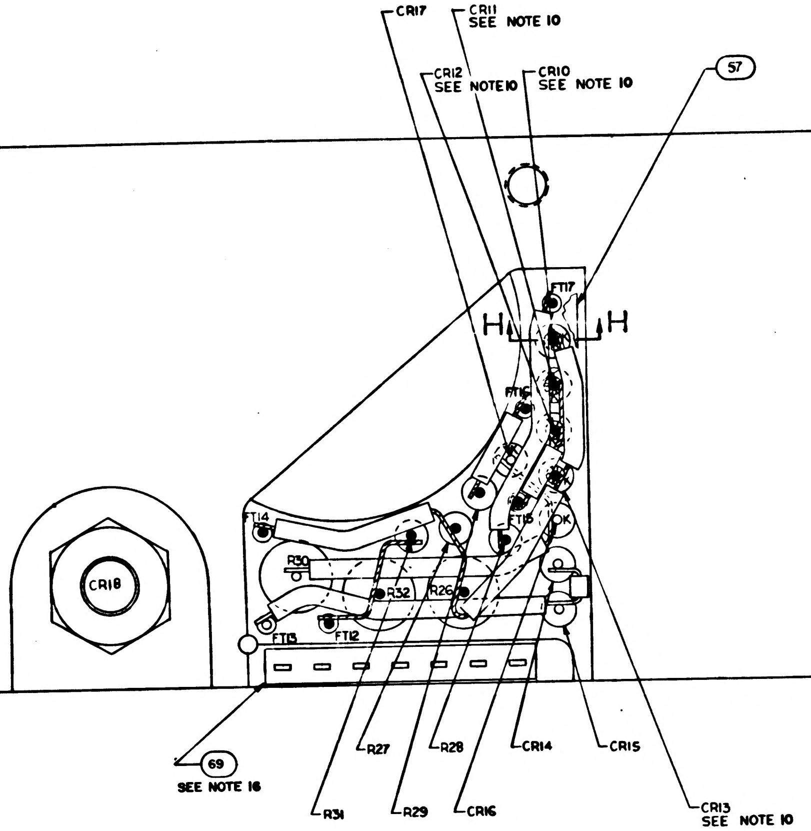
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

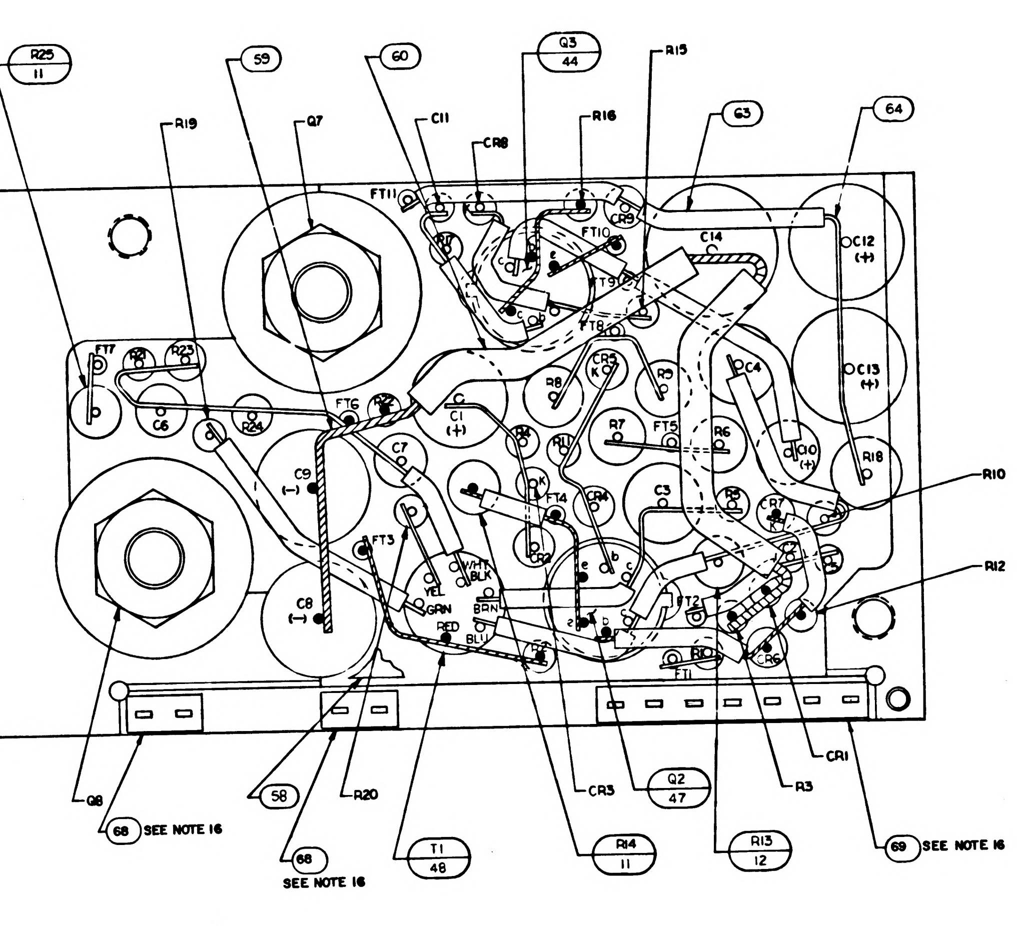
AMPLIFIER 1% 3200 CPS
MODULE ASSY

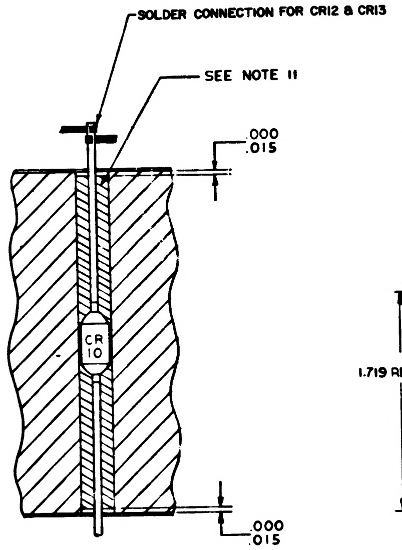
CODE IDENT NO.
SIZE E
1007402
SCALE 2:1
SHEET 1 OF 2

1007402

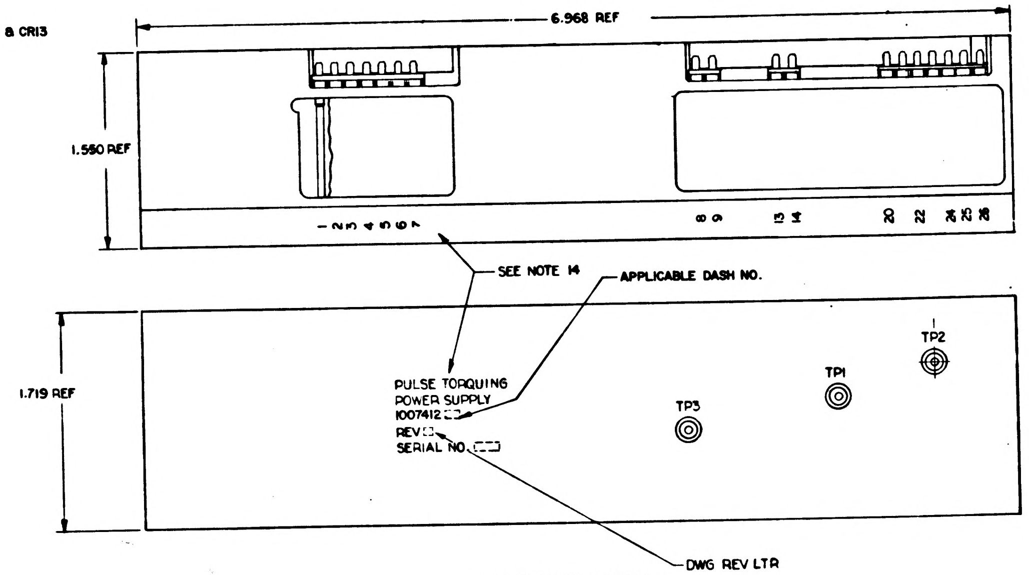
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17321	MAR 65	GM / EF


CR17
CR11 SEE NOTE 10
CR12 SEE NOTE 10
CR10 SEE NOTE 10
57
H
H
FT17
FT16
FT15
FT14
FT12
FT13
R30
R32
R26
CR18
69 SEE NOTE 16
R27
R28
CR14
CR15
R31
R29
CR16
CR13 SEE NOTE 10


R25 11
59
60
Q3 44
R15
R19
Q7
C11
CR8
R16
63
64
FT11
C14
CR9
FT10
FT9
C12 (+)
FT7
R22
R23
C6
R24
FT8
C1 (+)
C9 (-)
C7
R8
CR5
R5
C4
C13 (+)
R7
FT5
R6
C10 (+)
R18
C3
R10
FT4
CR4
FT3
WHT BLK
YEL
GRN
BRN
BLU
RED
C8 (-)
FT2
FT1
R12
Q8
68 SEE NOTE 16
58
R20
68 SEE NOTE 16
T1 48
R14 11
CR3
Q2 47
R13 12
R3
CR1
69 SEE NOTE 16


SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
.000
.015
CR 10
.000
.015

SECTION H-H
TYP FOR CR10, 11, 12, & 13


6.968 REF
1.550 REF
1 2 3 4 5 6 7
8 9 12 13
20 22 24 25 26
SEE NOTE 14
APPLICABLE DASH NO.
PULSE TORQUING
POWER SUPPLY
1007412-
REV
SERIAL NO.
1.719 REF
TP2
TP1
TP3
DWG REV LTR

MARKING VIEW
SCALE 2/1

			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			X		1010052	SCHEMATIC	REF
			2		1008540-7	GASKET, CONNECTOR-MINIATURE	69
			2		1008540-2	GASKET, CONNECTOR-MINIATURE	68
			2		1010398 - 3	TRANSISTOR	67
			AR		1006757 - 8	WIRE ELEC .020 DIA	66
			AR		1006776 - 22	INSULATION SLEEVING ELEC	65
			AR		1006757 - 1	WIRE, ELEC .010 X .020	64
			AR		1006776 - 21	INSULATION, SLEEVING	63
			18		1006775	INSULATOR, WRAPOST-MALE, MINIATURE	62
			18		1006782 - 5	CONTACT, WRAPOST, MALE, MINIATURE	61
			AR		1006776 - 20	INSULATION SLEEVING	60
			AR		1006757 - 9	WIRE ELEC .032 DIA	59
			1		1008094 - 1	INSULATOR	58
			1		1008094 - 2	INSULATOR	57
			3		1010292 - 2	TERMINAL, FEEDTHRU	56
			6		1008024 - 2	WASHER, INSULATOR	55
			3		1008021 - 1	BUSHING, INSULATOR	54
			6		1008024 - 1	WASHER, INSULATOR	53
			3		1008071 - 2	WASHER	52
			3		MS20341 - 10B	NUT	51
			3		1008025 - 2	INSULATOR, BUSHING	50
			1		1010745	TRANSFORMER	49
			1		1010315 - 2	TRANSFORMER	48
			1		1010376 - 4	TRANSISTOR	47
			2		1010499 - 2	TRANSISTOR	46
			1		1010398 - 1	TRANSISTOR	45
			2		1010376 1	TRANSISTOR	44
			4		1010384	DIODE	43
			1		1010331 - 013	DIODE	42
			4		1010497	DIODE	41
			1		1010286 - 25	DIODE	40
			1		1010286 - 9	DIODE	39
			6		1010385	DIODE	38
			1		1010286 - 5	DIODE	37
			1		1010460 - 1	CAPACITOR	36
			1		1010460 - 2	CAPACITOR	35
			1		1010264 - 29	CAPACITOR	34
			2		1006755 - 89	CAPACITOR	33
			1		1006777 - 18	CAPACITOR	32
			1		1006755 - 79	CAPACITOR	31
			2		1010393 - 045	CAPACITOR	30
			2		1006777 - 30	CAPACITOR	29
			2		1010316 - 36	CAPACITOR	28
			2		1006777 - 16	CAPACITOR	27
			1		1006755 - 85	CAPACITOR	26
			1		1010278 - 80	RESISTOR	25
			1		1006750 - 77	RESISTOR	24
			1		1010389 - 48	RESISTOR	23
			1		1006750 - 67	RESISTOR	22
			1		1010369 - 93	RESISTOR	21
			1		1010278 - 94	RESISTOR	20
			2		1006802	RESISTOR	19
			2		1006750 - 31	RESISTOR	18
			2		1006750 - 22	RESISTOR	17
			1		1010278 - 70	RESISTOR	16
			1		1006750 - 47	RESISTOR	15
			1		1006750 - 50	RESISTOR	14
			1		1006750 - 32	RESISTOR	13
			1		1006750 63	RESISTOR	12
			5		1006750 - 56	RESISTOR	11
			2		1010377 - 111	RESISTOR	10
			2		1010377 - 110	RESISTOR	9
			2		1006750 - 74	RESISTOR	8
			1		1006750 - 62	RESISTOR	7
			1		1006750 - 12	RESISTOR	6
			1		1006750 - 51	RESISTOR	5
			1		1006750 - 65	RESISTOR	4
			1		1008093 - 2	INSULATOR	3
			1		1008093 - 1	INSULATOR	2
			1		1007069	HEATSINK	1

QUANTITY REQUIRED
LIST OF MATERIALS

A 1007412

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		
1007572		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ±
DECIMALS .XX ±.02 .XXX ±.005
ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN E. Gome DATE 2OCT64
CHECKED 12OCT64
APPROVAL
APPROVAL
NASA APPROVAL W. J. 11-4-64
MIT APPROVAL 4 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PULSE TORQUING
POWER SUPPLY
MODULE ASSY

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007412
SCALE 5/1
WT
SHEET 1 OF 1

1007412	REV A	1 of 1

3/1007412

REVISIONS

SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD.
A		REVISED PER TDRR 17348		12 MAR 65	EM
B		REVISED PER TDRR 19454	—	1 JUN 65	JJJ MEM

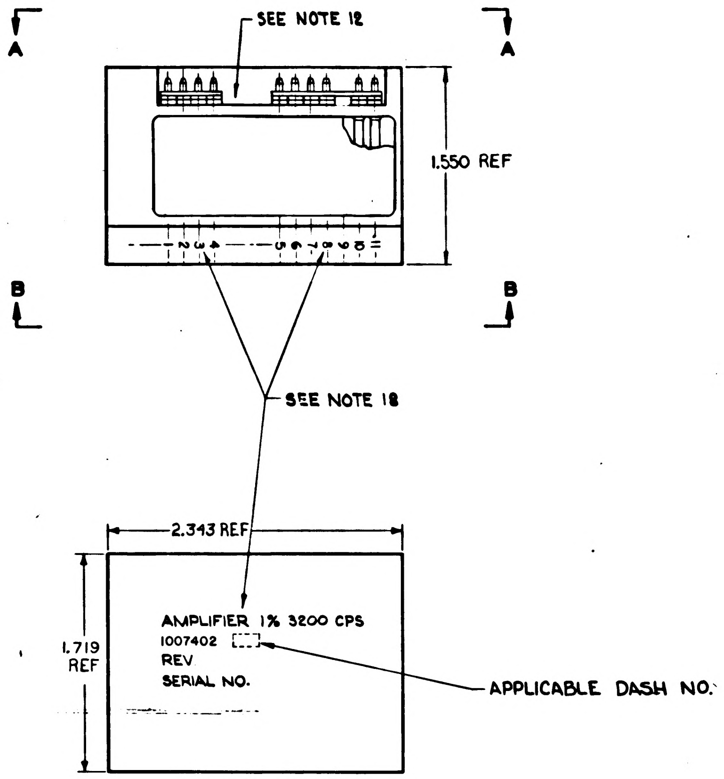
TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ±.03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.

NOTES.

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. SOLDER CONNECTIONS TO EMITTER (E), BASE (B) AND COLLECTOR (C) OF Q4 AND Q5 PER ND1002071.
3. COMPONENTS TO BE CEMENTED IN PLACE PER ND1002009 METHOD C AND CENTRALIZE
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. BOND ITEM 43 AND ITEM 44 TO ITEM 5 PER ND 1002237.
7. PROCURE PER PS1007044.
8. MOUNTING TORQUE 12 INCH POUNDS ± 2 IN. LBS.
9. MARKING ON ITEMS 2 & 3 INDICATES THE FOLLOWING:
   BROKEN PATHS INDICATES INSULATION SLEEVING.

   K: CATHODE SIDE OF DIODE
   FT( ): FEED THRU
   PLUS(+): POSITIVE SIDE OF CAPACITOR
   C: COLLECTOR LEAD OF TRANSISTOR
   B: BASE
   E: EMITTER
   C( ): COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B( ): BASE
   E( ): EMITTER
10. BOND ITEM 39 TO ITEM 15. CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM 1.
11. UNLESS OTHERWISE SPECIFIED:
    A. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
    B. WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
12. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
13. USE AS REQUIRED
14. TYPICAL SLEEVING FOR: R3, R4, R5, R10, R11, R12, R14, R15, R16 & R18.
15. TYPICAL SLEEVING & WIRE FOR FT1 THRU FT11.
16. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007044 PART TO BE SELECTED FROM TABLE "A", VALUE IS IN OHMS.
17. FILL PER ND1002117
18. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002033 CENTRALIZE AS SHOWN.
20. ASSEMBLE PER ND1002136.
21. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
22. INSULATION TAPE PER MIL-I-15126 TYPE MFT, $\frac{1}{2}$ WIDE
23. ~~BOND A .25 MINIMUM WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MINIMUM WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATOR PER ND1002187 TYPE I.~~
24. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.



MARKING VIEW

TABLE "A" SELECTION CHART FOR R7	
PART NUMBER	VALUE
1010364-337	2800
-345	3090
-351	3320
-359	3650
-365	3920
-371	4220
-377	4530
-381	4750
-387	5110
-391	5360
-395	5620
-397	5760
-401	6040
-405	6340
-409	6650
-411	6810
-415	7150
-419	7500
-421	7680
-425	8060

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			X		REF	1010048	SCHEMATIC
			1		44	1008540-7	GASKET, CONNECTOR-MINIATURE
			1		43	1008540-4	GASKET, CONNECTOR-MINIATURE
			2		42	1006750-17	RESISTOR, FIXED
			2		41	1000093-14	SCREW
			1		40	1010264-21	CAPACITOR, FIXED
			AR		39	SEE NOTE 22	INSULATION TAPE, ELECT
			AR		38	1006776-20	INSULATION, SLEEVING, ELECT
			AR		37	1006776-21	INSULATION, SLEEVING, ELECT
			AR		36	1006776-22	INSULATION, SLEEVING, ELECT
			AR		35	1006757-9	WIRE, ELEC
			AR		34	1006757-8	WIRE, ELEC
			AR		33	1006757-1	WIRE, ELEC
			1		32	1010337	TRANSFORMER
			1		31	1010324	TRANSFORMER
			1		30	1010269-2	TRANSISTOR
			1		29	1010345-2	TRANSISTOR
			1		28	1010431	TRANSISTOR
			1		27	1010278-80	RESISTOR
			1		26	1010278-8	
			1		25	1006750-73	
			1		24	1006750-49	
			2		23	1006750-12	
			2		22	1006750-26	
			2		21	1006750-1	
			2		20	1010364-385	
			1		19	1010364-335	
			1		18	1010364-381	
			1		17	1010364-251	
			1		16	SEE NOTE 16	
			1		15	1010265-3	SEMICONDUCTOR DEVICE, DIODE
			1		14	1010372-16	SEMICONDUCTOR DEVICE, DIODE
			2		13	1010264-29	CAPACITOR, FIXED
			2		12	1010410-9	CAPACITOR, FIXED
			2		11	1008025-2	INSULATOR, BUSHING
			2		10	1008021-1	BUSHING, INSULATOR
			2		9	1008071-4	WASHER, FLAT
			2		8	1008024-2	WASHER, INSULATOR
			2		7	1008024-1	WASHER, INSULATOR
			2		6	MS 20341-10B	NUT
			10		5	1006775	INSULATOR
			10		4	1006782-5	CONTACT, WRAPOST-MALE
			1		3	1015722	INSULATOR
			1		2	1015721	INSULATOR
			1		1	1015720	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007571		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
+ XXX ±.005 + –
- XX ±.02 – –
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE 12 AUG 64
CHECKED
APPROVAL
APPROVAL 10-5-64
NASA APPROVAL 10-6-64
MIT APPROVAL

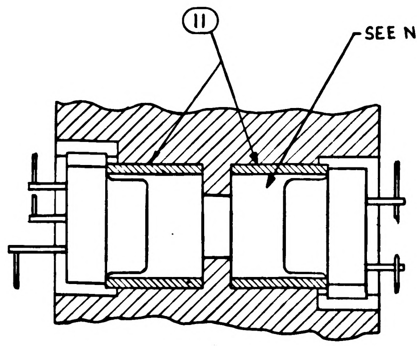
MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

AMPLIFIER 1% 3200 CPS
MODULE ASSY

CODE IDENT NO. 80230
SIZE E
1007402
SCALE 2:1
SHEET 1 OF 2

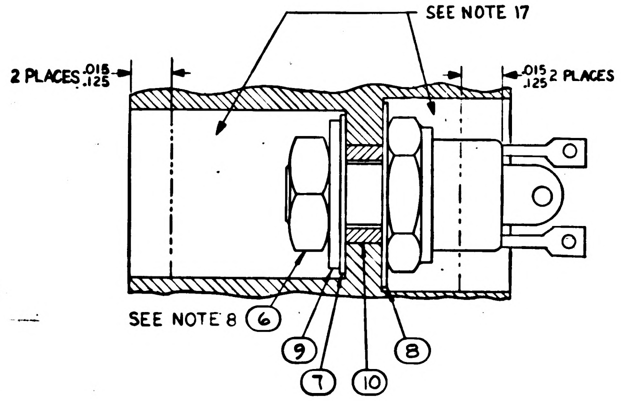
1007402

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
		REVISIONS			
A		REVISED PER TDRR 17348	CHG NO.	12 MAR 65	EM
B		REVISED PER TDRR 19454	—	1 JUN 65	JJJ



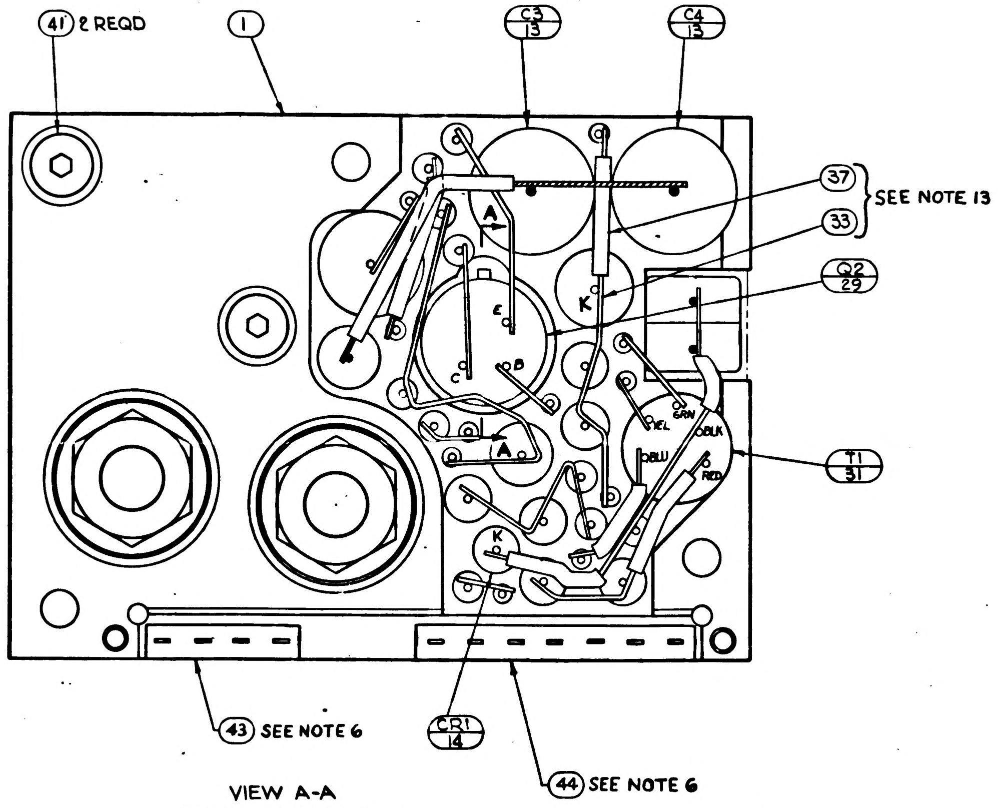
11
SEE NOTE 17

PARTIAL SECTION A-A



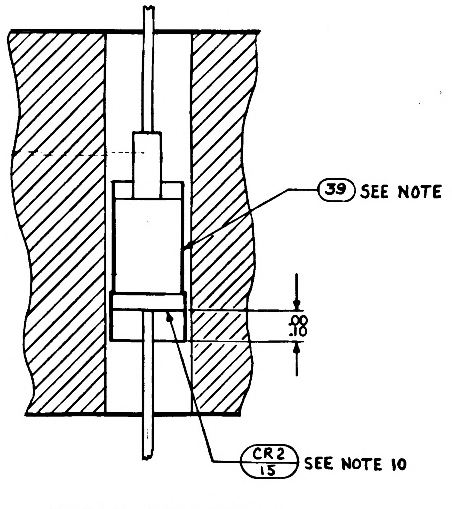
SEE NOTE 17
2 PLACES .015 .125
.015 .125 2 PLACES
SEE NOTE 8 6
9
7
10
8

PARTIAL SECTION B-B
TYP 2 PLACES



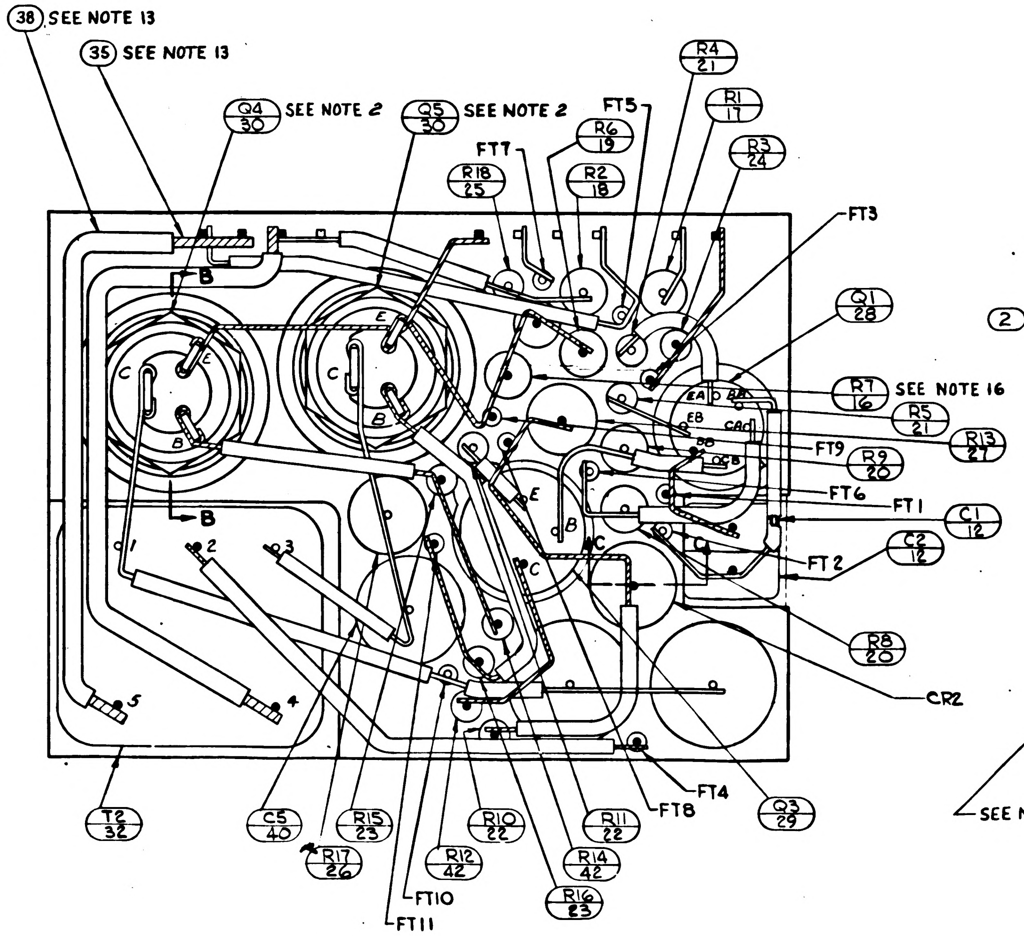
41 2 REQD
1
C3 13
C4 13
37
33
SEE NOTE 13
Q2 29
T1 31
A
K
E
B
C
YEL
GRN
BLK
BLU
RED
43 SEE NOTE 6
CR1 14
44 SEE NOTE 6

VIEW A-A
BEFORE ENCAPSULATION



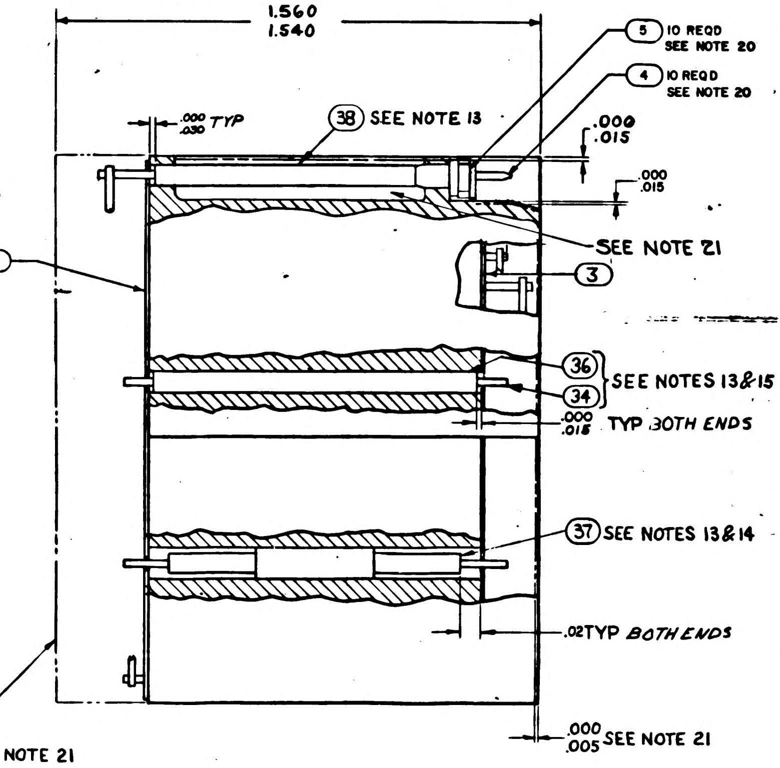
39 SEE NOTE 10
.00 .10
CR2 15 SEE NOTE 10

PARTIAL SECTION C-C



38 SEE NOTE 13
35 SEE NOTE 13
Q4 30 SEE NOTE 2
Q5 30 SEE NOTE 2
R4 21
R1 17
FT5
R6 19
FT7
R18 25
R2 18
R3 24
FT3
Q1 28
R7 16 SEE NOTE 16
R5 21
R13 27
FT9
R9 20
FT6
FT1
C1 12
C2 12
FT2
R8 20
CR2
B
C
E
1
2
3
4
5
T2 32
C5 40
R15 23
R17 26
R12 42
R10 22
FT10
FT11
R16 23
R14 42
R11 22
FT8
FT4
Q3 29

VIEW B-B
BEFORE ENCAPSULATION



1.560
1.540
.000 .030 TYP
38 SEE NOTE 13
5 10 REQD SEE NOTE 20
4 10 REQD SEE NOTE 20
.000 .015
.000 .015
SEE NOTE 21
2
3
36
34
SEE NOTES 13&15
.000 .015 TYP BOTH ENDS
37 SEE NOTES 13&14
.02 TYP BOTH ENDS
.000 .005 SEE NOTE 21
SEE NOTE 21

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES + + + − − −	MIT INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DO NOT SCALE THIS DRAWING	DRAWN DATE 14 AUG 64 CHECKED 20 AUG 64 APPROVAL APPROVAL	AMPLIFIER 1% 3200 CPS MODULE ASSY	
MATERIAL	NASA APPROVAL W J Ahn 10-2-64	CODE IDENT NO. 80230	SIZE E 1007402
CONTRACT NAS9-497	MIT APPROVAL Oct 64	SCALE 5:1	SHEET 2 OF 2

1007402

TABLE I

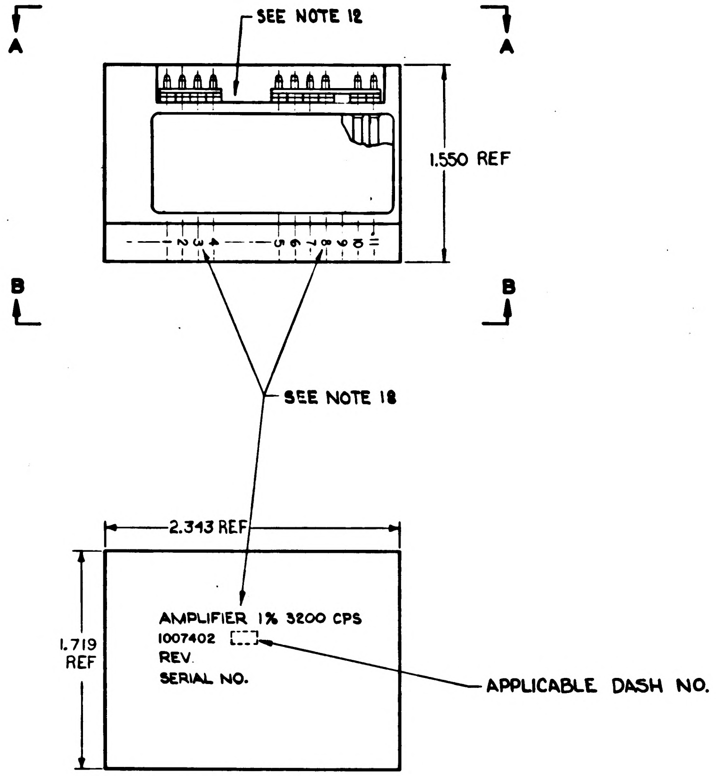
CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ±.03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 17348		[illegible] 65	EM
B		REVISED PER TDRR 19454	—	[illegible] 65	
C		REVISED PER TDRR 19522		2 [illegible] 65	

NOTES.

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. SOLDER CONNECTIONS TO EMITTER (E), BASE (B) AND COLLECTOR (C) OF Q4 AND Q5 PER ND1002071.
3. COMPONENTS TO BE CEMENTED IN PLACE PER ND1002009 *METHOD "H" AND CENTRALIZE*
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. BOND ITEM 43 AND ITEM 44 TO ITEM 5 PER ND1002237.
7. PROCURE PER PS1007044.
8. MOUNTING TORQUE 12 INCH POUNDS ± 2 IN. LBS.
9. MARKING ON ITEMS 2 & 3 INDICATES THE FOLLOWING:
   BROKEN PATHS INDICATES INSULATION SLEEVING.

   K: CATHODE SIDE OF DIODE
   FT( ): FEED THRU
   PLUS(+): POSITIVE SIDE OF CAPACITOR
   C: COLLECTOR LEAD OF TRANSISTOR
   B: BASE
   E: EMITTER
   C( ): COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B( ): BASE
   E( ): EMITTER
10. BOND ITEM 39 TO ITEM 15. CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM 1.
11. UNLESS OTHERWISE SPECIFIED:
    A. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
    B. WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
12. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
13. USE AS REQUIRED
14. TYPICAL SLEEVING FOR: R3, R4, R5, R10, R11, R12, R14, R15, R16 & R18.
15. TYPICAL SLEEVING & WIRE FOR FT1 THRU FT11.
16. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007044 PART TO BE SELECTED FROM TABLE "A", VALUE IS IN OHMS.
17. FILL PER ND1002117
18. MARK PIN NUMBERS *.060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002033* CENTRALIZE AS SHOWN.
20. ASSEMBLE PER ND1002136.
21. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
22. INSULATION TAPE PER MIL-I-15126 TYPE MFT, ½ WIDE
23. ~~BOND A .25 MINIMUM WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MINIMUM WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATOR PER ND1002187 TYPE I.~~
24. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
25. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
26. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F. FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.



MARKING VIEW

TABLE "A" SELECTION CHART FOR R7	
PART NUMBER	VALUE
1010364-337	2800
-345	3090
-351	3320
-359	3650
-365	3920
-371	4220
-377	4530
-381	4750
-387	5110
-391	5360
-395	5620
-397	5760
-401	6040
-405	6340
-409	6650
-411	6810
-415	7150
-419	7500
-421	7680
-425	8060

QUANTITY REQUIRED							
			011	EFFECTIVITY	ITEM NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			X		REF	1010048	SCHEMATIC
			1		44	1008540-7	GASKET, CONNECTOR-MINIATURE
			1		43	1008540-4	GASKET, CONNECTOR-MINIATURE
			2		42	1006750-17	RESISTOR, FIXED
			2		41	1000093-14	SCREW
			1		40	1010264-21	CAPACITOR, FIXED
			AR		39	SEE NOTE 22	INSULATION TAPE, ELECT
			AR		38	1006776-20	INSULATION, SLEEVING, ELECT
			AR		37	1006776-21	INSULATION, SLEEVING, ELECT
			AR		36	1006776-22	INSULATION, SLEEVING, ELECT
			AR		35	1006757-9	WIRE, ELEC
			AR		34	1006757-8	WIRE, ELEC
			AR		33	1006757-1	WIRE, ELEC
			1		32	1010337	TRANSFORMER
			1		31	1010324	TRANSFORMER
			1		30	1010269-2	TRANSISTOR
			1		29	1010345-2	TRANSISTOR
			1		28	1010431	TRANSISTOR
			1		27	1010278-80	RESISTOR
			1		26	1010278-8	
			1		25	1006750-73	
			1		24	1006750-49	
			2		23	1006750-12	
			2		22	1006750-26	
			2		21	1006750-1	
			2		20	1010364-385	
			1		19	1010364-335	
			1		18	1010364-381	
			1		17	1010364-251	
			1		16	*SEE NOTE 16*	
			1		15	1010829-3	SEMICONDUCTOR DEVICE, DIODE
			1		14	1010372-16	SEMICONDUCTOR DEVICE, DIODE
			2		13	1010264-29	CAPACITOR, FIXED
			2		12	1010410-9	CAPACITOR, FIXED
			2		11	1008025-2	INSULATOR, BUSHING
			2		10	1008021-1	BUSHING, INSULATOR
			2		9	1008071-4	WASHER, FLAT
			2		8	1008024-2	WASHER, INSULATOR
			2		7	1008024-1	WASHER, INSULATOR
			2		6	MS20341-10B	NUT
			10		5	1006775	INSULATOR
			10		4	1006782-5	CONTACT, WRAPOST-MALE
			~~1~~		3	~~1015722~~	~~INSULATOR~~
			~~1~~		2	~~1015721~~	~~INSULATOR~~
			1		1	1015720	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007571		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
+ XXX ±.005 + –
– XX ±.02 – –
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

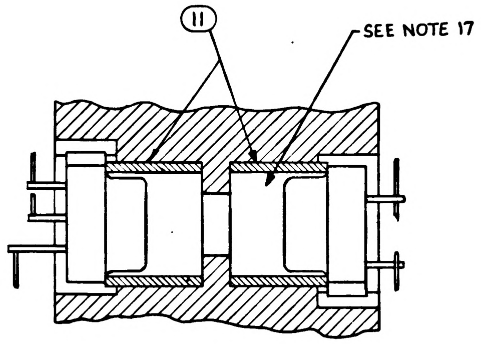
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE 18 AUG 64
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1% 3200 CPS
MODULE ASSY

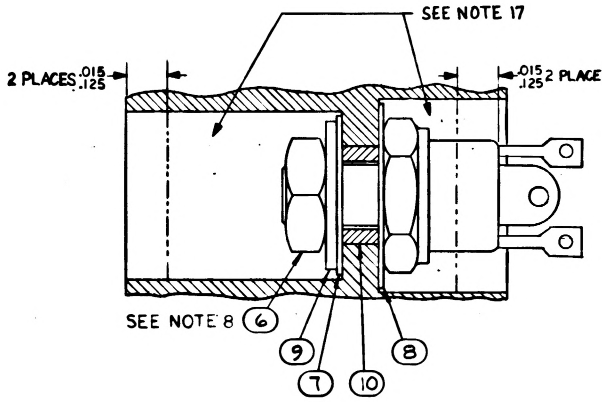
CODE IDENT NO. 80230
SIZE E
1007402
SCALE 2:1
SHEET 1 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 17348		12 MAR 65	
B		REVISED PER TDRR 19454	—	JUN 65	
C		REVISED PER TDRR 19522		2 JUN 65	



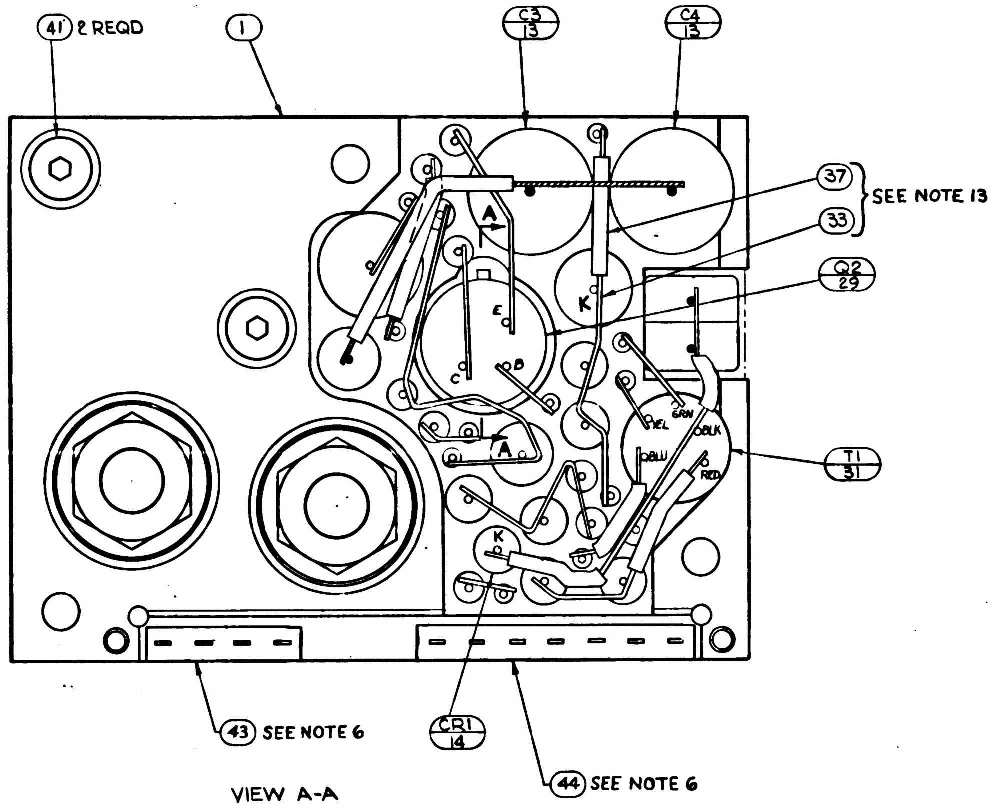
11
SEE NOTE 17

PARTIAL SECTION A-A



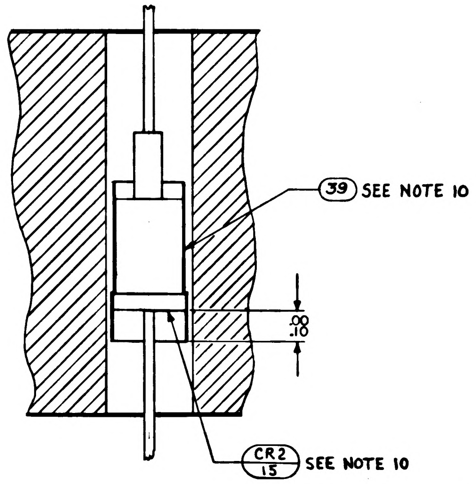
SEE NOTE 17
2 PLACES .015 .125
.015 .125 2 PLACES
SEE NOTE 8
6
9
7
10
8

PARTIAL SECTION B-B
TYP 2 PLACES



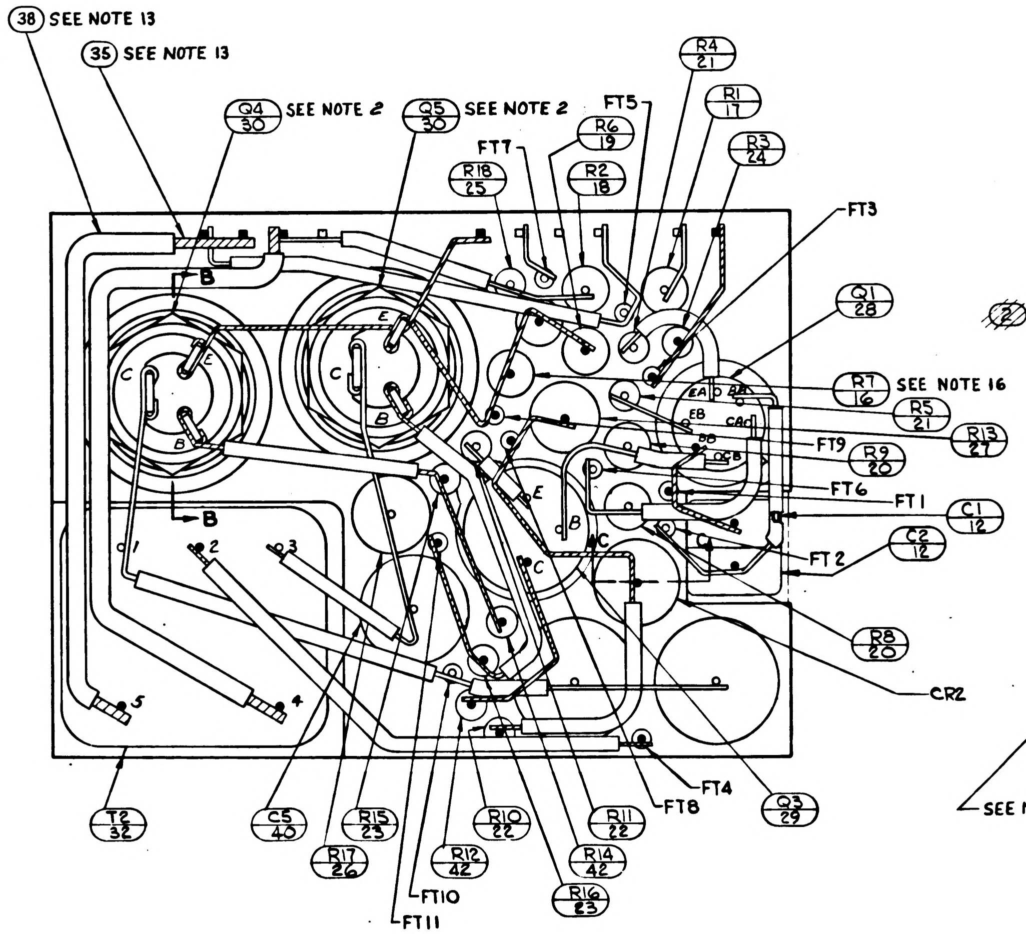
41 2 REQD
1
C3 13
C4 13
37
33
SEE NOTE 13
Q2 29
T1 31
A
K
E
B
C
K
YEL
GRN
BLK
BLU
RED
43 SEE NOTE 6
CR1 14
44 SEE NOTE 6

VIEW A-A
BEFORE ENCAPSULATION



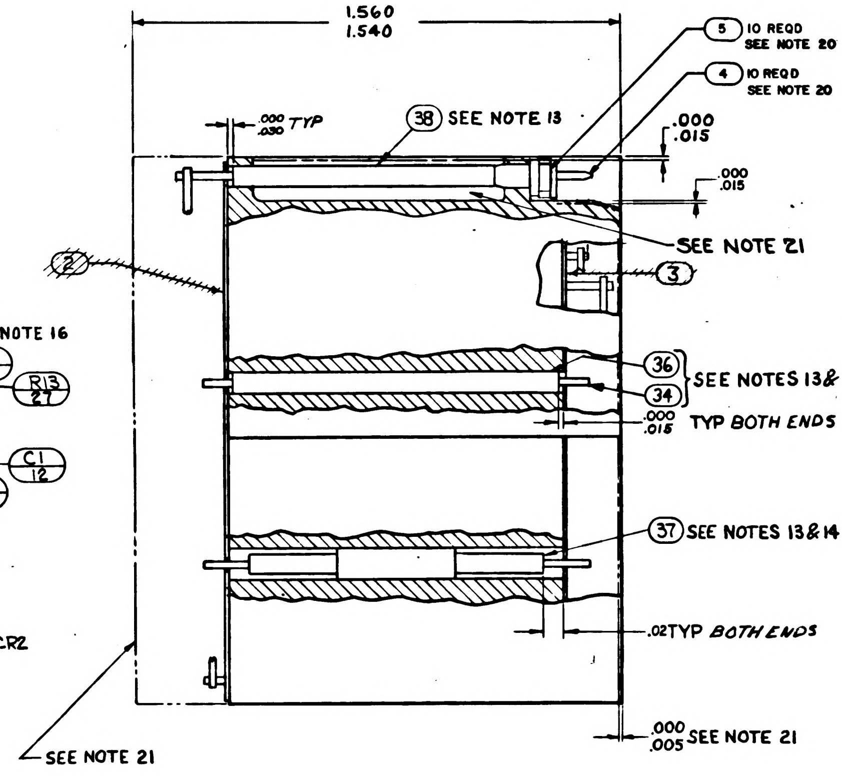
39 SEE NOTE 10
.00 .10
CR2 15 SEE NOTE 10

PARTIAL SECTION C-C



38 SEE NOTE 13
35 SEE NOTE 13
Q4 30 SEE NOTE 2
Q5 30 SEE NOTE 2
FT5
R4 21
R1 17
R6 19
FT7
R3 24
R18 25
R2 18
FT3
Q1 28
RT 16 SEE NOTE 16
R5 21
R13 27
FT9
R9 20
FT6
FT1
C1 12
C2 12
FT2
R8 20
CR2
Q3 29
FT4
FT8
B
B
C
E
B
C
E
B
E
C
EA
EB
CA
5
1
2
3
4
T2 32
C5 40
R15 23
R17 26
R12 42
FT10
FT11
R10 22
R14 42
R16 23
R11 22

VIEW B-B
BEFORE ENCAPSULATION



1.560
1.540
.000 .030 TYP
38 SEE NOTE 13
5 10 REQD SEE NOTE 20
4 10 REQD SEE NOTE 20
.000 .015
.000 .015
SEE NOTE 21
2
3
36
34
SEE NOTES 13&15
.000 .015 TYP BOTH ENDS
37 SEE NOTES 13&14
.02TYP BOTH ENDS
SEE NOTE 21
.000 .005 SEE NOTE 21

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + − DECIMALS + − ANGLES + −
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN 14 AUG 64 DATE
CHECKED 20 AUG 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1% 3200 CPS
MODULE ASSY

CODE IDENT NO. 80230
SIZE E
1007402
SCALE 5:1
SHEET 2 OF 2

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 17348		MAR 65	
B		REVISED PER TDRR 19454	—	JUN 65	
C		REVISED PER TDRR 19522		2 JUN 65	
D		REVISED PER TDRR 20143		9 JUN 65	

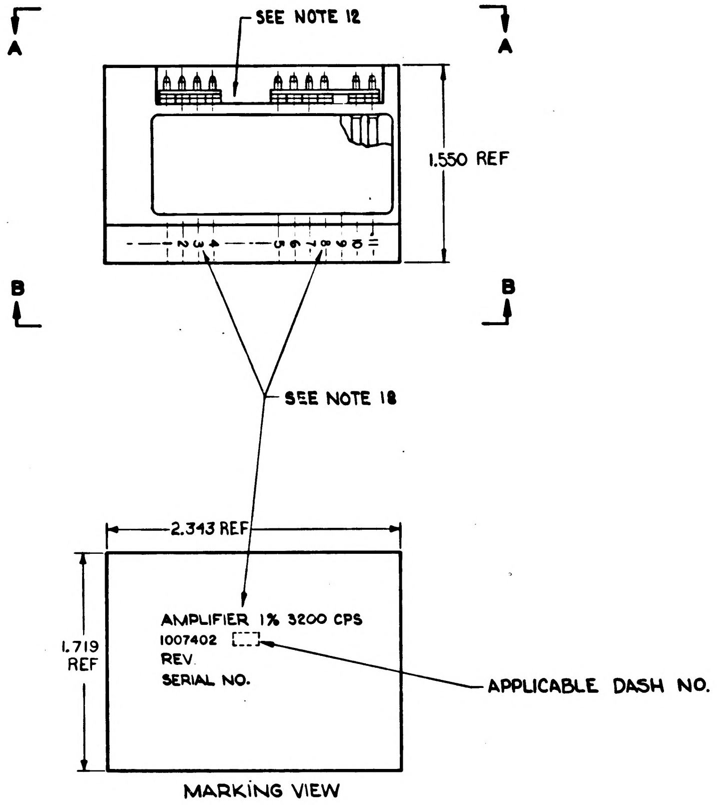
TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ±.03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.

NOTES.

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. SOLDER CONNECTIONS TO EMITTER(E), BASE (B) AND COLLECTOR (C) OF Q4 AND Q5 PER ND1002071.
3. COMPONENTS TO BE CEMENTED IN PLACE PER ND 1002009 *METHOD "H" AND CENTRALIZE*
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
~~6. BOND ITEM 45 AND ITEM 44 TO ITEM 3 PER ND 1002237.~~
7. PROCURE PER PS 1007044.
8. MOUNTING TORQUE 12 INCH POUNDS ± 2 IN. LBS.
9. MARKING ON ITEMS 2 & 3 INDICATES THE FOLLOWING:
   BROKEN PATHS INDICATES INSULATION SLEEVING.

   K: CATHODE SIDE OF DIODE
   FT( ): FEED THRU
   PLUS(+): POSITIVE SIDE OF CAPACITOR
   C: COLLECTOR LEAD OF TRANSISTOR
   B: BASE
   E: EMITTER
   C( ): COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B( ): BASE
   E( ): EMITTER
10. BOND ITEM 39 TO ITEM 15. CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM 1.
11. UNLESS OTHERWISE SPECIFIED:
    A. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
    B. WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
12. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
13. USE AS REQUIRED
14. TYPICAL SLEEVING FOR: R3, R4, R5, R10, R11, R12, R14, R15, R16 & R18.
15. TYPICAL SLEEVING & WIRE FOR FT1 THRU FT11.
16. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007044 PART TO BE SELECTED FROM TABLE "A", VALUE IS IN OHMS.
17. FILL PER ND 1002117
18. MARK PIN NUMBERS *.060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023* CENTRALIZE AS SHOWN.
20. ASSEMBLE PER ND 1002136.
21. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
22. INSULATION TAPE PER MIL-I-15126 TYPE MFT, $\frac{1}{2}$ WIDE
23. ~~BOND A .25 MINIMUM WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MINIMUM WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATOR PER ND1002187 TYPE I.~~
24. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
25. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
26. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140° F. FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.



MARKING VIEW

TABLE "A" SELECTION CHART FOR R7	
PART NUMBER	VALUE
1010364-337	2800
-345	3090
-351	3320
-359	3650
-365	3920
-371	4220
-377	4530
-381	4750
-387	5110
-391	5360
-395	5620
-397	5760
-401	6040
-405	6340
-409	6650
-411	6810
-415	7150
-419	7500
-421	7680
-425	8060

QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
X		REF	1010048	SCHEMATIC
1		44	1008540-7	GASKET, CONNECTOR-MINIATURE
1		43	1008540-4	GASKET, CONNECTOR-MINIATURE
2		42	1006750-17	RESISTOR, FIXED
2		41	1000093-14	SCREW
1		40	1010264-21	CAPACITOR, FIXED
AR		39	SEE NOTE 22	INSULATION TAPE, ELECT
AR		38	1006776-20	INSULATION, SLEEVING, ELECT
AR		37	1006776-21	INSULATION, SLEEVING, ELECT
AR		36	1006776-22	INSULATION, SLEEVING, ELECT
AR		35	1006757-9	WIRE, ELEC
AR		34	1006757-8	WIRE, ELEC
AR		33	1006757-1	WIRE, ELEC
1		32	1010337	TRANSFORMER
1		31	1010324	TRANSFORMER
1		30	1010269-2	TRANSISTOR
1		29	1010345-2	TRANSISTOR
1		28	1010431	TRANSISTOR
1		27	1010278-80	RESISTOR
1		26	1010278-8	
1		25	1006750-73	
1		24	1006750-49	
2		23	1006750-12	
2		22	1006750-26	
2		21	1006750-1	
2		20	1010364-385	
1		19	1010364-335	
1		18	1010364-381	
1		17	1010364-251	
1		16	SEE NOTE 16	
1		15	1010829-3	SEMICONDUCTOR DEVICE, DIODE
1		14	1010372-16	SEMICONDUCTOR DEVICE, DIODE
2		13	1010264-29	CAPACITOR, FIXED
2		12	1010410-9	CAPACITOR, FIXED
2		11	1008025-2	INSULATOR, BUSHING
2		10	1008021-1	BUSHING, INSULATOR
2		9	1008071-4	WASHER, FLAT
2		8	1008024-2	WASHER, INSULATOR
2		7	1008024-1	WASHER, INSULATOR
2		6	MS20341-10B	NUT
10		5	1006775	INSULATOR
10		4	1006782-5	CONTACT, WRAPOST-MALE
~~1~~		3	~~1015722~~	~~INSULATOR~~
~~1~~		2	~~1015721~~	~~INSULATOR~~
1		1	1015720	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007571		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + −
DECIMALS XXX ±.005 XX ±.02
ANGLES + − − −
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

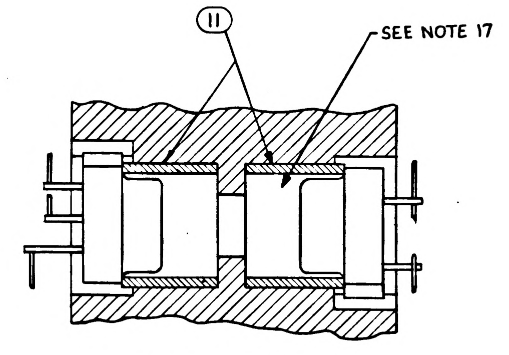
MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE 18 AUG 64
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1% 3200 CPS
MODULE ASSY

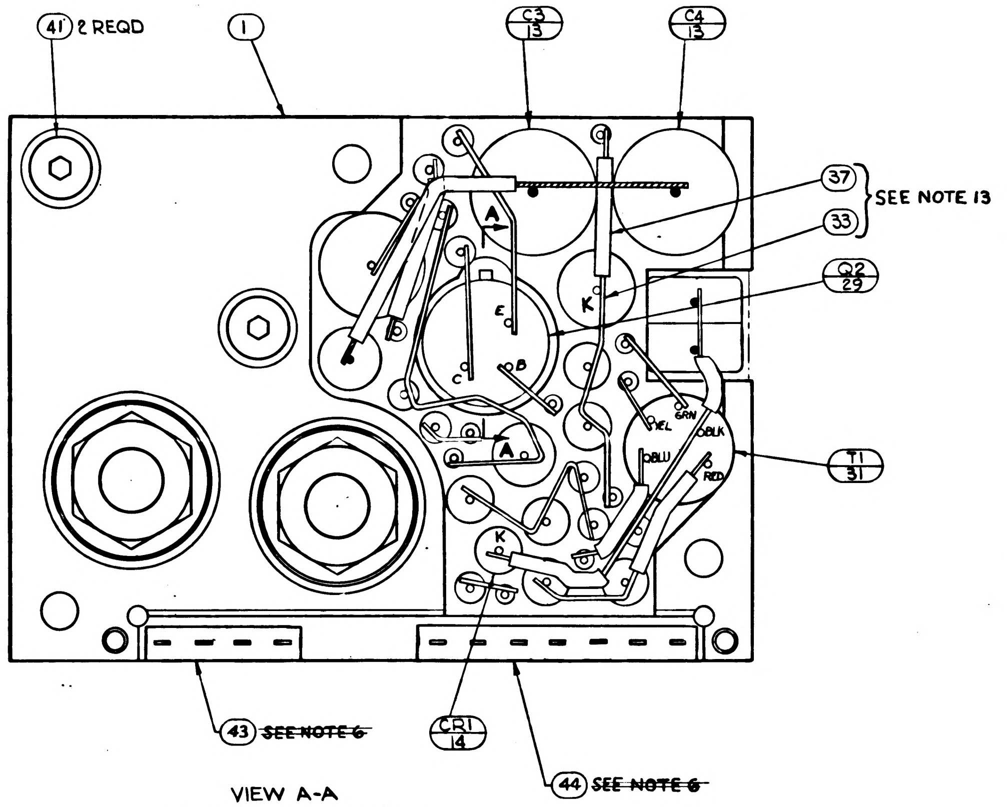
CODE IDENT NO. 80230
SIZE E
1007402
SCALE 2:1
SHEET 1 OF 2

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 17348		[illegible] 65	[illegible]
B		REVISED PER TDRR 19454	—	[illegible] 65	[illegible]
C		REVISED PER TDRR 19522		2 JUN 65	[illegible]
D		REVISED PER TDRR 20.43		9 [illegible] 65	[illegible]



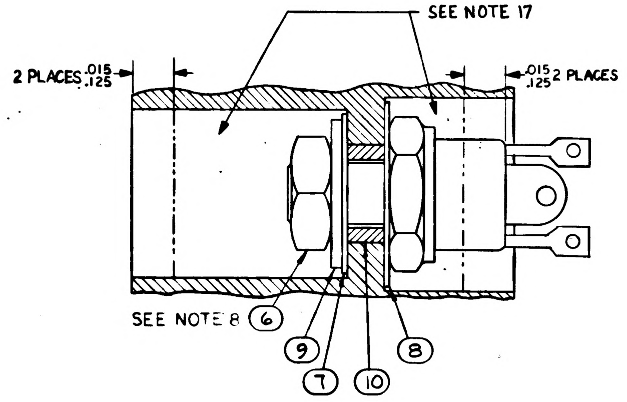
11
SEE NOTE 17

PARTIAL SECTION A-A



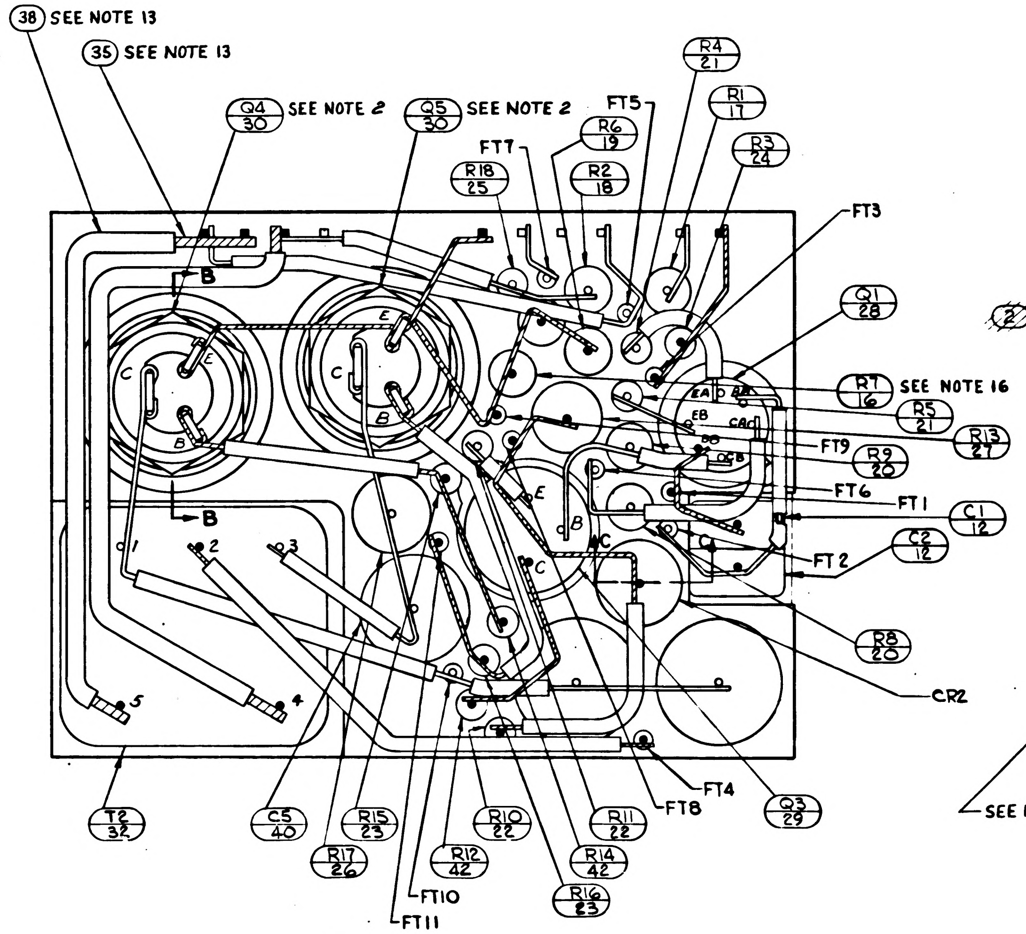
41 2 REQD
1
C3 13
C4 13
37
33
SEE NOTE 13
Q2 29
T1 31
A
K
E
C
B
YEL
GRN
BLK
BLU
RED
43 ~~SEE NOTE 6~~
CR1 14
44 ~~SEE NOTE 6~~

VIEW A-A
BEFORE ENCAPSULATION



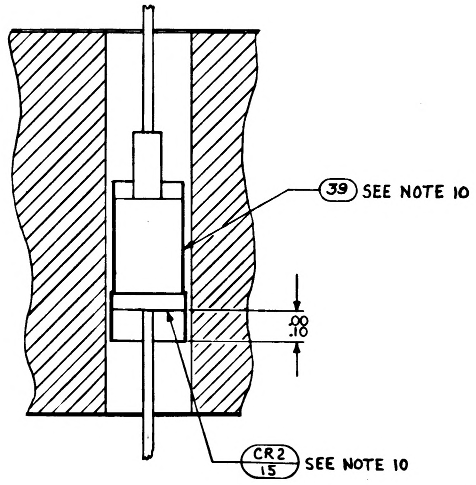
SEE NOTE 17
2 PLACES .015 .125
.015 .125 2 PLACES
SEE NOTE 8 6
9
7
10
8

PARTIAL SECTION B-B
TYP 2 PLACES



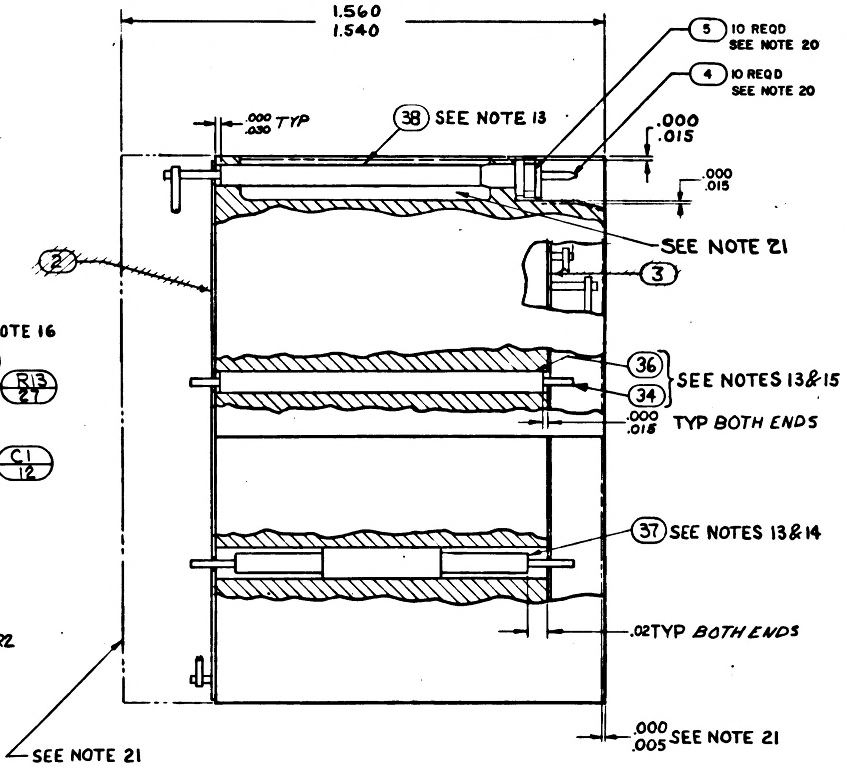
38 SEE NOTE 13
35 SEE NOTE 13
Q4 30 SEE NOTE 2
Q5 30 SEE NOTE 2
FT5
R4 21
R1 17
R6 19
FT7
R18 25
R2 18
R3 24
FT3
Q1 28
R7 16 SEE NOTE 16
R5 21
R13 27
FT9
R9 20
FT6
FT1
C1 12
C2 12
FT 2
R8 20
CR2
Q3 29
FT4
FT8
B
E
C
1
2
3
4
5
T2 32
C5 40
R15 23
R17 26
R12 42
R10 22
R11 22
R14 42
R16 23
FT10
FT11

VIEW B-B
BEFORE ENCAPSULATION.



39 SEE NOTE 10
.00 .10
CR2 15 SEE NOTE 10

PARTIAL SECTION C-C



1.560 1.540
5 10 REQD SEE NOTE 20
4 10 REQD SEE NOTE 20
.000 .030 TYP
38 SEE NOTE 13
.000 .015
.000 .015
SEE NOTE 21
3
2
36
34
SEE NOTES 13&15
.000 .015 TYP BOTH ENDS
37 SEE NOTES 13&14
.02TYP BOTH ENDS
SEE NOTE 21
.000 .005 SEE NOTE 21

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN [illegible] DATE 14 AUG 64
CHECKED [illegible] 20 AUG 64
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1% 3200 CPS
MODULE ASSY

CODE IDENT NO. 80230
SIZE E
1007402
SCALE 5:1
SHEET 2 OF 2

SYM	ZONE	REVISIONS DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 17348		MAR 65	EM
B		REVISED PER TDRR 19454	—	JUN 65	
C		REVISED PER TDRR 19522		2 JUN 65	HTJ
D		REVISED PER TDRR 20143		9 JUN 65	
E		REVISED PER TDRR 22976		12 OCT 65	

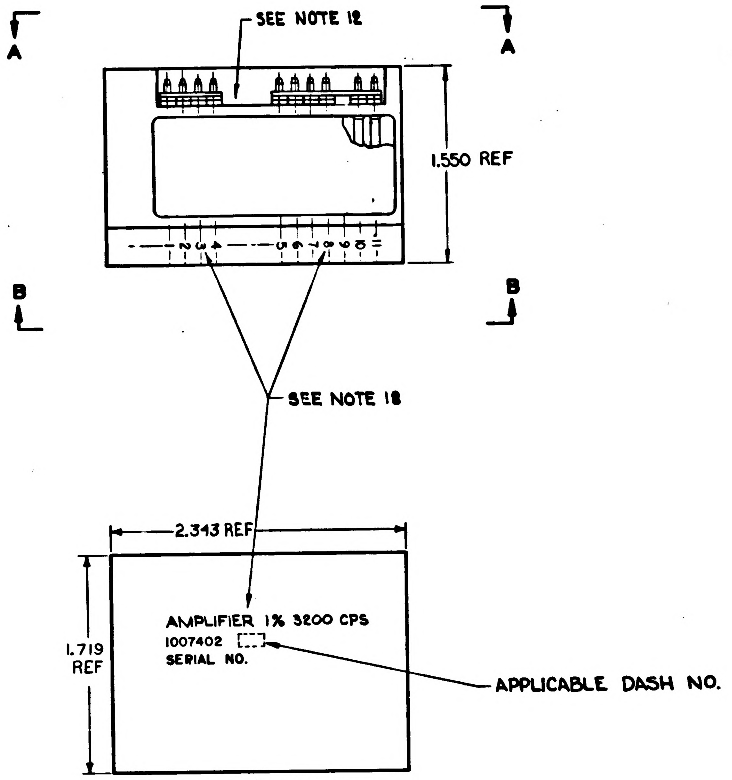
TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ±.03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.

NOTES.

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. SOLDER CONNECTIONS TO EMITTER (E), BASE (B) AND COLLECTOR (C) OF Q4 AND Q5 PER ND1002071.
3. COMPONENTS TO BE CEMENTED IN PLACE PER ND1002009 METHOD "J" AND CENTRALIZE
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. ~~BOND ITEM 43 AND ITEM 44 TO ITEM 3 PER ND1002237.~~
7. PROCURE PER PS1007044.
8. MOUNTING TORQUE 12 INCH POUNDS ± 2 IN. LBS.
9. MARKING ON ITEMS 2 & 3 INDICATES THE FOLLOWING:
   BROKEN PATHS INDICATES INSULATION SLEEVING.

   K: CATHODE SIDE OF DIODE
   FT( ): FEED THRU
   PLUS(+): POSITIVE SIDE OF CAPACITOR
   C: COLLECTOR LEAD OF TRANSISTOR
   B: BASE
   E: EMITTER
   C( ): COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B( ): BASE
   E( ): EMITTER
10. BOND ITEM 39 TO ITEM 15. CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM 1.
11. UNLESS OTHERWISE SPECIFIED:
    A. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
    B. WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
12. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
13. USE AS REQUIRED
14. TYPICAL SLEEVING FOR: R3, R4, R5, R10, R11, R12, R14, R15, R16 & R18.
15. TYPICAL SLEEVING & WIRE FOR FT1 THRU FT11.
16. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007044 PART TO BE SELECTED FROM TABLE "A", VALUE IS IN OHMS.
17. FILL PER ND1002117
18. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002033 CENTRALIZE AS SHOWN.
20. ASSEMBLE PER ND1002136.
21. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
22. INSULATION TAPE PER MIL-I-15126 TYPE MFT, 1/2 WIDE
23. ~~BOND A .25 MINIMUM WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MINIMUM WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATOR PER ND1002187 TYPE I.~~
24. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
25. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
26. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279 USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.



MARKING VIEW

TABLE "A"
SELECTION CHART FOR R7

PART NUMBER	VALUE
1010364-337	2800
-345	3090
-351	3320
-359	3650
-365	3920
-371	4220
-377	4530
-381	4750
-387	5110
-391	5360
-395	5620
-397	5760
-401	6040
-405	6340
-409	6650
-411	6810
-415	7150
-419	7500
-421	7680
-425	8060

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			X		REF	1010048	SCHEMATIC
			1		44	1008540-7	GASKET, CONNECTOR-MINIATURE
			1		43	1008540-4	GASKET, CONNECTOR-MINIATURE
			2		42	1006750-17	RESISTOR, FIXED
			2		41	1000093-14	SCREW
			1		40	1010264-21	CAPACITOR, FIXED
			AR		39	SEE NOTE 22	INSULATION TAPE, ELECT
			AR		38	1006776-20	INSULATION, SLEEVING, ELECT
			AR		37	1006776-21	INSULATION, SLEEVING, ELECT
			AR		36	1006776-22	INSULATION, SLEEVING, ELECT
			AR		35	1006757-9	WIRE, ELEC
			AR		34	1006757-8	WIRE, ELEC
			AR		33	1006757-1	WIRE, ELEC
			1		32	1010337	TRANSFORMER
			1		31	1010324	TRANSFORMER
			1		30	1010269-2	TRANSISTOR
			1		29	1010345-2	TRANSISTOR
			1		28	1010431	TRANSISTOR
			1		27	1010278-80	RESISTOR
			1		26	1010278-8	
			1		25	1006750-73	
			1		24	1006750-49	
			2		23	1006750-12	
			2		22	1006750-26	
			2		21	1006750-1	
			2		20	1010364-385	
			1		19	1010364-335	
			1		18	1010364-381	
			1		17	1010364-251	
			1		16	SEE NOTE 16	
			1		15	1010829-3	SEMICONDUCTOR DEVICE, DIODE
			1		14	1010372-16	SEMICONDUCTOR DEVICE, DIODE
			2		13	1010264-29	CAPACITOR, FIXED
			2		12	1010410-9	CAPACITOR, FIXED
			2		11	1008025-2	INSULATOR, BUSHING
			2		10	1008021-1	BUSHING, INSULATOR
			2		9	1008071-4	WASHER, FLAT
			2		8	1008024-2	WASHER, INSULATOR
			2		7	1008024-1	WASHER, INSULATOR
			2		6	MS20341-10B	NUT
			10		5	1006775	INSULATOR
			10		4	1006782-5	CONTACT, WRAPOST-MALE
			~~1~~		3	~~1015722~~	~~INSULATOR~~
			~~1~~		2	~~1015721~~	~~INSULATOR~~
			1		1	1015720	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007571		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
+	XXX ±.005	+ −
−	XX ±.02	− −

DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

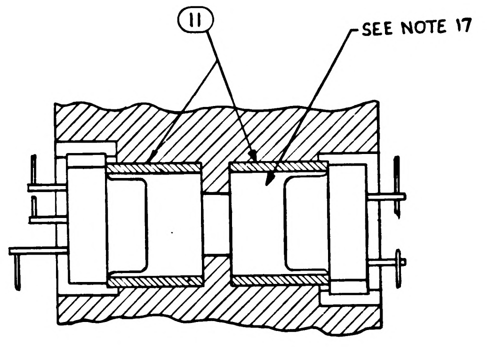
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE 14 AUG 64
CHECKED
APPROVAL
APPROVAL 10-5-64
NASA APPROVAL 10-6-64
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

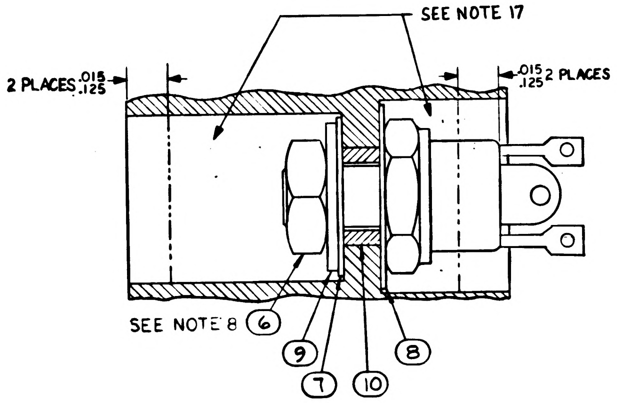
AMPLIFIER 1% 3200 CPS
MODULE ASSY

CODE IDENT NO. 80230
SIZE E
1007402
SCALE 2:1
SHEET 1 OF 2

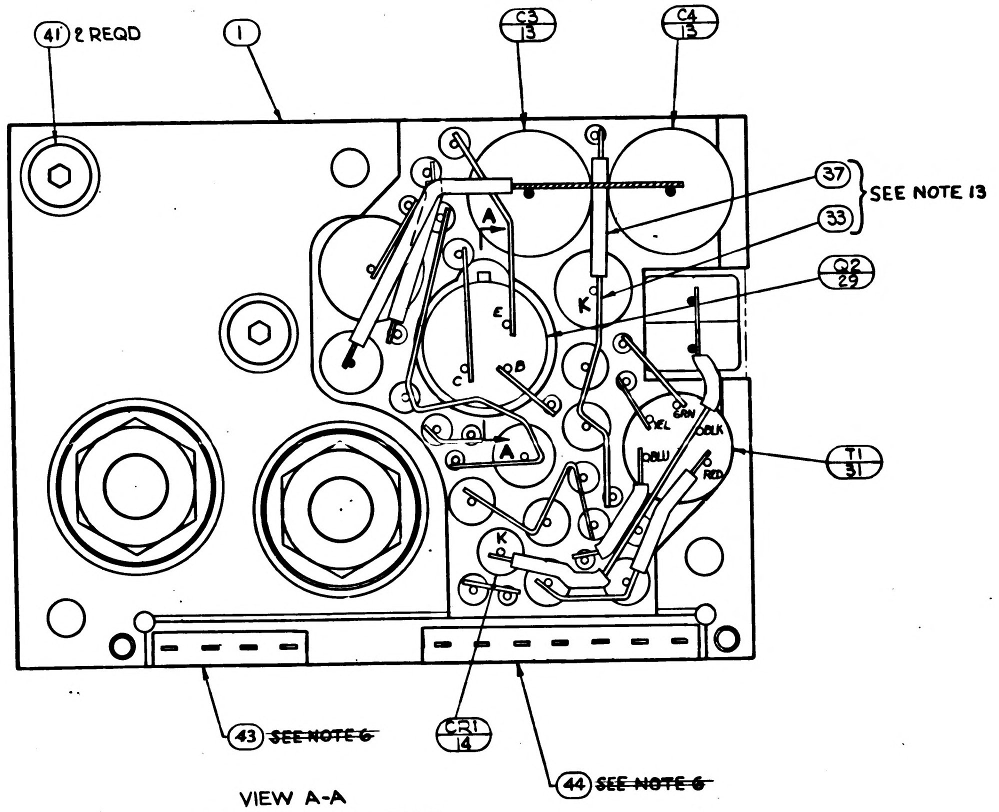
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 17348		12 MAR 65	EM
B		REVISED PER TDRR 19454	—	JUN 65	MEM
C		REVISED PER TDRR 19522		2 JUN 65	H
D		REVISED PER TDRR 20143		9 JUN 65	
E		REVISED PER TDRR 22976		12 DEC 65	


11
SEE NOTE 17

PARTIAL SECTION A-A


SEE NOTE 17
2 PLACES .015 .125
.015 .125 2 PLACES
SEE NOTE 8
6
9
7
10
8

PARTIAL SECTION B-B
TYP 2 PLACES


41 2 REQD
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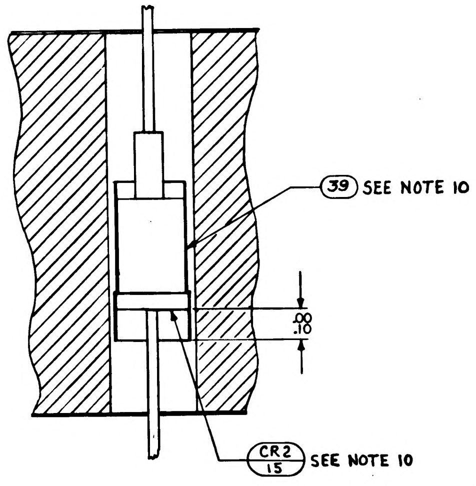
C3 13
C4 13
37
33
SEE NOTE 13
Q2 29
T1 31
A
K
E
B
C
YEL
GRN
BLK
BLU
RED
43 ~~SEE NOTE 6~~
CR1 14
44 ~~SEE NOTE 6~~

VIEW A-A
BEFORE ENCAPSULATION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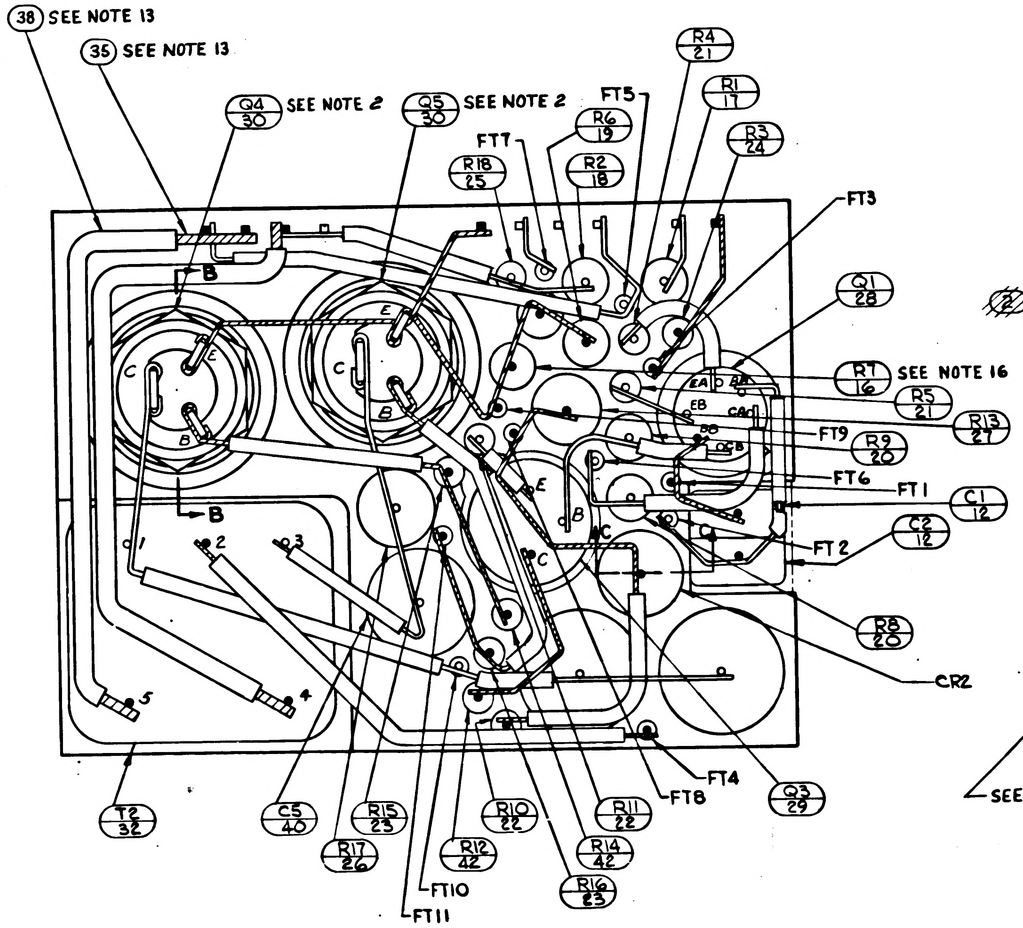
.00 .10
CR2 15 SEE NOTE 10

PARTIAL SECTION C-C


38 SEE NOTE 13
35 SEE NOTE 13
Q4 30 SEE NOTE 2
Q5 30 SEE NOTE 2
R4 21
R1 17
FT5
R6 19
R3 24
FT7
R18 25
R2 18
FT3
Q1 28
R7 16 SEE NOTE 16
R5 21
R13 27
FT9
R9 20
FT6
FT1
C1 12
C2 12
FT 2
R8 20
CR2
B
E
C
1
2
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4
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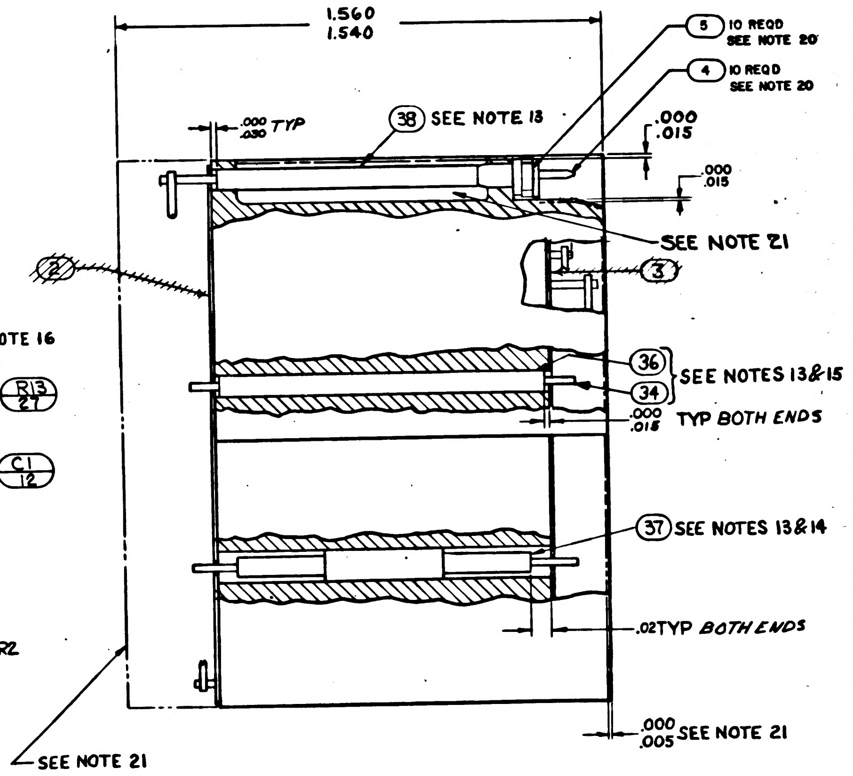
T2 32
C5 40
R17 26
R15 23
R12 42
R10 22
FT10
FT11
R16 23
R14 42
R11 22
FT8
FT4
Q3 29

VIEW B-B
BEFORE ENCAPSULATION


1.560
1.540
.000 .030 TYP
38 SEE NOTE 18
5 10 REQD SEE NOTE 20
4 10 REQD SEE NOTE 20
.000 .015
.000 .015
SEE NOTE 21
2
3
36
34
SEE NOTES 13&15
.000 .015 TYP BOTH ENDS
37 SEE NOTES 13&14
.02TYP BOTH ENDS
.000 .005 SEE NOTE 21
SEE NOTE 21

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS + − DECIMALS + − ANGLES + −	MIT INSTRUMENTATION LAB CAMBRIDGE MASS DRAWN 14 AUG 64 CHECKED 20 AUG 64 APPROVAL APPROVAL	MANNED SPACECRAFT CENTER HOUSTON, TEXAS AMPLIFIER 1% 3200 CPS MODULE ASSY
DO NOT SCALE THIS DRAWING MATERIAL	NASA APPROVAL	CODE IDENT NO. 80230 · SIZE E · 1007402
CONTRACT NAS9-497	MIT APPROVAL	SCALE 5:1 · SHEET 2 OF 2

1007402

TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEATSINK~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.~~

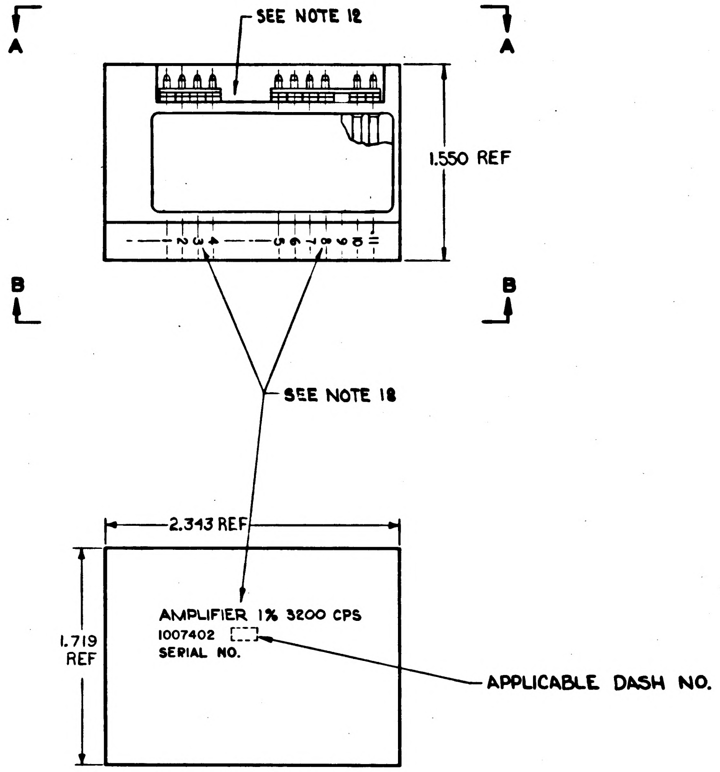
REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 17348		MAR 65	EM
B		REVISED PER TDRR 19454	—	JUN 65	JJJ MEN
C		REVISED PER TDRR 19522		[illegible] 65	HTJ EF
D		REVISED PER TDRR 20143		19 [illegible]	DKS
E		REVISED PER TDRR 22976		12 [illegible] 65	[illegible]
F		REVISED PER TDRR 26375		25FEB 66	JIMP

NOTES.

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. SOLDER CONNECTIONS TO EMITTER(E), BASE (B) AND COLLECTOR (C) OF Q4 AND Q5 PER ND1002071.
3. COMPONENTS TO BE CEMENTED IN PLACE PER ND 1002009 METHOD "J" AND CENTRALIZE
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. ~~BOND ITEM 45 AND ITEM 44 TO ITEM 5 PER ND 1002237.~~
7. PROCURE PER PS1007044.
8. MOUNTING TORQUE 12 INCH POUNDS ± 2 IN. LBS.
9. MARKING ON ITEMS 2 & 3 INDICATES THE FOLLOWING:
   BROKEN PATHS INDICATES INSULATION SLEEVING.

   K: CATHODE SIDE OF DIODE
   FT( ): FEED THRU
   PLUS(+): POSITIVE SIDE OF CAPACITOR
   C: COLLECTOR LEAD OF TRANSISTOR
   B: BASE
   E: EMITTER
   C( ): COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B( ): BASE
   E( ): EMITTER
10. BOND ITEM 39 TO ITEM 15. CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM 1.
11. UNLESS OTHERWISE SPECIFIED:
    A. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
    B. WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
12. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
13. USE AS REQUIRED
14. TYPICAL SLEEVING FOR: R3, R4, R5, R10, R11, R12, R14, R15, R16 & R18.
15. TYPICAL SLEEVING & WIRE FOR FT1 THRU FT11.
16. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007044 PART TO BE SELECTED FROM TABLE "A", VALUE IS IN OHMS.
17. FILL PER ND1002117
18. MARK PIN NUMBERS *.060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002033* CENTRALIZE AS SHOWN.
20. *ASSEMBLE PER ND 1002136.*
21. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
22. INSULATION TAPE PER MIL-I-15126 TYPE MFT, ½ WIDE
23. ~~BOND A .25 MINIMUM WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MINIMUM WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATOR PER ND1002187 TYPE I.~~
24. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
25. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
26. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279 USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
    (CONTINUED BELOW)



MARKING VIEW

TABLE "A" SELECTION CHART FOR R7	
PART NUMBER	VALUE
1010364-337	2800
-345	3090
-351	3320
-359	3650
-365	3920
-371	4220
-377	4530
-381	4750
-387	5110
-391	5360
-395	5620
-397	5760
-401	6040
-405	6340
-409	6650
-411	6810
-415	7150
-419	7500
-421	7680
-425	8060

NOTES: (CONTINUED FROM ABOVE)

27. MOISTUREPROOF PER ND1002292 AS REQUIRED BY FIND NO. 45 USING INSULATION TAPE IN ACCORDANCE WITH SCD1008866 AND POLYURETHANE COATING PER SCD1008867 AFTER PAINTING AND STENCILING.

LIST OF PARTS AND MATERIALS

		021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
		X	X		REF	1010048	SCHEMATIC
		AR	-		45	SEE NOTE 27	MOISTUREPROOFING
		1	1		44	1008540-7	GASKET, CONNECTOR-MINIATURE
		1	1		43	1008540-4	GASKET, CONNECTOR-MINIATURE
		2	2		42	1006750-17	RESISTOR, FIXED
		2	2		41	1000093-14	SCREW
		1	1		40	1010264-21	CAPACITOR, FIXED
		AR	AR		39	SEE NOTE 22	INSULATION TAPE, ELECT
		AR	AR		38	1006776-20	INSULATION, SLEEVING, ELECT
		AR	AR		37	1006776-21	INSULATION, SLEEVING, ELECT
		AR	AR		36	1006776-22	INSULATION, SLEEVING, ELECT
		AR	AR		35	1006757-9	WIRE, ELEC
		AR	AR		34	1006757-8	WIRE, ELEC
		AR	AR		33	1006757-1	WIRE, ELEC
		1	1		32	1010337	TRANSFORMER
		1	1		31	1010324	TRANSFORMER
		1	1		30	1010269-2	TRANSISTOR
		1	1		29	1010345-2	TRANSISTOR
		1	1		28	1010431	TRANSISTOR
		1	1		27	1010278-80	RESISTOR
		1	1		26	1010278-8	
		1	1		25	1006750-73	
		1	1		24	1006750-49	
		2	2		23	1006750-12	
		2	2		22	1006750-26	
		2	2		21	1006750-1	
		2	2		20	1010364-385	
		1	1		19	1010364-335	
		1	1		18	1010364-381	
		1	1		17	1010364-251	
		1	1		16	SEE NOTE 16	
		1	1		15	1010829-3	SEMICONDUCTOR DEVICE, DIODE
		1	1		14	1010372-16	SEMICONDUCTOR DEVICE, DIODE
		2	2		13	1010264-29	CAPACITOR, FIXED
		2	2		12	1010410-9	CAPACITOR, FIXED
		2	2		11	1008025-2	INSULATOR, BUSHING
		2	2		10	1008021-1	BUSHING, INSULATOR
		2	2		9	1008071-4	WASHER, FLAT
		2	2		8	1008024-2	WASHER, INSULATOR
		2	2		7	1008024-1	WASHER, INSULATOR
		2	2		6	MS20341-10B	NUT
		10	10		5	1006775	INSULATOR
		10	10		4	1006782-5	CONTACT, WRAPOST-MALE
			~~1~~		3	~~1015722~~	~~INSULATOR~~
			~~1~~		2	~~1015721~~	~~INSULATOR~~
		1	1		1	1015720	HEATSINK
QUANTITY REQUIRED							

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007571		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + - DECIMALS XXX ±.005 XX ±.02 ANGLES + - - -
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

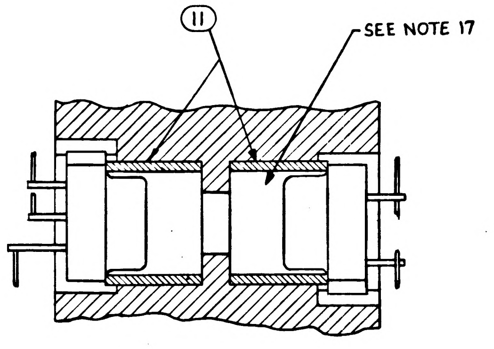
MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE 14 AUG 64
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

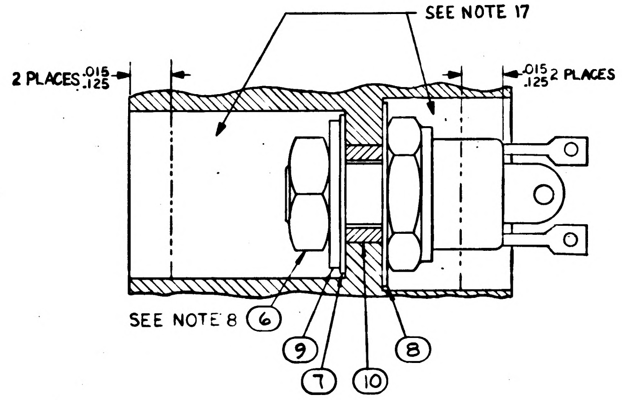
AMPLIFIER 1% 3200 CPS
MODULE ASSY

CODE IDENT NO. 80230
SIZE E
1007402
SCALE 2:1
SHEET 1 OF 2

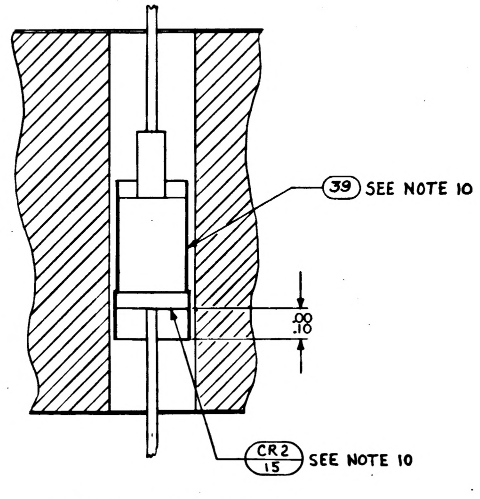
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 1348		12 MAR 65	CF
B		REVISED PER TDRR 454	—	1 JUN 65	JJ MEM
C		REVISED PER TDRR 1522		2 JUN 65	TC F
D		REVISED PER TDRR 2[illegible]		19 JUN 65	[illegible]
E		REVISED PER TDRR [illegible]76		2 OCT 65	[illegible]
F		REVISION STATUS CHANGED		[illegible] 66	[illegible]


11
SEE NOTE 17

PARTIAL SECTION A-A


SEE NOTE 17
2 PLACES .015 .125
.015 .125 2 PLACES
SEE NOTE 8 6
9
7
10
8

PARTIAL SECTION B-B
TYP 2 PLACES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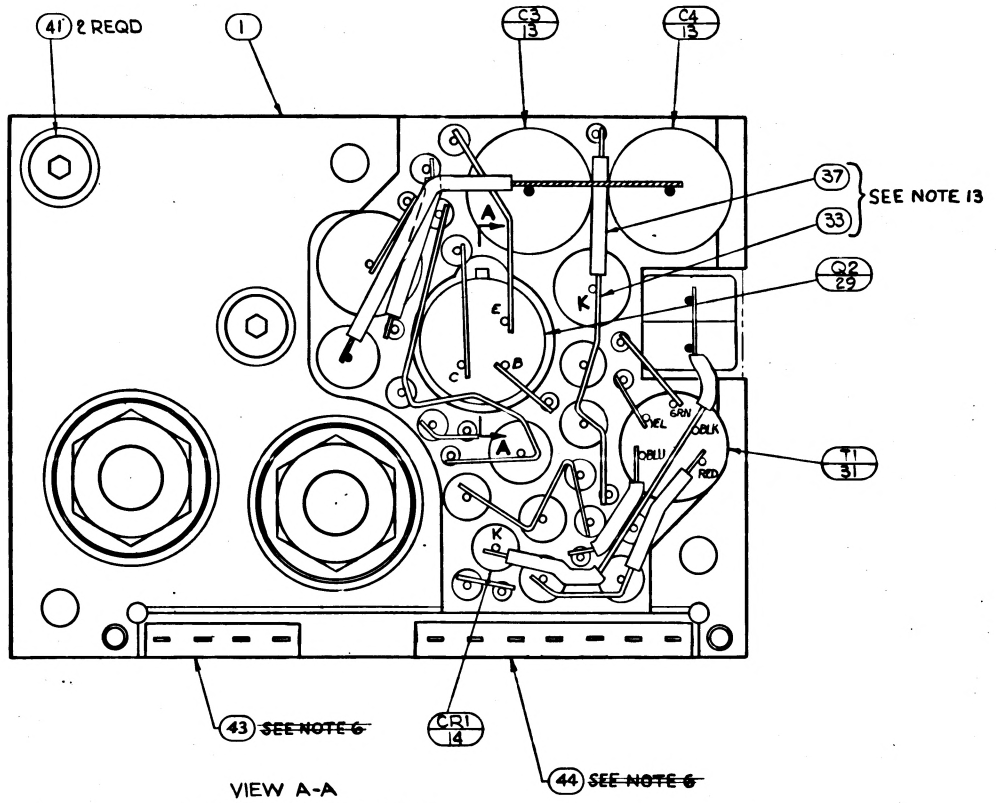
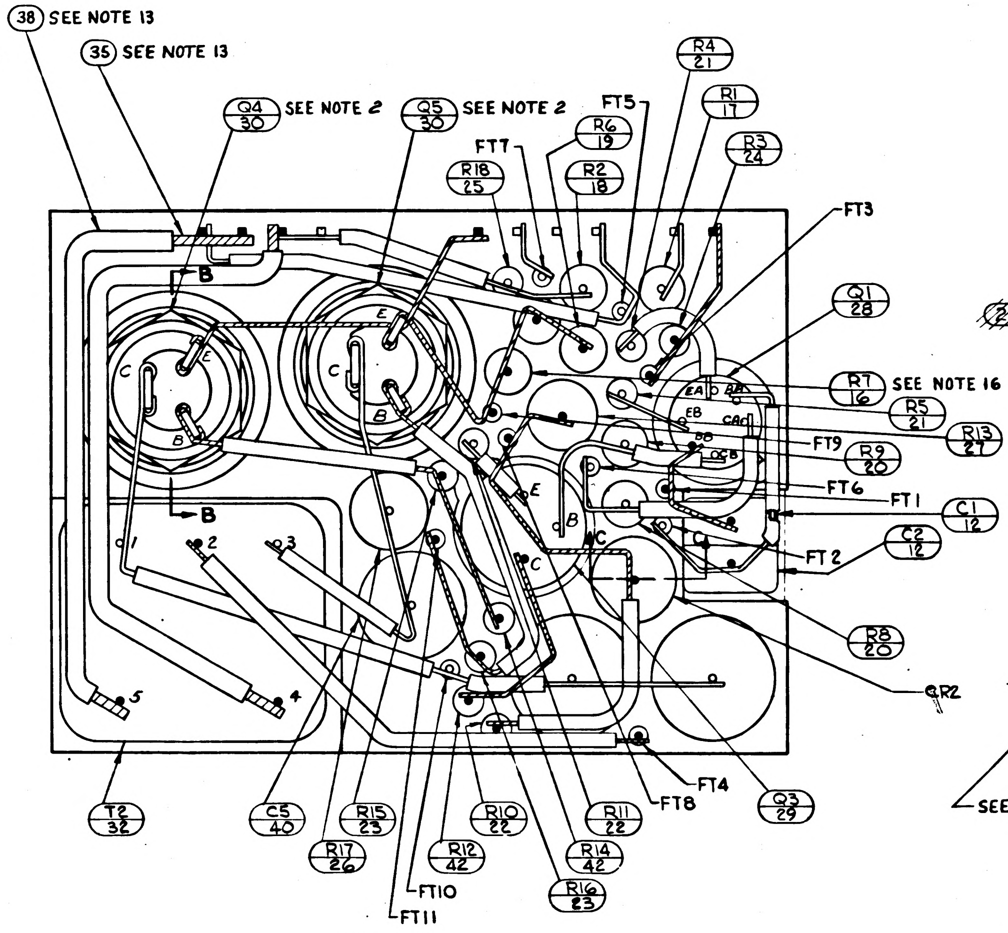
.00 .10
CR2 15 SEE NOTE 10

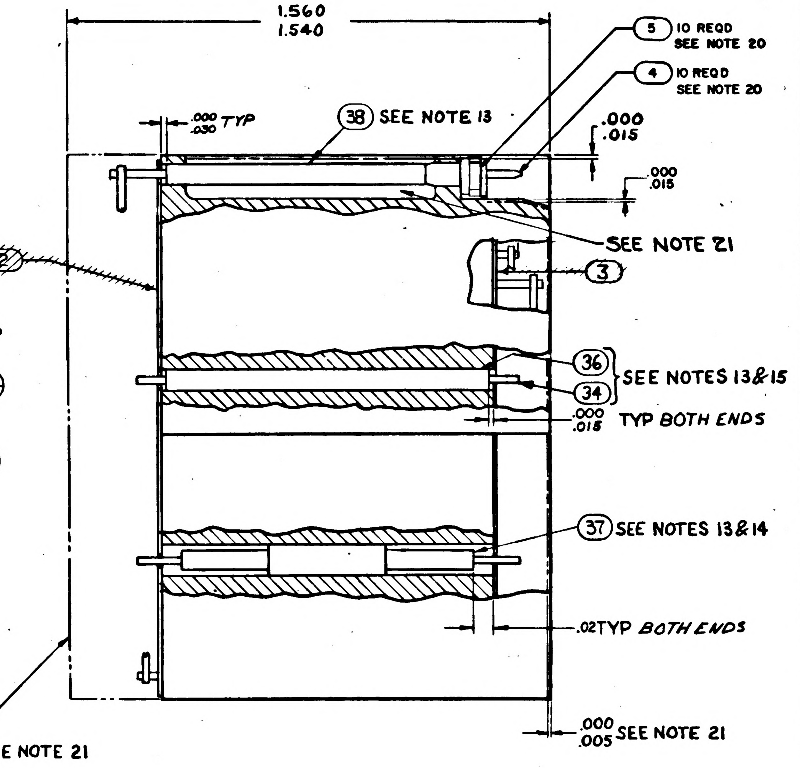
PARTIAL SECTION C-C


41 2 REQD
1
C3 13
C4 13
37
33
SEE NOTE 13
Q2 29
T1 31
A
K
E
B
C
GRN
YEL
BLK
BLU
RED
43 ~~SEE NOTE 6~~
CR1 14
44 ~~SEE NOTE 6~~

VIEW A-A
BEFORE ENCAPSULATION


38 SEE NOTE 13
35 SEE NOTE 13
Q4 30 SEE NOTE 2
Q5 30 SEE NOTE 2
FT5
R4 21
R1 17
R3 24
FT7
R6 19
R18 25
R2 18
FT3
Q1 28
R7 16 SEE NOTE 16
R5 21
R13 27
FT9
R9 20
FT6
FT1
C1 12
C2 12
FT2
R8 20
CR2
Q3 29
FT4
FT8
R11 22
R14 42
R16 23
R10 22
R12 42
FT10
FT11
R17 26
R15 23
C5 40
T2 32
B
E
C
1
2
3
4
5

VIEW B-B
BEFORE ENCAPSULATION


1.560
1.540
.000 .030 TYP
38 SEE NOTE 13
5 10 REQD SEE NOTE 20
4 10 REQD SEE NOTE 20
.000 .015
.000 .015
SEE NOTE 21
3
2
36
34
SEE NOTES 13 & 15
.000 .015 TYP BOTH ENDS
37 SEE NOTES 13 & 14
.02 TYP BOTH ENDS
.000 .005 SEE NOTE 21
SEE NOTE 21

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ± ± ±	M I T INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
DO NOT SCALE THIS DRAWING	DRAWN 14 AUG 64 DATE CHECKED 20 AUG 64 APPROVAL APPROVAL	AMPLIFIER 1% 3200 CPS MODULE ASSY
MATERIAL	NASA APPROVAL	CODE IDENT NO. 80230 — SIZE E — 1007402
CONTRACT NAS9-497	MIT APPROVAL	SCALE 5:1 — SHEET 2 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 17348		[illegible]	EM
B		REVISED PER TDRR 19454	—	65	[illegible]
C		REVISED PER TDRR 19522		[illegible]	[illegible]
D		REVISED PER TDRR 20143		[illegible]	[illegible]
E		REVISED PER TDRR 22976		[illegible]	[illegible]
F		REVISED PER TDRR 26375		25FEB 66	JIM P
G		REVISED PER TDRR 29752	—	28 66	[illegible]

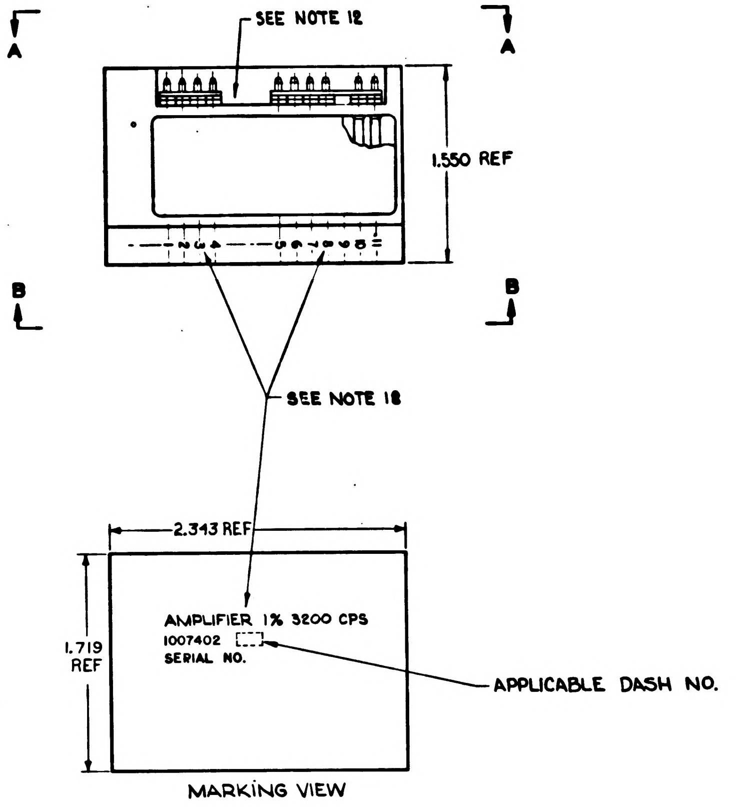
TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEATSINK~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.~~

NOTES.

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. SOLDER CONNECTIONS TO EMITTER(E), BASE (B) AND COLLECTOR (C) OF Q4 AND Q5 PER ND1002071.
3. COMPONENTS TO BE CEMENTED IN PLACE PER ND 1002009 METHOD "J" AND CENTRALIZE
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. ~~BOND ITEM 43 AND ITEM 44 TO ITEM 3 PER ND 1002237.~~
7. PROCURE PER PS1007044.
8. MOUNTING TORQUE 12 INCH POUNDS ± 2 IN. LBS.
9. MARKING ON ITEMS 2 & 3 INDICATES THE FOLLOWING:
   BROKEN PATHS INDICATES INSULATION SLEEVING.

   K: CATHODE SIDE OF DIODE
   FT( ): FEED THRU
   PLUS(+): POSITIVE SIDE OF CAPACITOR
   C: COLLECTOR LEAD OF TRANSISTOR
   B: BASE ↓ ↓ ↓
   E: EMITTER
   C( ): COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B( ): BASE ↓ ↓ ↓ ↓
   E( ): EMITTER
10. BOND ITEM 39 TO ITEM 15. CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM 1.
11. UNLESS OTHERWISE SPECIFIED:
    A. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
    B. WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
12. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
13. USE AS REQUIRED
14. TYPICAL SLEEVING FOR: R3, R4, R5, R10, R11, R12, R14, R15, R16 & R18.
15. TYPICAL SLEEVING & WIRE FOR FT1 THRU FT11.
16. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007044 PART TO BE SELECTED FROM TABLE "A", VALUE IS IN OHMS.
17. FILL PER ND1002117
18. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002033 CENTRALIZE AS SHOWN.
20. ASSEMBLE PER ND 1002136.
21. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
22. INSULATION TAPE PER MIL-I-15126 TYPE MFT, $\frac{1}{2}$ WIDE
23. ~~BOND A .25 MINIMUM WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MINIMUM WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATOR PER ND1002187 TYPE I.~~
24. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
25. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
26. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279 USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
    (CONTINUED BELOW)



MARKING VIEW

TABLE "A" SELECTION CHART FOR R7	
PART NUMBER	VALUE
1010364-337	2800
-345	3090
-351	3320
-359	3650
-365	3920
-371	4220
-377	4530
-381	4750
-387	5110
-391	5360
-395	5620
-397	5760
-401	6040
-405	6340
-409	6650
-411	6810
-415	7150
-419	7500
-421	7680
-425	8060

NOTES: (CONTINUED FROM ABOVE)

27. MOISTUREPROOF PER ND1002292 AS REQUIRED BY FIND NO. 45 USING INSULATION TAPE IN ACCORDANCE WITH SCD1008866 AND POLYURETHANE COATING PER SCD1008867 AFTER PAINTING AND STENCILING.

		021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
		X	X		REF	1010048	SCHEMATIC
		AR	-		45	SEE NOTE 27	MOISTUREPROOFING
		1	1		44	1008540-7	GASKET, CONNECTOR-MINIATURE
		1	1		43	1008540-4	GASKET, CONNECTOR-MINIATURE
		2	2		42	1006750-17	RESISTOR, FIXED
		2	2		41	1000093-14	SCREW
		1	1		40	1010264-21	CAPACITOR, FIXED
		AR	AR		39	SEE NOTE 22	INSULATION TAPE, ELECT
		AR	AR		38	1006776-20	INSULATION, SLEEVING, ELECT
		AR	AR		37	1006776-21	INSULATION, SLEEVING, ELECT
		AR	AR		36	1006776-22	INSULATION, SLEEVING, ELECT
		AR	AR		35	1006757-9	WIRE, ELEC
		AR	AR		34	1006757-8	WIRE, ELEC
		AR	AR		33	1006757-1	WIRE, ELEC
		1	1		32	1010337	TRANSFORMER
		1	1		31	1010324	TRANSFORMER
		1	1		30	1010269-2	TRANSISTOR
		1	1		29	1008813-3	TRANSISTOR
		1	1		28	1010431	TRANSISTOR
		1	1		27	1010278-80	RESISTOR
		1	1		26	1010278-8	
		1	1		25	1006750-73	
		1	1		24	1006750-49	
		2	2		23	1006750-12	
		2	2		22	1006750-26	
		2	2		21	1006750-1	
		2	2		20	1010364-385	
		1	1		19	1010364-335	
		1	1		18	1010364-381	
		1	1		17	1010364-251	
		1	1		16	SEE NOTE 16	
		1	1		15	1010829-3	SEMICONDUCTOR DEVICE, DIODE
		1	1		14	1010372-16	SEMICONDUCTOR DEVICE, DIODE
		2	2		13	1010264-29	CAPACITOR, FIXED
		2	2		12	1010410-9	CAPACITOR, FIXED
		2	2		11	1008025-2	INSULATOR, BUSHING
		2	2		10	1008021-1	BUSHING, INSULATOR
		2	2		9	1008071-4	WASHER, FLAT
		2	2		8	1008024-2	WASHER, INSULATOR
		2	2		7	1008024-1	WASHER, INSULATOR
		2	2		6	MS20341-10B	NUT
		10	10		5	1006775	INSULATOR
		10	10		4	1006782-5	CONTACT, WRAPOST-MALE
			~~1~~		3	~~1015722~~	~~INSULATOR~~
			~~1~~		2	~~1015721~~	~~INSULATOR~~
		1	1		1	1015720	HEATSINK

QUANTITY REQUIRED

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007571		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
+	XXX ±.005	+−
−	XX ±.02	−−

DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

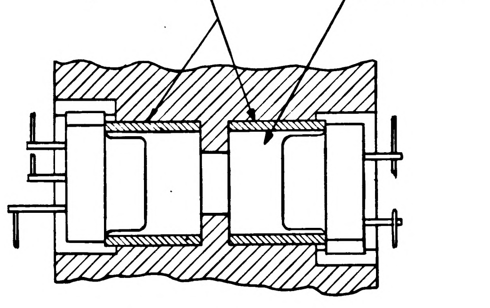
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE 18 AUG 64
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL 10-6-64
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1% 3200 CPS
MODULE ASSY

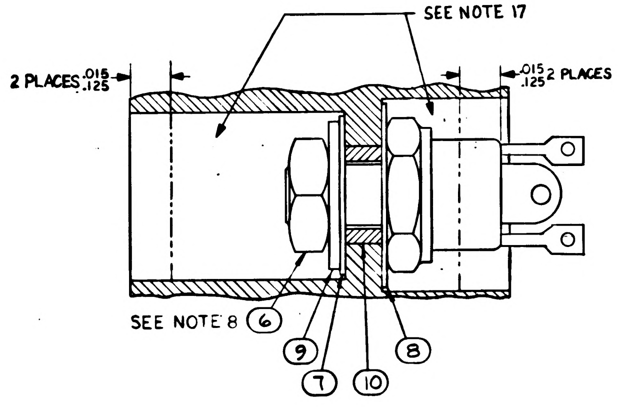
CODE IDENT NO. 80230
SIZE E
1007402
SCALE 2:1
SHEET 1 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 13-8		12 [illegible] 65	
B		REVISED PER TDRR [illegible]4 54	—	1 JUN 65	JJ MEM
C		REVISED PER TDRR [illegible]9[illegible]2		2 JUN 65	TG
D		REVISED PER TDRR 2[illegible]		19 JUN 65	
E		REVISED PER TDRR [illegible]6		12 OCT 65	
F		REVISION STATUS CH[illegible]		[illegible] FEB 66	JP
G		REVISION STATUS CH[illegible]		20 JAN 65	



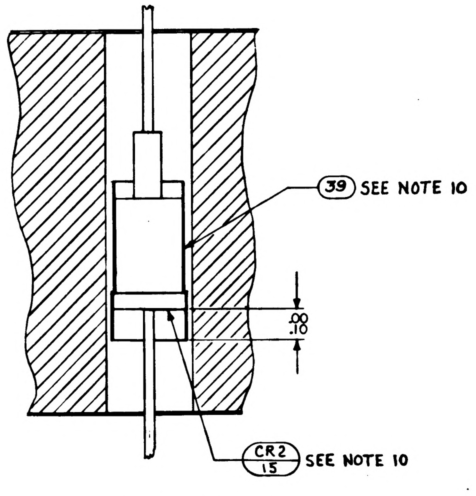
11
SEE NOTE 17

PARTIAL SECTION A-A



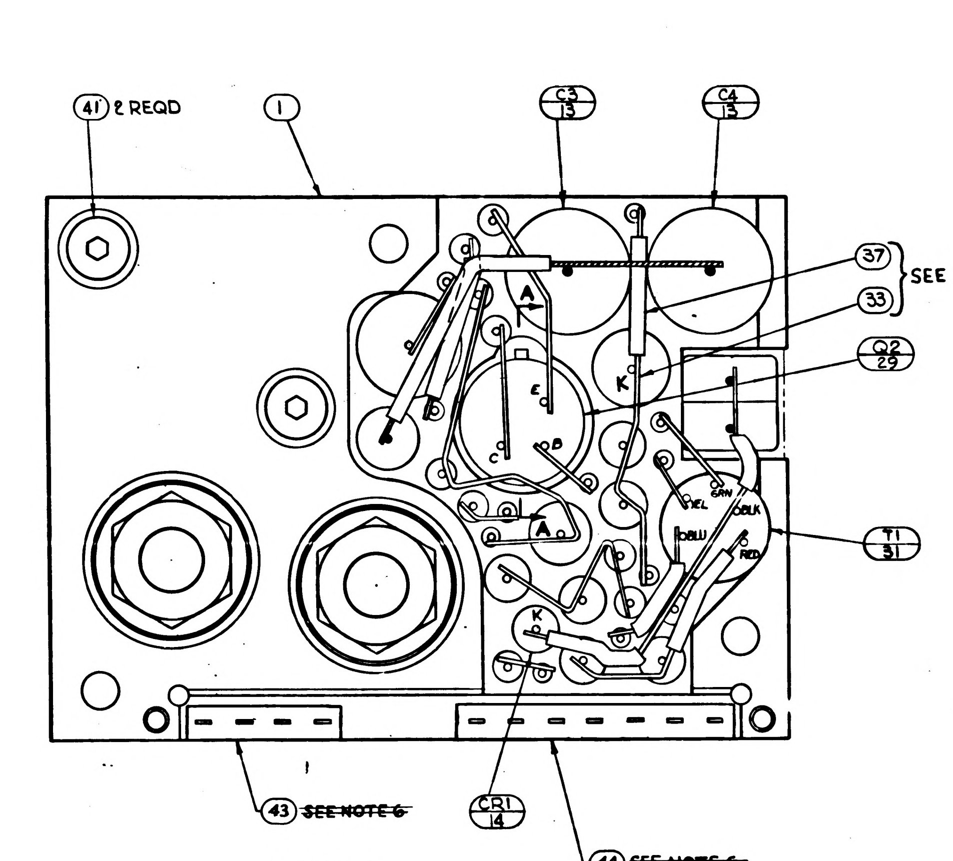
SEE NOTE 17
2 PLACES .015 .125
.015 .125 2 PLACES
SEE NOTE 8
6
9
7
10
8

PARTIAL SECTION B-B
TYP 2 PLACES



39 SEE NOTE 10
.00 .10
CR2 15 SEE NOTE 10

PARTIAL SECTION C-C



41 2 REQD
1
C3 13
C4 13
37 SEE NOTE 13
33
Q2 29
T1 31
A
K
E
B
C
YEL
GRN
BLK
BLU
RED
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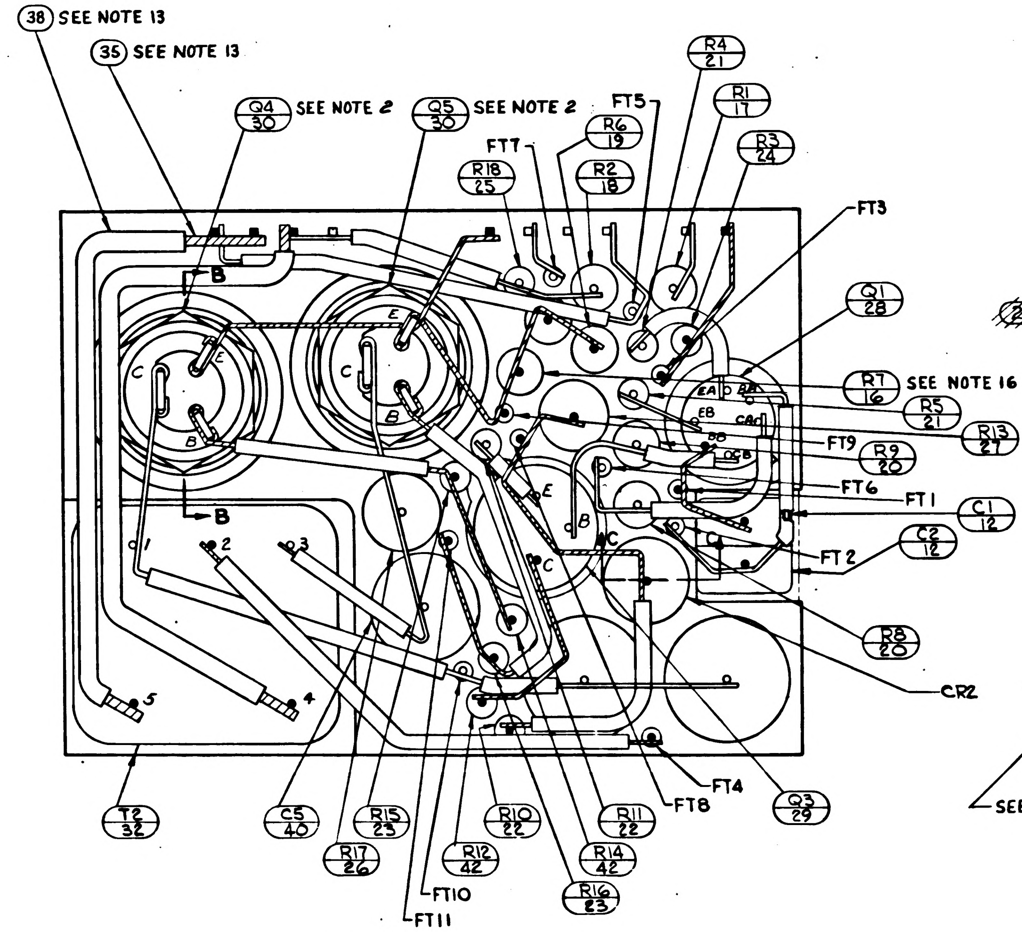
43 ~~SEE NOTE 6~~
CR1 14
44 ~~SEE NOTE 6~~

VIEW A-A
BEFORE ENCAPSULATION



38 SEE NOTE 13
35 SEE NOTE 13
Q4 30 SEE NOTE 2
Q5 30 SEE NOTE 2
FT5
R4 21
R1 17
R6 19
FT7
R18 25
R2 18
R3 24
FT3
Q1 28
R7 16 SEE NOTE 16
R5 21
R13 27
FT9
R9 20
FT6
FT1
C1 12
C2 12
FT2
R8 20
CR2
B
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E
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4
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T2 32
C5 40
R17 26
R15 23
R12 42
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FT11
R11 22
R14 42
R16 23
FT4
FT8
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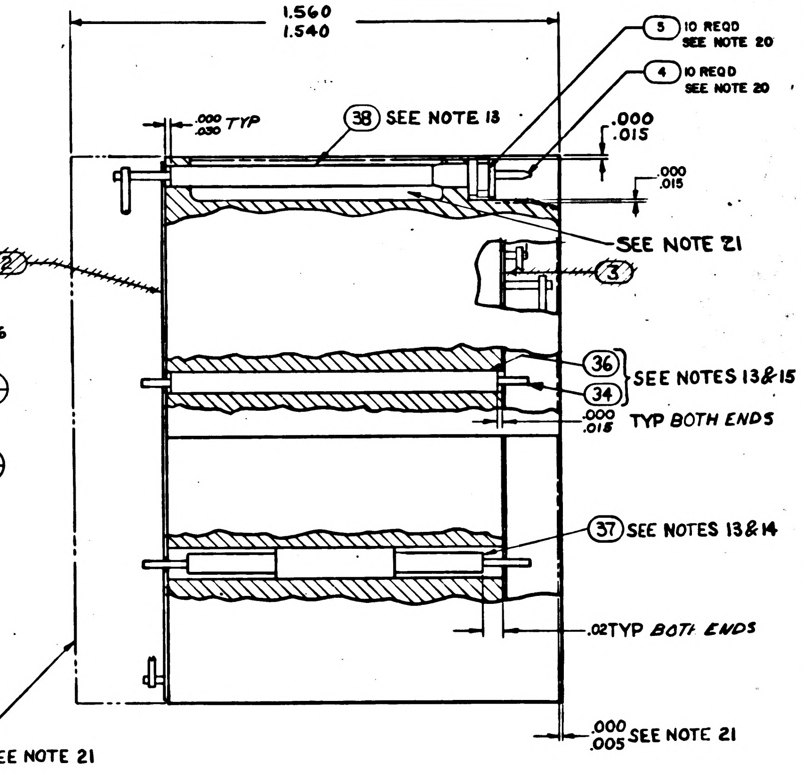
VIEW B-B
BEFORE ENCAPSULATION



1.560
1.540
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38 SEE NOTE 13
5 10 REQD SEE NOTE 20
4 10 REQD SEE NOTE 20
.000 .015
.000 .015
SEE NOTE 21
2
3
36
34
SEE NOTES 13 & 15
.000 .015 TYP BOTH ENDS
37 SEE NOTES 13 & 14
.02 TYP BOTH ENDS
.000 .005 SEE NOTE 21
SEE NOTE 21

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN [illegible] DATE 14 AUG 64
CHECKED [illegible] 20 AUG 64
APPROVAL
APPROVAL
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1% 3200 CPS
MODULE ASSY

CODE IDENT NO. 80230
SIZE E
1007402
SCALE 5:1
SHEET 2 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.

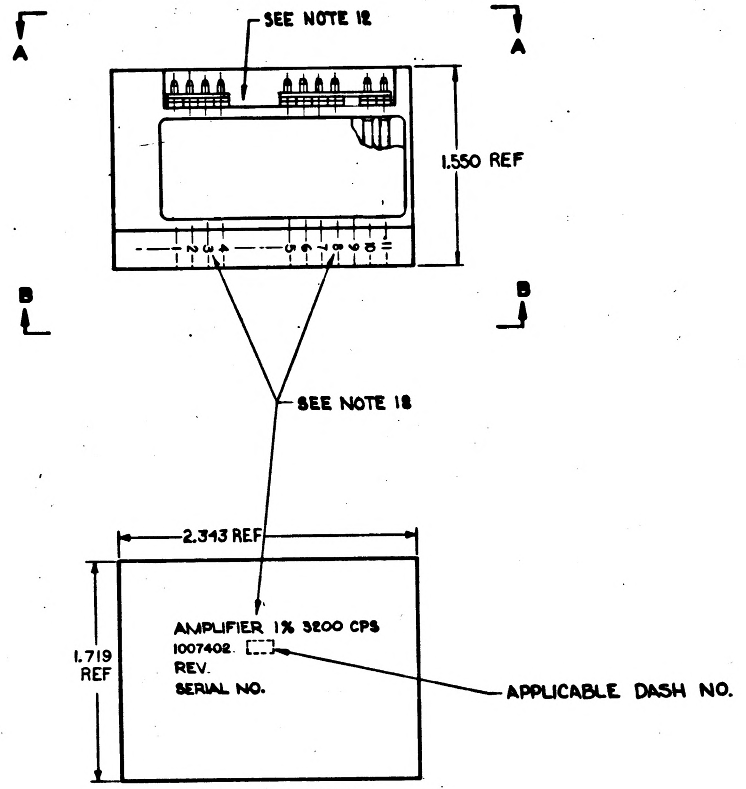
NOTES.

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. SOLDER CONNECTIONS TO EMITTER (E), BASE (B) AND COLLECTOR (C) OF Q4 AND Q5 PER ND1002071.
3. COMPONENTS TO BE CEMENTED IN PLACE PER ND1002009 *METHOD C AND* CENTRALIZE
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. BOND ITEM 43 AND ITEM 44 TO ITEM 5 PER ND1002237.
7. PROCURE PER PS1007044.
8. MOUNTING TORQUE 12 INCH POUNDS ± 2 IN. LBS.
9. MARKING ON ITEMS 2 & 3 INDICATES THE FOLLOWING: BROKEN PATHS INDICATES INSULATION SLEEVING.

K: CATHODE SIDE OF DIODE
FT( ): FEED THRU
PLUS(+): POSITIVE SIDE OF CAPACITOR
C: COLLECTOR LEAD OF TRANSISTOR
B: BASE
E: EMITTER
C( ): COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
B( ): BASE
E( ): EMITTER

10. BOND ITEM 39 TO ITEM 15. CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM 1.
11. UNLESS OTHERWISE SPECIFIED:
    - A. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
    - B. WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
12. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
13. USE AS REQUIRED
14. TYPICAL SLEEVING FOR: R3, R4, R5, R10, R11, R12, R14, R15, R16 & R18.
15. TYPICAL SLEEVING & WIRE FOR FT1 THRU FT11.
16. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007044 PART TO BE SELECTED FROM TABLE "A", VALUE IS IN OHMS.
17. FILL PER ND1002117
18. MARK PIN NUMBERS *.060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1008083* CENTRALIZE AS SHOWN.

20. ASSEMBLE PER ND1002136.
21. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
22. INSULATION TAPE PER MIL-I-15126 TYPE MFT, ½ WIDE



MARKING VIEW

TABLE "A" SELECTION CHART FOR R7	
PART NUMBER	VALUE
1010364-337	2800
-345	3090
-351	3320
-359	3650
-365	3920
-371	4220
-377	4530
-381	4750
-387	5110
-391	5360
-395	5620
-397	5760
-401	6040
-405	6340
-409	6650
-411	6810
-415	7150
-419	7500
-421	7680
-425	8060

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			X		REF	1010048	SCHEMATIC
			1		44	1008540-7	GASKET, CONNECTOR-MINIATURE
			1		43	1008540-4	GASKET, CONNECTOR-MINIATURE
			2		42	1006750-17	RESISTOR, FIXED
			2		41	1000093-14	SCREW
			1		40	1010264-21	CAPACITOR, FIXED
			AR		39	SEE NOTE 22	INSULATION TAPE, ELECT
			AR		38	1006776-20	INSULATION, SLEEVING, ELECT
			AR		37	1006776-21	INSULATION, SLEEVING, ELECT
			AR		36	1006776-22	INSULATION, SLEEVING, ELECT
			AR		35	1006757-9	WIRE, ELEC
			AR		34	1006757-8	WIRE, ELEC
			AR		33	1006757-1	WIRE, ELEC
			1		32	1010337	TRANSFORMER
			1		31	1010324	TRANSFORMER
			1		30	1010269-2	TRANSISTOR
			1		29	1010345-2	TRANSISTOR
			1		28	1010431	TRANSISTOR
			1		27	1010278-80	RESISTOR
			1		26	1010278-8	
			1		25	1006750-73	
			1		24	1006750-49	
			2		23	1006750-12	
			2		22	1006750-26	
			2		21	1006750-1	
			2		20	1010364-385	
			1		19	1010364-335	
			1		18	1010364-381	
			1		17	1010364-251	
			1		16	*SEE NOTE 16*	
			1		15	1010265-3	SEMICONDUCTOR DEVICE, DIODE
			1		14	1010372-16	SEMICONDUCTOR DEVICE, DIODE
			2		13	1010264-29	CAPACITOR, FIXED
			2		12	1010410-9	CAPACITOR, FIXED
			2		11	1008025-2	INSULATOR, BUSHING
			2		10	1008021-1	BUSHING, INSULATOR
			2		9	1008071-4	WASHER, FLAT
			2		8	1008024-2	WASHER, INSULATOR
			2		7	1008024-1	WASHER, INSULATOR
			2		6	MS[illegible]-108	NUT
			10		5	1006775	INSULATOR
			10		4	1006782-5	CONTACT, WRAPOST-MALE
			1		3	1015722	INSULATOR
			1		2	1015721	INSULATOR
			1		1	1015720	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007571		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
+ XXX ±.005 + -
- XX ±.02 - -
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN DATE 12 MAR 64
CHECKED
APPROVAL E.S.S.
APPROVAL 10-5-64
NASA APPROVAL 10-6-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

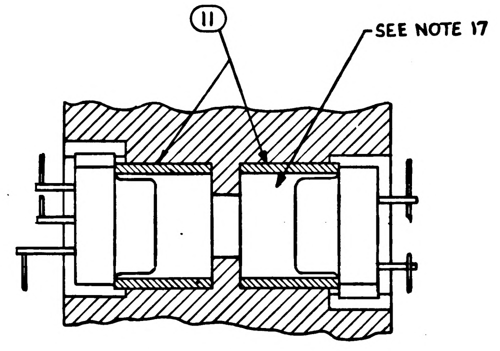
AMPLIFIER 1% 3200 CPS
MODULE ASSY

CODE IDENT NO.
SIZE E
1007402
SCALE 2:1
SHEET 1 OF 2

1007402

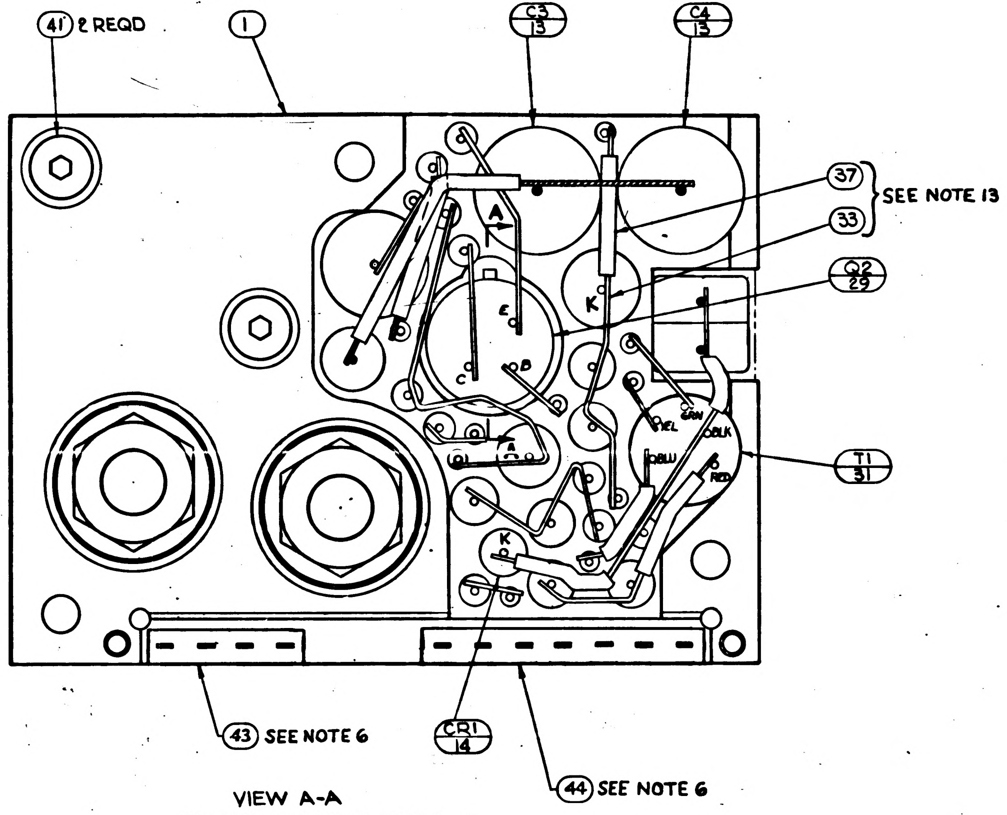
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD

REVISIONS 13/F9



11
SEE NOTE 17

PARTIAL SECTION A-A



41 2 REQD
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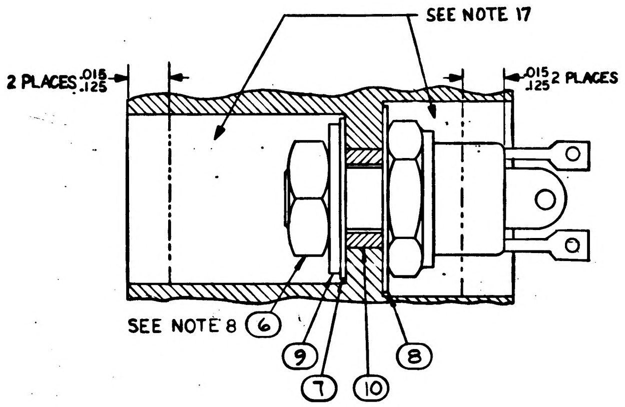
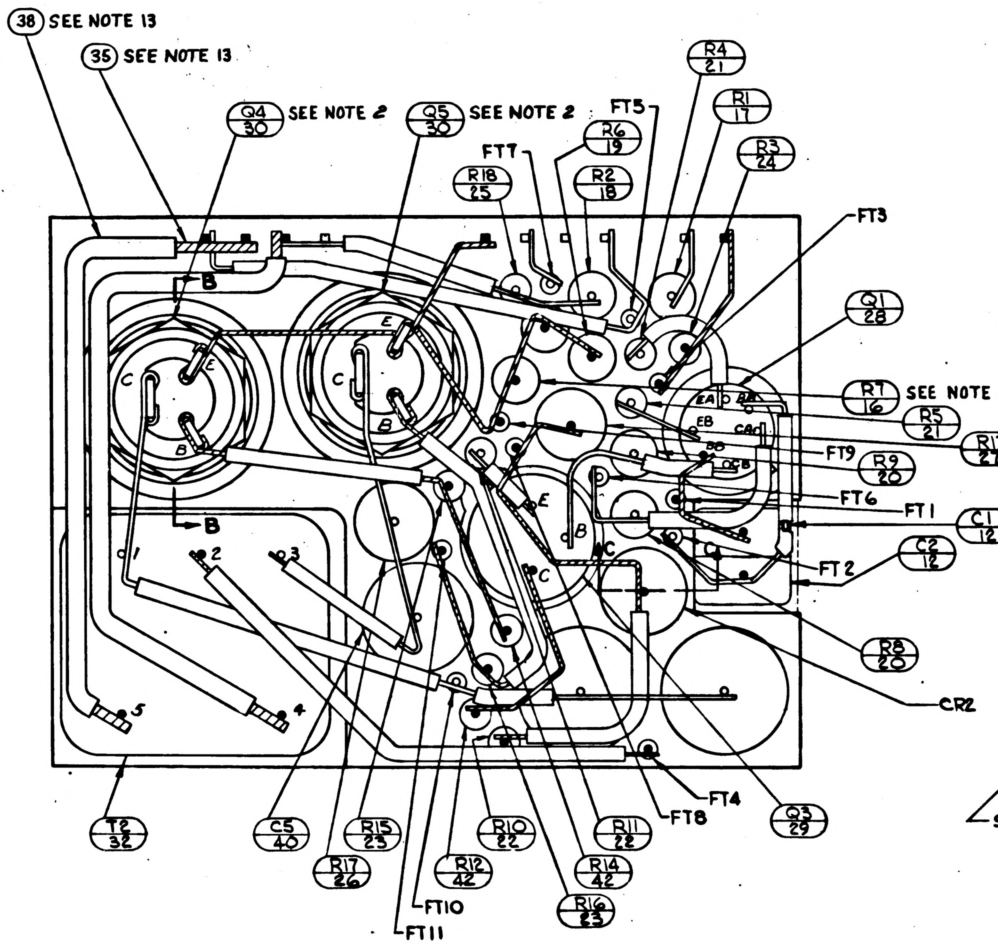
C3 13
C4 13
37
33
SEE NOTE 13
Q2 29
A
E
C
B
K
YEL
GRN
BLU
BLK
RED
T1 31
43 SEE NOTE 6
CR1 14
44 SEE NOTE 6

VIEW A-A
BEFORE ENCAPSULATION



SEE NOTE 17
2 PLACES .015 .125
.015 .125 2 PLACES
SEE NOTE 8
6
9
7
10
8

PARTIAL SECTION B-B
TYP 2 PLACES



38 SEE NOTE 13
35 SEE NOTE 13
Q4 30 SEE NOTE 2
Q5 30 SEE NOTE 2
FT5
R4 21
R1 17
R6 19
FT7
R18 25
R2 18
R3 24
FT3
Q1 28
RT 16 SEE NOTE 16
R5 21
R13 27
FT9
R9 20
FT6
FT1
C1 12
C2 12
FT2
R8 20
CR2
Q3 29
FT4
FT8
B
E
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BA
EB
CA
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CB
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4
5
T2 32
C5 40
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R12 42
R10 22
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FT11
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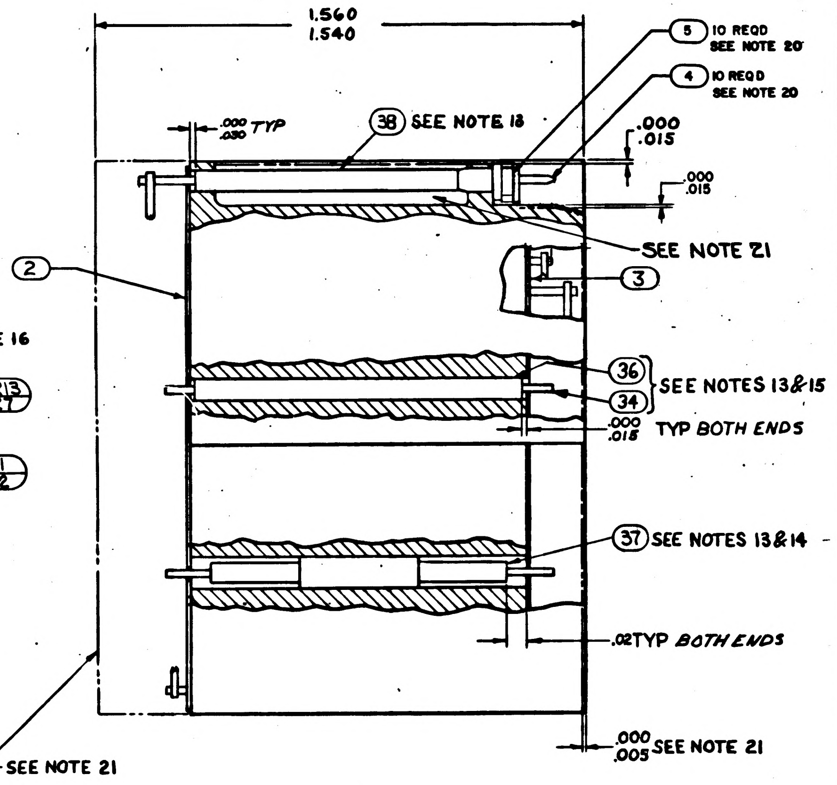
R14 42
R11 22

VIEW B-B
BEFORE ENCAPSULATION.



1.560
1.540
5 10 REQD SEE NOTE 20
4 10 REQD SEE NOTE 20
.000 .030 TYP
38 SEE NOTE 13
.000 .015
.000 .015
SEE NOTE 21
2
3
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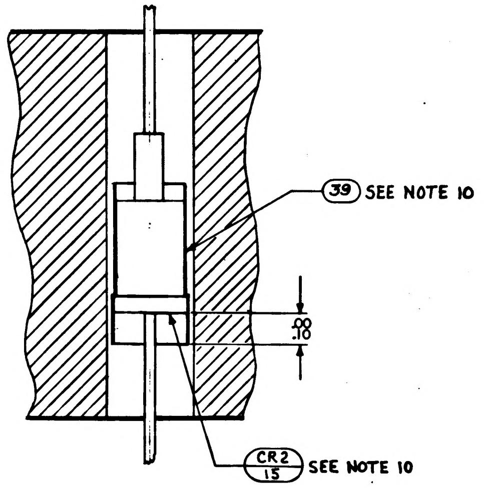
34
SEE NOTES 13&15
.000 .015 TYP BOTH ENDS
37 SEE NOTES 13&14
.02 TYP BOTH ENDS
.000 .005 SEE NOTE 21
SEE NOTE 21



39 SEE NOTE 10
.00 .10
CR2 15 SEE NOTE 10

PARTIAL SECTION C-C

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN DATE 14 AUG 64
CHECKED 20 Aug 64
APPROVAL E.F.A.
APPROVAL D. E. Test 11-5-64
NASA APPROVAL W. J. Kuhne 15-12-64
MIT APPROVAL W. Kupfer 6 Oct 64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1% 3200 CPS
MODULE ASSY.

CODE IDENT NO.
SIZE E
1007402
SCALE 5:1
SHEET 2 OF 2

1007402

SYM	ZONE	REVISIONS DESCRIPTION		DATE	APPD
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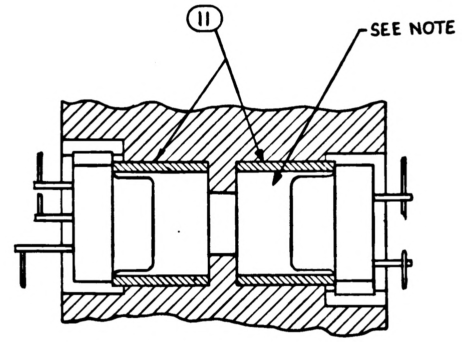
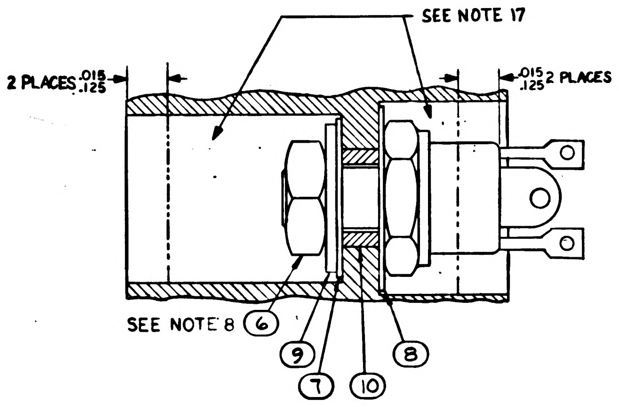


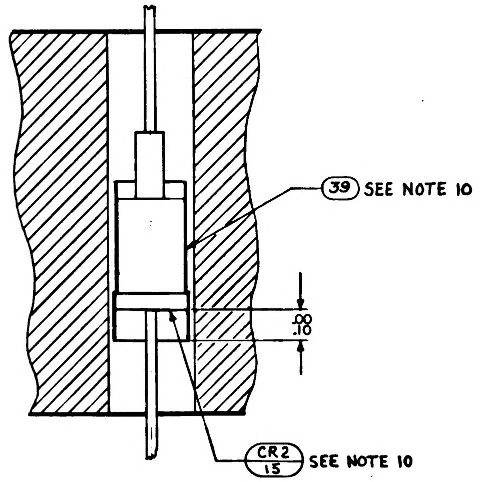
11
SEE NOTE 17

PARTIAL SECTION A-A



SEE NOTE 17
2 PLACES .015 .125
.015 .125 2 PLACES
SEE NOTE 8 6
9
7
10
8

PARTIAL SECTION B-B
TYP 2 PLACES



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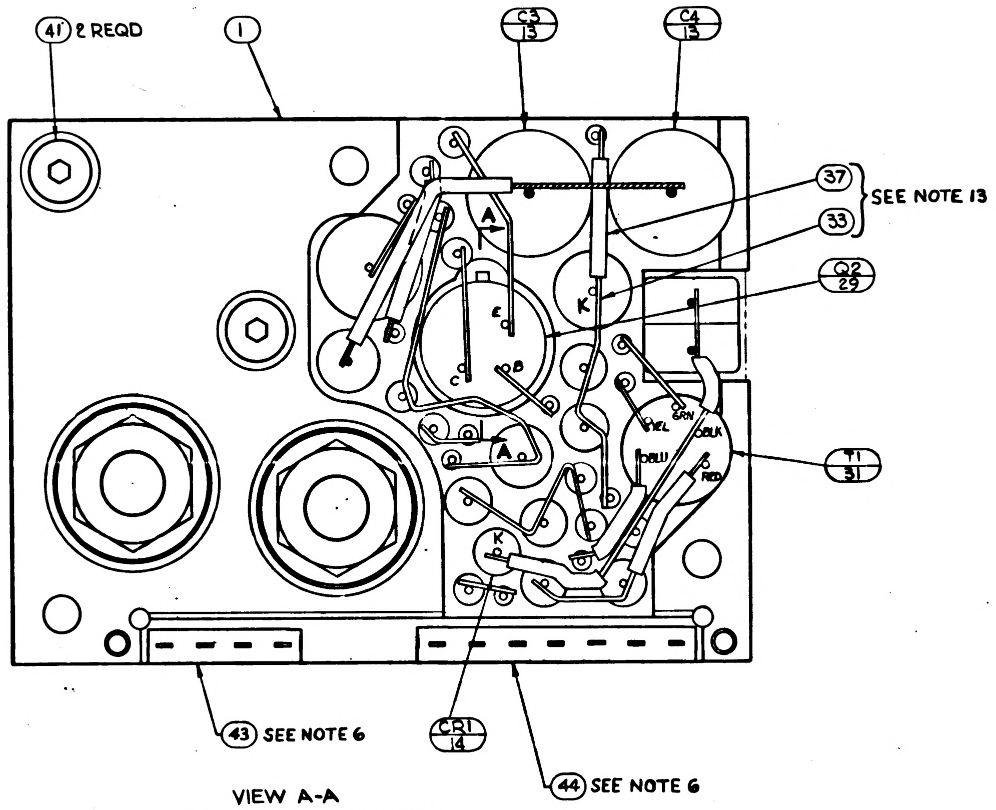
PARTIAL SECTION C-C



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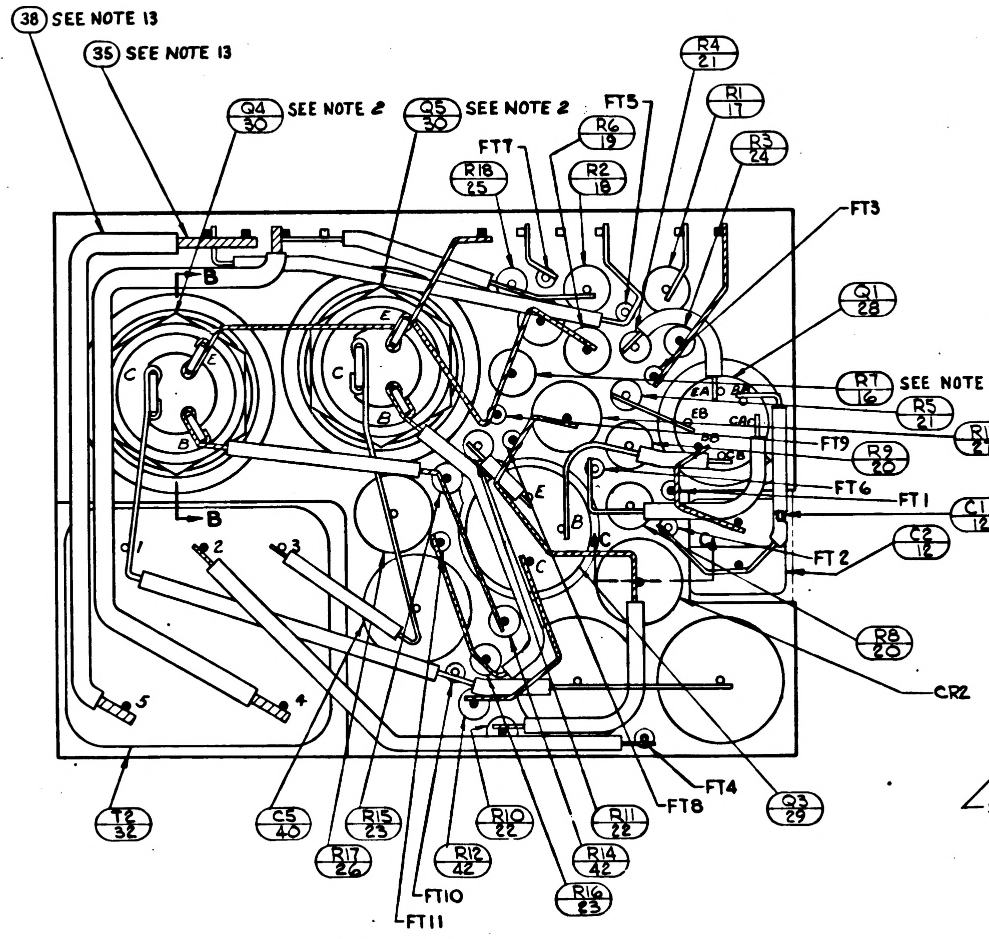
C3 13
C4 13
37 SEE NOTE 13
33
Q2 29
T1 31
A
K
E
B
C
YEL
GRN
BLK
BLU
RED
43 SEE NOTE 6
CR1 14
44 SEE NOTE 6

VIEW A-A
BEFORE ENCAPSULATION



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35 SEE NOTE 13
Q4 30 SEE NOTE 2
Q5 30 SEE NOTE 2
FT5
R4 21
R1 17
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FT7
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R2 18
FT3
Q1 28
R7 16 SEE NOTE 16
R5 21
R13 27
FT9
R9 20
FT6
FT1
C1 12
C2 12
FT2
R8 20
CR2
B
B
E
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T2 32
C5 40
R15 23
R17 26
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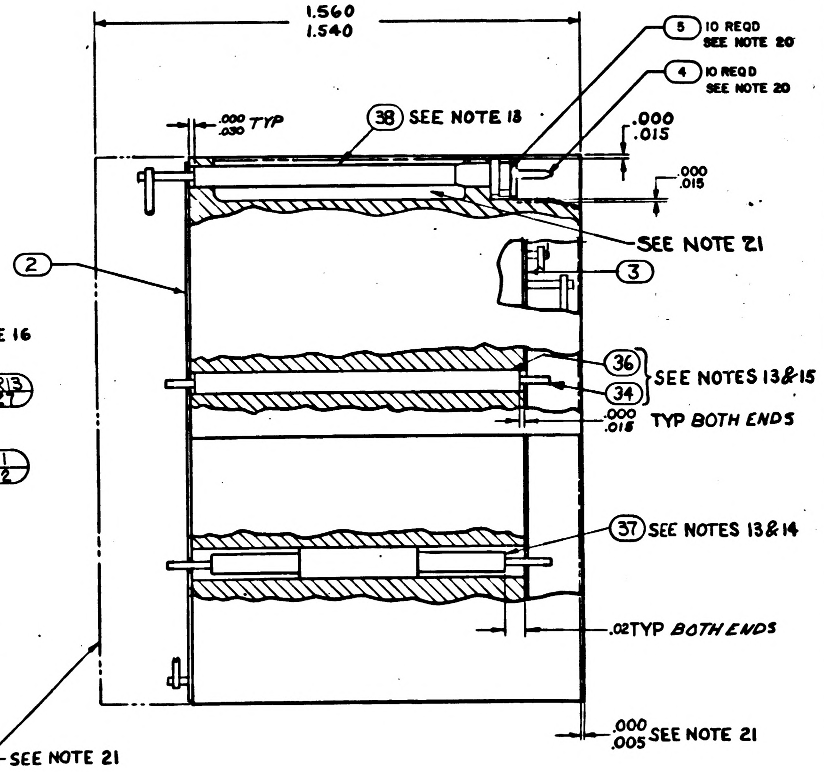
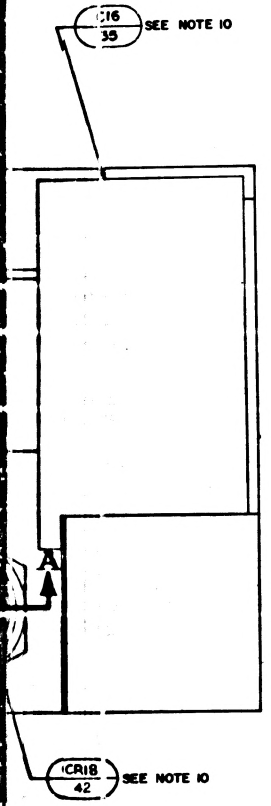
FT8
FT4
Q3 29

VIEW B-B
BEFORE ENCAPSULATION.



1.560 1.540
5 10 REQD SEE NOTE 20
4 10 REQD SEE NOTE 20
.000 .030 TYP
38 SEE NOTE 13
.000 .015
.000 .015
SEE NOTE 21
2
3
36 SEE NOTES 13&15
34
.000 .015 TYP BOTH ENDS
37 SEE NOTES 13&14
.02 TYP BOTH ENDS
SEE NOTE 21
.000 .005 SEE NOTE 21

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS + − DECIMALS + − ANGLES + −	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
	ACSP PN	AMPLIFIER 1% 3200 CPS MODULE ASSY
	DRAWN 14 AUG 64 DATE CHECKED 20 AUG 64 APPROVAL APPROVAL D. B. Test 10-5-64	
DO NOT SCALE THIS DRAWING		
MATERIAL	NASA APPROVAL W. J. 10-2-64	CODE IDENT NO. · SIZE E · 1007402
CONTRACT NAS9-497	MIT APPROVAL Oct 64	SCALE 5:1 · SHEET 2 OF 2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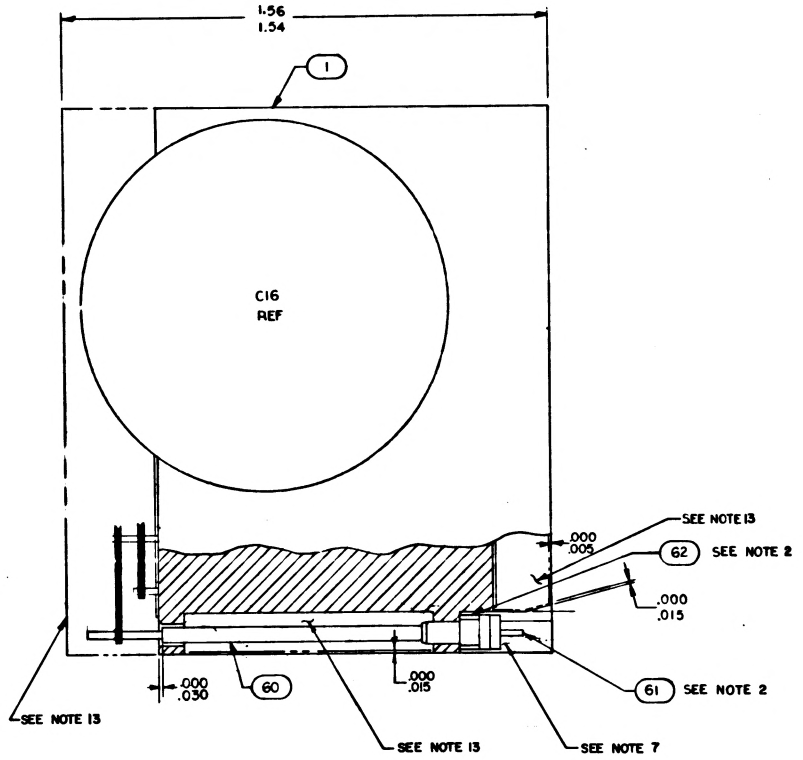
SEE NOTE 10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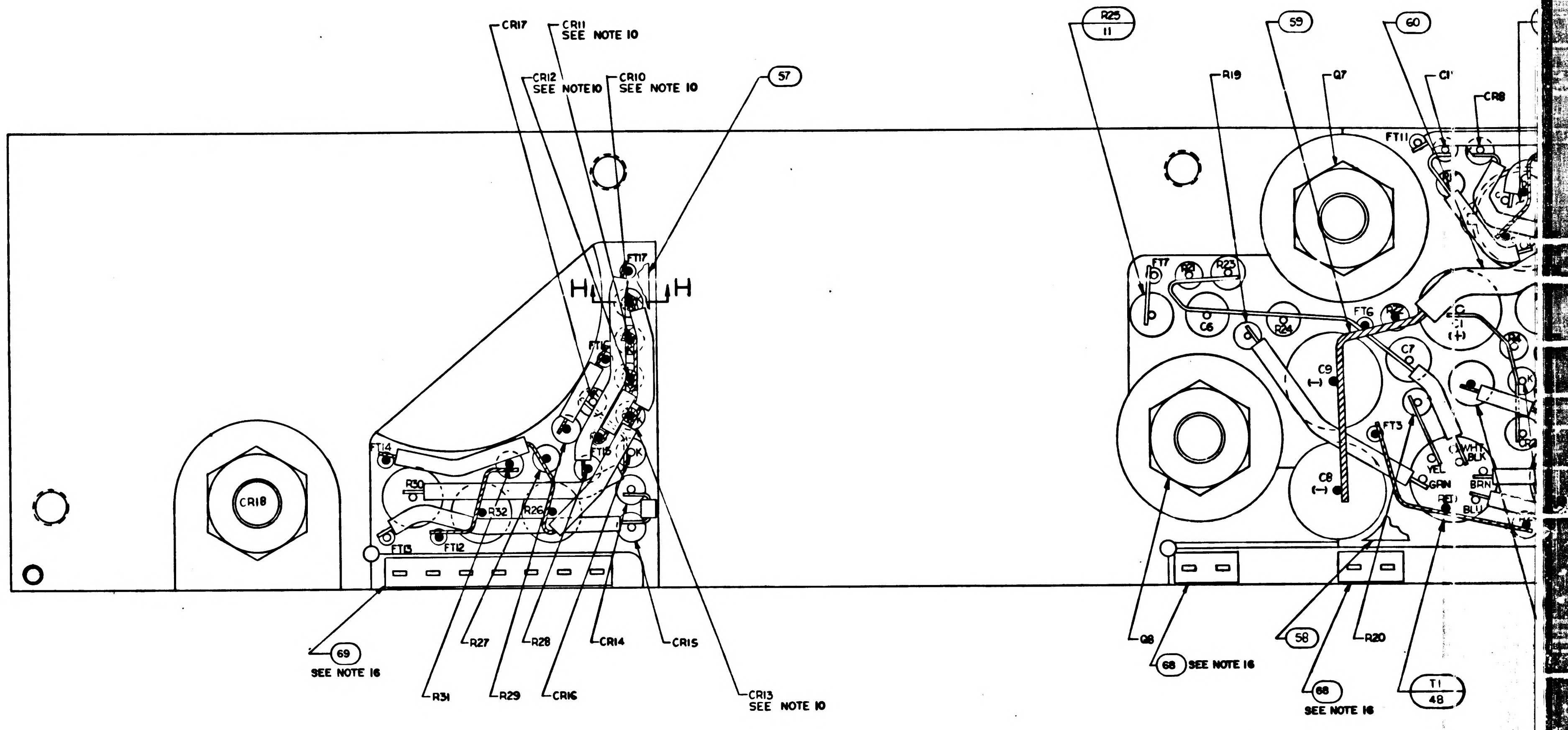
SEE NOTE 13
SEE NOTE 13
SEE NOTE 7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R32
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CR18
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R28
CR14
CR15
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R29
CR16
CR13
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CR8
FT11
FT7
R23
R24
C6
FTG
C9
C7
C8
FT3
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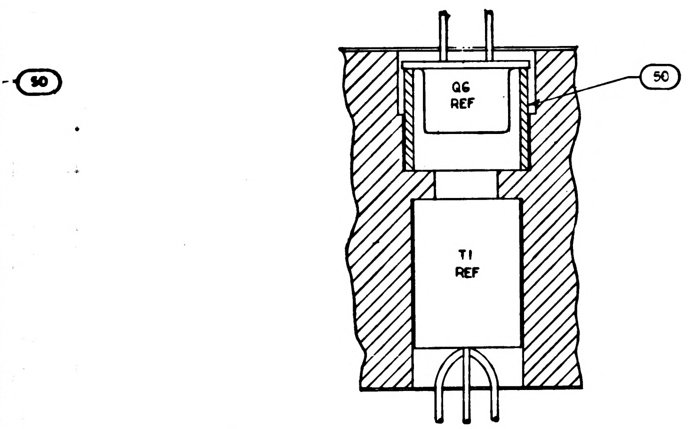
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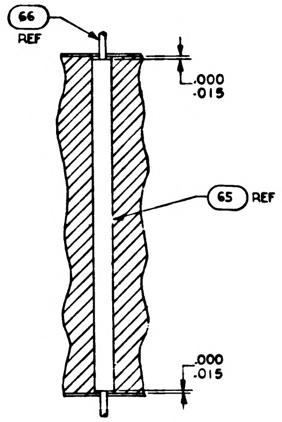
SECTION D-D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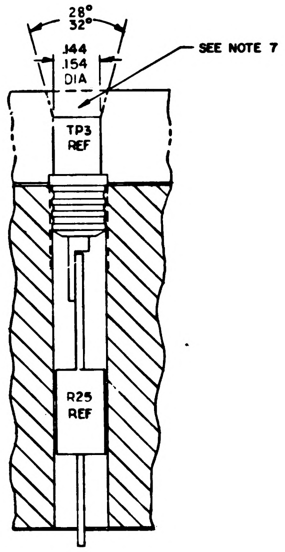
SECTION E-E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32°
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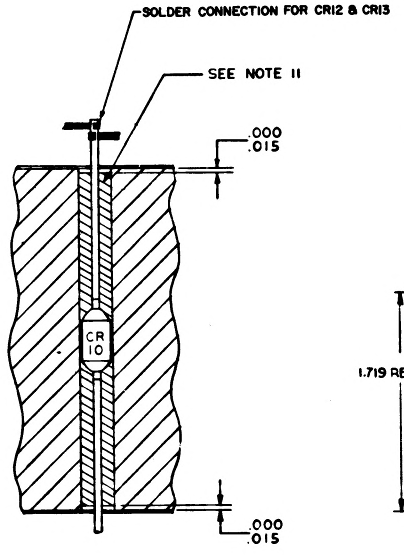
.154
DIA
SEE NOTE 7
TP3
REF
R25
REF

SECTION G-G


SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
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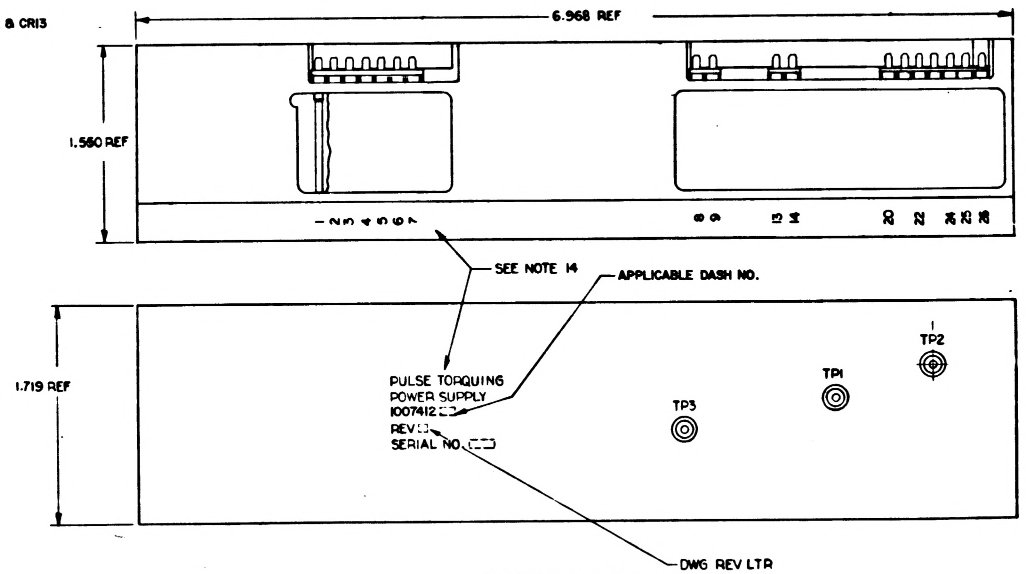
.015
CR
10
.000
.015

SECTION H-H

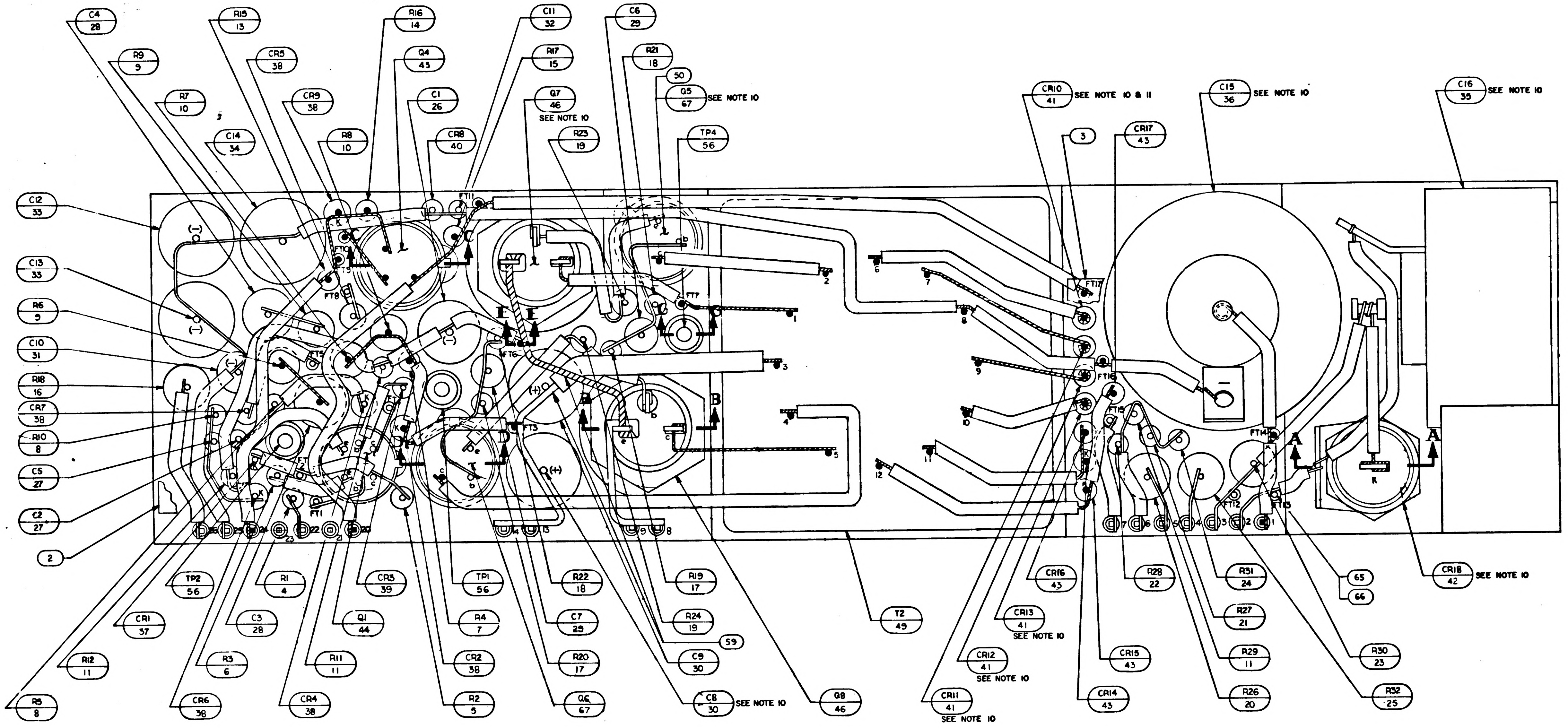
TYP FOR CR10, 11, 12, & 13


6.968 REF
1.560 REF
SEE NOTE 14
APPLICABLE DASH NO.
1.719 REF
PULSE TORQUING
POWER SUPPLY
1007412
REV
SERIAL NO.
TP3
TP1
TP2
DWG REV LTR

MARKING VIEW

SCALE 2/1

NOTICE [illegible]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Q4 45
R17 15
R21 18
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Q5 67 SEE NOTE 10
R7 10
CR9 38
C1 26
Q7 46 SEE NOTE 10
C14 34
R8 10
CR8 40
R23 19
TP4 56
CR10 41 SEE NOTE 10 & 11
C15 36 SEE NOTE 10
C16 35 SEE NOTE 10
3
CR17 43
C12 33
C13 33
R6 9
C10 31
R18 16
CR7 38
R10 8
C5 27
C2 27
2
TP2 56
R1 4
CR3 39
TP1 56
R22 18
R19 17
CR1 37
C3 28
Q1 44
R4 7
C7 29
R24 19
59
R12 11
R3 6
R11 11
CR2 38
R20 17
C9 30
R5 8
CR6 38
CR4 38
R2 5
Q6 67
C8 30 SEE NOTE 10
Q8 46
T2 49
CR16 43
R28 22
R31 24
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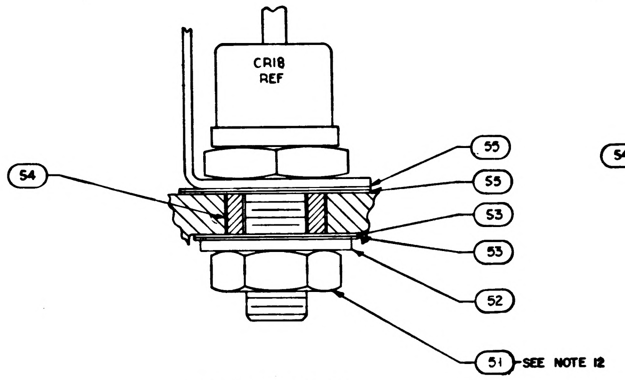
66
CR18 42 SEE NOTE 10
CR13 41 SEE NOTE 10
R27 21
CR12 41 SEE NOTE 10
CR15 43
R29 11
R30 23
CR11 41 SEE NOTE 10
CR14 43
R26 20
R32 25
A
B
C
D
E
K
(+)
(−)
FT1
FT3
FT5
FT6
FT7
FT8
FT12
FT13
FT14
FT15
FT16
FT17

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 61 AND 62 PER ND 1002136
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005 EXCEPT WHERE NOTED
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
6. ON FIND NO'S 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
7. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
8. STAKE FIND NO. 4 THRU 34,37 THRU 48, 50,54 AND 67 PER ND 1002009 METHOD C AND CENTRALIZE.
9. AR DENOTES AS REQUIRED
10. SOLDER PER ND 1002071
11. ENCAPSULATE PER ND 1002036 STYCAST 1090 CATALYST 11, CURE AT 160°F FOR 3 HOURS AND POST CURE AT 180°F FOR 7 HOURS.
12. MOUNTING TORQUE TO BE 10-14 IN. LBS.
13. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
14. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
15. PROCURE PER PS 1007052.
16. BOND FIND NO. 68 AND 69 TO FIND NO. 62 PER ND 1002237.
17. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
18. BOND FIND NO. 35, 36 AND 49 PER ND 1002004 TYPE I.
19. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF INSULATORS PER ND 1002187 TYPE I.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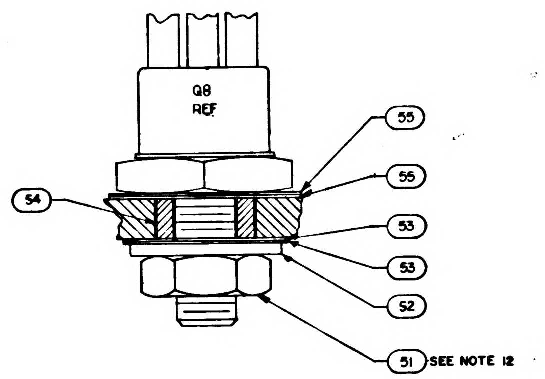
53
54
52
51 SEE NOTE 12

SECTION A-A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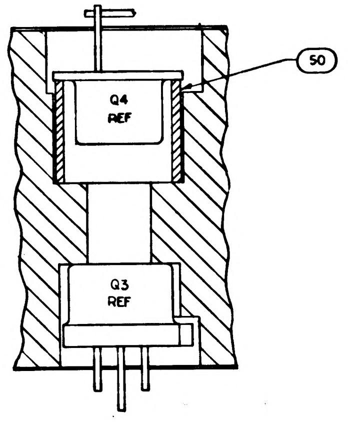
51 SEE NOTE 12

SECTION B-B
TYP Q8 & Q7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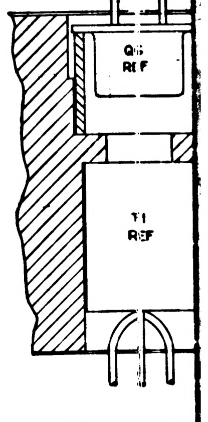
Q4 REF
Q3 REF

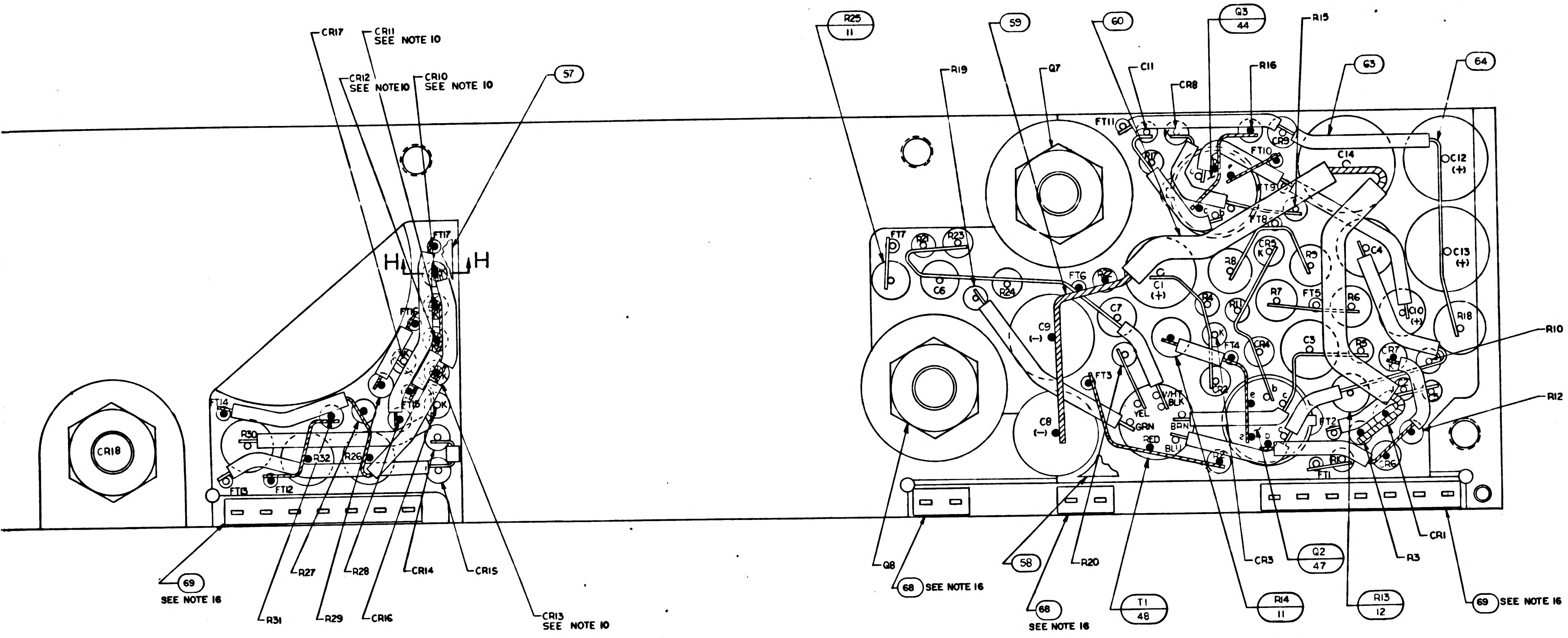
SECTION C-C



SECTION D

1007412 A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17321	12-MAR-65	GM / EF
B	REVISED PER TDRR 17960	8 APR 65	JJJ / MCM



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CR11 SEE NOTE 10
CR12 SEE NOTE 10
CR10 SEE NOTE 10
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H H
FT17
FT14
FT13
FT12
FT16
R30
R32
R26
CR18
69 SEE NOTE 16
R31
R27
R29
R28
CR16
CR14
CR15
CR13 SEE NOTE 10
R25 11
59
60
Q3 44
R15
R19
Q7
C11
CR8
R16
63
64
FT11
CR9
FT10
C14
C12 (+)
FT9
FT8
C13 (+)
FT7
R21
R23
R24
C6
FTG
C1 (+)
R8
CR5
R9
C4
C9 (-)
C7
R11
R7
FT5
R6
C10 (+)
R18
R10
FT4
R4
C3
R5
CR7
FT3
WHT BLK
YEL
GRN
BRN
RED
BLU
R2
R22
FT2
R12
C8 (-)
FT1
R6
R1
Q8
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R20
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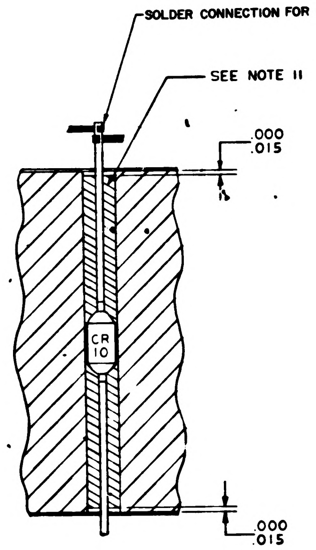
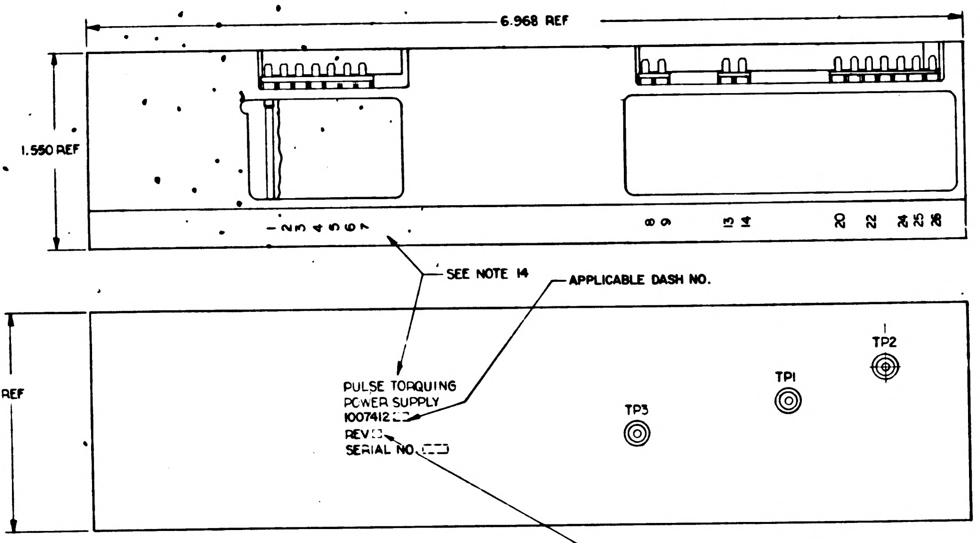
CR3
Q2 47
R13 12
R3
CR1
69 SEE NOTE 16



SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
.000
.015
CR 10
.000
.015

SECTION H-H
TYP FOR CR10,11,12,& 13



6.968 REF
1.550 REF
SEE NOTE 14
APPLICABLE DASH NO.
1.719 REF
PULSE TORQUING
POWER SUPPLY
1007412-
REV
SERIAL NO.
TP1
TP2
TP3
DWG REV LTR

MARKING VIEW
SCALE 2/1

				011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
				X		1010052	SCHEMATIC	REF
				2		1008540-7	GASKET, CONNECTOR-MINIATURE	69
				2		1008540-2	GASKET, CONNECTOR-MINIATURE	68
				2		1010398 - 3	TRANSISTOR	67
				AR		1006757 - 8	WIRE ELEC .020 DIA	66
				AR		1006776 - 22	INSULATION SLEEVING ELEC	65
				AR		1006757 - 1	WIRE, ELEC .010 X .020	64
				AR		1006776 - 21	INSULATION, SLEEVING	63
				18		1006775	INSULATOR, WRAPOST-MALE, MINIATURE	62
				18		1006782 - 5	CONTACT, WRAPOST-MALE, MINIATURE	61
				AR		1006776 - 20	INSULATION SLEEVING	60
				AR		1006757 - 9	WIRE ELEC .032 DIA	59
				1		1008094 - 1	INSULATOR	58
				1		1008094 - 2	INSULATOR	57
				3		1010292 - 2	TERMINAL, FEEDTHRU	56
				6		1008024 - 2	WASHER, INSULATOR	55
				3		1008021 - 1	BUSHING, INSULATOR	54
				6		1008024 - 1	WASHER, INSULATOR	53
				3		1008071 - 2	WASHER	52
				3		MS20341 - 10B	NUT	51
				3		1008025 - 2	INSULATOR, BUSHING	50
				1		1010745	TRANSFORMER	49
				1		1010315 - 2	TRANSFORMER	48
				1		1010376 - 4	TRANSISTOR	47
				2		1010499 - 2	TRANSISTOR	46
				1		1010398 - 1	TRANSISTOR	45
				2		1010376 1	TRANSISTOR	44
				4		1010384	DIODE	43
				1		1010331 - 013	DIODE	42
				4		1010497	DIODE	41
				1		1010286 - 25	DIODE	40
				1		1010286 - 9	DIODE	39
				6		1010385	DIODE	38
				1		1010286 - 5	DIODE	37
				1		1010460 - 1	CAPACITOR	36
				1		1010460 2	CAPACITOR	35
				1		1010264 - 29	CAPACITOR	34
				2		1006755 - 89	CAPACITOR	33
				1		1006777 - 18	CAPACITOR	32
				1		1006755 - 79	CAPACITOR	31
				2		1010393 - 045	CAPACITOR	30
				2		1006777 - 30	CAPACITOR	29
				2		1010316 - 36	CAPACITOR	28
				2		1006777 - 16	CAPACITOR	27
				1		1006755 - 85	CAPACITOR	26
				1		1010278 - 80	RESISTOR	25
				1		1006750 - 77	RESISTOR	24
				1		1010389 - 48	RESISTOR	23
				1		1006750 - 67	RESISTOR	22
				1		1010369 - 93	RESISTOR	21
				1		1010278 - 94	RESISTOR	20
				2		1006802 - 1	RESISTOR	19
				2		1006750 - 31	RESISTOR	18
				2		1006750 - 22	RESISTOR	17
				1		1010278 - 70	RESISTOR	16
				1		1006750 - 47	RESISTOR	15
				1		1006750 - 50	RESISTOR	14
				1		1006750 - 32	RESISTOR	13
				1		1006750 63	RESISTOR	12
				5		1006750 - 56	RESISTOR	11
				2		1010377 - 111	RESISTOR	10
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				2		1006750 - 74	RESISTOR	8
				1		1006750 - 62	RESISTOR	7
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				1		1006750 - 65	RESISTOR	4
				1		1008093 - 2	INSULATOR	3
				1		1008093 - 1	INSULATOR	2
				1		1007069	HEATSINK	1

QUANTITY REQUIRED

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		
1007572		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

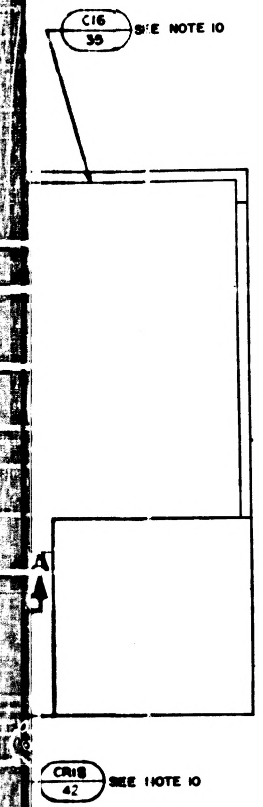
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS .XX ±.02 .XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN: DATE 2OCT64
CHECKED: 12 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PULSE TORQUING
POWER SUPPLY
MODULE ASSY

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007412
SCALE 5/1
WT
SHEET 1 OF 1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SEE NOTE 10
A
CR18
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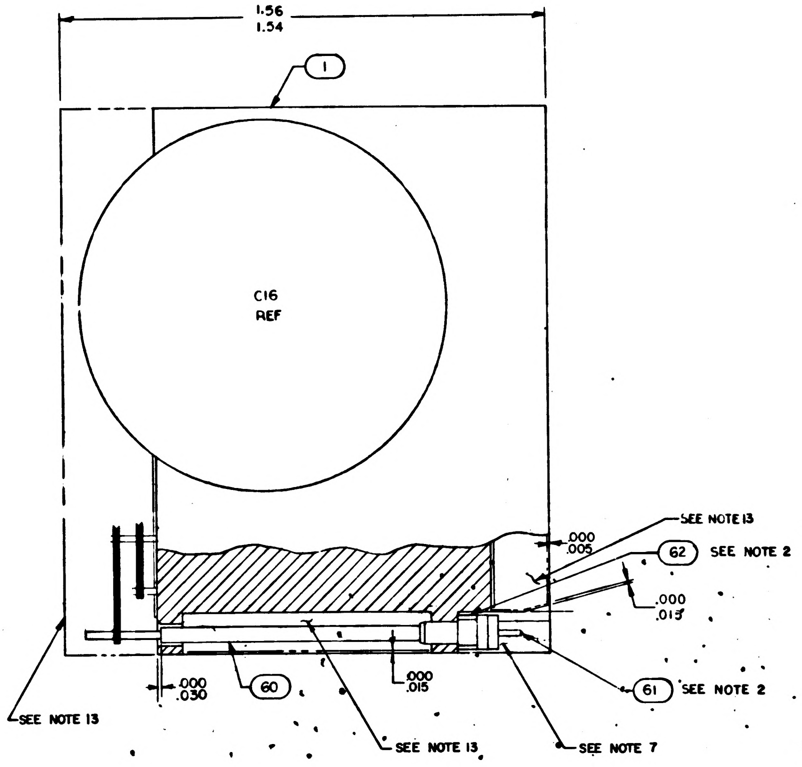
SEE NOTE 10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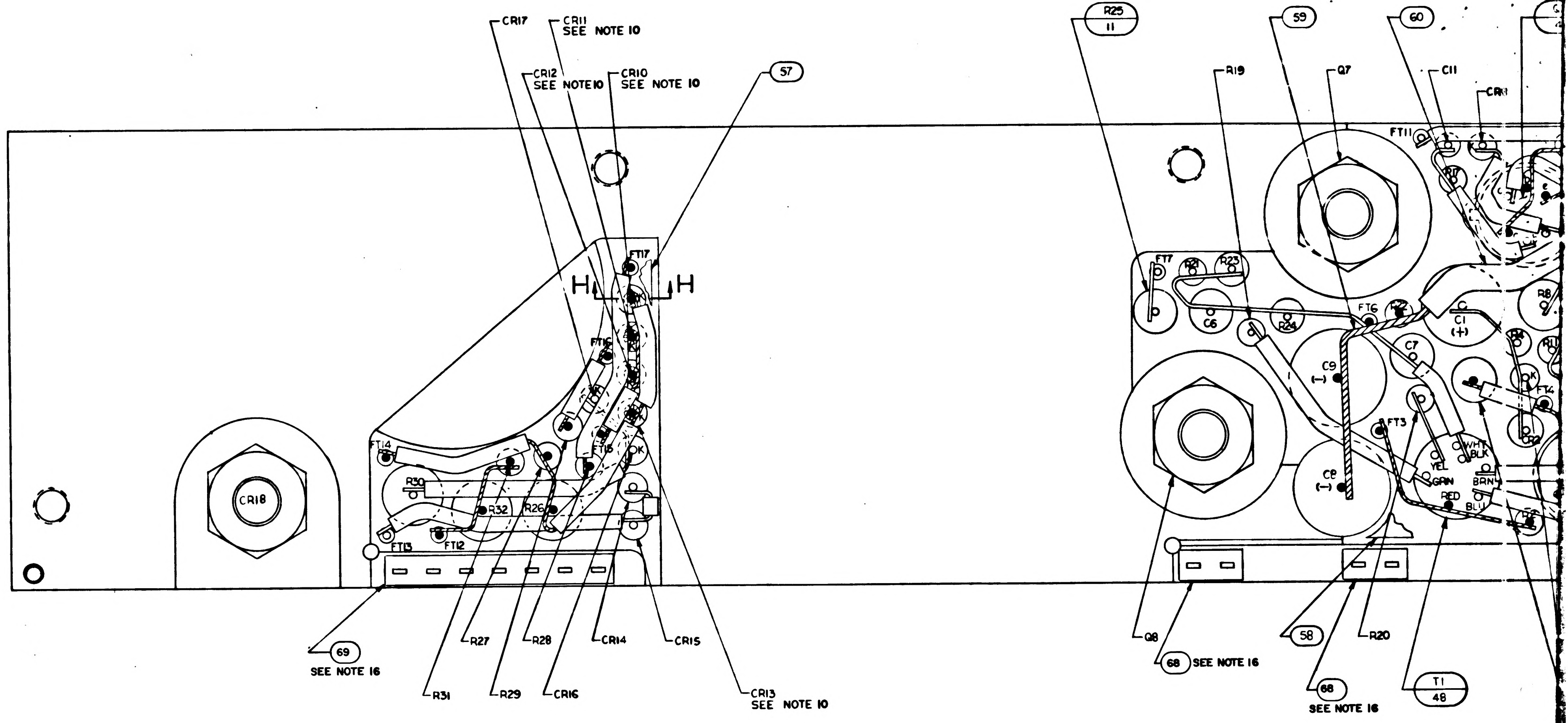
SEE NOTE 2
SEE NOTE 13
SEE NOTE 7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R30
R32
R26
CR18
69
SEE NOTE 16
R27
R28
CR14
CR15
R31
R29
CR16
CR13
SEE NOTE 10
R25
11
R19
59
Q7
60
C11
CR11
FT11
FT7
R21
R23
C6
R24
FT6
C1
(+)
C9
(−)
C7
FT3
C8
(−)
FT4
R8
YEL
GRN
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SEE NOTE 16
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R20
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SEE NOTE 16
T1
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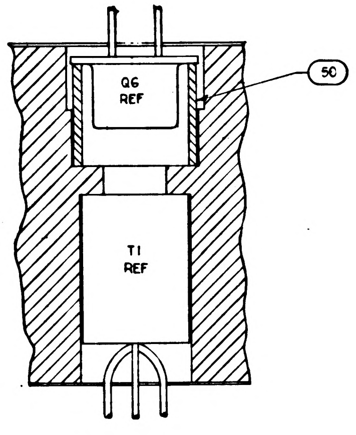
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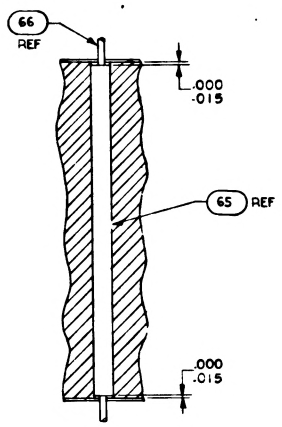
SECTION D-D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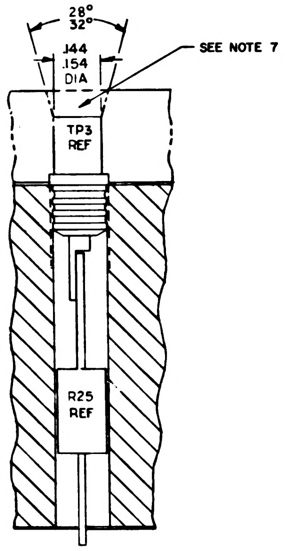
SECTION E-E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32°
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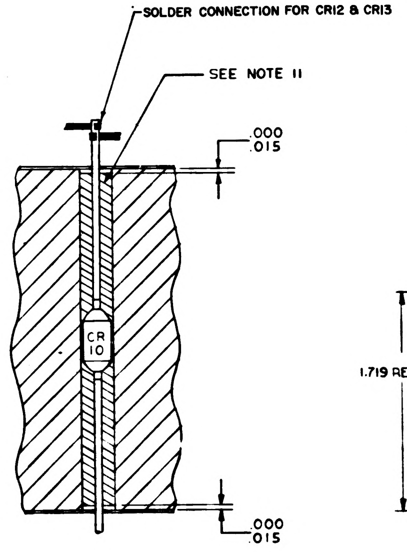
DIA
SEE NOTE 7
TP3
REF
R25
REF

SECTION G-G


SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
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CR
10
.000
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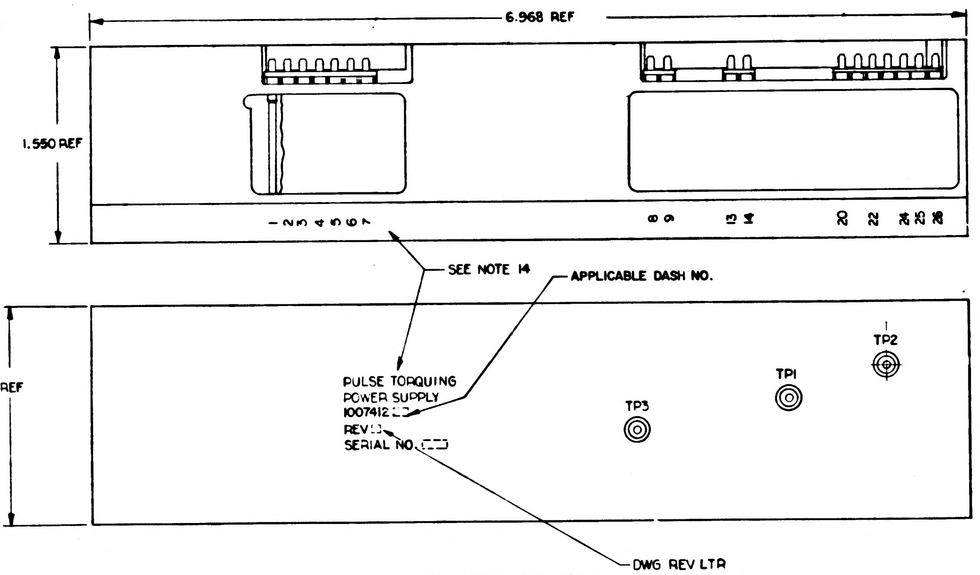
SECTION H-H
TYP FOR CR10, 11, 12, & 13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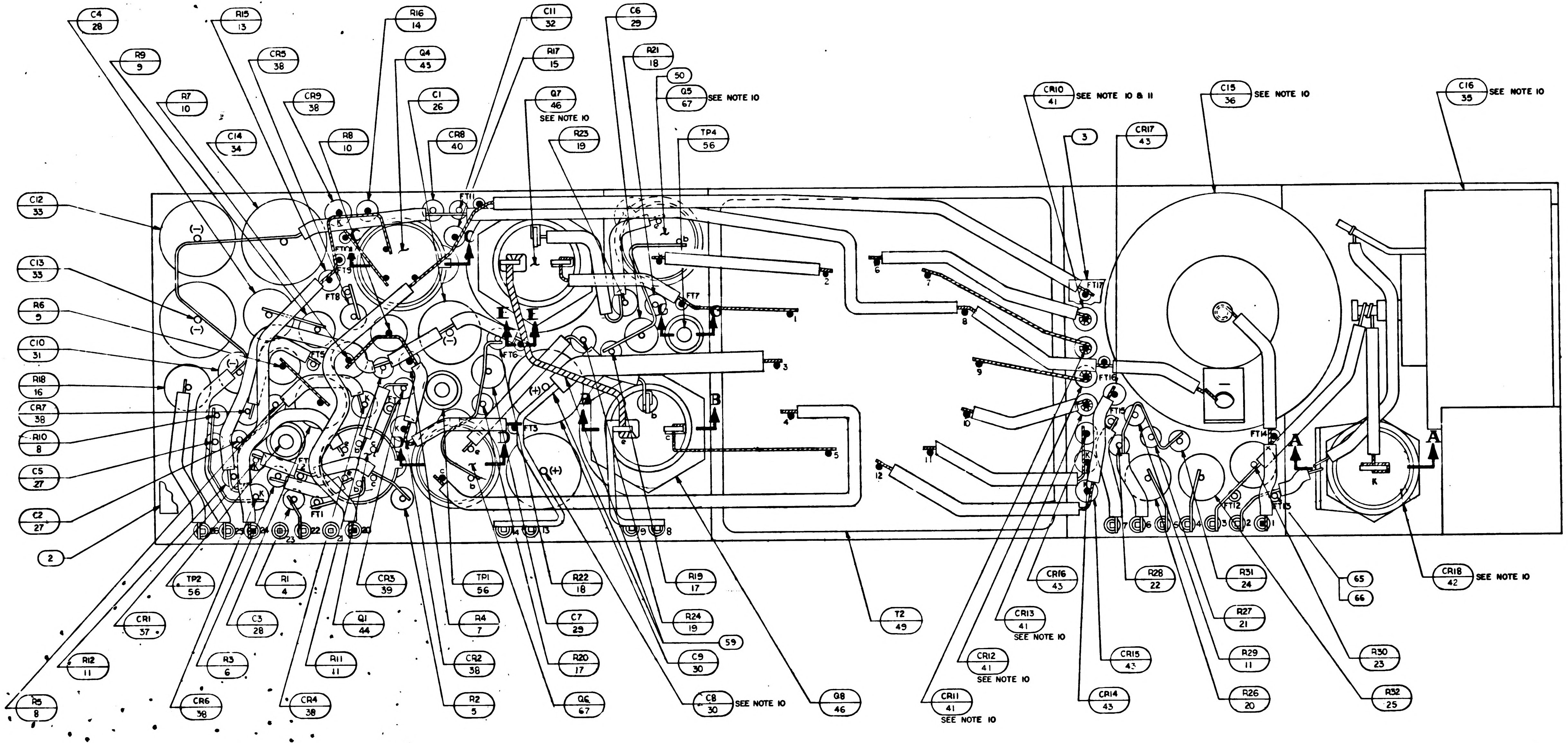
1.550 REF
1 2 3 4 5 6 7
8 9 13 14
20 22 24 25 26
SEE NOTE 14
APPLICABLE DASH NO.
1.719 REF
PULSE TORQUING
POWER SUPPLY
1007412
REV
SERIAL NO.
TP3
TP1
TP2
DWG REV LTR

MARKING VIEW
SCALE 2/1

NOTICE -- WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO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C11 32
C6 29
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Q4 45
R17 15
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R7 10
CR9 38
C1 26
Q7 46 SEE NOTE 10
Q5 67 SEE NOTE 10
C14 34
R8 10
CR8 40
R23 19
TP4 56
CR10 41 SEE NOTE 10 & 11
3
CR17 43
C15 36 SEE NOTE 10
C16 35 SEE NOTE 10
C12 33
C13 33
R6 9
C10 31
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CR7 38
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C5 27
C2 27
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R1 4
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TP1 56
R22 18
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CR1 37
C3 28
Q1 44
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C7 29
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R28 22
R31 24
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R29 11
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Q6 67
C8 30 SEE NOTE 10
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CR11 41 SEE NOTE 10
CR14 43
R26 20
R32 25
FT11
FT8
FT9
FT5
FT6
FT7
FT3
FT1
FT17
FT16
FT15
FT14
FT12
FT13
B
E
A
K
(+)
(-)

NO S:

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   - BROKEN PATHS INDICATE INSULATION SLEEVING,
   - K INDICATES CATHODE SIDE OF DIODE,
   - FT ( ) INDICATES FEED THRU
   - PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   - C INDICATES COLLECTOR LEAD OF TRANSISTOR,
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8. STAKE FIND NO. 4 THRU 34,37 THRU 48, 50, 54 AND 67 PER ND 1002009 METHOD C AND CENTRALIZE.
9. AR DENOTES AS REQUIRED
10. SOLDER PER ND 1002071
11. ENCAPSULATE PER ND 1002036 STYCAST 1090 CATALYST 11, CURE AT 160°F FOR 3 HOURS AND POST CURE AT 180°F FOR 7 HOURS.
12. MOUNTING TORQUE TO BE 10-14 IN. LBS.
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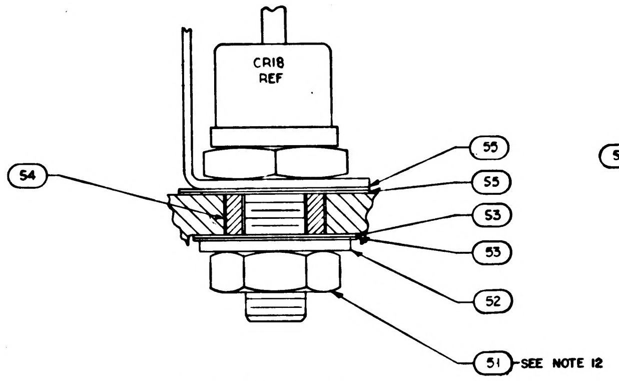
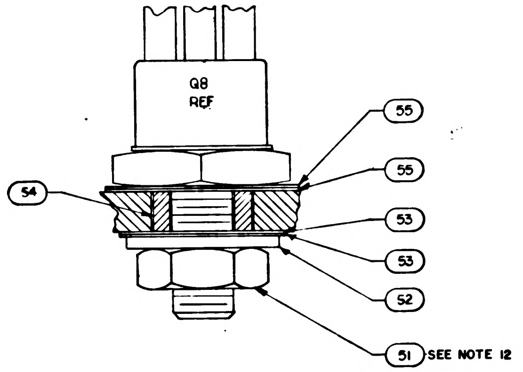
18. BOND FIND NO. 35, 36 AND 49 PER ND 1002004 TYPE I.
19. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF INSULATORS PER ND 1002187 TYPE I.


CR18 REF
54
55
55
53
53
52
51 SEE NOTE 12

SECTION **A-A**


Q8 REF
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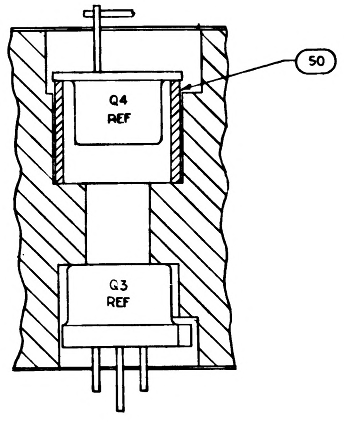
52
51 SEE NOTE 12

SECTION **B-B**
TYP Q8 & Q7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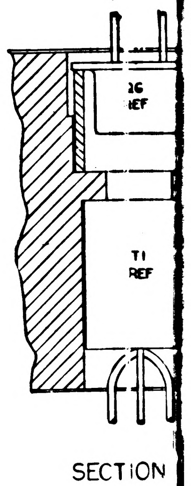
Q3 REF

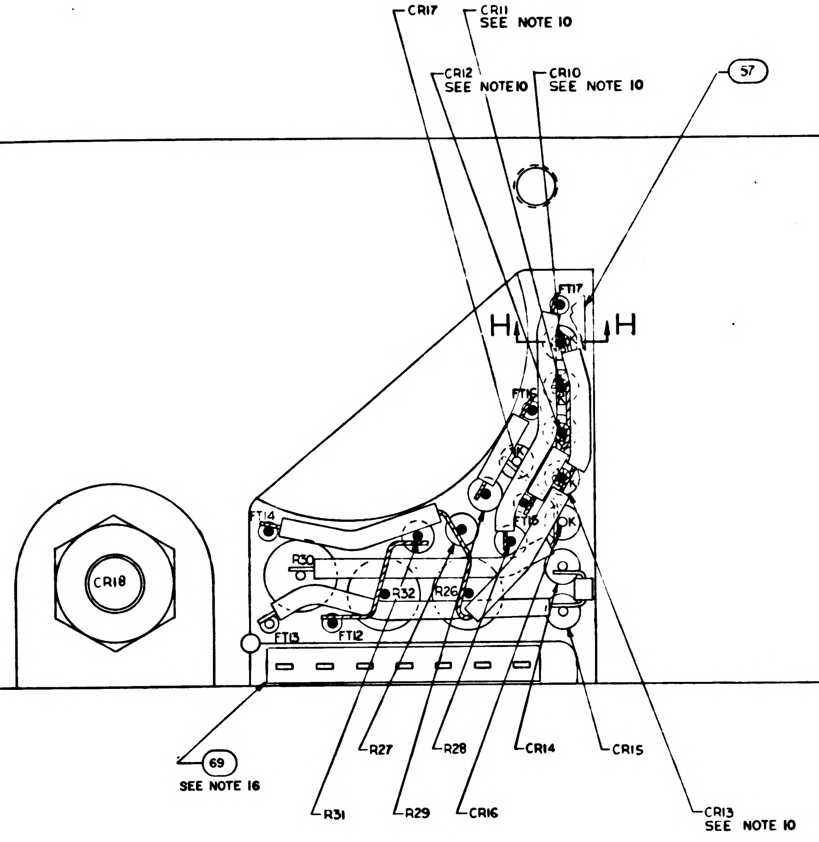
SECTION **C-C**


26 REF
T1 REF

SECTION

1007412 REV B SHEET 1 OF 1

REVISIONS				
SYM	DESCRIPTION	DATE	APPROVAL	
Ⓜ A	REVISED PER TDRR 17321	12-MAR-65	GM / EF	
Ⓝ B	REVISED PER TDRR 17960	8 APR 65	JJJ / MEM	
C	REVISED PER TDRR 9449	1 JUNE 65	JM / J.E.G.	


CR17
CR11 SEE NOTE 10
CR12 SEE NOTE 10
CR10 SEE NOTE 10
57
FT17
H
H
FT16
FT14
FT15
CR18
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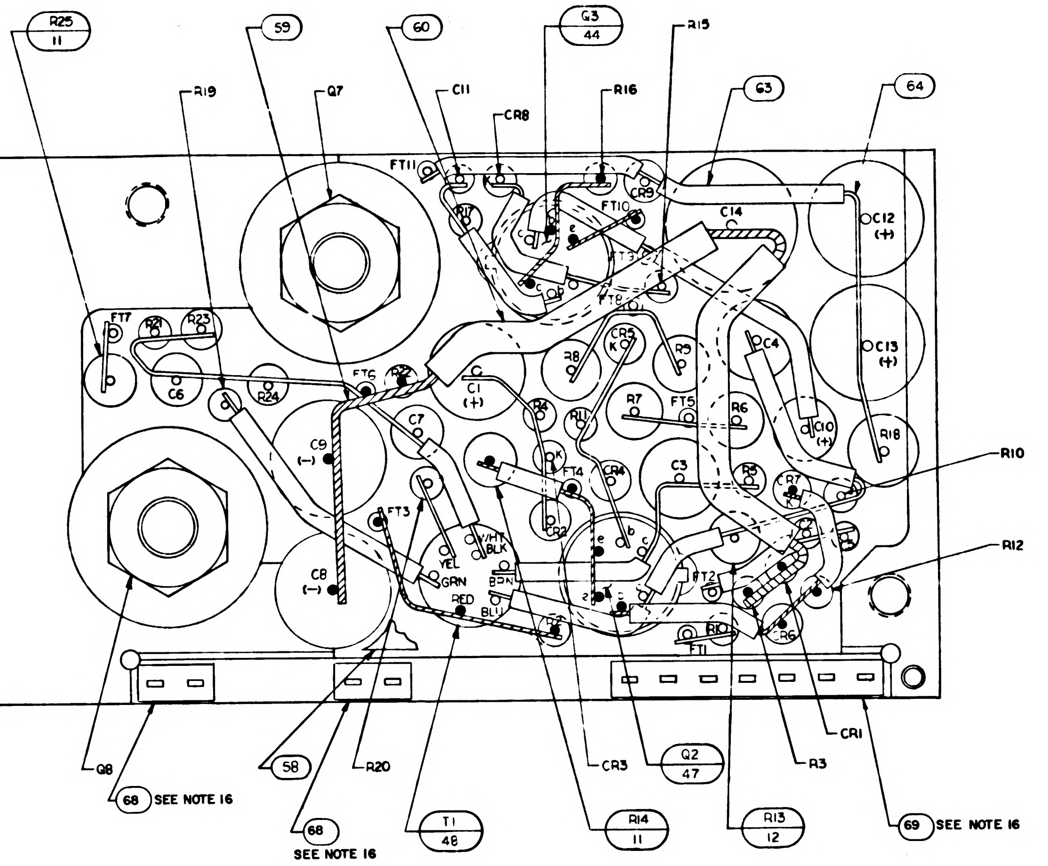
R32
R26
FT12
FT13
69 SEE NOTE 16
R27
R28
CR14
CR15
R31
R29
CR16
CR13 SEE NOTE 10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59
60
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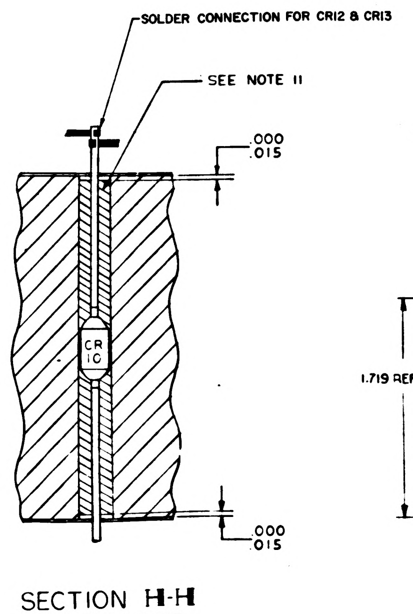
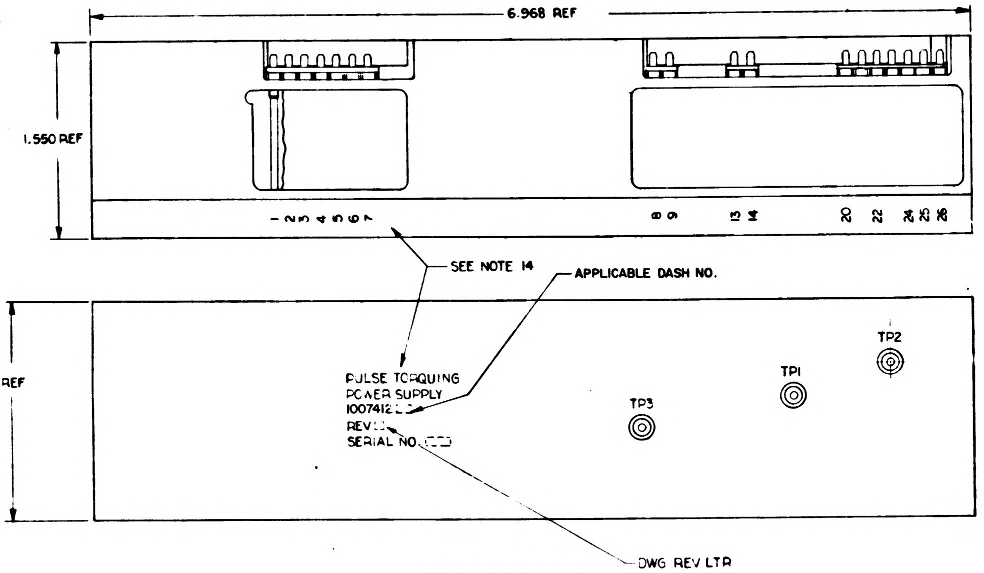
R15
R19
Q7
C11
R16
63
64
CR8
FT11
FT10
C14
C12 (+)
FT7
R22
R23
FT6
R24
C6
C1 (+)
R8
CR5
R9
C13 (+)
CR4
FT5
R7
R6
C9 (-)
C7
R18
R10
CR10
FT3
FT4
C5
C8 (-)
GRN
RED
BLU
BRN
W/HT BLK
FT2
FT1
R12
Q8
68 SEE NOTE 16
58
R20
68 SEE NOTE 16
T1 48
CR3
Q2 47
R14 11
R13 12
R3
CR1
69 SEE NOTE 16

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE


SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
.000
.015
CR 10
.000
.015

SECTION H-H
TYP FOR CR10,11,12, & 13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1.719 REF
SEE NOTE 14
APPLICABLE DASH NO.
PULSE TORQUING
POWER SUPPLY
1007412
REV
SERIAL NO.
TP3
TP1
TP2
DWG REV LTR

MARKING VIEW
SCALE 2/1

			☒		1010052	SCHEMATIC	REF
			2		1008540-7	GASKET, CONNECTOR-MINIATURE	69
			2		1008540-2	GASKET, CONNECTOR-MINIATURE	68
			2		1010398 - 3	TRANSISTOR	67
			AR		1006757 - 8	WIRE ELEC .020 DIA	66
			AR		1006776 - 22	INSULATION SLEEVING ELEC	65
			AR		1006757 - 1	WIRE, ELEC .010 X .020	64
			AR		1006776 - 21	INSULATION, SLEEVING	63
			18		1006775	INSULATOR, WRAPOST- MALE, MINIATURE	62
			18		1006782 - 5	CONTACT, WRAPOST, MALE, MINIATURE	61
			AR		1006776 - 20	INSULATION SLEEVING	60
			AR		1006757 - 9	WIRE ELEC .032 DIA	59
			1		1008094 - 1	INSULATOR	58
			1		1008094 - 2	INSULATOR	57
			3		1010292 - 2	TERMINAL, FEEDTHRU	56
			6		1008024 - 2	WASHER, INSULATOR	55
			3		1008021 - 1	BUSHING, INSULATOR	54
			6		1008024 - 1	WASHER, INSULATOR	53
			3		1008071 - 2	WASHER	52
			3		MS20341 - 10B	NUT	51
			3		1008025 - 2	INSULATOR, BUSHING	50
			1		1010745	TRANSFORMER	49
			1		1010315 - 2	TRANSFORMER	48
			1		1010376 - 4	TRANSISTOR	47
			2		1010499 - 2	TRANSISTOR	46
			1		1010398 - 1	TRANSISTOR	45
			2		1010376 - 1	TRANSISTOR	44
			4		1010384	DIODE	43
			1		1010331 - 013	DIODE	42
			4		1010497	DIODE	41
			1		1010286 - 25	DIODE	40
			1		1010286 - 9	DIODE	39
			6		1010385	DIODE	38
			1		1010286 - 5	DIODE	37
			1		1010460 - 1	CAPACITOR	36
			1		1010460 - 2	CAPACITOR	35
			1		1010264 - 29	CAPACITOR	34
			2		1006755 - 89	CAPACITOR	33
			1		1006777 - 18	CAPACITOR	32
			1		1006755 - 79	CAPACITOR	31
			2		1010393 - 045	CAPACITOR	30
			2		1006777 - 30	CAPACITOR	29
			2		1010316 - 36	CAPACITOR	28
			2		1006777 - 16	CAPACITOR	27
			1		1006755 - 85	CAPACITOR	26
			1		1010278 - 80	RESISTOR	25
			1		1006750 - 77	RESISTOR	24
			1		1010389 - 48	RESISTOR	23
			1		1006750 - 67	RESISTOR	22
			1		1010369 - 93	RESISTOR	21
			1		1010278 - 94	RESISTOR	20
			2		1006802 - 1	RESISTOR	19
			2		1006750 - 31	RESISTOR	18
			2		1006750 - 22	RESISTOR	17
			1		1010278 - 70	RESISTOR	16
			1		1006750 - 47	RESISTOR	15
			1		1006750 - 50	RESISTOR	14
			1		1006750 - 32	RESISTOR	13
			1		1006750 63	RESISTOR	12
			5		1006750 - 56	RESISTOR	11
			2		1010377 - 111	RESISTOR	10
			2		1010377 - 110	RESISTOR	9
			2		1006750 - 74	RESISTOR	8
			1		1006750 - 62	RESISTOR	7
			1		1006750 - 12	RESISTOR	6
			1		1006750 - 51	RESISTOR	5
			1		1006750 - 65	RESISTOR	4
			1		1008093 - 2	INSULATOR	3
			1		1008093 - 1	INSULATOR	2
			1		1007069	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577 1007572		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS .XX ±.02 .XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT
DRAWN L Agne DATE 2 OCT 64
CHECKED 12 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL 4 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

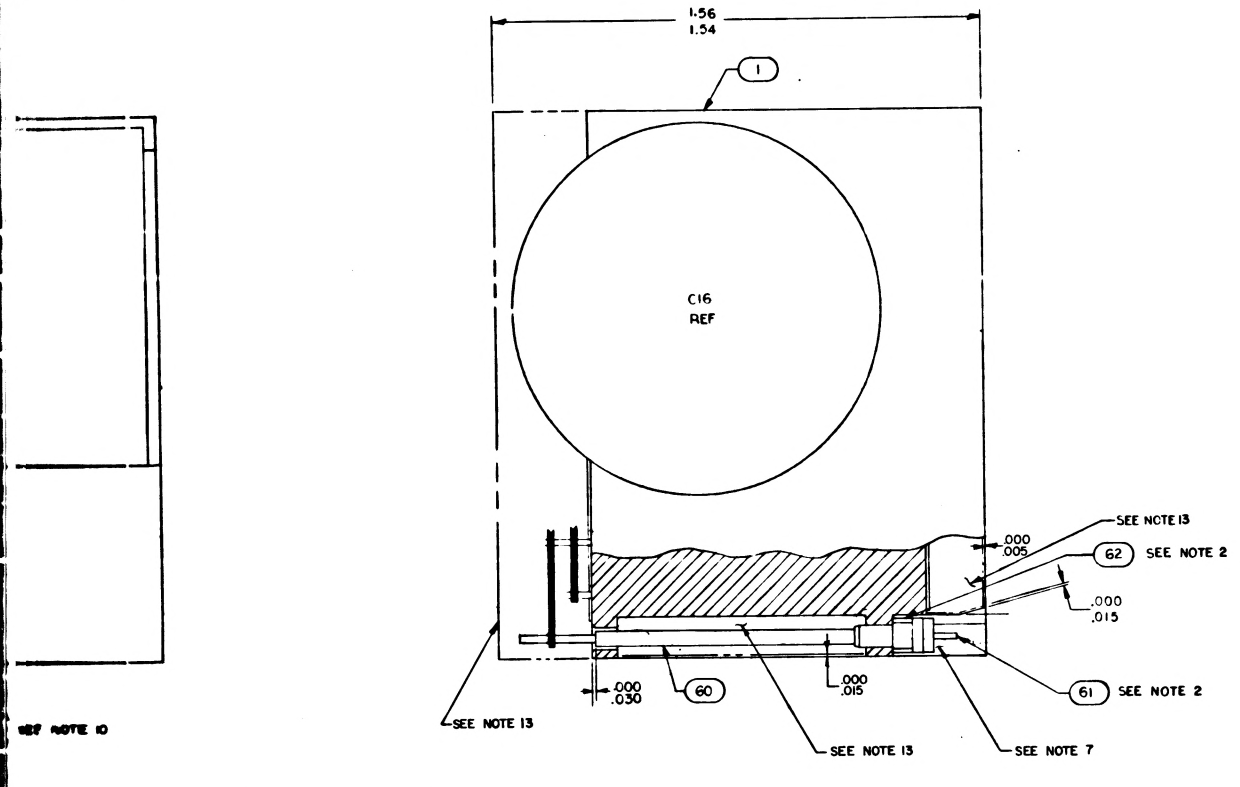
PULSE TORQUING
POWER SUPPLY
MODULE ASSY

CODE IDENT NO
SIZE J
NASA DRAWING NO 1007412
SCALE 5/1
WT
SHEET 1 OF 1

1007412 C

1007412 C SHEET 1 OF 1

3/1007412


SEE NOTE 11
SEE NOTE 10
1.56
1.54
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C16
REF
SEE NOTE 13
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.005
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SEE NOTE 2
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.015
.000
.030
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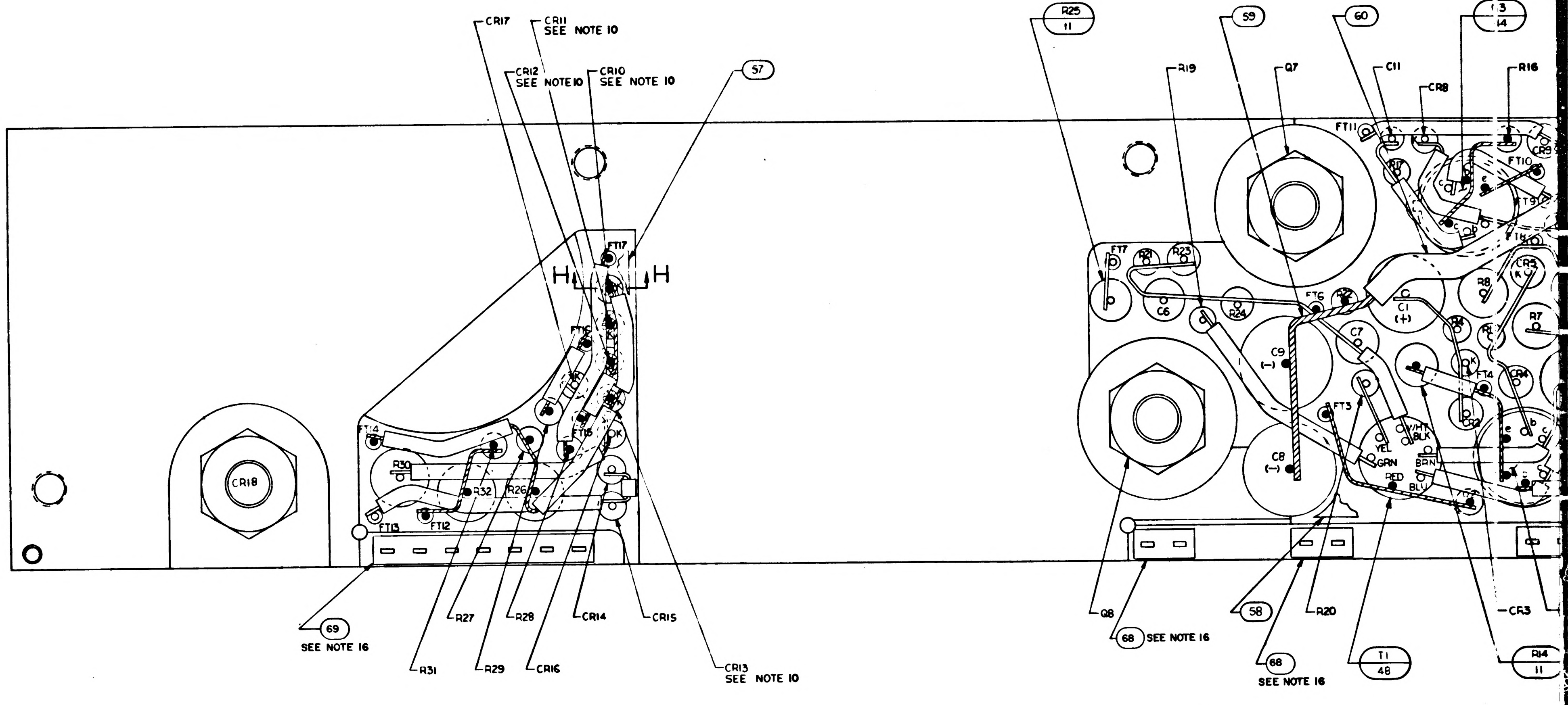
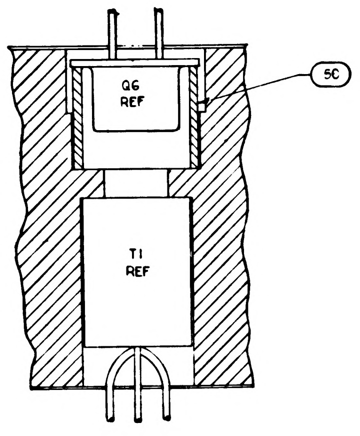
.000
.015
61
SEE NOTE 2
SEE NOTE 13
SEE NOTE 13
SEE NOTE 7


CR17
CR11
SEE NOTE 10
CR12
SEE NOTE 10
CR10
SEE NOTE 10
57
H
H
FT17
FT16
FT15
FT14
FT13
FT12
R30
R32
R26
CR18
69
SEE NOTE 16
R27
R31
R29
R28
CR16
CR14
CR15
CR13
SEE NOTE 10
R25
11
R19
59
Q7
60
C11
CR8
R16
13
14
FT11
FT10
FT9
FT7
R22
R23
C6
R24
FT6
C1
(+)
C9
(−)
C7
R8
CR5
R7
FT4
CR4
FT3
C8
(−)
YEL
GRN
RED
BLU
BRN
Q8
68
SEE NOTE 16
58
R20
68
SEE NOTE 16
T1
48
CR3
R14
11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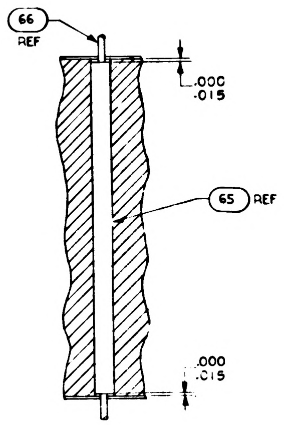
REF

SECTION D-D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REF
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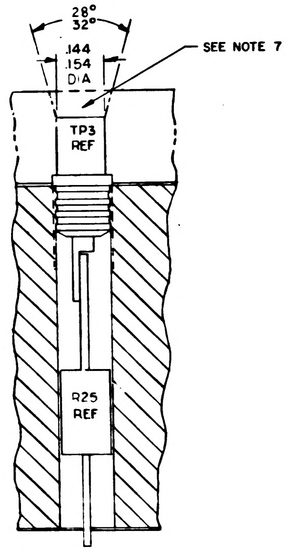
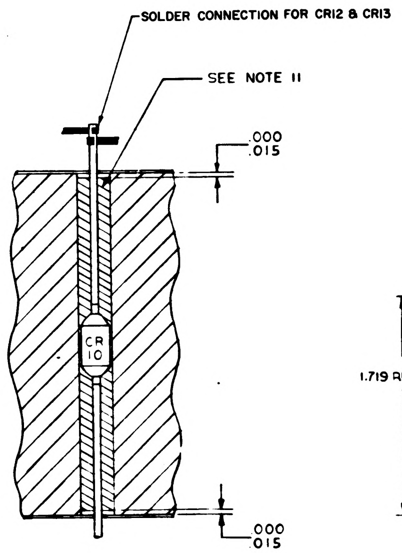
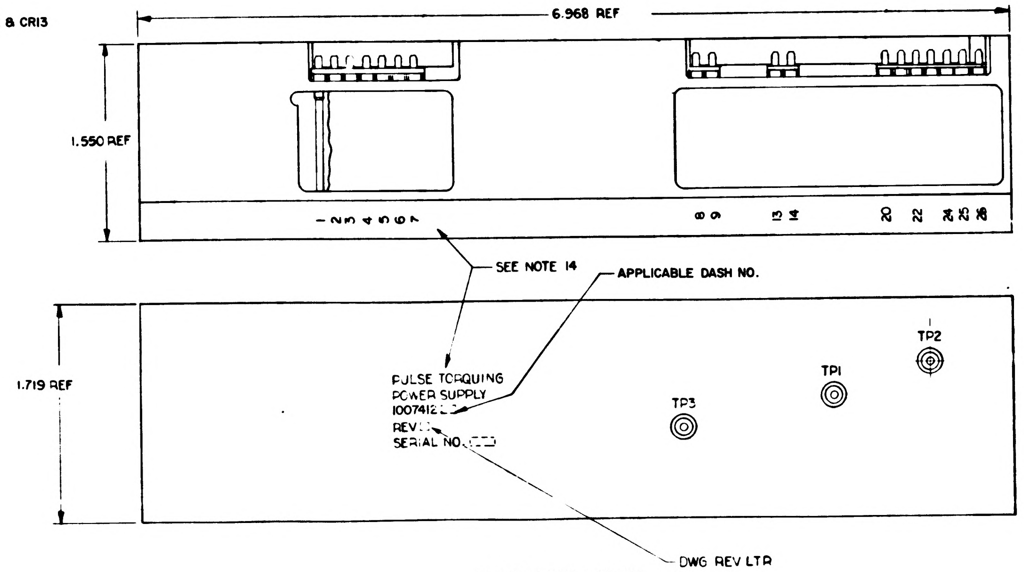
SECTION E-E


28°
32°
.144
.154
DIA
SEE NOTE 7
TP3
REF
R25
REF

SECTION G-G

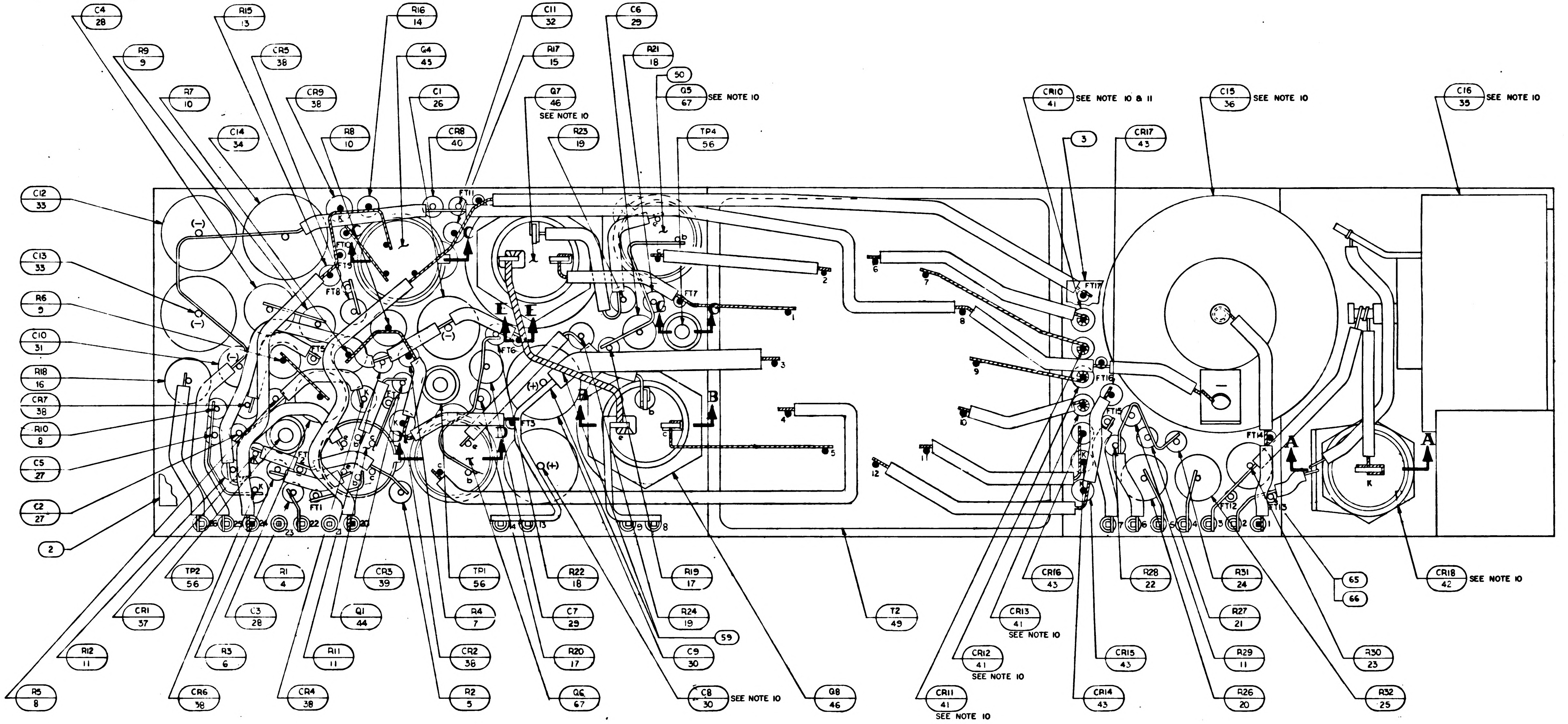

SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
.000
.015
CR
10
.000
.015

SECTION H-H
TYP FOR CR10, 11, 12, & 13


6.968 REF
1.550 REF
SEE NOTE 14
APPLICABLE DASH NO.
1.719 REF
PULSE TORQUING
POWER SUPPLY
1007412
REV
SERIAL NO.
TP3
TP1
TP2
DWG REV LTR

MARKING VIEW
SCALE 2/1

CONFIGURATION	OND BETW VAFER A EATSINK
WAFER AND FLAT HEATSINK	00% OF ROM EXT EATSINK 0% OF ROM EXT EATSIN URFACE
WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE	ORNER ND VER URFACE VITH N. F EXTER URFACE
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A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R16 14
C11 32
C6 29
R9 9
CR5 38
G4 43
R17 15
R21 18
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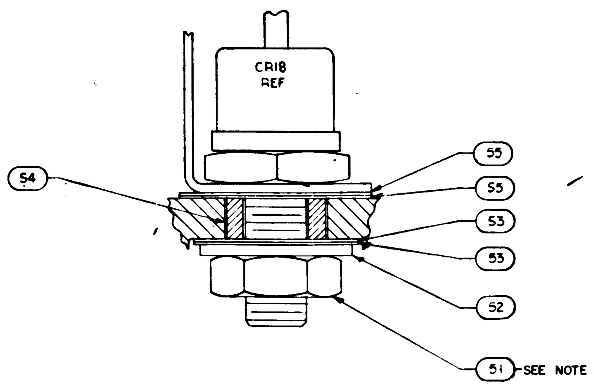
Q5 67 SEE NOTE 10
R7 10
CR9 38
C1 26
Q7 46 SEE NOTE 10
C14 34
R8 10
CR8 40
R23 19
TP4 56
CR10 41 SEE NOTE 10 & 11
C15 36 SEE NOTE 10
C16 35 SEE NOTE 10
3
CR17 43
C12 33
C13 33
R6 9
C10 31
R18 16
CR7 38
R10 8
C5 27
C2 27
2
TP2 56
R1 4
CR3 39
TP1 56
R22 18
R19 17
T2 49
CR16 43
R28 22
R31 24
65
66
CR18 42 SEE NOTE 10
CR1 37
C3 28
Q1 44
R4 7
C7 29
R24 19
59
CR13 41 SEE NOTE 10
R27 21
R12 11
R3 6
R11 11
CR2 36
R20 17
C9 30
CR12 41 SEE NOTE 10
CR15 43
R29 11
R30 23
R5 8
CR6 38
CR4 38
R2 5
Q6 67
C8 30 SEE NOTE 10
Q8 46
CR11 41 SEE NOTE 10
CR14 43
R26 20
R32 25
A
B
C
E
K
FT1
FT3
FT5
FT6
FT7
FT8
FT11
FT12
FT13
FT14
FT15
FT16
FT17
(+)
(-)

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 61 AND 62 PER ND 1002136
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005 EXCEPT WHERE NOTED
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
6. ON FIND NO'S 2 AND 3
    BROKEN PATHS INDICATE INSULATION SLEEVING,
    K INDICATES CATHODE SIDE OF DIODE,
    FT ( ) INDICATES FEED THRU
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
    C INDICATES COLLECTOR LEAD OF TRANSISTOR,
    B INDICATES BASE LEAD OF TRANSISTOR,
    E INDICATES EMITTER LEAD OF TRANSISTOR
7. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
8. STAKE FIND NO. 4 THRU 34.37 THRU 48, 50, 54 AND 67 PER ND 1002009 METHOD C AND CENTRALIZE.
9. AR DENOTES AS REQUIRED
10. SOLDER PER ND 1002071
11. ENCAPSULATE PER ND 1002036 STYCAST 1090 CATALYST 11, CURE AT 160°F FOR 3 HOURS AND POST CURE AT 180°F FOR 7 HOURS.
12. MOUNTING TORQUE TO BE 10-14 IN. LBS.
13. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
14. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
15. PROCURE PER PS 1007052.
16. BOND FIND NO. 68 AND 69 TO FIND NO. 62 PER ND 1002237.
17. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
18. BOND FIND NO. 35, 36 AND 49 PER ND 1002004 TYPE I.
19. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF INSULATORS PER ND 1002187 TYPE I.~~
20. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE 1.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54
55
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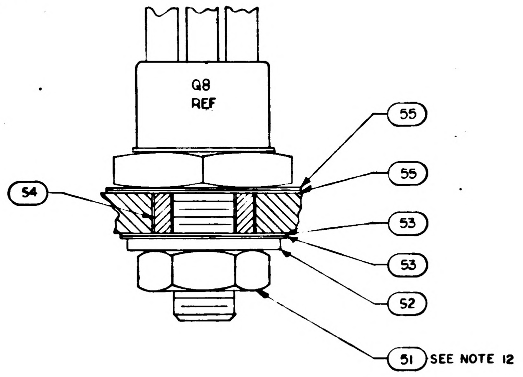
53
53
52
51 SEE NOTE 12

SECTION **A-A**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REF
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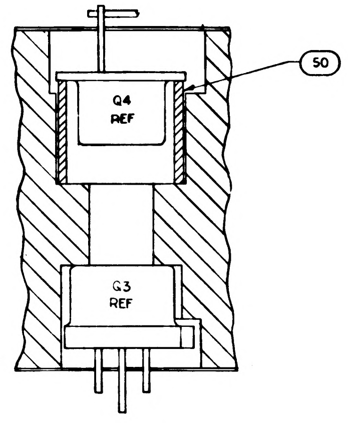
51 SEE NOTE 12

SECTION **B-B**

TYP Q8 & Q7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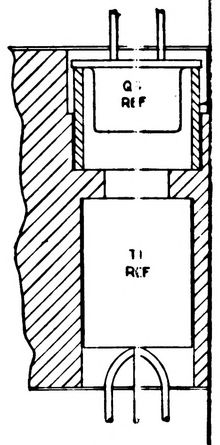
Q3
REF

SECTION **C-C**

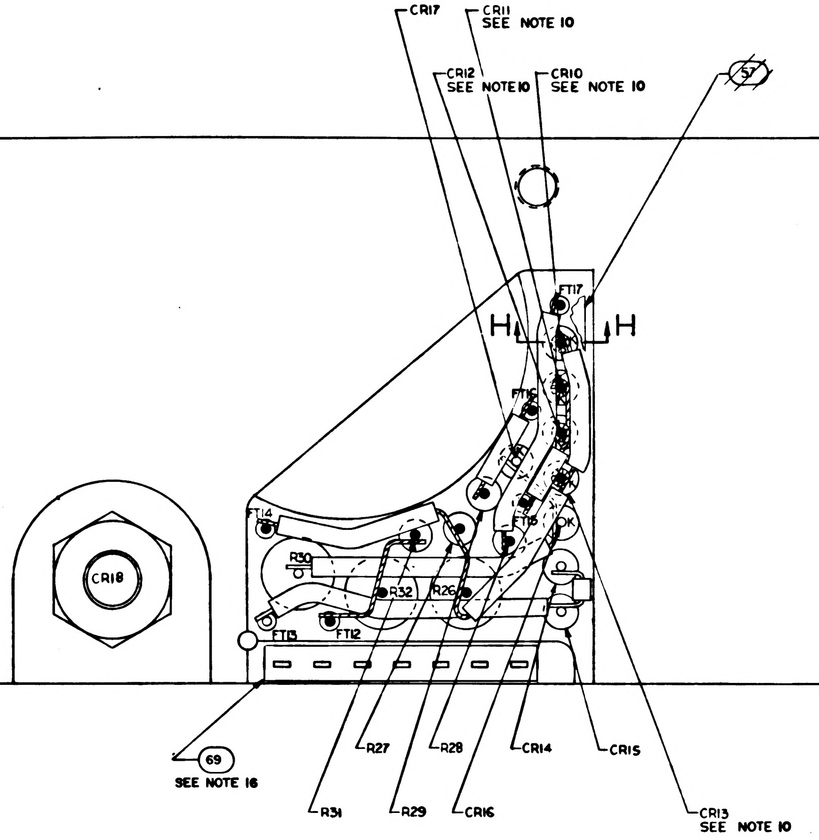


SECTION **D-**

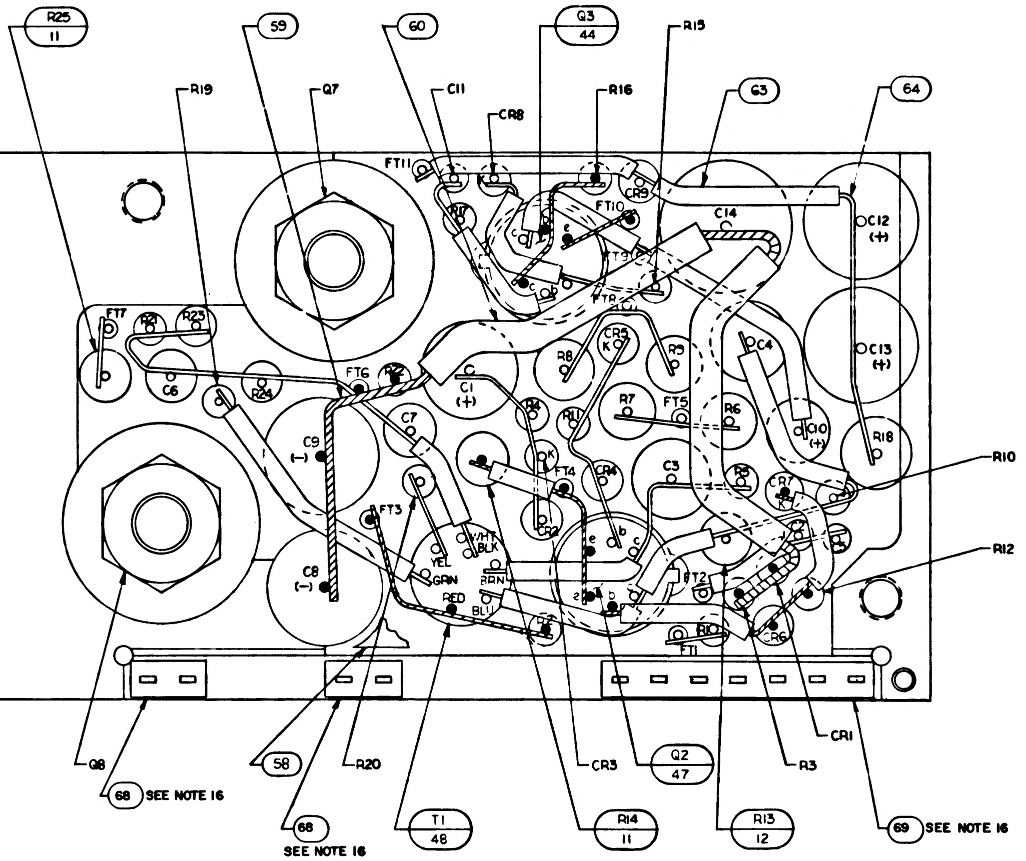
1007412 C 1 OF 1

1/1007412

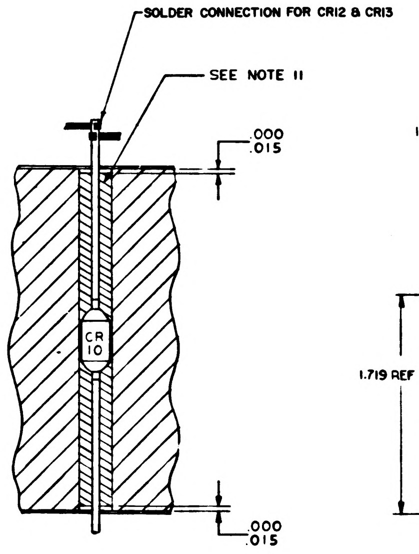
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
Ⓜ A	REVISED PER TDRR 17321	12-MAR-65	GM / EF
Ⓜ B	REVISED PER TDRR 17960	8 APR 65	JJJ / MCM
C	REVISED PER TDRR 19449	1 JUN 65	JM / J.E.G.
D	REVISED PER TDRR 19523	4 JUN 65	JMK



CR17
CR11 SEE NOTE 10
CR12 SEE NOTE 10
CR10 SEE NOTE 10
57
H
H
FT17
FT14
FT13
FT12
FT15
FT16
R30
R32
R26
CR18
69
SEE NOTE 16
R27
R28
CR14
CR15
R31
R29
CR16
CR13 SEE NOTE 10

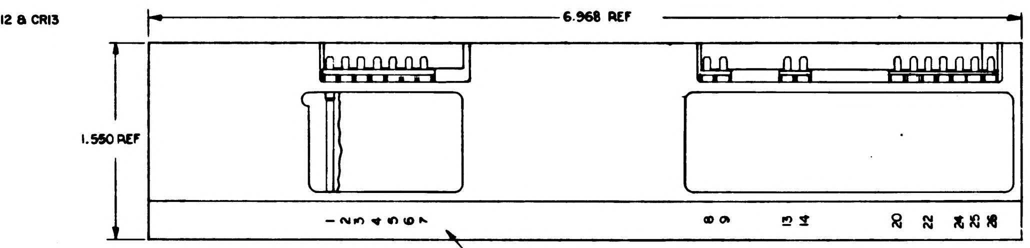


R25
11
59
60
Q3
44
R15
R19
Q7
C11
CR8
R16
63
64
FT11
FT10
C14
C12 (+)
C13 (+)
FT7
R23
C6
R24
FT6
C1 (+)
C9 (−)
C7
R8
CR5
R9
C4
R7
FT5
R6
R18
R10
FT3
C8 (−)
FT4
C5
R4
FT2
R12
WHT
BLK
GRN
BRN
RED
BLU
YEL
Q8
58
68 SEE NOTE 16
R20
CR3
Q2
47
R3
CR1
68
SEE NOTE 16
T1
48
R14
11
R13
12
69 SEE NOTE 16

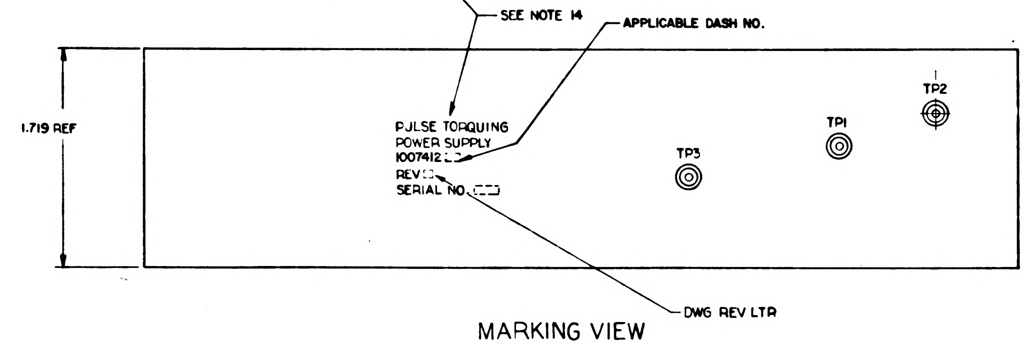


SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
.000
.015
CR 10
.000
.015

SECTION H-H
TYP FOR CR10, 11, 12, & 13



6.968 REF
1.550 REF



SEE NOTE 14
APPLICABLE DASH NO.
1.719 REF
PULSE TORQUING
POWER SUPPLY
1007412
REV
SERIAL NO.
TP3
TP1
TP2
DWG REV LTR

MARKING VIEW
SCALE 2/1

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE

			☒		1010052	SCHEMATIC	REF
			2		1008540-7	GASKET, CONNECTOR-MINIATURE	69
			2		1008540-2	GASKET, CONNECTOR-MINIATURE	68
			2		1010398 - 3	TRANSISTOR	67
			AR		1006757 - 8	WIRE ELEC .020 DIA	66
			AR		1006776 - 22	INSULATION SLEEVING ELEC	65
			AR		1006757 - 1	WIRE ELEC .010 X .020	64
			AR		1006776 - 21	INSULATION, SLEEVING	63
			18		1006775	INSULATOR, WRAPOST- MALE MINIATURE	62
			18		1006782 - 5	CONTACT, WRAPOST-MALE, MINIATURE	61
			AR		1006776 - 20	INSULATION SLEEVING	60
			AR		1006757 - 9	WIRE ELEC .032 DIA	59
			1		1008094 - 1	INSULATOR	58
			~~1~~		~~1008094 - 2~~	~~INSULATOR~~	~~57~~
			3		1010292 - 2	TERMINAL, FEEDTHRU	56
			6		1008024 - 2	WASHER, INSULATOR	55
			3		1008021 - 1	BUSHING, INSULATOR	54
			6		1008024 - 1	WASHER, INSULATOR	53
			3		1008071 - 2	WASHER	52
			3		MS20341 - 10B	NUT	51
			3		1008025 - 2	INSULATOR, BUSHING	50
			1		1010745	TRANSFORMER	49
			1		1010315 - 2	TRANSFORMER	48
			1		1010376 - 4	TRANSISTOR	47
			2		1010499 - 2	TRANSISTOR	46
			1		1010398 - 1	TRANSISTOR	45
			2		1010376 1	TRANSISTOR	44
			4		1010384	DIODE	43
			1		1010331 - 013	DIODE	42
			4		1010497	DIODE	41
			1		1010830 - 25	DIODE	40
			1		1010830 - 9	DIODE	39
			6		1010385	DIODE	38
			1		1010830 - 5	DIODE	37
			1		1010460 - 1	CAPACITOR	36
			1		1010460 - 2	CAPACITOR	35
			1		1010264 - 29	CAPACITOR	34
			2		1006755 - 89	CAPACITOR	33
			1		1006777 - 18	CAPACITOR	32
			1		1006755 - 79	CAPACITOR	31
			2		1010393 - 045	CAPACITOR	30
			2		1006777 - 30	CAPACITOR	29
			2		1010316 - 36	CAPACITOR	28
			2		1006777 - 16	CAPACITOR	27
			1		1006755 - 85	CAPACITOR	26
			1		1010278 - 80	RESISTOR	25
			1		1006750 - 77	RESISTOR	24
			1		1010389 - 48	RESISTOR	23
			1		1006750 - 67	RESISTOR	22
			1		1010369 - 93	RESISTOR	21
			1		1010278 - 94	RESISTOR	20
			2		1006802 - 1	RESISTOR	19
			2		1006750 - 31	RESISTOR	18
			2		1006750 - 22	RESISTOR	17
			1		1010278 - 70	RESISTOR	16
			1		1006750 - 47	RESISTOR	15
			1		1006750 - 50	RESISTOR	14
			1		1006750 - 32	RESISTOR	13
			1		1006750 63	RESISTOR	12
			5		1006750 - 56	RESISTOR	11
			2		1010377 - 111	RESISTOR	10
			2		1010377 - 110	RESISTOR	9
			2		1006750 - 74	RESISTOR	8
			1		1006750 - 62	RESISTOR	7
			1		1006750 - 12	RESISTOR	6
			1		1006750 - 51	RESISTOR	5
			1		1006750 - 65	RESISTOR	4
			~~1~~		~~1008093 - 2~~	~~INSULATOR~~	~~3~~
			1		1008093 - 1	INSULATOR	2
			1		1007069	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF MATERIALS		

1007412 D

1007577		
1007572		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± XX DECIMALS ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 2OCT64
CHECKED 12OCT64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

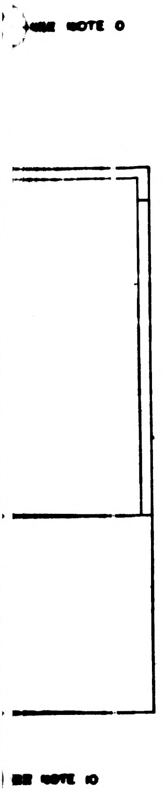
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

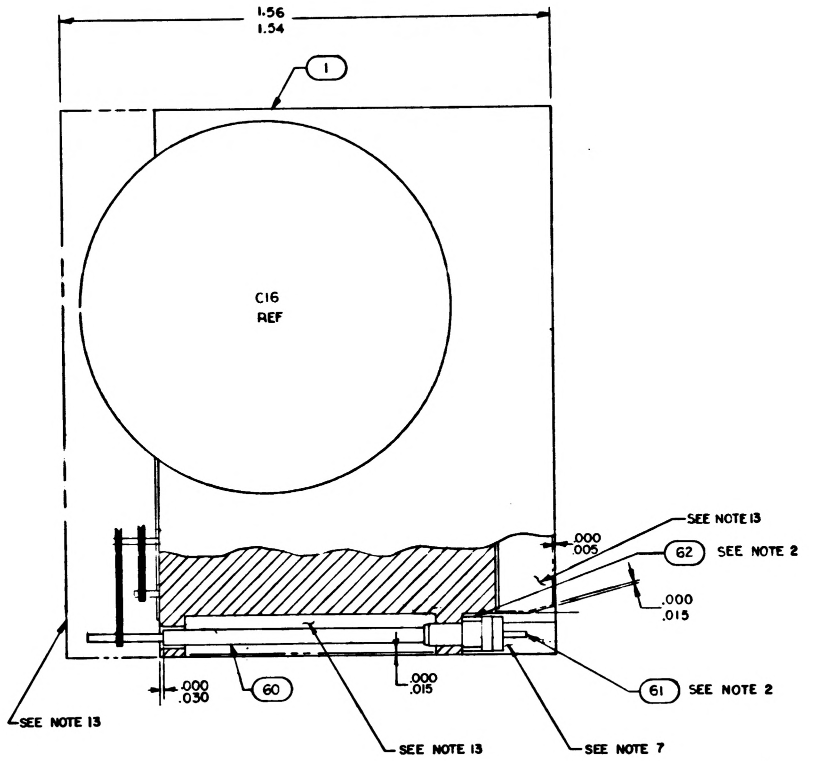
PULSE TORQUING
POWER SUPPLY
MODULE ASSY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	1007412
SCALE 5/1	WT	SHEET 1 OF 1

1007412 REV D 1 OF 1

37-1007412


SEE NOTE 0
SEE NOTE 10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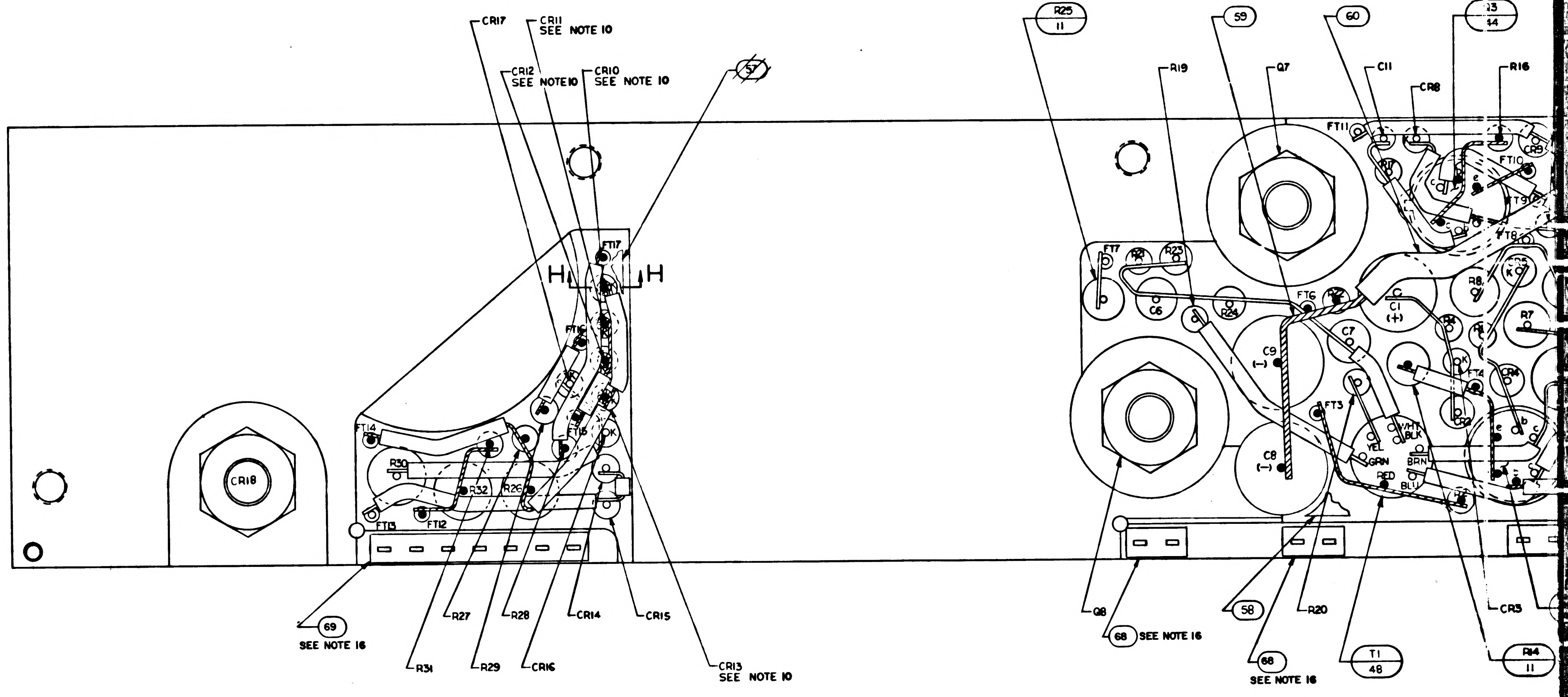
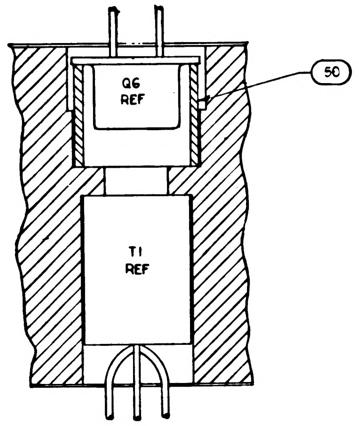
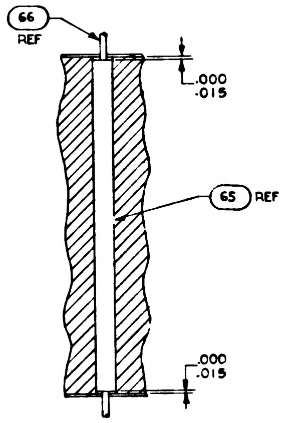
1.54
1
C16
REF
.000
.005
SEE NOTE 13
62
SEE NOTE 2
.000
.015
.000
.030
60
.000
.015
61
SEE NOTE 2
SEE NOTE 13
SEE NOTE 13
SEE NOTE 7


CR17
CR11
SEE NOTE 10
CR12
SEE NOTE 10
CR10
SEE NOTE 10
57
H
H
FT17
FT16
FT15
FT14
FT13
FT12
R30
R32
R26
CR18
69
SEE NOTE 16
R27
R28
CR14
CR15
R31
R29
CR16
CR13
SEE NOTE 10
R25
11
59
60
13
14
R19
Q7
C11
CR8
R16
FT11
FT10
FT9
FT8
FT7
R22
R23
C6
R24
FT6
C1
(+)
C9
(−)
C7
R8
R7
FT5
FT4
FT3
C8
(−)
YEL
GRN
RED
BLU
WHT
BLK
BRN
Q8
68
SEE NOTE 16
58
R20
68
SEE NOTE 16
T1
48
CR3
R14
11


Q6
REF
50
T1
REF

SECTION D-D


66
REF
.000
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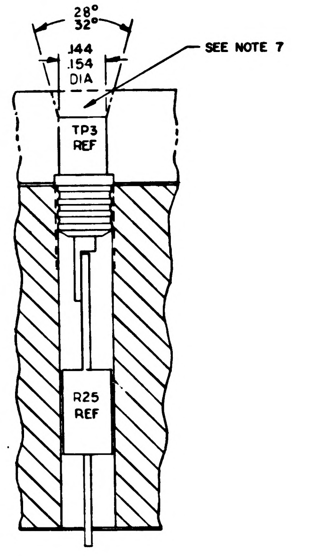
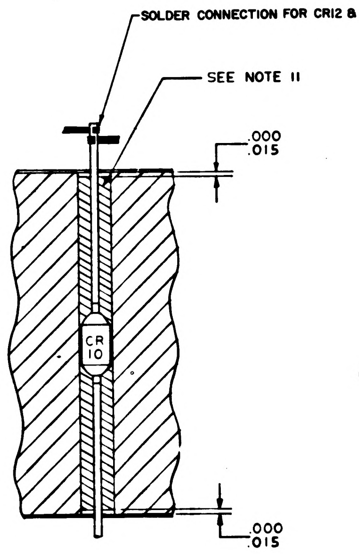
65
REF
.000
.015

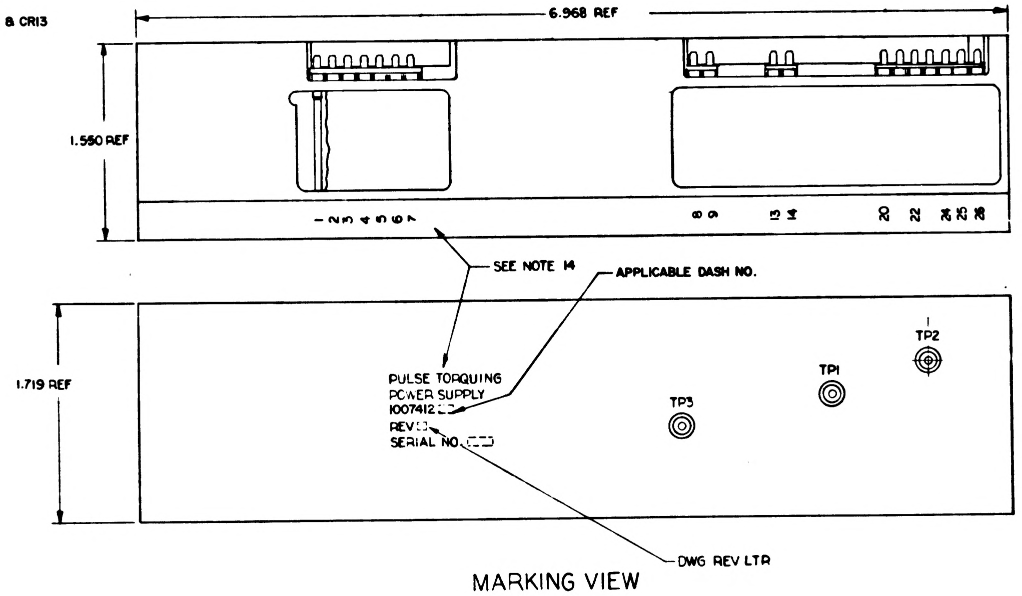
SECTION E-E


28°
32°
.144
.154
DIA
SEE NOTE 7
TP3
REF
R25
REF

SECTION G-G


SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
.000
.015
CR
10
.000
.015

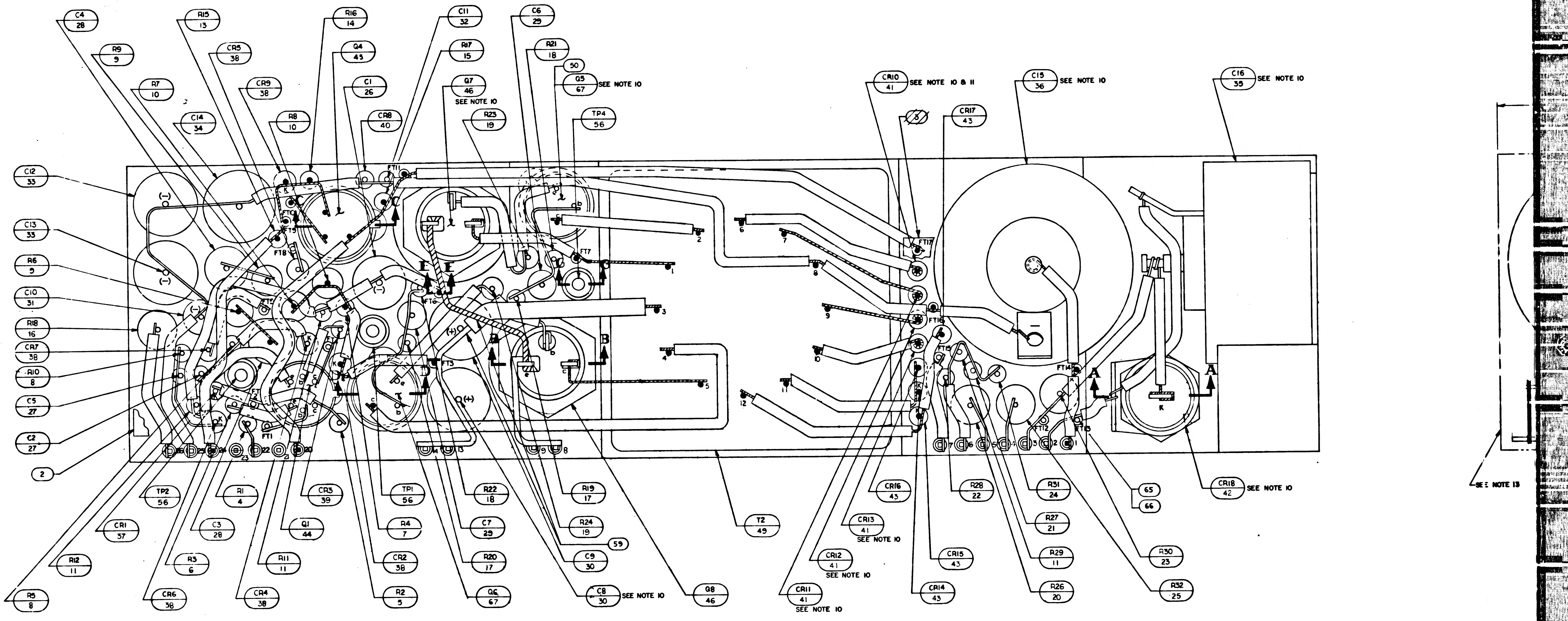
SECTION H-H
TYP FOR CR10, 11, 12, & 13


6.968 REF
1.550 REF
SEE NOTE 14
APPLICABLE DASH NO.
1.719 REF
PULSE TORQUING
POWER SUPPLY
1007412-
REV
SERIAL NO.
TP3
TP1
TP2
DWG REV LTR

MARKING VIEW
SCALE 2/1

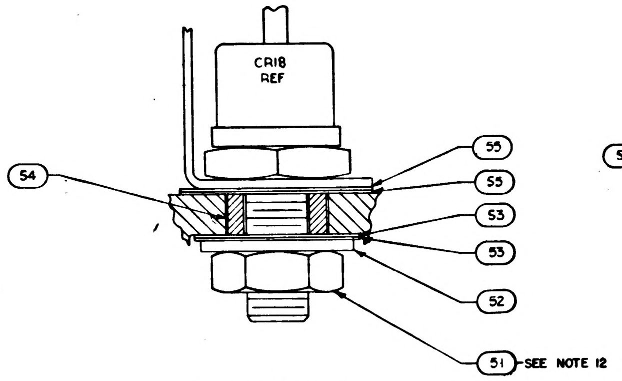
CONFIGURATION	BOND BETWE WAFER AND HEATSINK
WAFER AND FLAT HEATSINK	100% OF A FROM EXTE HEATSINK 80% OF A FROM EX HEATSINK SURFACE
WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER AND VERT SURFACE WITH N.O OF EXTER SURFACE
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A

[illegible]


C4 28
R15 13
R16 14
C11 32
C6 29
R9 9
CR5 38
Q4 43
R17 15
R21 18
50
Q5 67 SEE NOTE 10
Q7 46 SEE NOTE 10
R7 10
CR9 38
C1 26
C14 34
R8 10
CR8 40
R23 19
TP4 56
CR10 41 SEE NOTE 10 & 11
C15 36 SEE NOTE 10
C16 35 SEE NOTE 10
CR17 43
3
C12 33
C13 33
R6 5
C10 31
R18 16
CR7 38
R10 8
C5 27
C2 27
2
FT1
FT2
FT5
FT6
FT7
FT8
FT9
FT10
FT11
FT12
FT13
FT14
FT15
FT16
FT17
FT18
A
B
C
D
E
K
(+)
(−)
TP2 56
R1 4
CR3 39
TP1 56
R22 18
R19 17
CR1 37
C3 28
Q1 44
R4 7
C7 29
R24 19
59
R12 11
R3 6
R11 11
CR2 38
R20 17
C9 30
R5 8
CR6 38
CR4 38
R2 5
Q6 67
C8 30 SEE NOTE 10
Q8 46
T2 49
CR16 43
CR13 41 SEE NOTE 10
CR12 41 SEE NOTE 10
CR11 41 SEE NOTE 10
CR15 43
CR14 43
R28 22
R31 24
R27 21
R29 11
R26 20
65
66
R30 23
R32 25
CR18 42 SEE NOTE 10
SEE NOTE 13

NO 'S:

.. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 61 AND 62 PER ND 1002136
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005 EXCEPT WHERE NOTED
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
6. ON FIND NO'S 2 AND 3
    BROKEN PATHS INDICATE INSULATION SLEEVING,
    K INDICATES CATHODE SIDE OF DIODE,
    FT ( ) INDICATES FEED THRU
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
    C INDICATES COLLECTOR LEAD OF TRANSISTOR,
    B INDICATES BASE LEAD OF TRANSISTOR,
    E INDICATES EMITTER LEAD OF TRANSISTOR
7. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
8. STAKE FIND NO. 4 THRU 34,37 THRU 48, 50,54 AND 67 PER ND 1002009 METHOD H AND CENTRALIZE.
9. AR DENOTES AS REQUIRED
10. SOLDER PER ND 1002071
11. ENCAPSULATE PER ND 1002036 STYCAST 1090 CATALYST 11, CURE AT 160°F FOR 3 HOURS AND POST CURE AT 180°F FOR 7 HOURS.
12. MOUNTING TORQUE TO BE 10-14 IN. LBS.
13. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
14. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
15. PROCURE PER PS 1007052.
16. BOND FIND NO. 68 AND 69 TO FIND NO. 62 PER ND 1002237.
17. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
18. BOND FIND NO. 35, 36 AND 49 PER ND 1002004 TYPE I.
~~19. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF INSULATORS PER ND 1002187 TYPE I.~~
~~20. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE 1.~~
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.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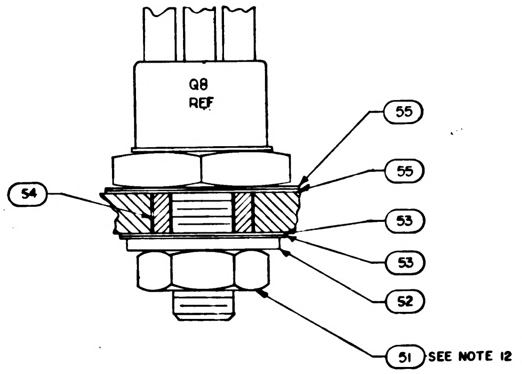
53
52
51 SEE NOTE 12

SECTION A-A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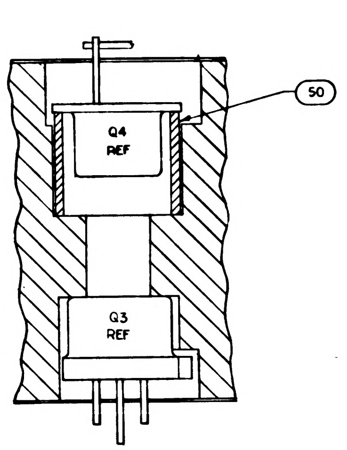
51 SEE NOTE 12

SECTION B-B

TYP Q8 & Q7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Q3
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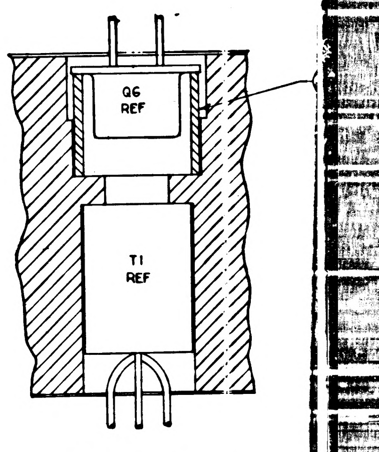
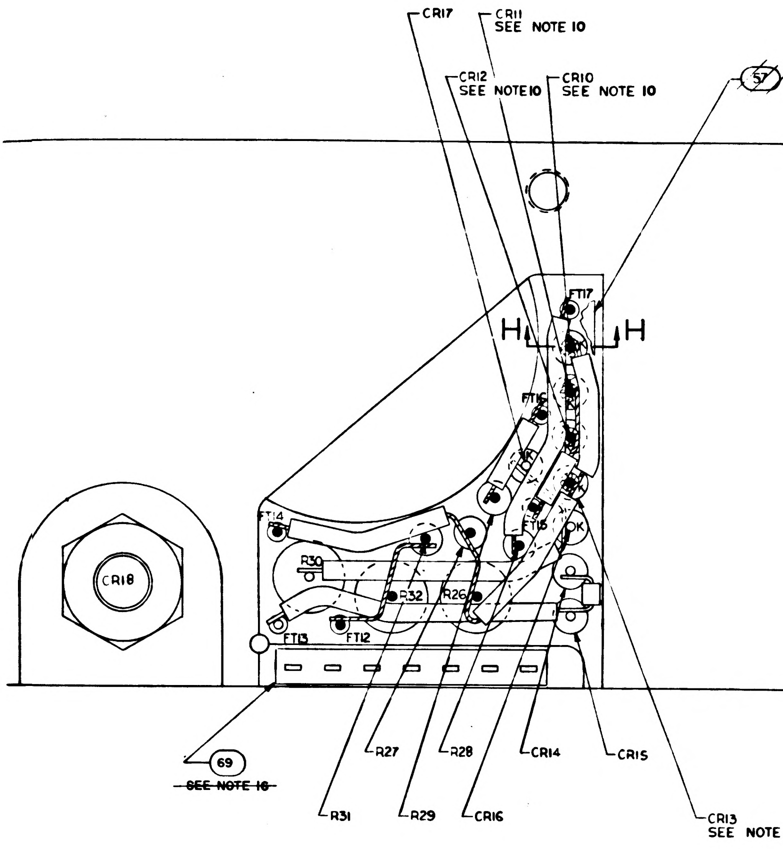
SECTION C-C


Q6
REF
T1
REF

SECTION D-D

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 7321	MAR 65	GM / EF
B	REVISED PER TDRR [illegible]	8 APR 65	MCM
C	REVISED PER TDRR 9449	JUNE 65	JM / J.E.F.
D	REVISED PER TDRR 19523	4 JUN 65	MK
E	REVISED PER TDRR 20143	9 JUN 65	[illegible]



CR17
CR11 SEE NOTE 10
CR12 SEE NOTE 10
CR10 SEE NOTE 10
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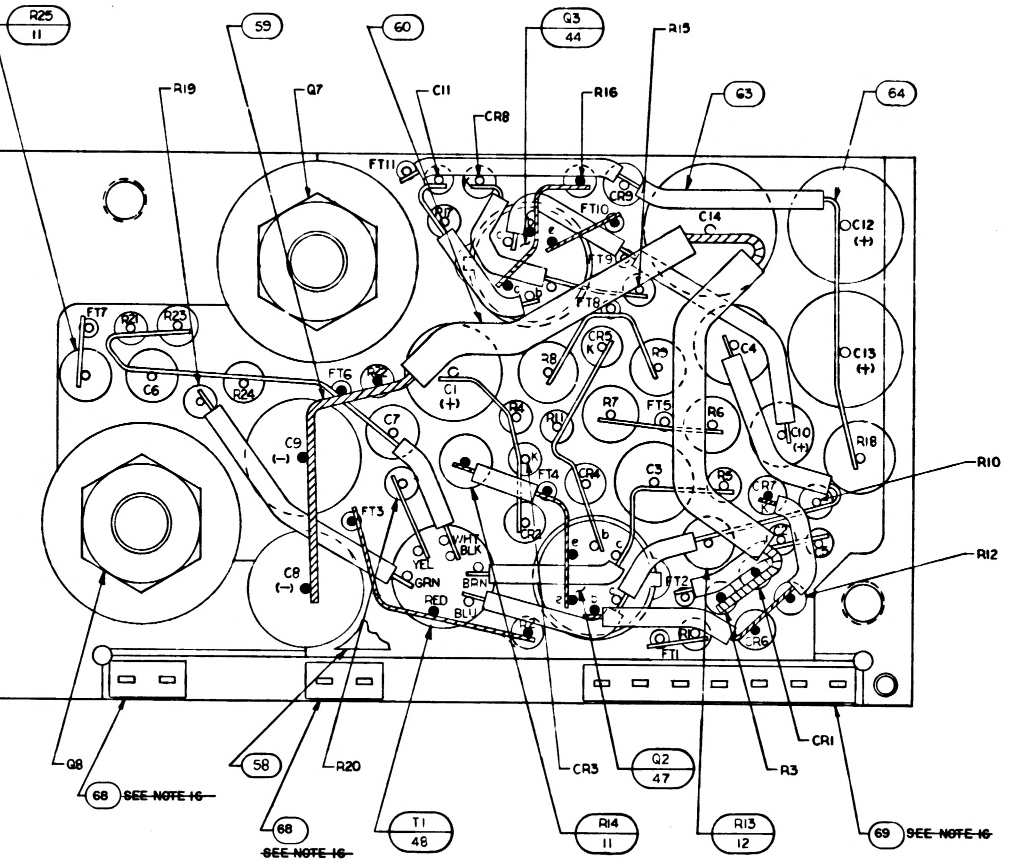
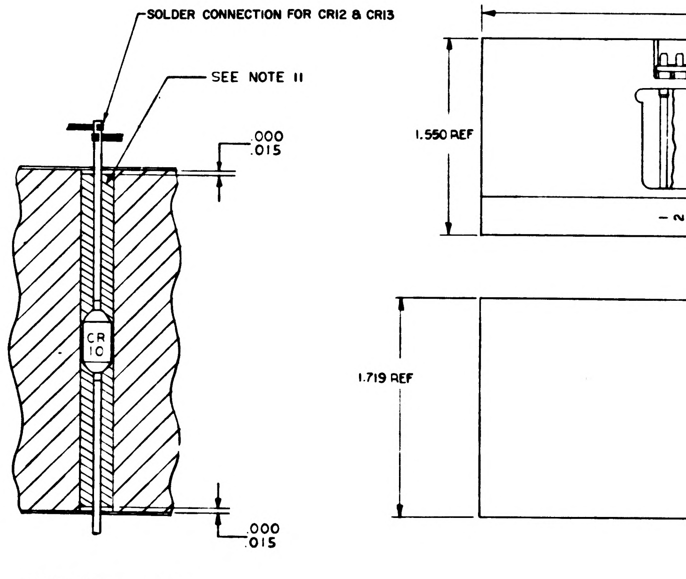
FT17
H
H
FT16
FT15
FT14
R30
R32
R26
FT13
FT12
CR18
69
~~SEE NOTE 16~~
R27
R28
CR14
CR15
R31
R29
CR16
CR13 SEE NOTE 10

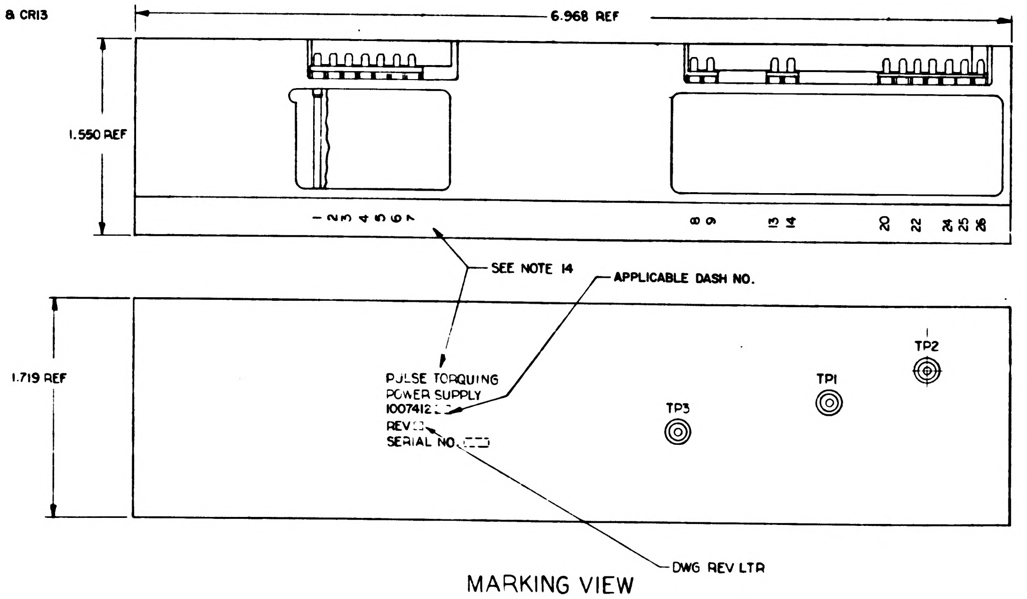


R25 11
59
60
Q3 44
R15
63
64
R19
Q7
C11
CR8
R16
FT11
C14
C12 (+)
FT10
FT9
FT8
FT7
R21
R23
CR5
R8
R9
C4
C13 (+)
C6
R24
FT6
R22
C1 (+)
C7
R7
FT5
R6
C10 (+)
R18
R10
C9 (−)
FT4
CR4
C3
CR7
C8 (−)
FT3
YEL
WHT
BLK
GRN
BRN
RED
BLU
FT2
FT1
R12
Q8
68 ~~SEE NOTE 16~~
58
R20
68 ~~SEE NOTE 16~~
T1 48
CR3
Q2 47
R14 11
R13 12
R3
CR1
69 ~~SEE NOTE 16~~



SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
.000
.015
CR 10
.000
.015

SECTION H-H
TYP FOR CR10, 11, 12, & 13



6.968 REF
1.550 REF
1 2 3 4 5 6 7
8 9
13 14
20 22 24 25 26
SEE NOTE 14
APPLICABLE DASH NO.
1.719 REF
PULSE TORQUING
POWER SUPPLY
1007412
REV
SERIAL NO.
TP3
TP1
TP2
DWG REV LTR

MARKING VIEW
SCALE 2/1

~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ±.03 OF EXTERNAL SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE~~

QUANTITY REQUIRED			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			☒		1010052	SCHEMATIC	REF
			2		1008540-7	GASKET, CONNECTOR-MINIATURE	69
			2		1008540-2	GASKET, CONNECTOR-MINIATURE	68
			2		1010398 - 3	TRANSISTOR	67
			AR		1006757 - 8	WIRE ELEC .020 DIA	66
			AR		1006776 - 22	INSULATION SLEEVING ELEC	65
			AR		1006757 - 1	WIRE, ELEC .010 X .020	64
			AR		1006776 - 21	INSULATION, SLEEVING	63
			18		1006775	INSULATOR, WRAPOST-MALE MINIATURE	62
			18		1006782 - 5	CONTACT, WRAPOST, MALE, MINIATURE	61
			AR		1006776 - 20	INSULATION SLEEVING	60
			AR		1006757 - 9	WIRE ELEC .032 DIA	59
			1		1008094 - 1	INSULATOR	58
			~~1~~		~~1008094 - 2~~	~~INSULATOR~~	~~57~~
			3		1010292 - 2	TERMINAL, FEEDTHRU	56
			6		1008024 - 2	WASHER, INSULATOR	55
			3		1008021 - 1	BUSHING, INSULATOR	54
			6		1008024 - 1	WASHER, INSULATOR	53
			3		1008071 - 2	WASHER	52
			3		MS20341 - 10B	NUT	51
			3		1008025 - 2	INSULATOR, BUSHING	50
			1		1010745	TRANSFORMER	49
			1		1010315 - 2	TRANSFORMER	48
			1		1010376 - 4	TRANSISTOR	47
			2		1010499 - 2	TRANSISTOR	46
			1		1010398 - 1	TRANSISTOR	45
			2		1010376 - 1	TRANSISTOR	44
			4		1010384	DIODE	43
			1		1010331 - 013	DIODE	42
			4		1010497	DIODE	41
			1		1010830 - 25	DIODE	40
			1		1010830 - 9	DIODE	39
			6		1010385	DIODE	38
			1		1010830 - 5	DIODE	37
			1		1010460 - 1	CAPACITOR	36
			1		1010460 - 2	CAPACITOR	35
			1		1010264 - 29	CAPACITOR	34
			2		1006755 - 89	CAPACITOR	33
			1		1006777 - 18	CAPACITOR	32
			1		1006755 - 79	CAPACITOR	31
			2		1010393 - 045	CAPACITOR	30
			2		1006777 - 30	CAPACITOR	29
			2		1010316 - 36	CAPACITOR	28
			2		1006777 - 16	CAPACITOR	27
			1		1006755 - 85	CAPACITOR	26
			1		1010278 - 80	RESISTOR	25
			1		1006750 - 77	RESISTOR	24
			1		1010389 - 48	RESISTOR	23
			1		1006750 - 67	RESISTOR	22
			1		1010369 - 93	RESISTOR	21
			1		1010278 - 94	RESISTOR	20
			2		1006802 - 1	RESISTOR	19
			2		1006750 - 31	RESISTOR	18
			2		1006750 - 22	RESISTOR	17
			1		1010278 - 70	RESISTOR	16
			1		1006750 - 47	RESISTOR	15
			1		1006750 - 50	RESISTOR	14
			1		1006750 - 32	RESISTOR	13
			1		1006750 - 63	RESISTOR	12
			5		1006750 - 56	RESISTOR	11
			2		1010377 - 111	RESISTOR	10
			2		1010377 - 110	RESISTOR	9
			2		1006750 - 74	RESISTOR	8
			1		1006750 - 62	RESISTOR	7
			1		1006750 - 12	RESISTOR	6
			1		1006750 - 51	RESISTOR	5
			1		1006750 - 65	RESISTOR	4
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			1		1008093 - 1	INSULATOR	2
			1		1007069	HEATSINK	1

LIST OF MATERIALS

1007412 E

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		
1007572		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ±.02 .XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN [illegible] DATE 2 OCT 64
CHECKED [illegible] 12 OCT 64
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible] 11-4-64
MIT APPROVAL [illegible]

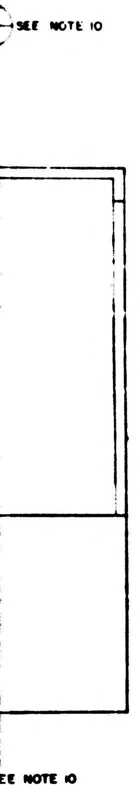
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

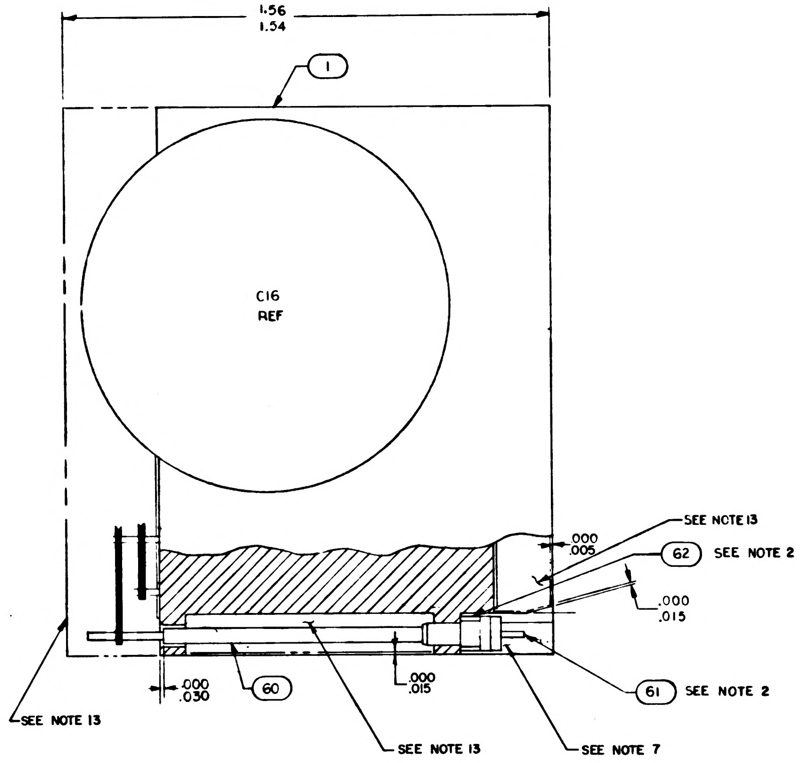
PULSE TORQUING
POWER SUPPLY
MODULE ASSY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 1007412
SCALE 5/1
WT
SHEET 1 OF 1

1007412 REV E 1 OF 1

3#


SEE NOTE 10
SEE NOTE 10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C16
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SEE NOTE 13
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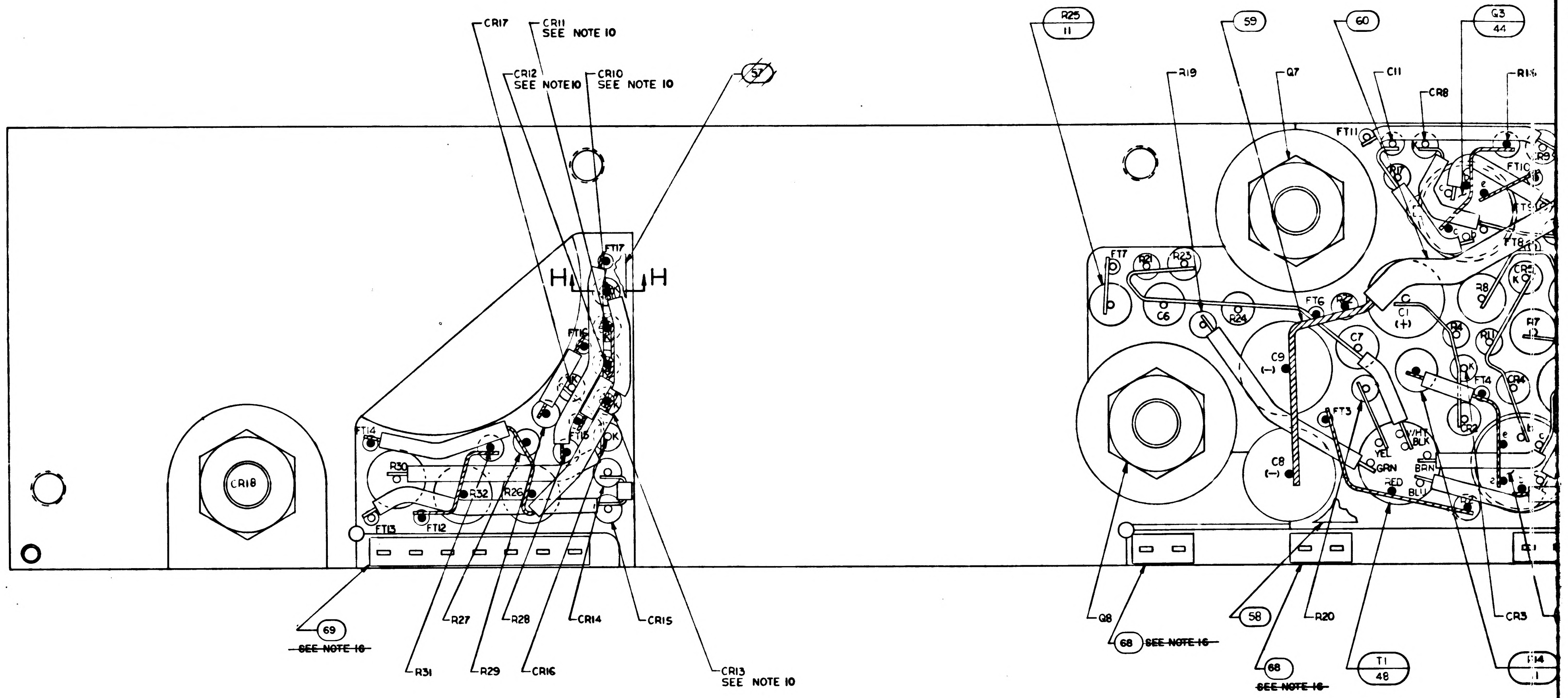
.000
.015
.000
.030
60
.000
.015
61 SEE NOTE 2
SEE NOTE 13
SEE NOTE 13
SEE NOTE 7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CR11
SEE NOTE 10
CR12
SEE NOTE 10
CR10
SEE NOTE 10
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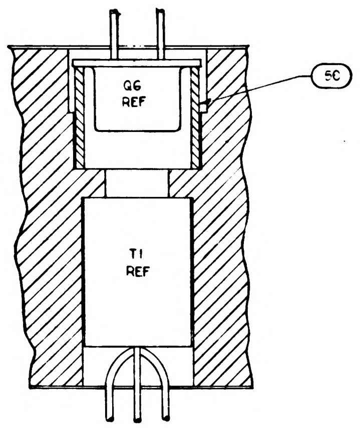
FT17
FT15
FT16
FT14
FT13
FT12
R30
R32
R26
CR18
69
SEE NOTE 16
R27
R28
CR14
CR15
R31
R29
CR16
CR13
SEE NOTE 10
R25
11
59
60
Q3
44
R19
Q7
C11
CR8
R16
FT11
FT10
R9
FT9
FT8
FT7
R21
R23
C6
R24
FT6
C1
(+)
R8
R7
C9
(−)
C7
FT4
FT3
C8
(−)
YEL
GRN
WHT
BLK
BRN
RED
BLU
Q8
68 SEE NOTE 16
58
R20
68
SEE NOTE 16
T1
48
CR3
R14
1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REF
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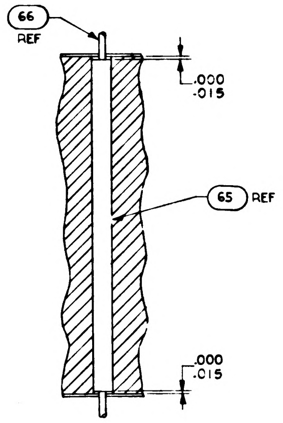
T1
REF

SECTION D-D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REF
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65 REF
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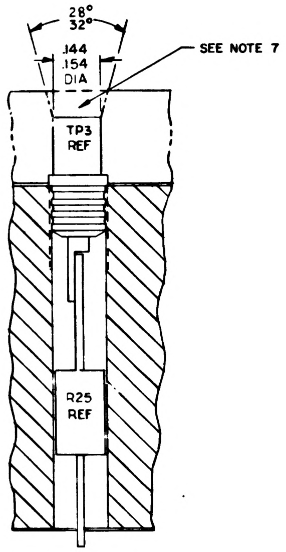
SECTION E-E


28°
32°
.144
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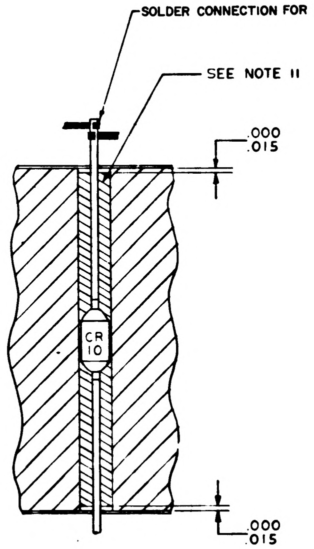
DIA
SEE NOTE 7
TP3
REF
R25
REF

SECTION G-G


SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
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.015
CR
10
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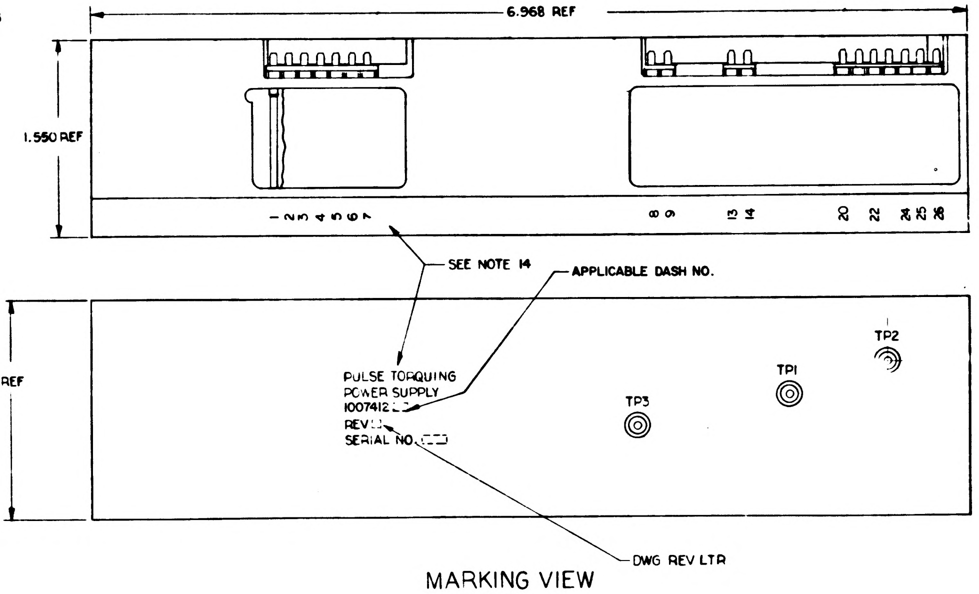
.015

SECTION H-H
TYP FOR CR10, 11, 12, & 13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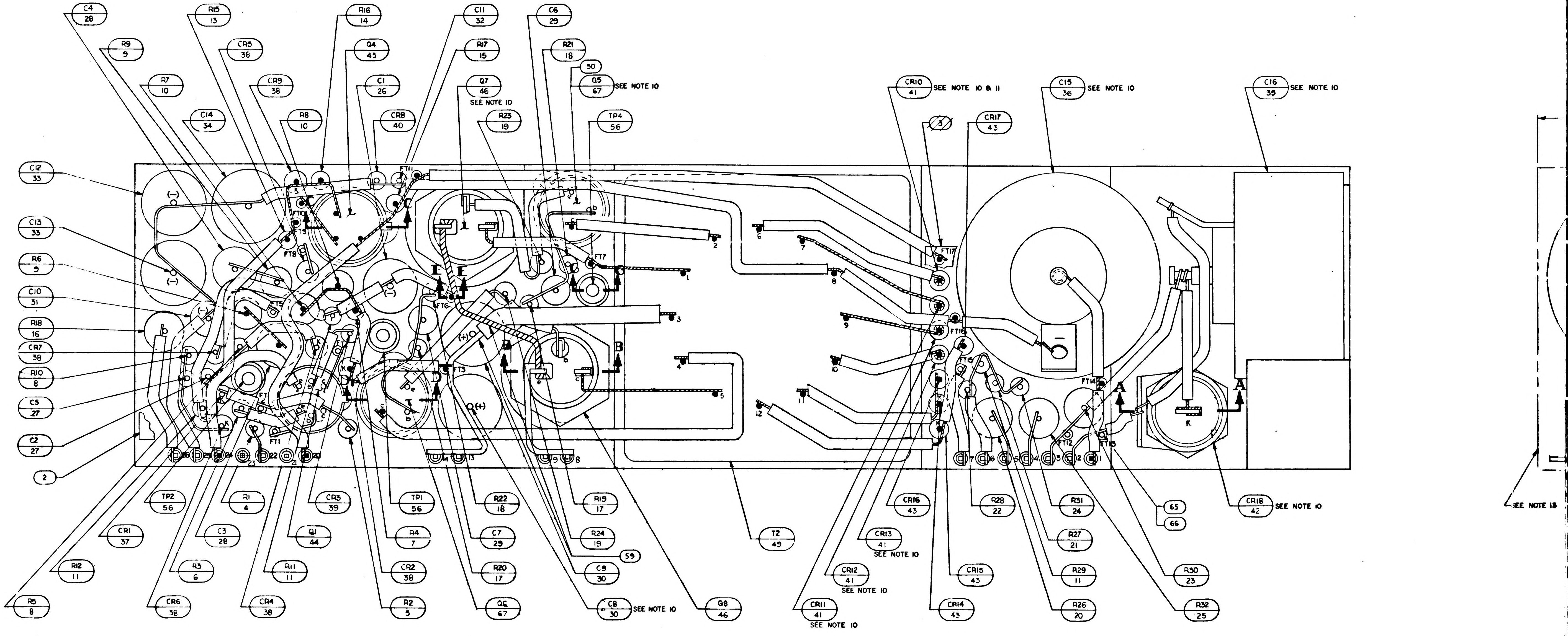
22
24 25 26
SEE NOTE 14
APPLICABLE DASH NO.
1.719 REF
PULSE TORQUING
POWER SUPPLY
1007412
REV
SERIAL NO.
TP3
TP1
TP2
DWG REV LTR

MARKING VIEW
SCALE 2/1

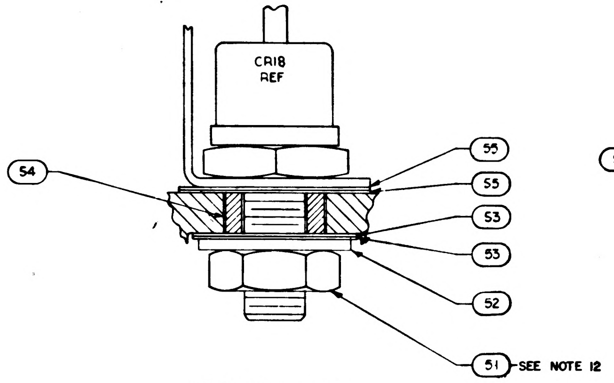
CONFIGURATION	BOND BETW WAFER AN HEATSINK
WAFER AND FLAT HEATSINK	100% OF A FROM EXTE HEATSINK 80% OF A FROM EXTE HEATSINK SURFACE
WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER AND VERT SURFACE WITH OF EXTER SURFACE
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


C4 28
R15 13
R16 14
C11 32
C6 29
R9 9
CR5 38
Q4 45
R17 15
R21 18
50
Q5 67 SEE NOTE 10
R7 10
CR9 38
C1 26
Q7 46 SEE NOTE 10
C14 34
R8 10
CR8 40
R23 19
TP4 56
CR10 41 SEE NOTE 10 & 11
3
CR17 43
C15 36 SEE NOTE 10
C16 35 SEE NOTE 10
C12 33
C13 33
R6 9
C10 31
R18 16
CR7 38
R10 8
C5 27
C2 27
2
FT1
FT3
FT5
FT6
FT7
FT8
FT10
FT11
FT12
FT13
FT14
FT15
FT16
FT17
A
B
E
K
(+)
(−)
TP2 56
R1 4
CR3 39
TP1 56
R22 18
R19 17
CR16 43
R28 22
R31 24
65
66
CR18 42 SEE NOTE 10
CR1 37
C3 28
Q1 44
R4 7
C7 29
R24 19
T2 49
CR13 41 SEE NOTE 10
R27 21
59
R12 11
R3 6
R11 11
CR2 38
R20 17
C9 30
CR12 41 SEE NOTE 10
CR15 43
R29 11
R30 23
R5 8
CR6 38
CR4 38
R2 5
Q6 67
C8 30 SEE NOTE 10
Q8 46
CR11 41 SEE NOTE 10
CR14 43
R26 20
R32 25
SEE NOTE 13

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 61 AND 62 PER ND 1002136
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005 EXCEPT WHERE NOTED
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
6. ON FIND NO'S 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
7. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
8. STAKE FIND NO. 4 THRU 34.37 THRU 48, 50,54 AND 67 PER ND 1002009 METHOD H AND CENTRALIZE.
9. AR DENOTES AS REQUIRED
10. SOLDER PER ND 1002071
11. ENCAPSULATE PER ND 1002036 STYCAST 1090 CATALYST 11, CURE AT 160°F FOR 3 HOURS AND POST CURE AT 180°F FOR 7 HOURS.
12. MOUNTING TORQUE TO BE 10-14 IN. LBS.
13. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
14. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
15. PROCURE PER PS 1007052.
16. ~~BOND FIND NO. 68 AND 69 TO FIND NO. 62 PER ND 1002237.~~
17. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
18. BOND FIND NO. 35, 36 AND 49 PER ND 1002004 TYPE I.
19. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF INSULATORS PER ND 1002187 TYPE I.~~
20. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.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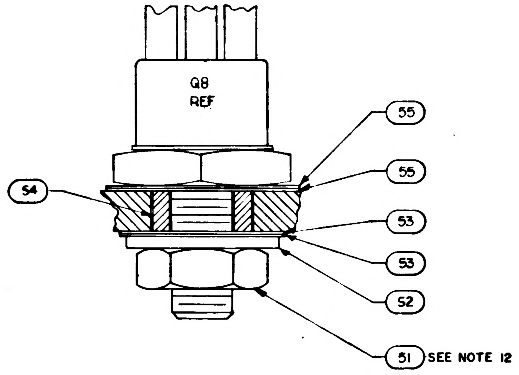
54
55
55
53
53
52
51 SEE NOTE 12

SECTION **A-A**


Q8 REF
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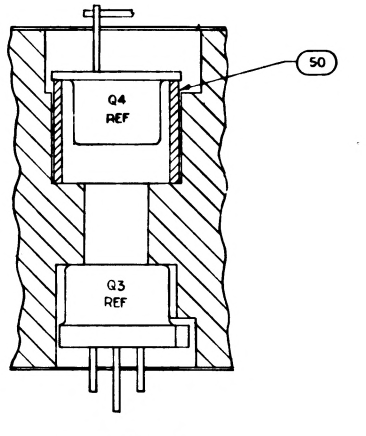
51 SEE NOTE 12

SECTION **B-B**

TYP Q8 & Q7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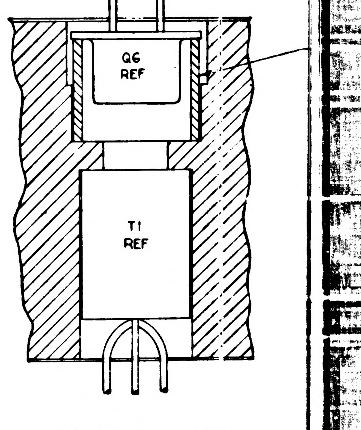
Q3 REF
50

SECTION **C-C**

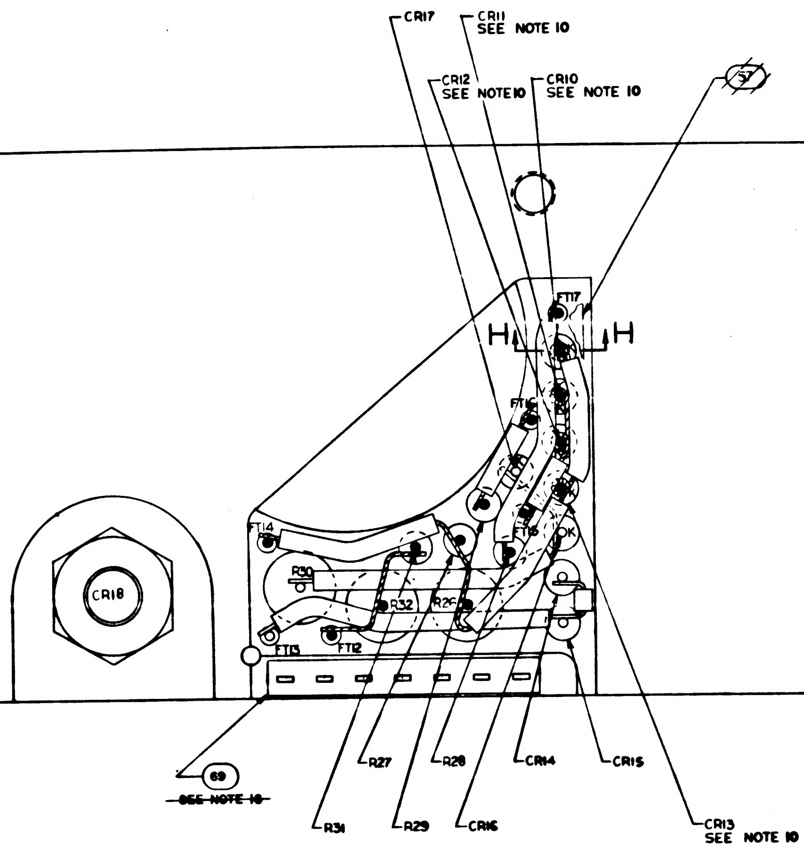

Q6 REF
T1 REF

SECTION **D-D**

1007412 REV LTR E SHEET 1 OF 1

1-1007412

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17821	12-MAR-65	GM / EF
B	REVISED PER TDRR 17960	8 APR 65	JJJ / MEM
C	REVISED PER TDRR 18449	JUNE 65	JM / JEG
D	REVISED PER TDRR 19523	4 JUN 65	EF
E	REVISED PER TDRR 20143	19 JUN 65	
F	REVISED PER TDRR 23317	22 OCT 65	RLP / EF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CR11 SEE NOTE 10
CR12 SEE NOTE 10
CR10 SEE NOTE 10
57
H
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FT17
FT16
FT15
FT14
FT13
FT12
CR18
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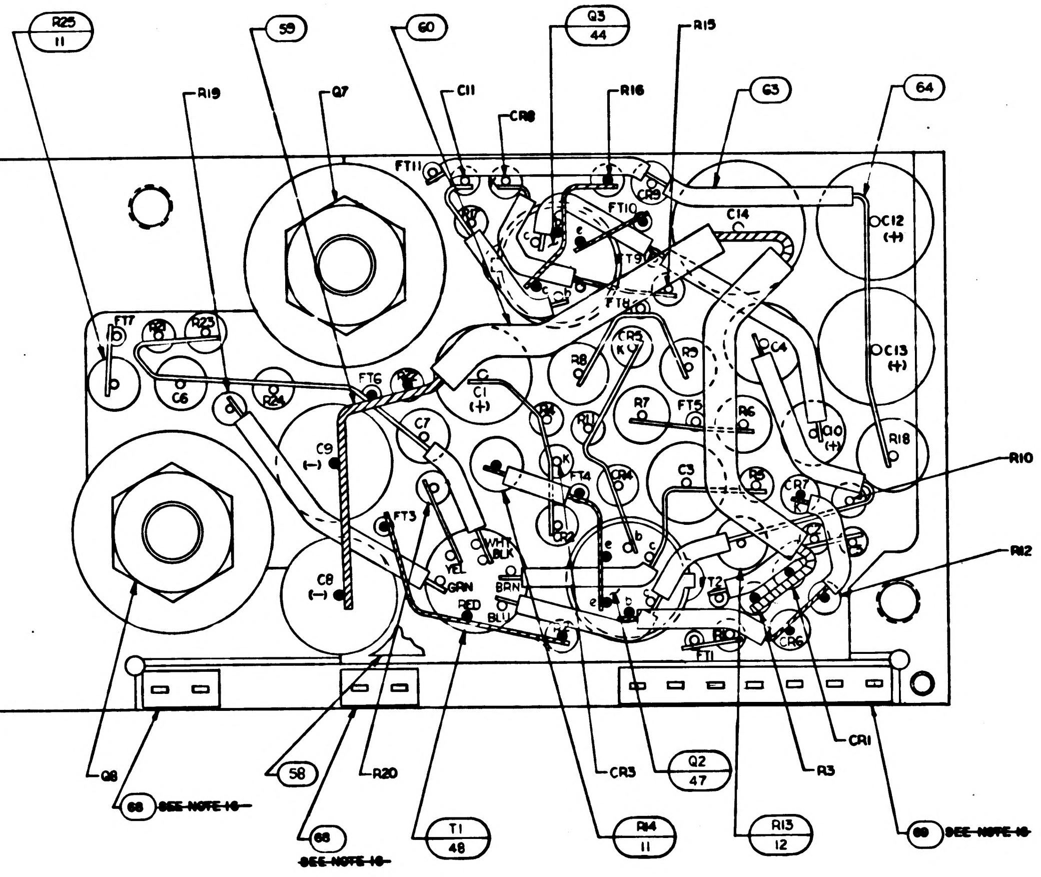
R32
R26
69
SEE NOTE 10
R31
R27
R29
R28
CR16
CR14
CR15
CR13 SEE NOTE 10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Q3
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R15
R19
Q7
C11
R16
CR8
63
64
FT11
FT10
C14
C12 (+)
FT7
R22
R23
C6
R24
FT6
C1 (+)
R8
R5
FT8
C4
C13 (+)
C9 (-)
C7
R7
FT5
R6
C10 (+)
R18
R10
CR4
C5
CR7
FT3
FT4
C8 (-)
GRN
RED
BLU
BRN
WHT BLK
YEL
FT2
R12
FT1
CR6
CR2
Q8
68
SEE NOTE 10
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R20
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Q2
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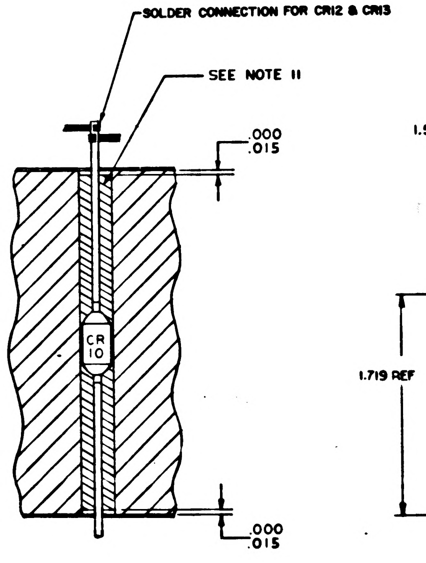
R14
11
R13
12
R3
CR1
69
SEE NOTE 10


SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
.000
.015
CR 10
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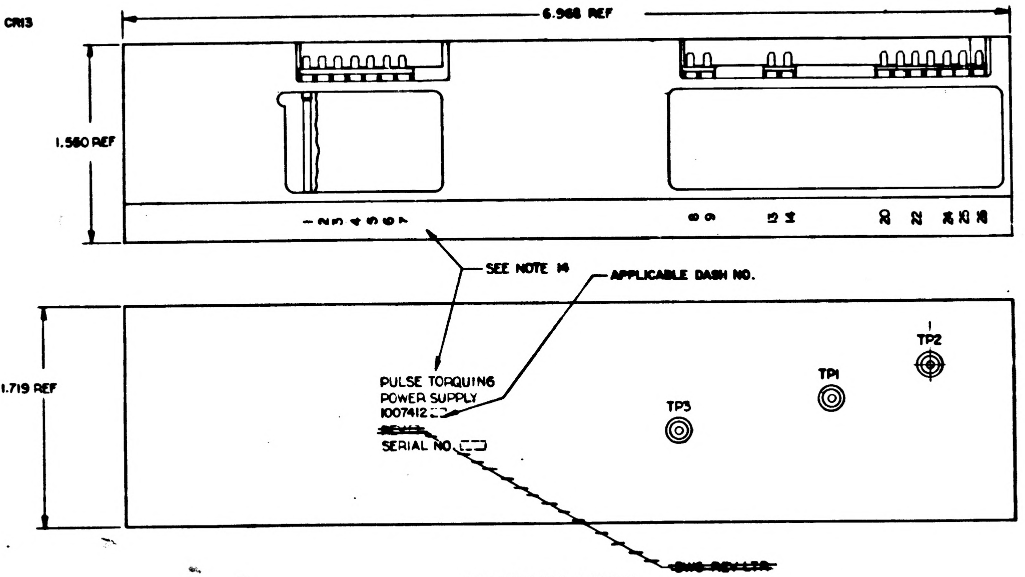
.015

SECTION H-H
TYP FOR CR10, 11, 12, & 13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APPLICABLE DASH NO.
1.719 REF
PULSE TORQUING
POWER SUPPLY
1007412
~~REV~~
SERIAL NO.
~~DWG REV LTR~~
TP1
TP2
TP3

MARKING VIEW
SCALE 2/1

~~TABLE I~~

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE

QUANTITY REQUIRED			ON	EFFEC-TIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			☒		1010052	SCHEMATIC	REF
			2		1008540-7	GASKET, CONNECTOR-MINIATURE	69
			2		1008540-2	GASKET, CONNECTOR-MINIATURE	68
			2		1010398 - 3	TRANSISTOR	67
			AR		1006757 - 8	WIRE ELEC .020 DIA	66
			AR		1006776 - 22	INSULATION SLEEVING ELEC	65
			AR		1006757 - 1	WIRE ELEC .010 X .020	64
			AR		1006776 - 21	INSULATION, SLEEVING	63
			18		1006775	INSULATOR, WRAPOST-MALE MINIATURE	62
			18		1006782 - 5	CONTACT, WRAPOST-MALE MINIATURE	61
			AR		1006776 - 20	INSULATION SLEEVING	60
			AR		1006757 - 9	WIRE ELEC .032 DIA	59
			1		1008094 - 1	INSULATOR	58
			~~1~~		~~1008094 - 2~~	~~INSULATOR~~	~~57~~
			3		1010292 - 2	TERMINAL, FEEDTHRU	56
			6		1008024 - 2	WASHER, INSULATOR	55
			3		1008021 - 1	BUSHING, INSULATOR	54
			6		1008024 - 1	WASHER, INSULATOR	53
			3		1008071 - 2	WASHER	52
			3		MS20341 - 10B	NUT	51
			3		1008025 - 2	INSULATOR, BUSHING	50
			1		1010745	TRANSFORMER	49
			1		1010315 - 2	TRANSFORMER	48
			1		1010376 - 4	TRANSISTOR	47
			2		1010499 - 2	TRANSISTOR	46
			1		1010398 - 1	TRANSISTOR	45
			2		1010376 1	TRANSISTOR	44
			4		1010384	DIODE	43
			1		1010331 - 013	DIODE	42
			4		1010497	DIODE	41
			1		1010830 - 25	DIODE	40
			1		1010830 - 9	DIODE	39
			6		1010385	DIODE	38
			1		1010830 - 5	DIODE	37
			1		1010460 - 1	CAPACITOR	36
			1		1010460 - 2	CAPACITOR	35
			1		1010264 - 29	CAPACITOR	34
			2		1006755 - 89	CAPACITOR	33
			1		1006777 - 18	CAPACITOR	32
			1		1006755 - 79	CAPACITOR	31
			2		1010393 - 045	CAPACITOR	30
			2		1006777 - 30	CAPACITOR	29
			2		1010316 - 36	CAPACITOR	28
			2		1006777 - 16	CAPACITOR	27
			1		1006755 - 85	CAPACITOR	26
			1		1010278 - 80	RESISTOR	25
			1		1006750 - 77	RESISTOR	24
			1		1010389 - 48	RESISTOR	23
			1		1006750 - 67	RESISTOR	22
			1		1010369 - 93	RESISTOR	21
			1		1010278 - 94	RESISTOR	20
			2		1006802 - 1	RESISTOR	19
			2		1006750 - 31	RESISTOR	18
			2		1006750 - 22	RESISTOR	17
			1		1010278 - 70	RESISTOR	16
			1		1006750 - 47	RESISTOR	15
			1		1006750 - 50	RESISTOR	14
			1		1006750 - 32	RESISTOR	13
			1		1006750 63	RESISTOR	12
			5		1006750 - 56	RESISTOR	11
			2		1010377 - 111	RESISTOR	10
			2		1010377 - 110	RESISTOR	9
			2		1006750 - 74	RESISTOR	8
			1		1006750 - 62	RESISTOR	7
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			1		1006750 - 51	RESISTOR	5
			1		1006750 - 65	RESISTOR	4
			~~1~~		~~1008093 - 2~~	~~INSULATOR~~	~~3~~
			1		1008093 - 1	INSULATOR	2
			1		1007069	HEATSINK	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		
1007572		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ±.02 .XXX ±.005 — ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN — DATE 2 OCT 64
CHECKED — 12 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

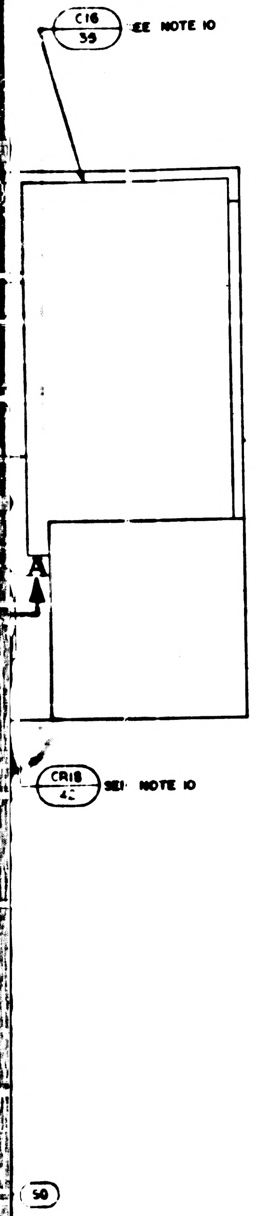
PULSE TORQUING
POWER SUPPLY
MODULE ASSY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007412
SCALE 5/1
WT
SHEET 1 OF 1

1007412 F

1007412 F 1 of 1

3/1007412-2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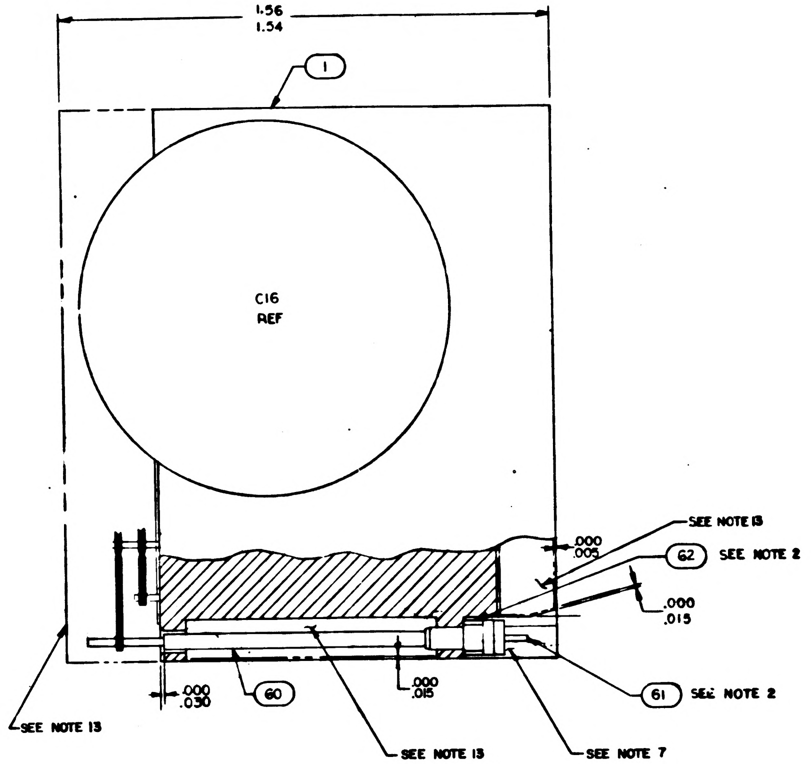
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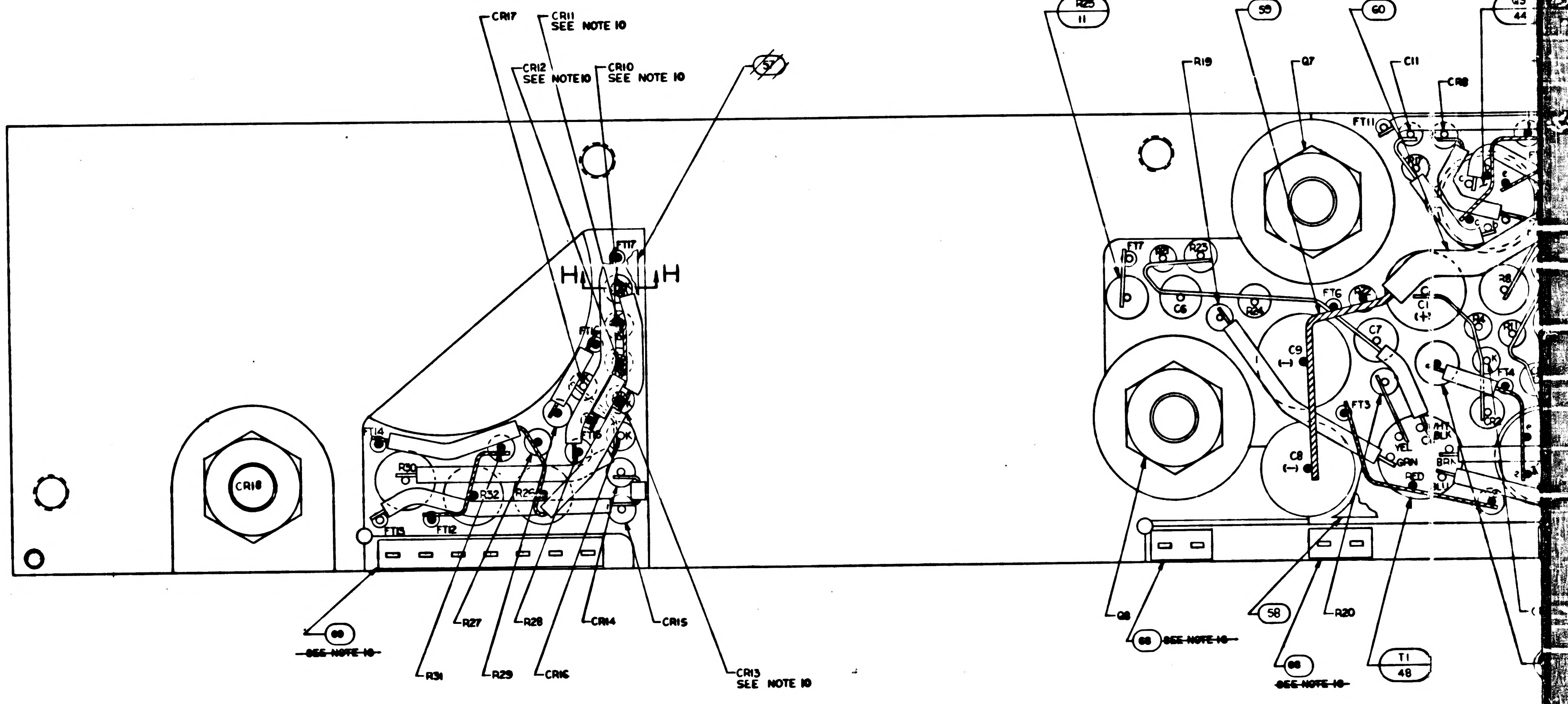
SEE NOTE 7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~~SEE NOTE 10~~
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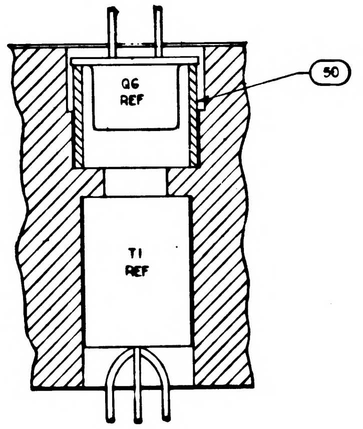
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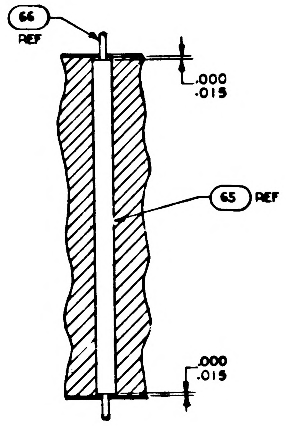
SECTION D-D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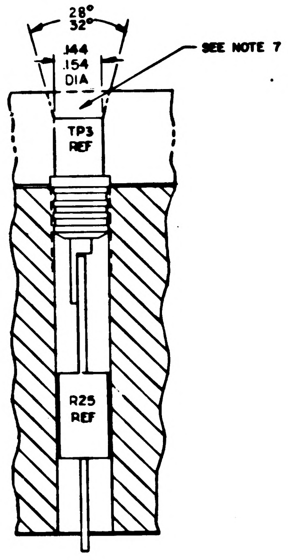
SECTION E-E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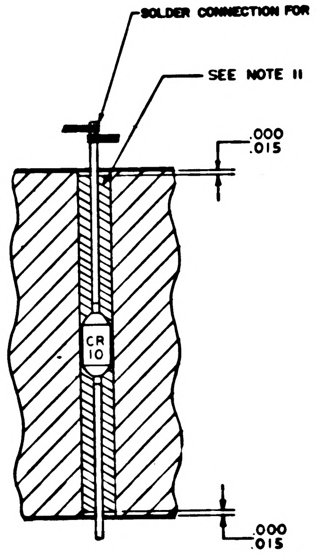
SECTION G-G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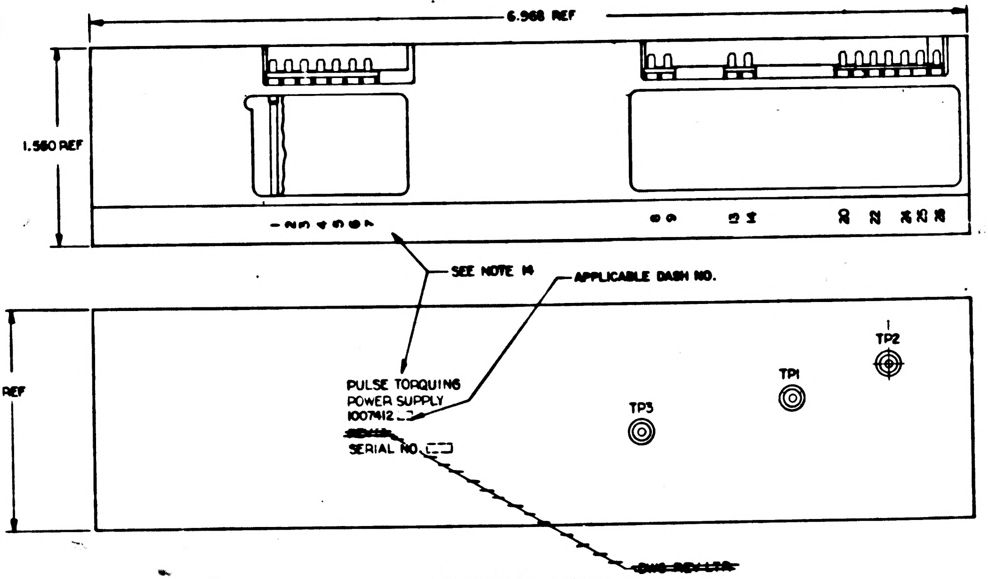
SECTION H-H

TYP FOR CR10, 11, 12, & 13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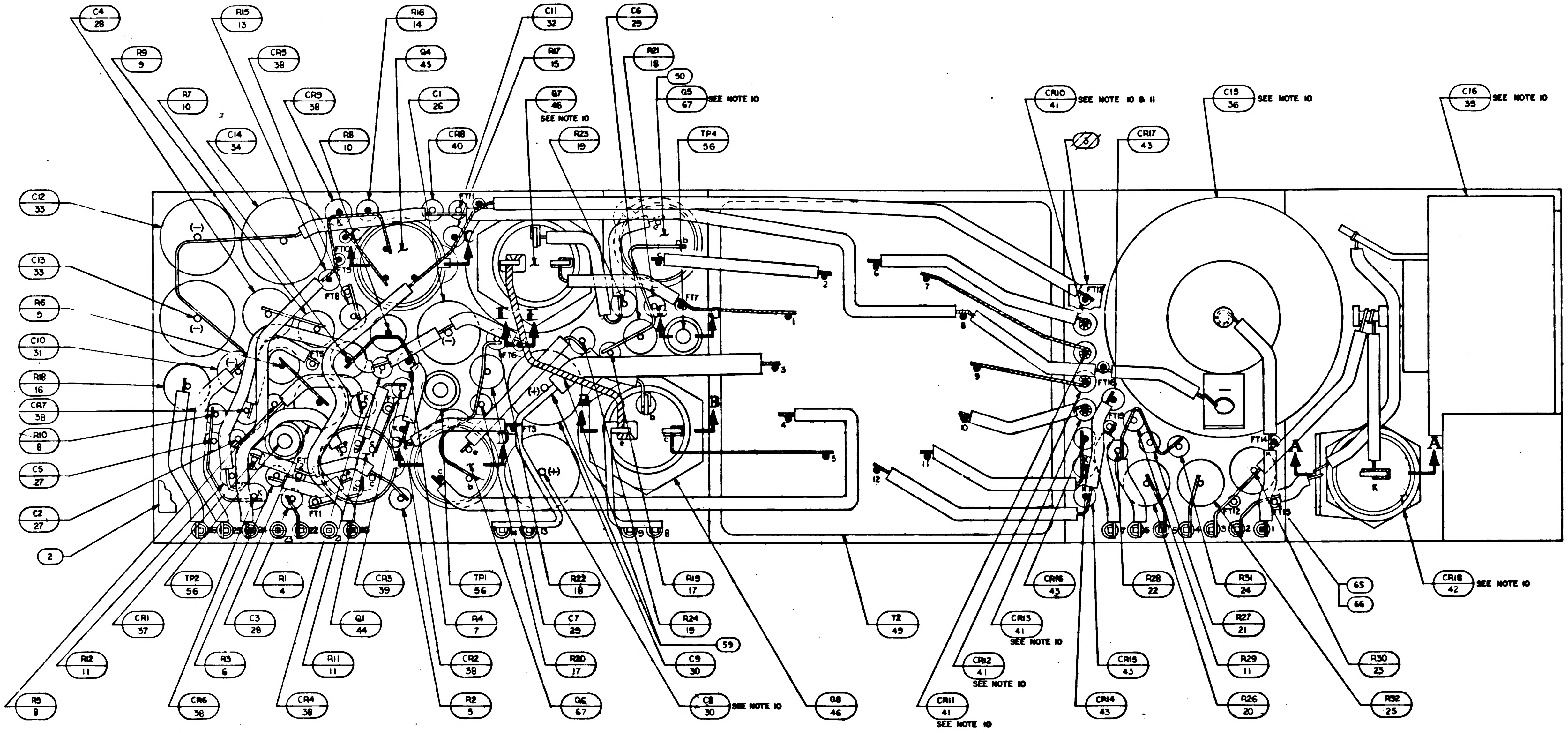
PULSE TORQUING
POWER SUPPLY
1007412-
~~REV LTR~~
SERIAL NO.
TP3
TP1
TP2
~~DWG REV LTR~~

MARKING VIEW

SCALE 2/1

CONFIGURATION
WAFER AND FLAT HEAT SINK
WAFER AND ADJACENT VERTICAL HEAT SINK SURFACE
HEAT SINK FOAM CONTACT SURFACE PERIMETER

1007412 F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Q7 46
50
Q5 67
SEE NOTE 10
SEE NOTE 10
C14 34
R8 10
CR8 40
R23 19
TP4 56
CR10 41
SEE NOTE 10 & 11
C15 36
SEE NOTE 10
C16 35
SEE NOTE 10
CR17 43
C12 33
C13 33
R6 5
C10 31
R18 16
CR7 38
R10 8
C5 27
C2 27
2
FT1
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FT8
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TP1 56
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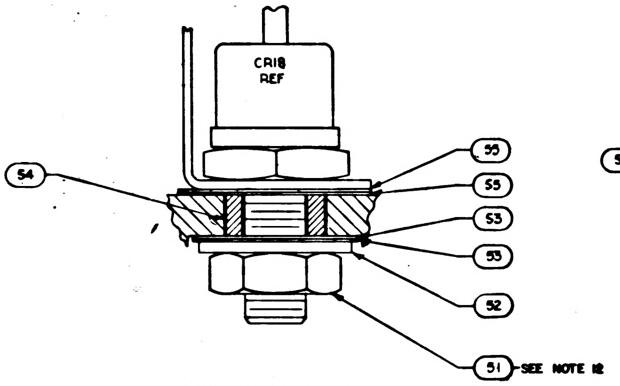
66
CR18 42
SEE NOTE 10
R12 11
R3 6
R11 11
CR2 38
R20 17
C9 30
CR13 41
SEE NOTE 10
R27 21
CR12 41
SEE NOTE 10
CR15 43
R29 11
R30 23
R5 8
CR6 38
CR4 38
R2 5
Q6 67
C8 30
SEE NOTE 10
Q8 46
CR11 41
SEE NOTE 10
CR14 43
R26 20
R32 25

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 61 AND 62 PER ND 1002136
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005 EXCEPT WHERE NOTED
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
6. ON FIND NO'S 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
7. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
8. STAKE FIND NO. 4 THRU 34,37 THRU 48, 50, 54 AND 67 PER ND 1002009 METHOD J AND CENTRALIZE.
9. AR DENOTES AS REQUIRED
10. SOLDER PER ND 1002071
11. ENCAPSULATE PER ND 1002036 STYCAST 1090 CATALYST 11, CURE AT 160°F FOR 3 HOURS AND POST CURE AT 180°F FOR 7 HOURS.
12. MOUNTING TORQUE TO BE 10-14 IN. LBS.
13. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
14. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
15. PROCURE PER PS 1007052.
16. ~~BOND FIND NO. 68 AND 69 TO FIND NO. 62 PER ND 1002237.~~
17. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
18. BOND FIND NO. 35, 36 AND 40 PER ND 1002004 TYPE I.
19. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF INSULATORS PER ND 1002187 TYPE I.~~
20. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE 1.~~
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.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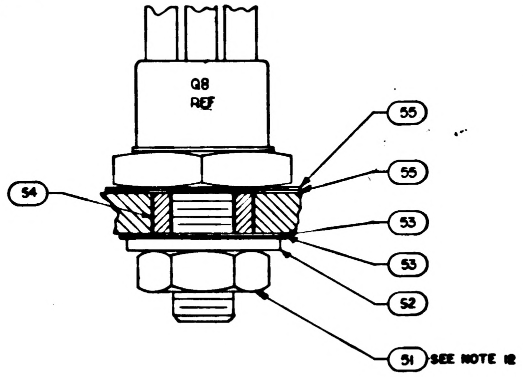
SEE NOTE 12

SECTION A-A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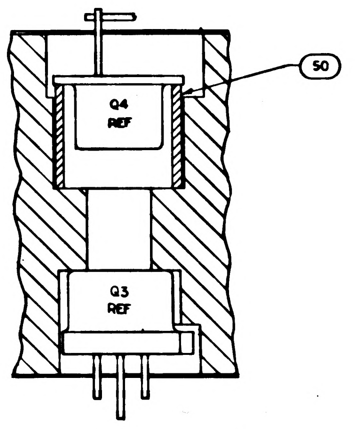
SEE NOTE 12

SECTION B-B

TYP Q6 & Q7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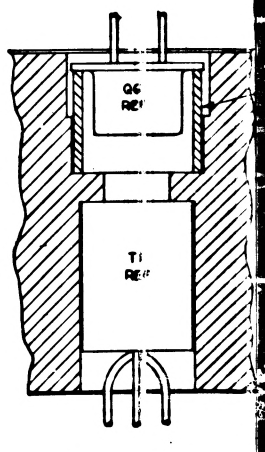
Q3 REF

SECTION C-C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SECTION D-D

1007412 F 1 of 1

17 1007412

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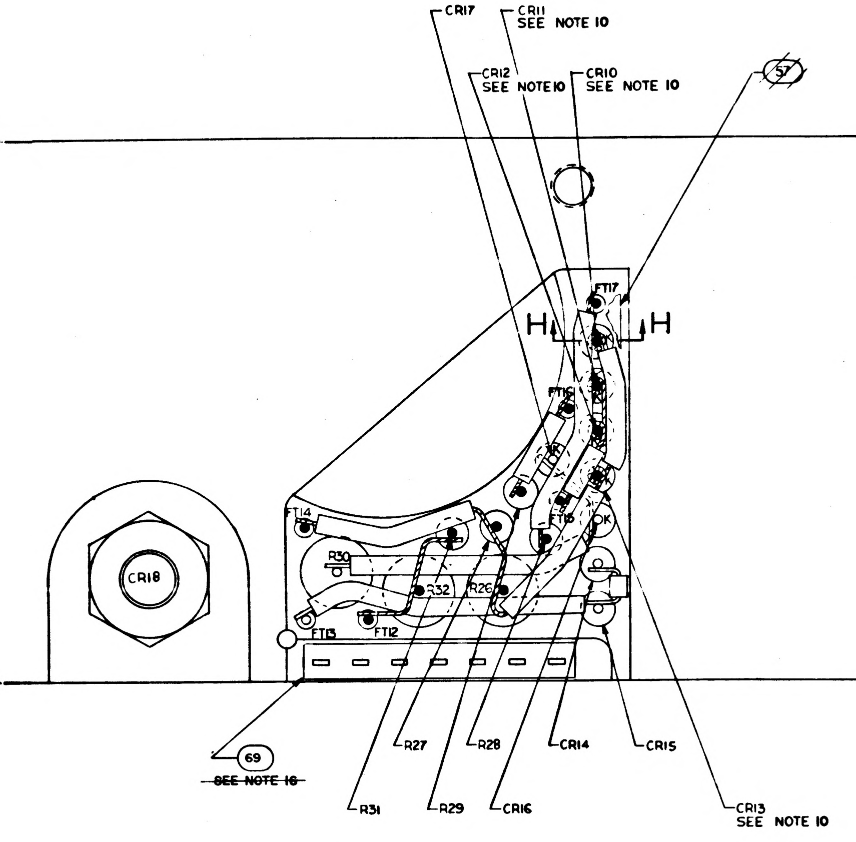
B	REVISED PER TDRR 17960	8 APR 65	JJJ MEM
C	REVISED PER TDRR 19449	JUNE 65	JM J.E.G.
D	REVISED PER TDRR 19523	4 JUN 65	JMK EF
E	REVISED PER TDRR 20143	9 JUN 65	
F	REVISED PER TDRR 23317	22 OCT 65	RLP EF
G	REVISED PER TDRR 26375	25 FEB 66	JMP WJ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CR12 SEE NOTE 10
CR10 SEE NOTE 10
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SEE NOTE 16
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R28
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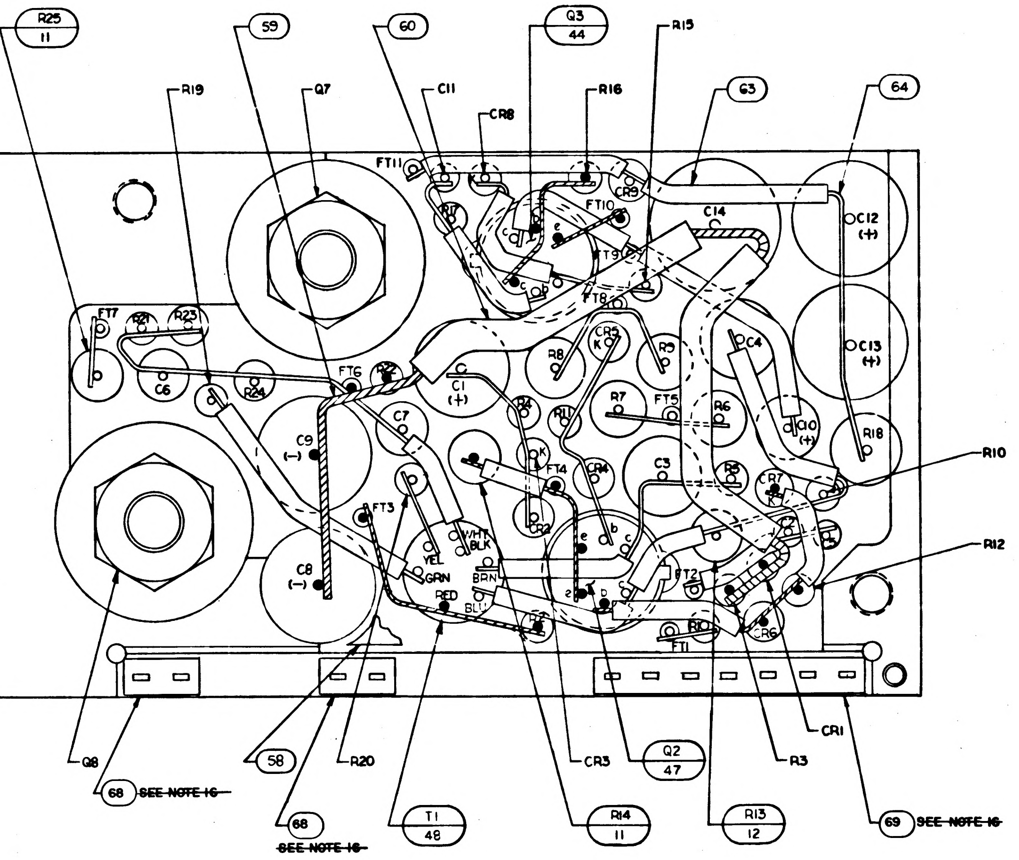
CR14
CR15
CR13 SEE NOTE 10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CR8
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C14
C12 (+)
C13 (+)
FT9
FT8
FT7
R21
R23
R24
C6
FT6
CR9
R8
R9
C4
C1 (+)
R7
FT5
R6
R18
C9 (−)
C7
FT4
C3
C10 (+)
R10
FT3
C8 (−)
YEL
GRN
RED
WH
BLK
BRN
BLU
FT2
FT1
R12
R3
Q8
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SEE NOTE 16
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T1
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R14
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CR3
Q2
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R13
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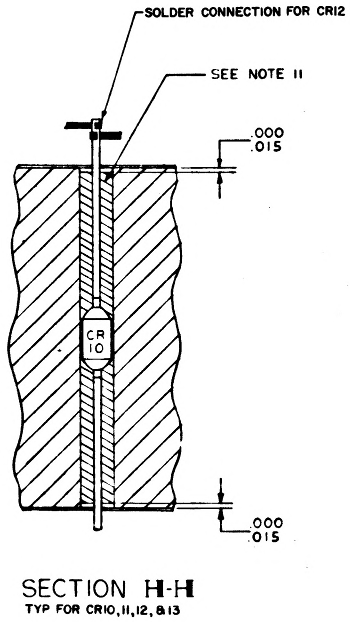
CR1
69
SEE NOTE 16


SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
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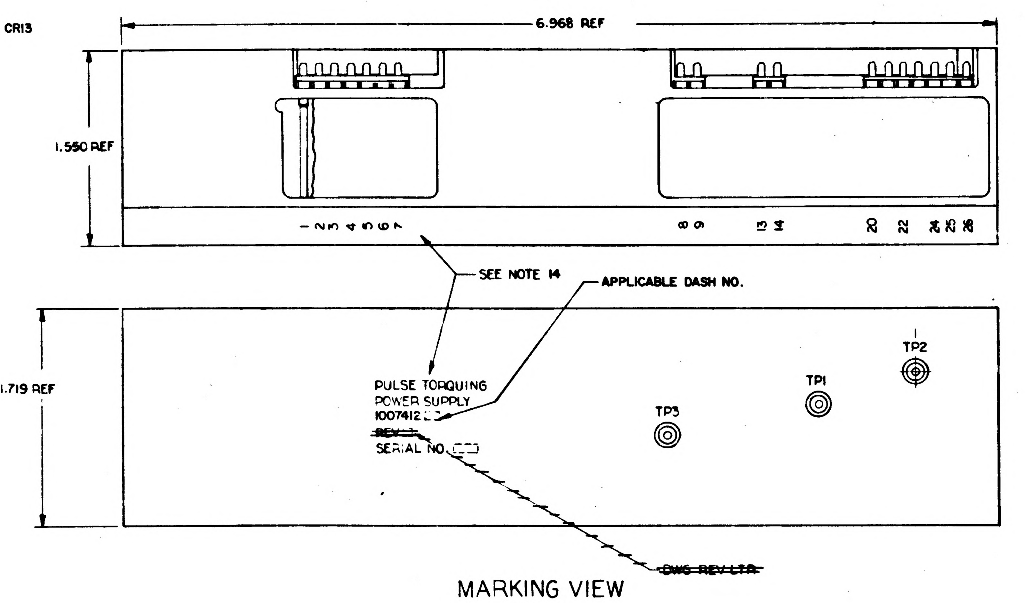
SECTION H-H
TYP FOR CR10, 11, 12, & 13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SEE NOTE 14
APPLICABLE DASH NO.
PULSE TORQUING
POWER SUPPLY
1007412-
REV
SERIAL NO.
TP1
TP2
TP3
DWG REV LTR

MARKING VIEW
SCALE 2/1

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE

		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
		AR	-		SEE NOTE 23	MOISTUREPROOFING	70
		☒	☒		1010052	SCHEMATIC	REF
		2	2		1008540-7	GASKET, CONNECTOR-MINIATURE	69
		2	2		1008540-2	GASKET, CONNECTOR-MINIATURE	68
		2	2		1010398 - 3	TRANSISTOR	67
		AR	AR		1006757 - 8	WIRE ELEC .020 DIA	66
		AR	AR		1006776 - 22	INSULATION SLEEVING ELEC	65
		AR	AR		1006757 - 1	WIRE, ELEC .010 X .020	64
		AR	AR		1006776 - 21	INSULATION, SLEEVING	63
		18	18		1006775	INSULATOR, WRAPOST- MALE, MINIATURE	62
		18	18		1006782 - 5	CONTACT, WRAPOST-MALE, MINIATURE	61
		AR	AR		1006776 - 20	INSULATION SLEEVING	60
		AR	AR		1006757 - 9	WIRE ELEC .032 DIA	59
		1	1		1008094 - 1	INSULATOR	58
			~~1~~		~~1008094 - 2~~	~~INSULATOR~~	~~57~~
		3	3		1010292 - 2	TERMINAL, FEEDTHRU	56
		6	6		1008024 - 2	WASHER, INSULATOR	55
		3	3		1008021 - 1	BUSHING, INSULATOR	54
		6	6		1008024 - 1	WASHER, INSULATOR	53
		3	3		1008071 - 2	WASHER	52
		3	3		MS20341 - 10B	NUT	51
		3	3		1008025 - 2	INSULATOR, BUSHING	50
		1	1		1010745	TRANSFORMER	49
		1	1		1010315 - 2	TRANSFORMER	48
		1	1		1010376 - 4	TRANSISTOR	47
		2	2		1010499 - 2	TRANSISTOR	46
		1	1		1010398 - 1	TRANSISTOR	45
		2	2		1010376 1	TRANSISTOR	44
		4	4		1010384	DIODE	43
		1	1		1010331 - 013	DIODE	42
		4	4		1010497	DIODE	41
		1	1		1010830 - 25	DIODE	40
		1	1		1010830 - 9	DIODE	39
		6	6		1010385	DIODE	38
		1	1		1010830 - 5	DIODE	37
		1	1		1010460 - 1	CAPACITOR	36
		1	1		1010460 - 2	CAPACITOR	35
		1	1		1010264 - 29	CAPACITOR	34
		2	2		1006755 - 89	CAPACITOR	33
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		1	1		1006755 - 79	CAPACITOR	31
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		2	2		1006777 - 30	CAPACITOR	29
		2	2		1010316 - 36	CAPACITOR	28
		2	2		1006777 - 16	CAPACITOR	27
		1	1		1006755 - 85	CAPACITOR	26
		1	1		1010278 - 80	RESISTOR	25
		1	1		1006750 - 77	RESISTOR	24
		1	1		1010389 - 48	RESISTOR	23
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		1	1		1010369 - 93	RESISTOR	21
		1	1		1010278 - 94	RESISTOR	20
		2	2		1006802 - 1	RESISTOR	19
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		2	2		1010377 - 111	RESISTOR	10
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		1	1		1006750 - 51	RESISTOR	5
		1	1		1006750 - 65	RESISTOR	4
			~~1~~		~~1008093 - 2~~	~~INSULATOR~~	~~3~~
		1	1		1008093 - 1	INSULATOR	2
		1	1		1007069	HEATSINK	1

QUANTITY REQUIRED — LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		
1007572		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS .XX ±.02 .XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN E. Agne DATE 20CT64
CHECKED G. Lung 12OCT64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL 11-4-64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PULSE TORQUING
POWER SUPPLY
MODULE ASSY

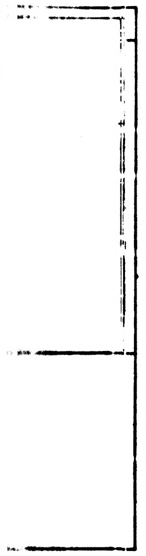
CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 1007412
SCALE 5/1 WT SHEET 1 OF 1

1007412 G

(3#)

1007412 G 1

37-1007412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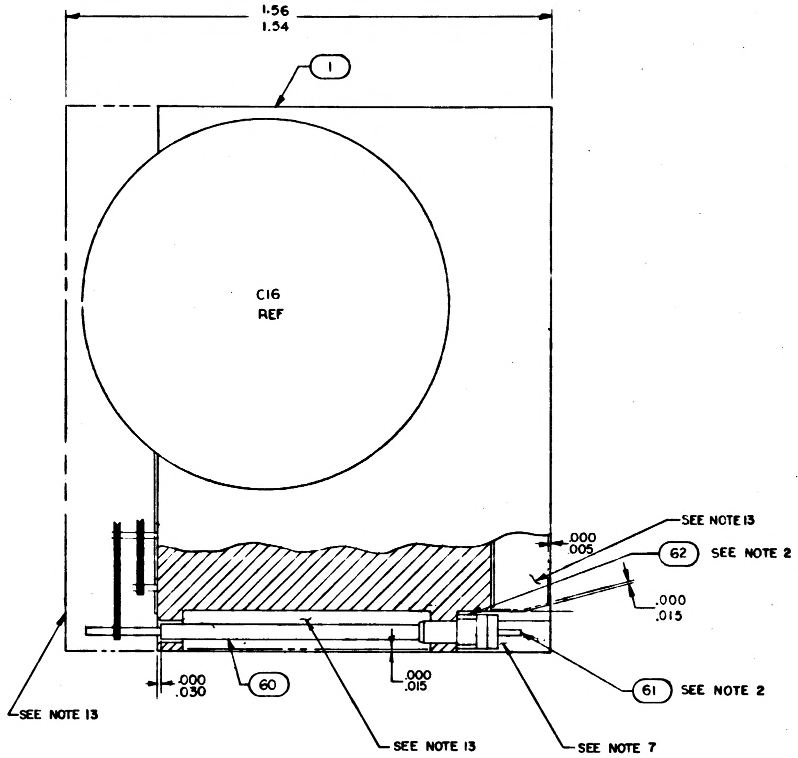
NOTE 10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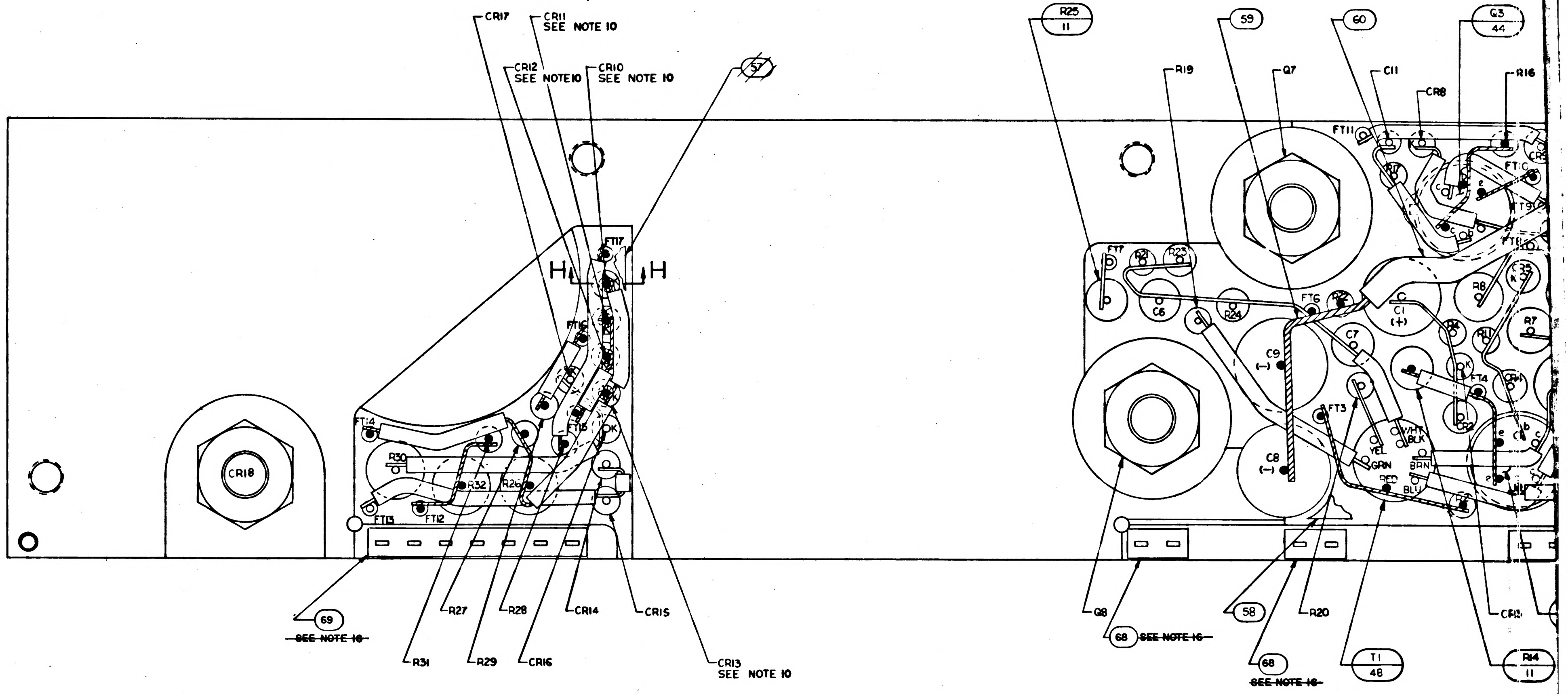
SEE NOTE 13
SEE NOTE 7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FT6
R22
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CR5
K
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C9
(−)
C7
R4
R11
K
FT4
CR1
FT3
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GRN
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BLU
CR2
C8
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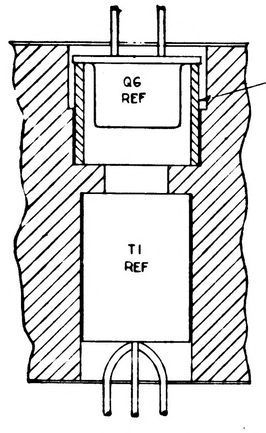
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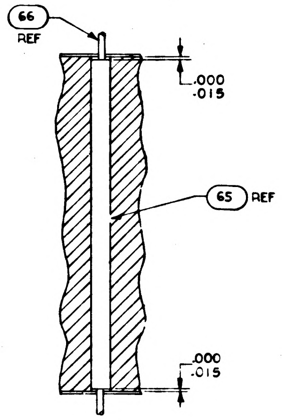
SECTION D-D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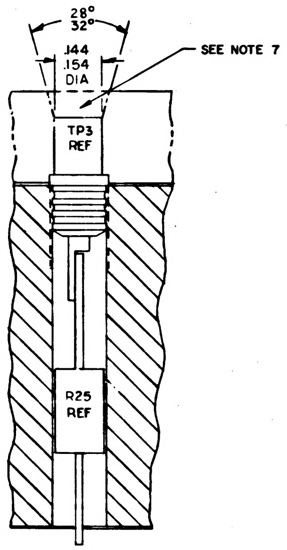
SECTION E-E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SEE NOTE 7
TP3
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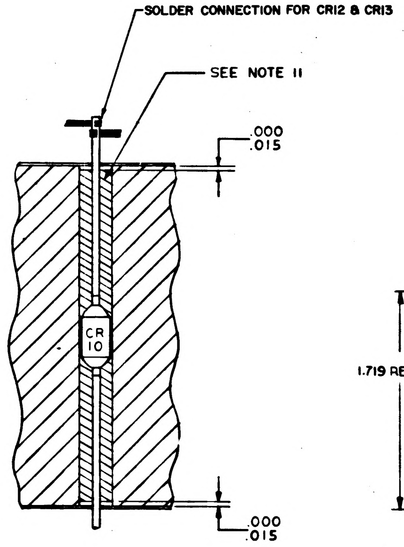
SECTION G-G


SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
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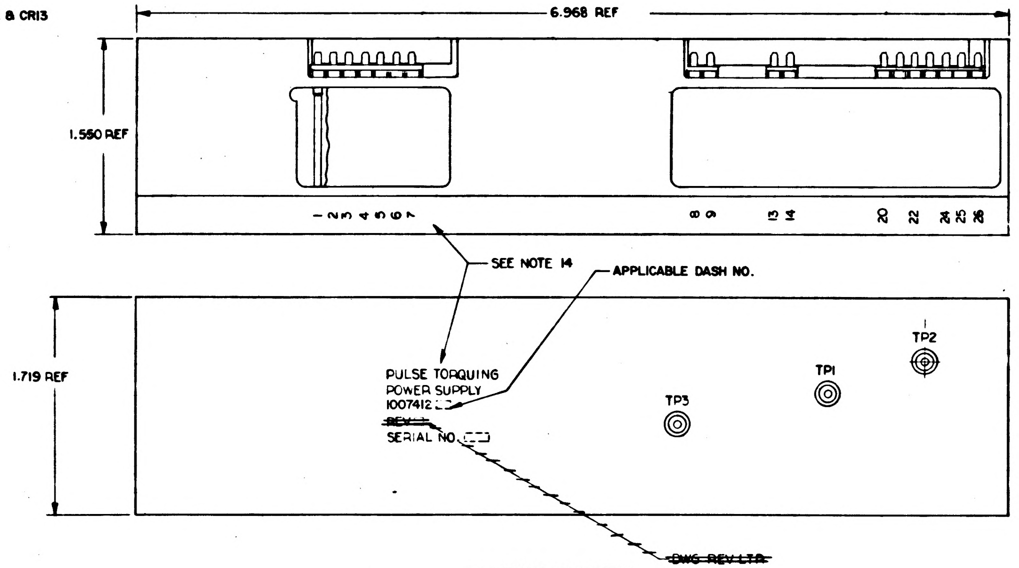
SECTION H-H
TYP FOR CR10, 11, 12, & 13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22
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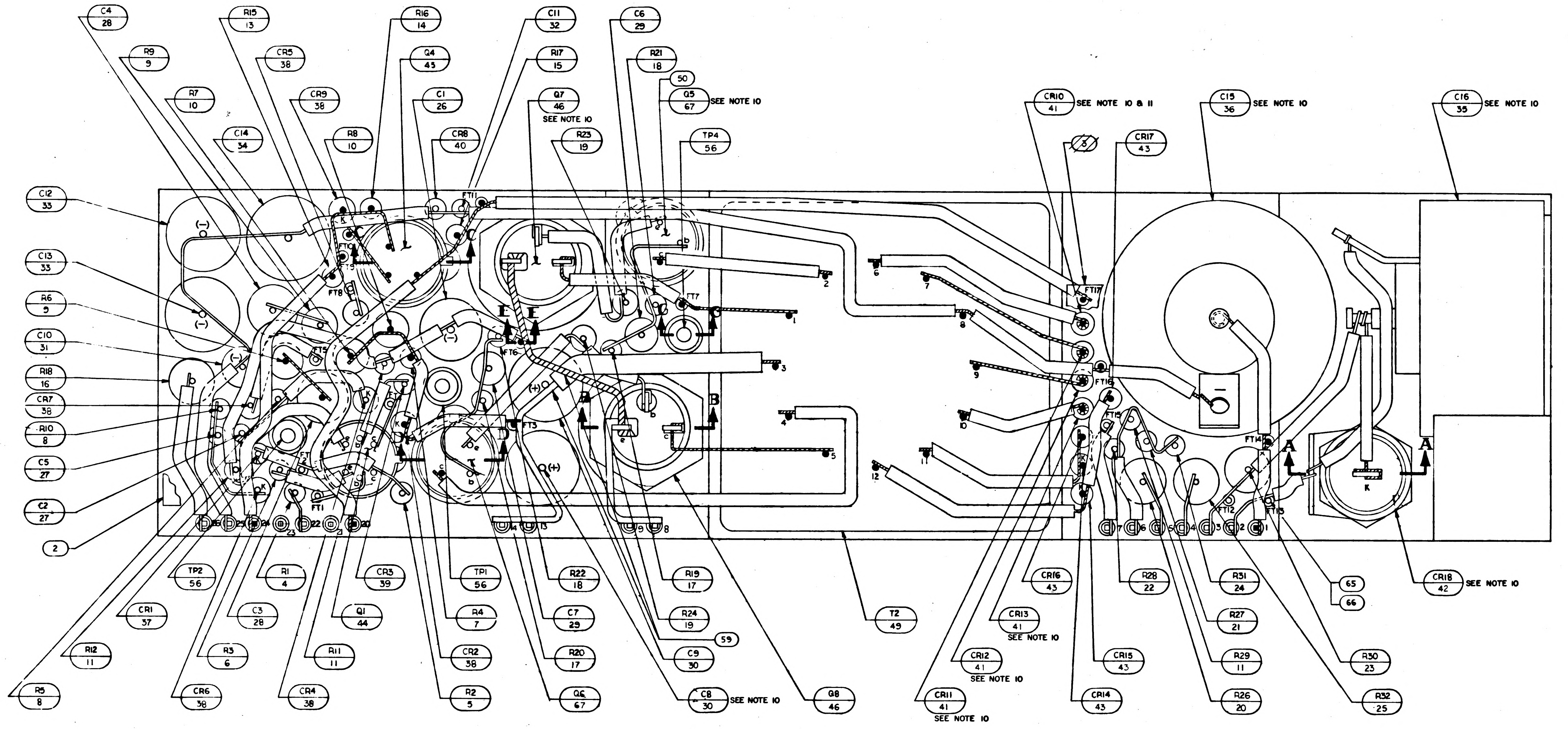
SEE NOTE 14
APPLICABLE DASH NO.
1.719 REF
PULSE TORQUING
POWER SUPPLY
1007412
~~REV~~
SERIAL NO.
~~DWG REV LTR~~
TP3
TP1
TP2

MARKING VIEW
SCALE 2/1

CONFIGURATION	BOND BETWEE WAFER AND HEATSINK
WAFER AND FLAT HEATSINK	100% OF AR FROM EXTER HEATSINK S 80% OF ARE FROM EXTER HEATSINK SURFACE
WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER FI AND VERTIC SURFACE T WITHIN .03 OF EXTERNA SURFACE.
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A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C1 26
Q7 46 SEE NOTE 10
Q5 67 SEE NOTE 10
C14 34
R8 10
CR8 40
R23 19
TP4 56
CR10 41 SEE NOTE 10 & 11
C15 36 SEE NOTE 10
C16 35 SEE NOTE 10
CR17 43
C12 33
C13 33
R6 9
C10 31
R18 16
CR7 38
R10 8
C5 27
C2 27
2
FT1
FT3
FT5
FT6
FT7
FT8
FT11
FT12
FT13
FT14
FT15
FT16
FT17
A
B
E
K
TP2 56
R1 4
CR3 39
TP1 56
R22 18
R19 17
CR16 43
R28 22
R31 24
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66
CR18 42 SEE NOTE 10
CR1 37
C3 28
Q1 44
R4 7
C7 29
R24 19
T2 49
CR13 41 SEE NOTE 10
R27 21
59
R12 11
R3 6
R11 11
CR2 38
R20 17
C9 30
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R29 11
R30 23
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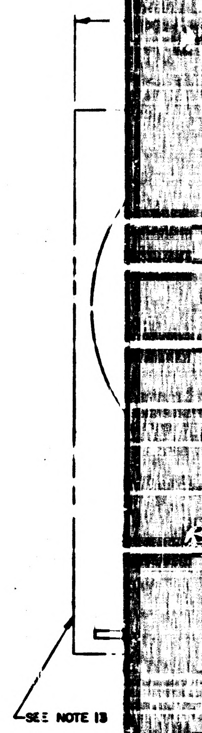
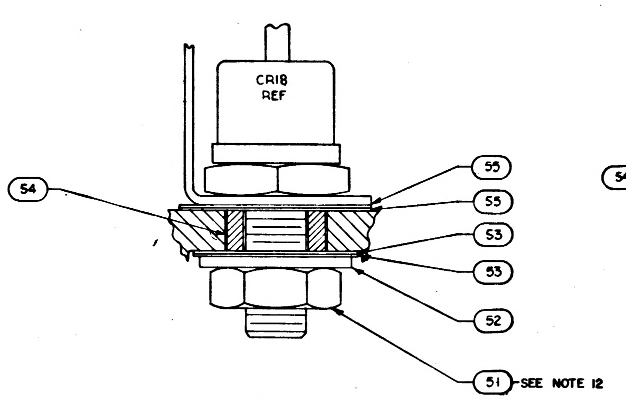
R32 25



NO S:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 61 AND 62 PER ND 1002136
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005 EXCEPT WHERE NOTED
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
6. ON FIND NO'S 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
7. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
8. STAKE FIND NO. 4 THRU 34.37 THRU 48, 50, 54 AND 67 PER ND 1002009 METHOD J AND CENTRALIZE.
9. AR DENOTES AS REQUIRED
10. SOLDER PER ND 1002071
11. ENCAPSULATE PER ND 1002036 STYCAST 1090 CATALYST 11, CURE AT 160°F FOR 3 HOURS AND POST CURE AT 180°F FOR 7 HOURS.
12. MOUNTING TORQUE TO BE 10-14 IN. LBS.
13. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
14. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
15. PROCURE PER PS 1007052.
16. ~~BOND FIND NO. 68 AND 69 TO FIND NO. 62 PER ND 1002237.~~
17. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
18. BOND FIND NO. 35, 36 AND 49 PER ND 1002004 TYPE I.
19. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF INSULATORS PER ND 1002187 TYPE I.~~
20. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE 1.~~
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
23. MOISTUREPROOF PER ND 1002292 AS REQUIRED BY FIND NO. 70 USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD 1008867 AFTER PAINTING AND STENCILING.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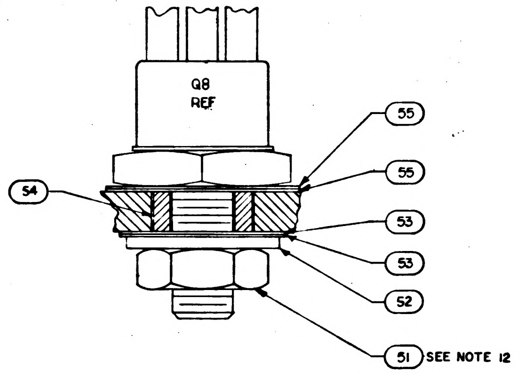
51 SEE NOTE 12

SECTION A-A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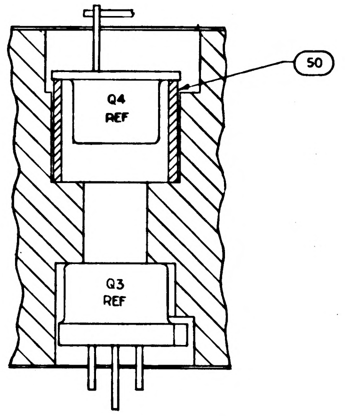
SECTION B-B

TYP Q8 & Q7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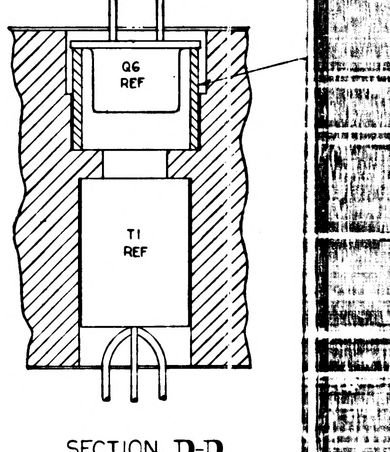
REF

SECTION C-C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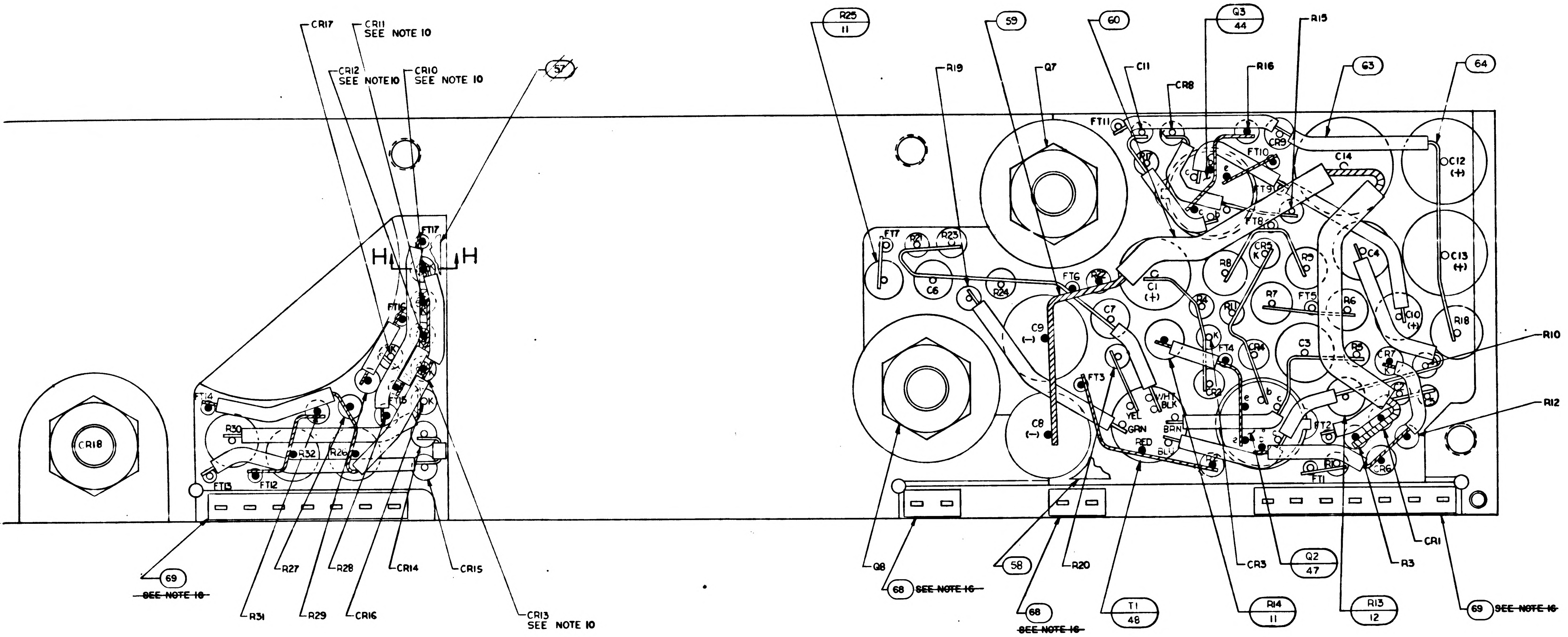
SECTION D-D

1007412 G SHEET 1 OF 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17321	12 MAR 65	GM EF
B	REVISED PER TDRR 17960	8 APR 65	JJJ MEM
C	REVISED PER TDRR 19449	JUNE 65	JM J.E.G.
D	REVISED PER TDRR 19523	4 JUN 65	JMK
E	REVISED PER TDRR 20143	9 JUN 65	rh
F	REVISED PER TDRR 23317	22 OCT 65	RLP
G	REVISED PER TDRR 26375	25 FEB 66	JIMP JS
H	REVISED PER TDRR29749	29 JUN 66	JAC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R16
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64
R19
Q7
R10
R12
CR18
H
H
69 SEE NOTE 16
R27
R28
CR14
CR15
R31
R29
CR16
CR13 SEE NOTE 10
Q8
68 SEE NOTE 16
58
R20
68 SEE NOTE 16
T1 48
CR3
R14 11
Q2 47
R13 12
R3
CR1
69 SEE NOTE 16
C1 (+)
C9 (−)
C8 (−)
C12 (+)
C13 (+)
C14
C6
C7
C3
C10 (+)
C4
FT1
FT2
FT3
FT4
FT5
FT6
FT7
FT8
FT9
FT10
FT11
FT12
FT13
FT16
FT17
R21
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R18
R2
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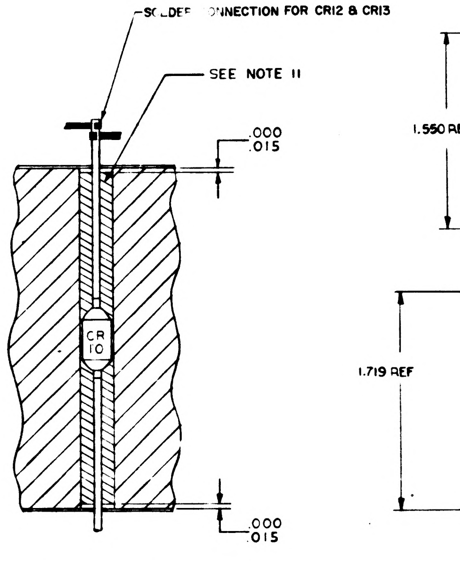
SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
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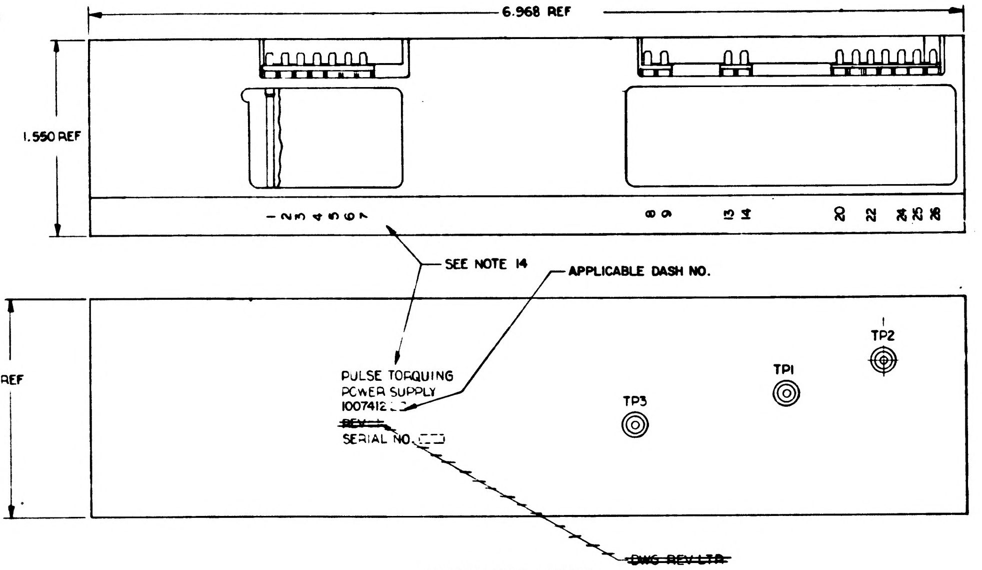
SECTION H-H

TYP FOR CR10, 11, 12, & 13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SEE NOTE 14
APPLICABLE DASH NO.
PULSE TORQUING
POWER SUPPLY
1007412 -
~~REV~~
SERIAL NO.
~~DWG REV LTR~~
TP1
TP2
TP3

MARKING VIEW

SCALE 2/1

~~TABLE I~~

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE

		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
		AR	-		SEE NOTE 23	MOISTUREPROOFING	70
		X	X		1010052	SCHEMATIC	REF
		2	2		1008540-7	GASKET, CONNECTOR-MINIATURE	69
		2	2		1008540-2	GASKET, CONNECTOR-MINIATURE	68
		2	2		1010398 - 3	TRANSISTOR	67
		AR	AR		1006757 - 8	WIRE ELEC .020 DIA	66
		AR	AR		1006776 - 22	INSULATION SLEEVING ELEC	65
		AR	AR		1006757 - 1	WIRE, ELEC .010 X .020	64
		AR	AR		1006776 - 21	INSULATION, SLEEVING	63
		18	18		1006775	INSULATOR, WRAPOST-MALE, MINIATURE	62
		18	18		1006782 - 5	CONTACT, WRAPOST-MALE, MINIATURE	61
		AR	AR		1006776 - 20	INSULATION SLEEVING	60
		AR	AR		1006757 - 9	WIRE ELEC .032 DIA	59
		1	1		1008094 - 1	INSULATOR	58
			~~1~~		~~1008094 - 2~~	~~INSULATOR~~	~~57~~
		3	3		1010292 - 2	TERMINAL, FEEDTHRU	56
		6	6		1008024 - 2	WASHER, INSULATOR	55
		3	3		1008021 - 1	BUSHING, INSULATOR	54
		6	6		1008024 - 1	WASHER, INSULATOR	53
		3	3		1008071 - 2	WASHER	52
		3	3		MS20341 - 10B	NUT	51
		3	3		1008025 - 2	INSULATOR, BUSHING	50
		1	1		1010745	TRANSFORMER	49
		1	1		1010315 - 2	TRANSFORMER	48
		1	1		1010376 - 4	TRANSISTOR	47
		2	2		1010499 - 2	TRANSISTOR	46
		1	1		1010398 - 1	TRANSISTOR	45
		2	2		1010376 1	TRANSISTOR	44
		4	4		1010384	DIODE	43
		1	1		1010331 - 013	DIODE	42
		4	4		1010497	DIODE	41
		1	1		1008815-25	DIODE	40
		1	1		1008815-9	DIODE	39
		6	6		1010385	DIODE	38
		1	1		1008815-5	DIODE	37
		1	1		1010460 - 1	CAPACITOR	36
		1	1		1010460 - 2	CAPACITOR	35
		1	1		1010264 - 29	CAPACITOR	34
		2	2		1006755 - 89	CAPACITOR	33
		1	1		1006777 - 18	CAPACITOR	32
		1	1		1006755 - 79	CAPACITOR	31
		2	2		1010393 - 045	CAPACITOR	30
		2	2		1006777 - 30	CAPACITOR	29
		2	2		1010316 - 36	CAPACITOR	28
		2	2		1006777 - 16	CAPACITOR	27
		1	1		1006755 - 85	CAPACITOR	26
		1	1		1010278 - 80	RESISTOR	25
		1	1		1006750 - 77	RESISTOR	24
		1	1		1010389 - 48	RESISTOR	23
		1	1		1006750 - 67	RESISTOR	22
		1	1		1010369 - 93	RESISTOR	21
		1	1		1010278 - 94	RESISTOR	20
		2	2		1006802 - 1	RESISTOR	19
		2	2		1006750 - 31	RESISTOR	18
		2	2		1006750 - 22	RESISTOR	17
		1	1		1010278 - 70	RESISTOR	16
		1	1		1006750 - 47	RESISTOR	15
		1	1		1006750 - 50	RESISTOR	14
		1	1		1006750 - 32	RESISTOR	13
		1	1		1006750 63	RESISTOR	12
		5	5		1006750 - 56	RESISTOR	11
		2	2		1010377 - 111	RESISTOR	10
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		1	1		1006750 - 51	RESISTOR	5
		1	1		1006750 - 65	RESISTOR	4
			~~1~~		~~1008093 - 2~~	~~INSULATOR~~	~~3~~
		1	1		1008093 - 1	INSULATOR	2
		1	1		1007069	HEATSINK	1

QUANTITY REQUIRED

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		
1007572		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS .XX ±.02 .XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE 2 OCT 64
CHECKED 12 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

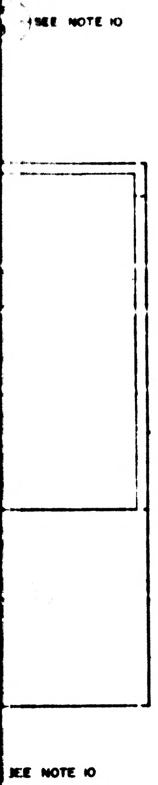
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PULSE TORQUING POWER SUPPLY MODULE ASSY

CODE IDENT NO. 80230 | SIZE J | NASA DRAWING NO. 1007412
SCALE 5/1 | WT | SHEET 1 OF 1

1007412 H 1 of 1

3/1007412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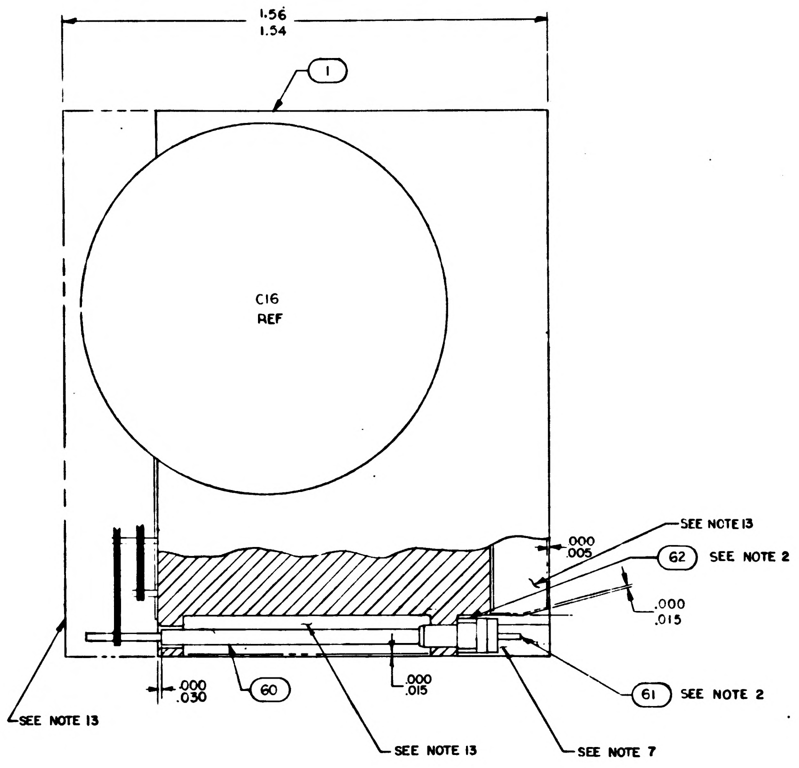
SEE NOTE 10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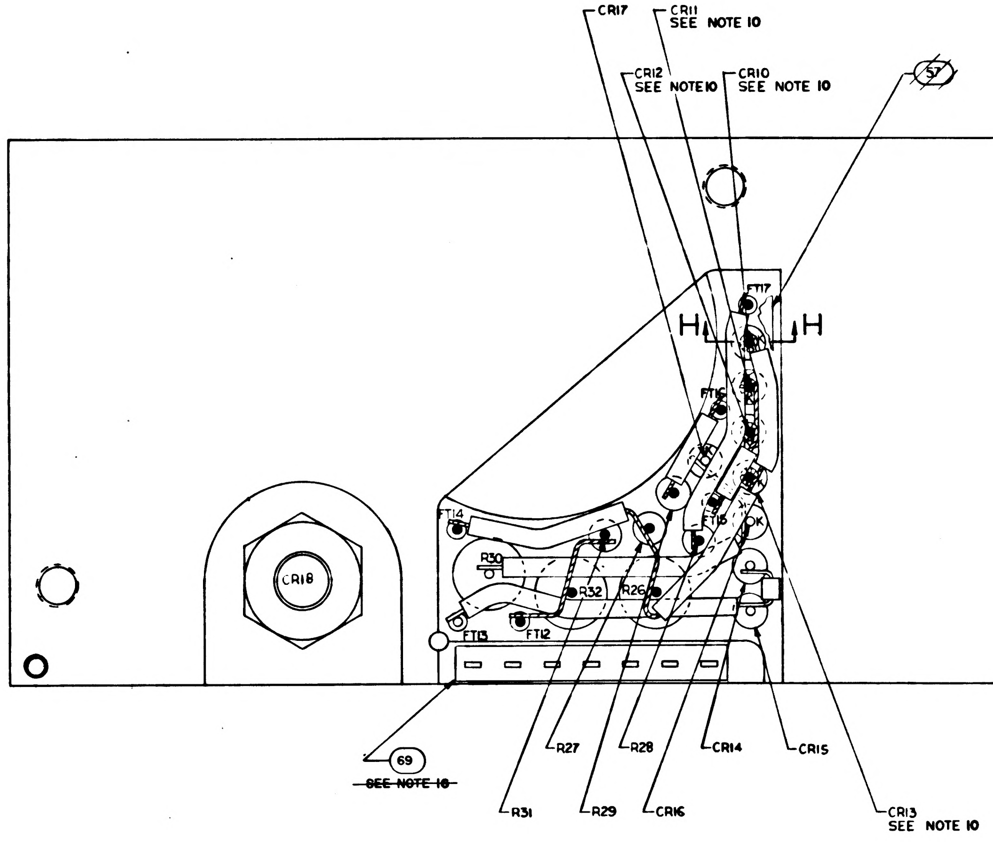
SEE NOTE 13
SEE NOTE 13
SEE NOTE 7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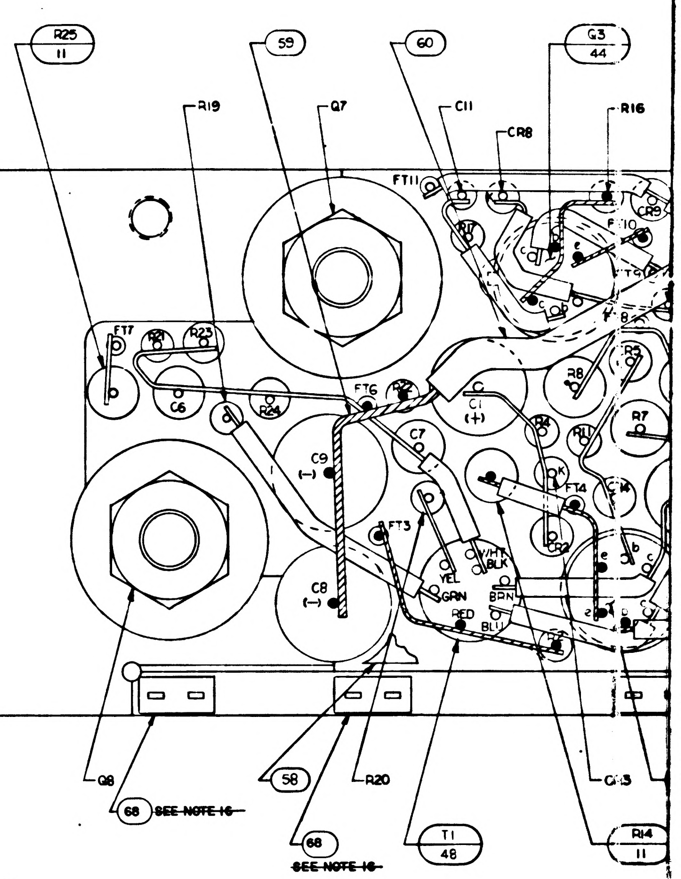
CR13
SEE NOTE 10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C1
(+)
C9
(–)
C7
FT3
C8
(–)
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GRN
RED
BLU
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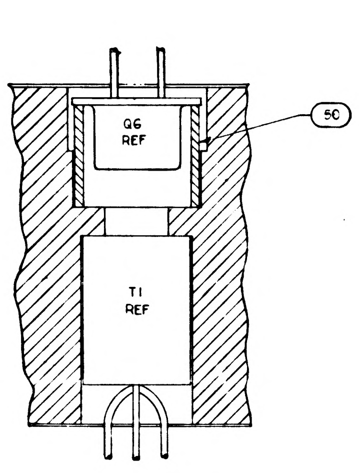
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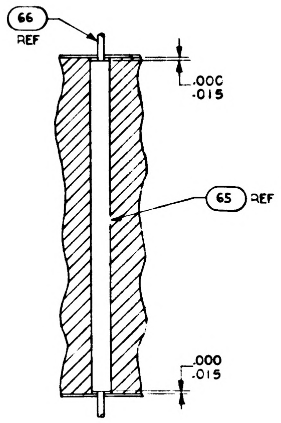
SECTION D-D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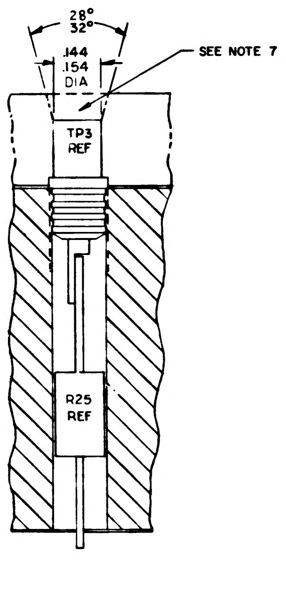
SECTION E-E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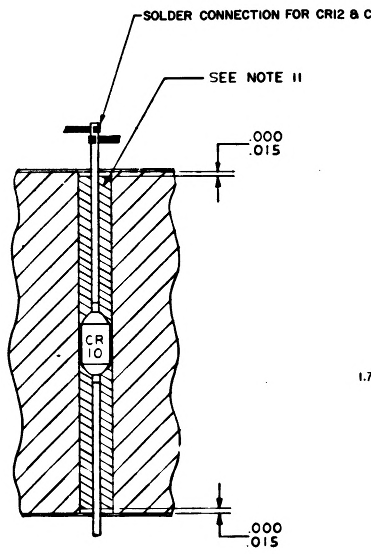
REF

SECTION G-G


SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
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CR
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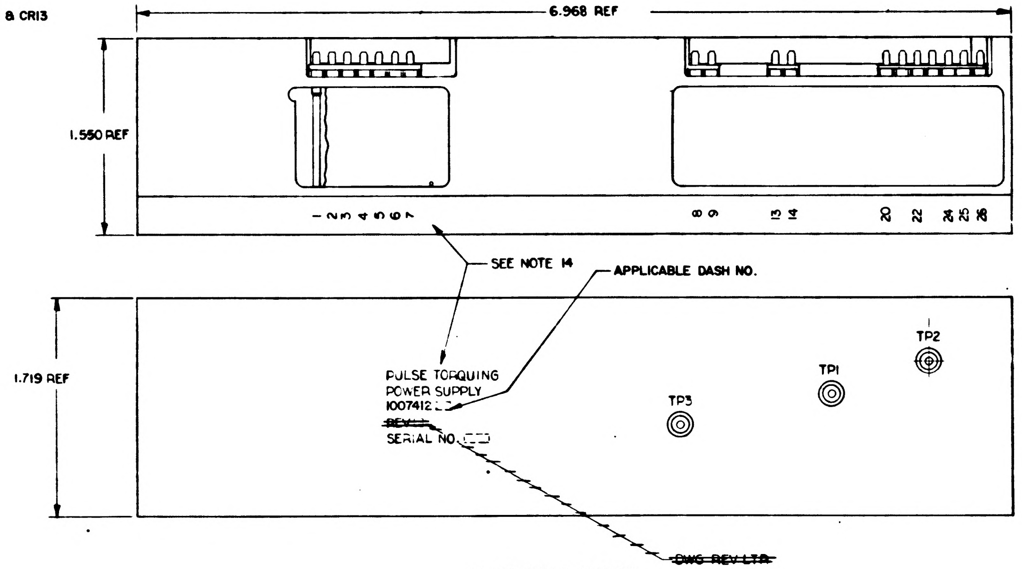
SECTION H-H

TYP FOR CR10, 11, 12, & 13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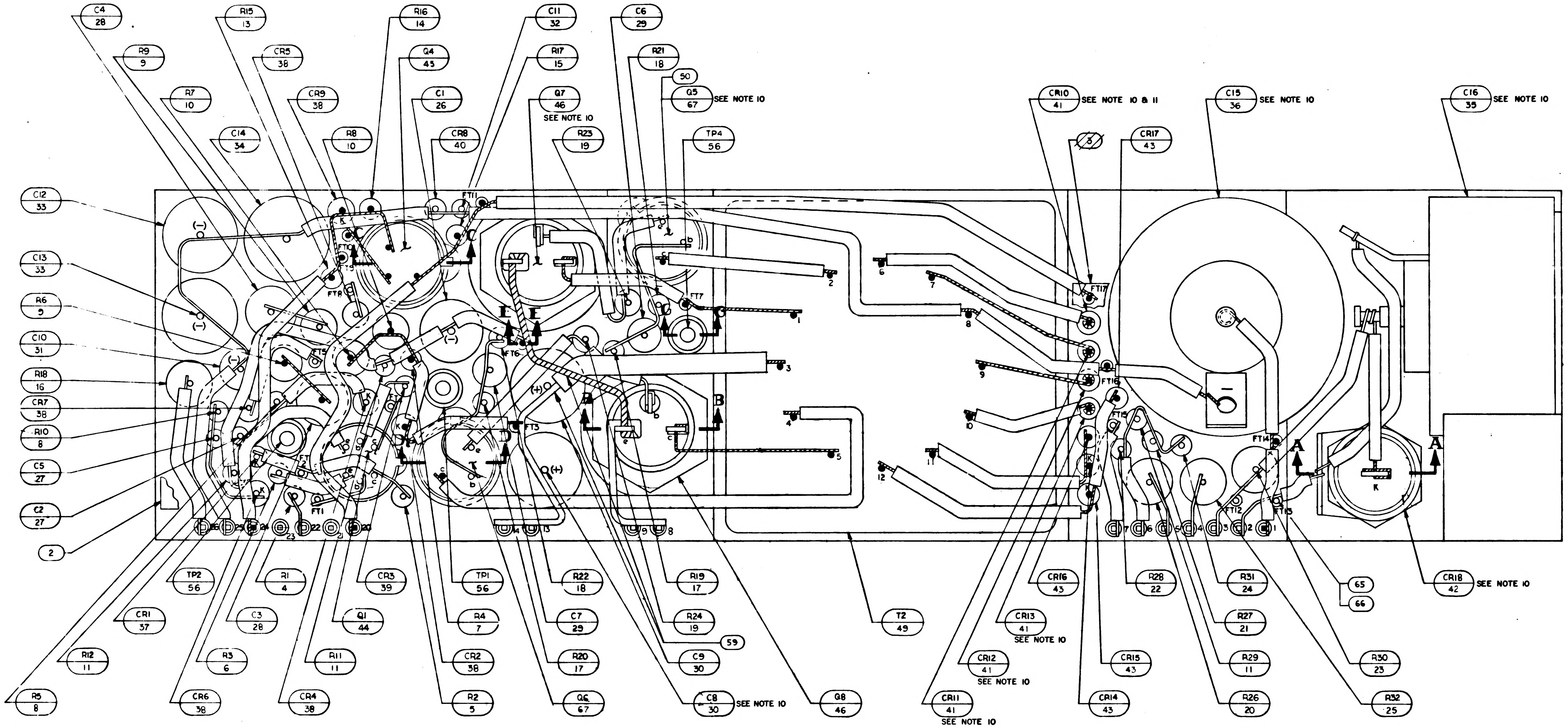
1.550 REF
1 2 3 4 5 6 7
8 9
13 14
20 22 24 25 26
SEE NOTE 14
APPLICABLE DASH NO.
1.719 REF
PULSE TORQUING
POWER SUPPLY
1007412
~~REV~~
SERIAL NO.
TP3
TP1
TP2
~~DWG REV LTR~~

MARKING VIEW

SCALE 2/1

CONFIGURATION	BON BETW WA ER AN HEA SINK
WAFER AND FLAT HEATSINK	100 OF FRO EX HEA SIN 80% OF FRO EX HEA SIN SU FACE
WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE	COR ER AND VER SU FACE WIT IN OF XTER SU FACE
HEATSINK FOAM CONTACT SURFACE PERIMETER	N A

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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R7 10
C14 34
R15 13
CR5 38
CR9 38
R8 10
R16 14
Q4 45
C1 26
CR8 40
C11 32
R17 15
Q7 46 SEE NOTE 10
R23 19
C6 29
R21 18
50
Q5 67 SEE NOTE 10
TP4 56
CR10 41 SEE NOTE 10 & 11
3
CR17 43
C15 36 SEE NOTE 10
C16 35 SEE NOTE 10
C12 33
C13 33
R6 5
C10 31
R18 16
CR7 38
R10 8
C5 27
C2 27
2
TP2 56
R1 4
CR3 39
TP1 56
R22 18
R19 17
CR1 37
C3 28
Q1 44
R4 7
C7 29
R24 19
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CR16 43
R28 22
R31 24
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CR18 42 SEE NOTE 10
CR13 41 SEE NOTE 10
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R12 11
R3 6
R11 11
CR2 38
R20 17
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CR12 41 SEE NOTE 10
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R29 11
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R5 8
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CR4 38
R2 5
Q6 67
C8 30 SEE NOTE 10
Q8 46
CR11 41 SEE NOTE 10
CR14 43
R26 20
R32 25
FT1
FT3
FT5
FT6
FT7
FT8
FT11
FT12
FT13
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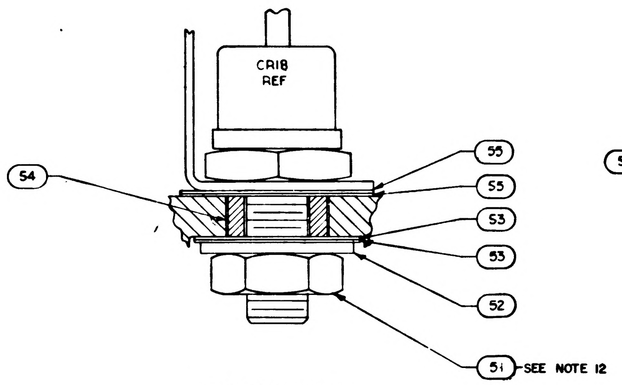
FT17
A
B
E
K
(+)
(-)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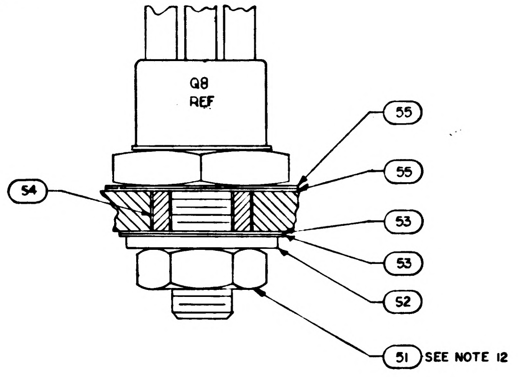
51 SEE NOTE 12

SECTION A-A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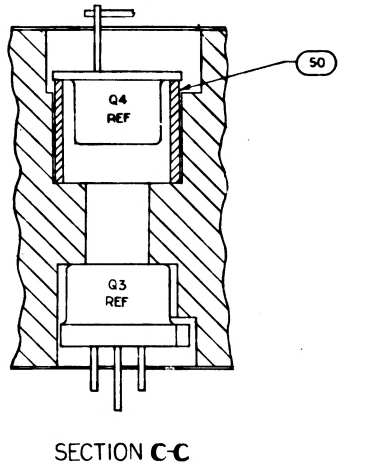
SECTION B-B

TYP Q8 & Q7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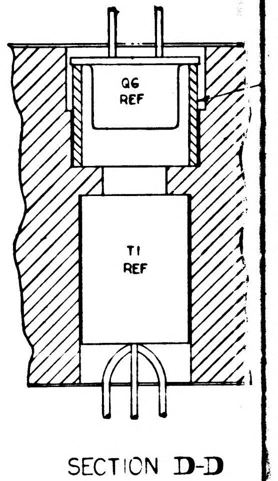
Q3 REF

SECTION C-C

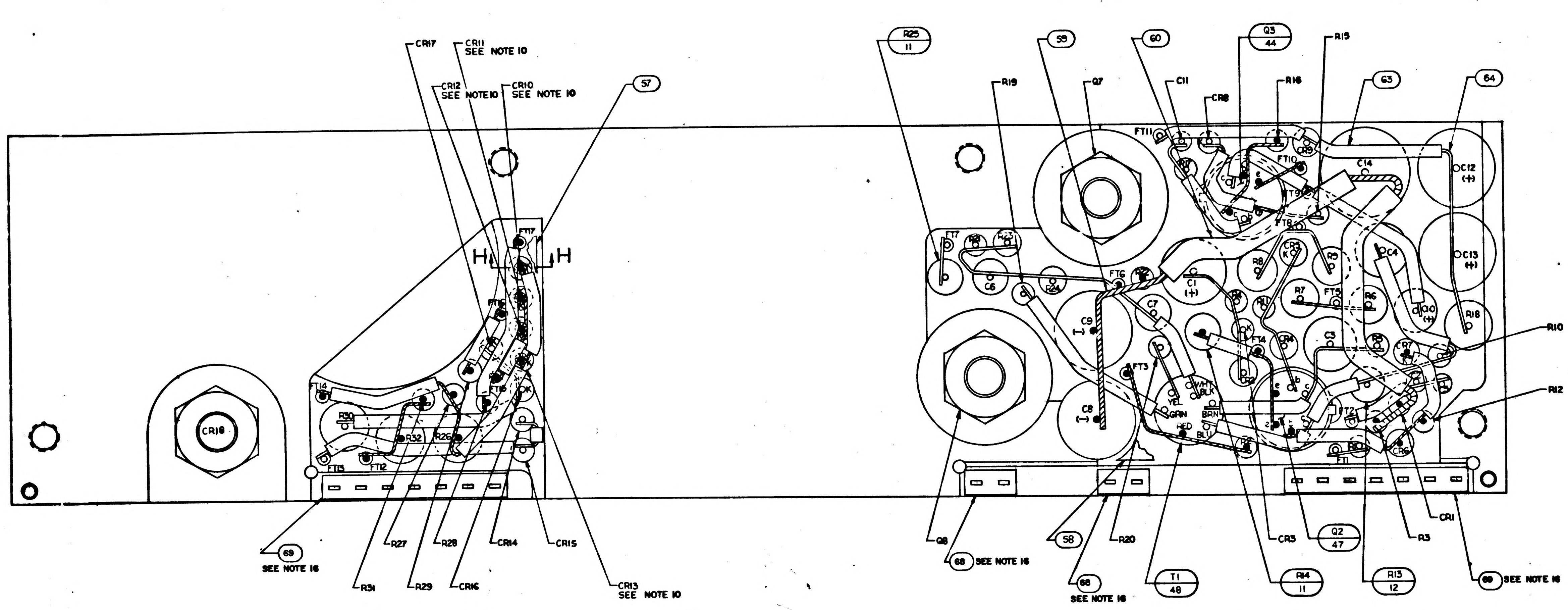

Q6 REF
T1 REF

SECTION D-D

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 61 AND 62 PER ND 1002136
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005 EXCEPT WHERE NOTED
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
6. ON FIND NO'S 2 AND 3
   - BROKEN PATHS INDICATE INSULATION SLEEVING,
   - K INDICATES CATHODE SIDE OF DIODE,
   - FT ( ) INDICATES FEED THRU
   - PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   - C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   - B INDICATES BASE LEAD OF TRANSISTOR,
   - E INDICATES EMITTER LEAD OF TRANSISTOR
7. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
8. STAKE FIND NO. 4 THRU 34.37 THRU 48, 50, 54 AND 67 PER ND 1002009 METHOD J AND CENTRALIZE.
9. AR DENOTES AS REQUIRED
10. SOLDER PER ND 1002071
11. ENCAPSULATE PER ND 1002036 STYCAST 1090 CATALYST 11, CURE AT 160°F FOR 3 HOURS AND POST CURE AT 180°F FOR 7 HOURS.
12. MOUNTING TORQUE TO BE 10-14 IN. LBS.
13. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
14. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
15. PROCURE PER PS 1007052.
16. ~~BOND FIND NO. 68 AND 69 TO FIND NO. 62 PER ND 1002237.~~
17. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
18. BOND FIND NO. 35, 36 AND 49 PER ND 1002004 TYPE I.
19. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF INSULATORS PER ND 1002187 TYPE I.~~
20. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
23. MOISTUREPROOF PER ND 1002292 AS REQUIRED BY FIND NO. 70 USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD 1008867 AFTER PAINTING AND STENCILING.

1007412	REV LTR H	SHEET 1 OF 1


CR17
CR11 SEE NOTE 10
CR12 SEE NOTE 10
CR10 SEE NOTE 10
57
H
H
FT17
FT16
FT15
FT14
FT13
FT12
R30
R32
R26
CR18
69 SEE NOTE 16
R27
R28
CR14
CR15
R31
R29
CR16
CR13 SEE NOTE 10
R25 11
59
R19
Q7
60
C11
Q3 44
CR8
R16
R15
63
64
FT11
FT10
FT9
FT8
FT7
FT6
FT5
FT4
FT3
FT2
FT1
C14
C12 (+)
C13 (+)
C4
C1 (+)
C9 (-)
C8 (-)
C6
C7
C3
C10 (+)
R18
R10
R12
R24
R22
R21
R23
R8
R9
R7
R6
R5
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R1
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BLK
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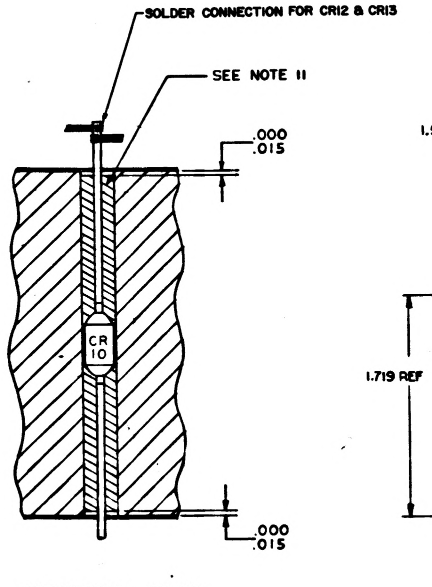
R3
CR1
69 SEE NOTE 16


SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
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CR 10
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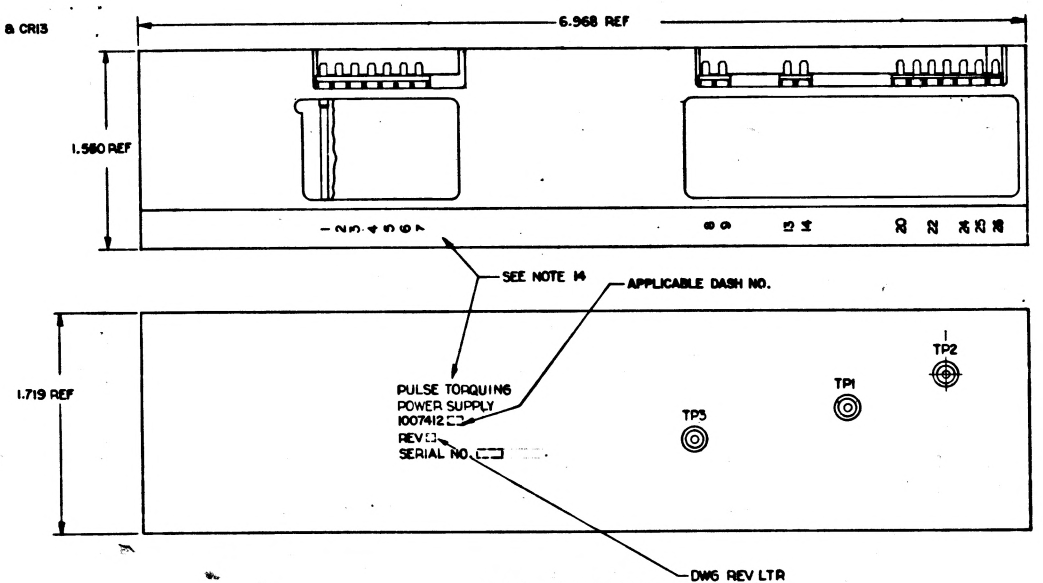
SECTION H-H
TYP FOR CR10, 11, 12, & 13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1.719 REF
SEE NOTE 14
APPLICABLE DASH NO.
PULSE TORQUING
POWER SUPPLY
1007412-☐
REV☐
SERIAL NO.☐
TP3
TP1
TP2
DWG REV LTR

MARKING VIEW
SCALE 2/1

			☒		1010052	SCHEMATIC	REF
			2		1008540-7	GASKET, CONNECTOR-MINIATURE	69
			2		1008540-2	GASKET, CONNECTOR-MINIATURE	68
			2		1010398 - 3	TRANSISTOR	67
			AR		1006757 - 8	WIRE ELEC .020 DIA	66
			AR		1006776 - 22	INSULATION SLEEVING ELEC	65
			AR		1006757 - 1	WIRE, ELEC .010 X .020	64
			AR		1006776 - 21	INSULATION, SLEEVING	63
			18		1006775	INSULATOR, WRAPOST-MALE, MINIATURE	62
			18		1006782 - 5	CONTACT, WRAPOST-MALE, MINIATURE	61
			AR		1006776 - 20	INSULATION SLEEVING	60
			AR		1006757 - 9	WIRE ELEC .032 DIA	59
			1		1008094 - 1	INSULATOR	58
			1		1008094 - 2	INSULATOR	57
			3		1010292 - 2	TERMINAL, FEEDTHRU	56
			6		1008024 - 2	WASHER, INSULATOR	55
			3		1008021 - 1	BUSHING, INSULATOR	54
			6		1008024 - 1	WASHER, INSULATOR	53
			3		1008071 - 2	WASHER	52
			3		MS20341 - 10B	NUT	51
			3		1008025 - 2	INSULATOR, BUSHING	50
			1		1010745	TRANSFORMER	49
			1		1010315 - 2	TRANSFORMER	48
			1		1010376 - 4	TRANSISTOR	47
			2		1010499 - 2	TRANSISTOR	46
			1		1010398 - 1	TRANSISTOR	45
			2		1010376 1	TRANSISTOR	44
			4		1010384	DIODE	43
			1		1010331 - 013	DIODE	42
			4		1010497	DIODE	41
			1		1010286 - 25	DIODE	40
			1		1010286 - 9	DIODE	39
			6		1010385	DIODE	38
			1		1010286 - 5	DIODE	37
			1		1010460 - 1	CAPACITOR	36
			1		1010460 - 2	CAPACITOR	35
			1		1010264 - 29	CAPACITOR	34
			2		1006755 - 89	CAPACITOR	33
			1		1006777 - 18	CAPACITOR	32
			1		1006755 - 79	CAPACITOR	31
			2		1010393 - 045	CAPACITOR	30
			2		1006777 - 30	CAPACITOR	29
			2		1010316 - 36	CAPACITOR	28
			2		1006777 - 16	CAPACITOR	27
			1		1006755 - 85	CAPACITOR	26
			1		1010278 - 80	RESISTOR	25
			1		1006750 - 77	RESISTOR	24
			1		1010389 - 48	RESISTOR	23
			1		1006750 - 67	RESISTOR	22
			1		1010369 - 93	RESISTOR	21
			1		1010278 - 94	RESISTOR	20
			2		1006802	RESISTOR	19
			2		1006750 - 31	RESISTOR	18
			2		1006750 - 22	RESISTOR	17
			1		1010278 - 70	RESISTOR	16
			1		1006750 - 47	RESISTOR	15
			1		1006750 - 50	RESISTOR	14
			1		1006750 - 32	RESISTOR	13
			1		1006750 - 63	RESISTOR	12
			5		1006750 - 56	RESISTOR	11
			2		1010377 - 111	RESISTOR	10
			2		1010377 - 110	RESISTOR	9
			2		1006750 - 74	RESISTOR	8
			1		1006750 - 62	RESISTOR	7
			1		1006750 - 12	RESISTOR	6
			1		1006750 - 51	RESISTOR	5
			1		1006750 - 65	RESISTOR	4
			1		1008093 - 2	INSULATOR	3
			1		1008093 - 1	INSULATOR	2
			1		1007069	HEATSINK	1
QUANTITY REQUIRED			-011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

REVISIONS 3912			
SYM	DESCRIPTION	DATE	APPROVAL

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		
1007572		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS .XX ±.02 .XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE 2 OCT 64
CHECKED 12 OCT 64
APPROVAL
APPROVAL 11-2-64
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

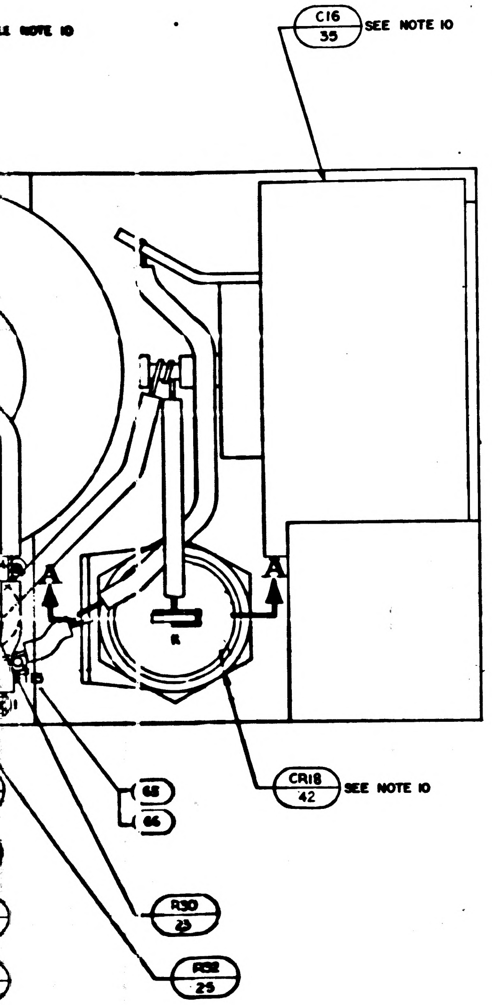
PULSE TORQUING
POWER SUPPLY
MODULE ASSY

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007412
SCALE 5/1
WT
SHEET 1 OF 1

1007412

F3

1007412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SEE NOTE 10
A
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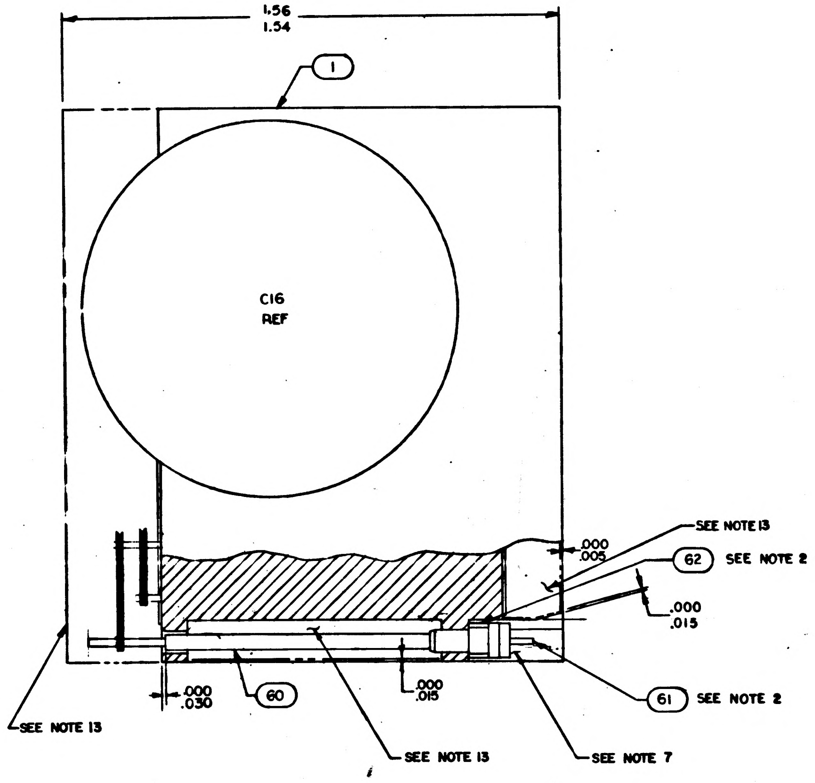
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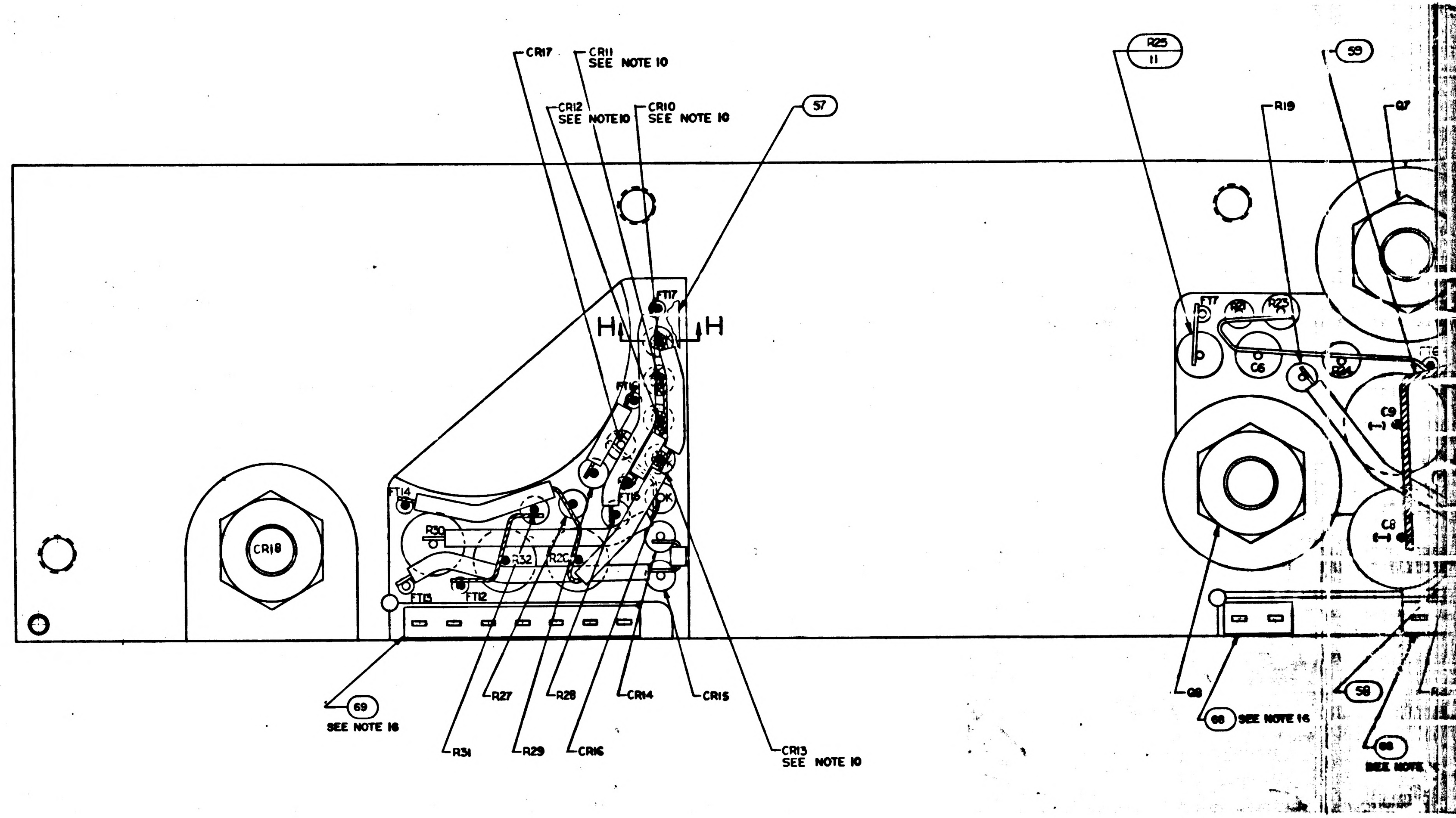
SEE NOTE 2
SEE NOTE 13
SEE NOTE 13
SEE NOTE 7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FT16
FT17
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SEE NOTE 16
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SEE NOTE 10
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SEE NOTE 16
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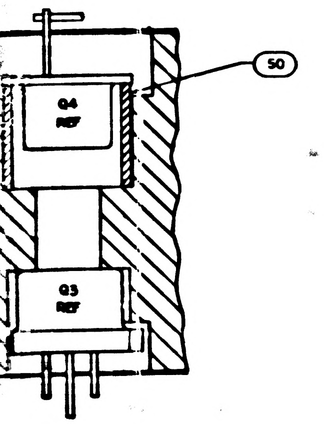
68
SEE NOTE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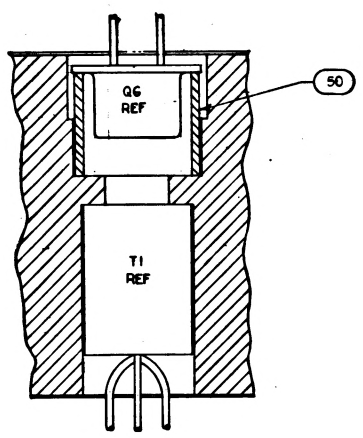
SECTION C-C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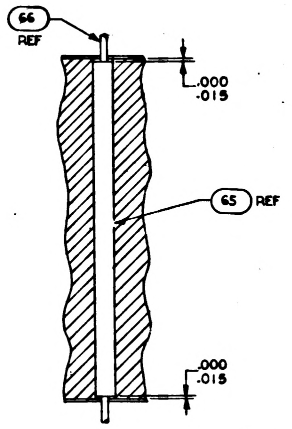
SECTION D-D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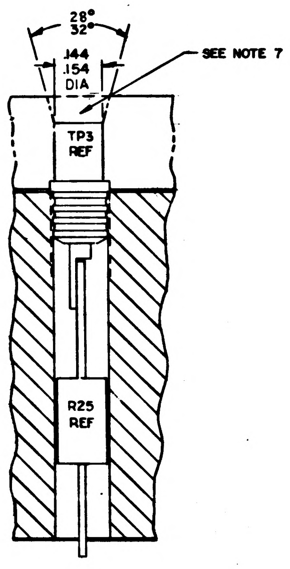
SECTION E-E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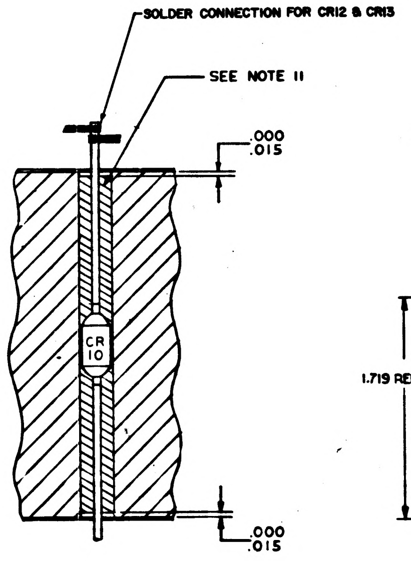
REF
R25
REF

SECTION G-G


SOLDER CONNECTION FOR CR12 & CR13
SEE NOTE 11
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CR
10
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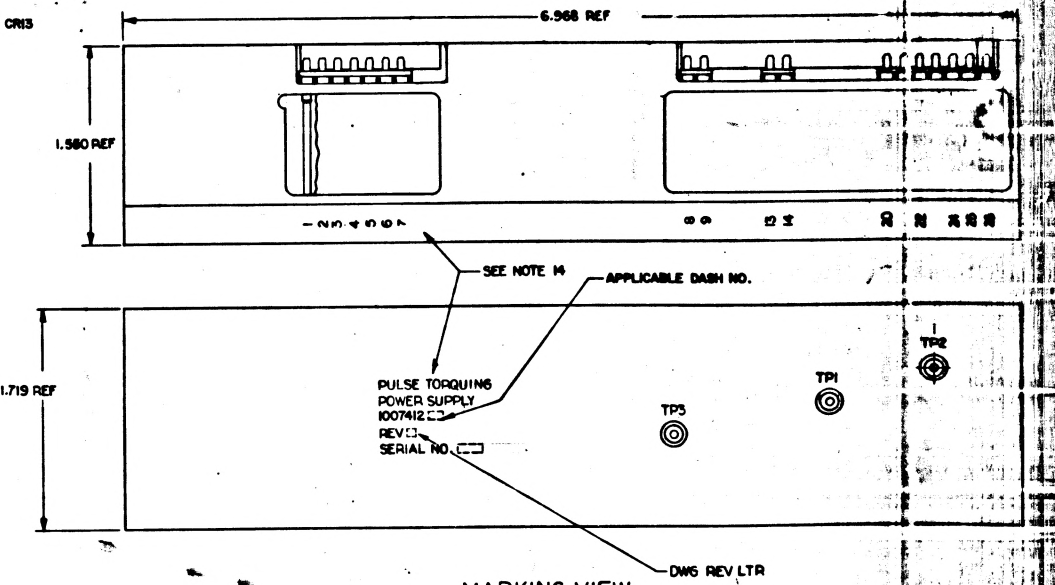
SECTION H-H
TYP FOR CR10, 11, 12, & 13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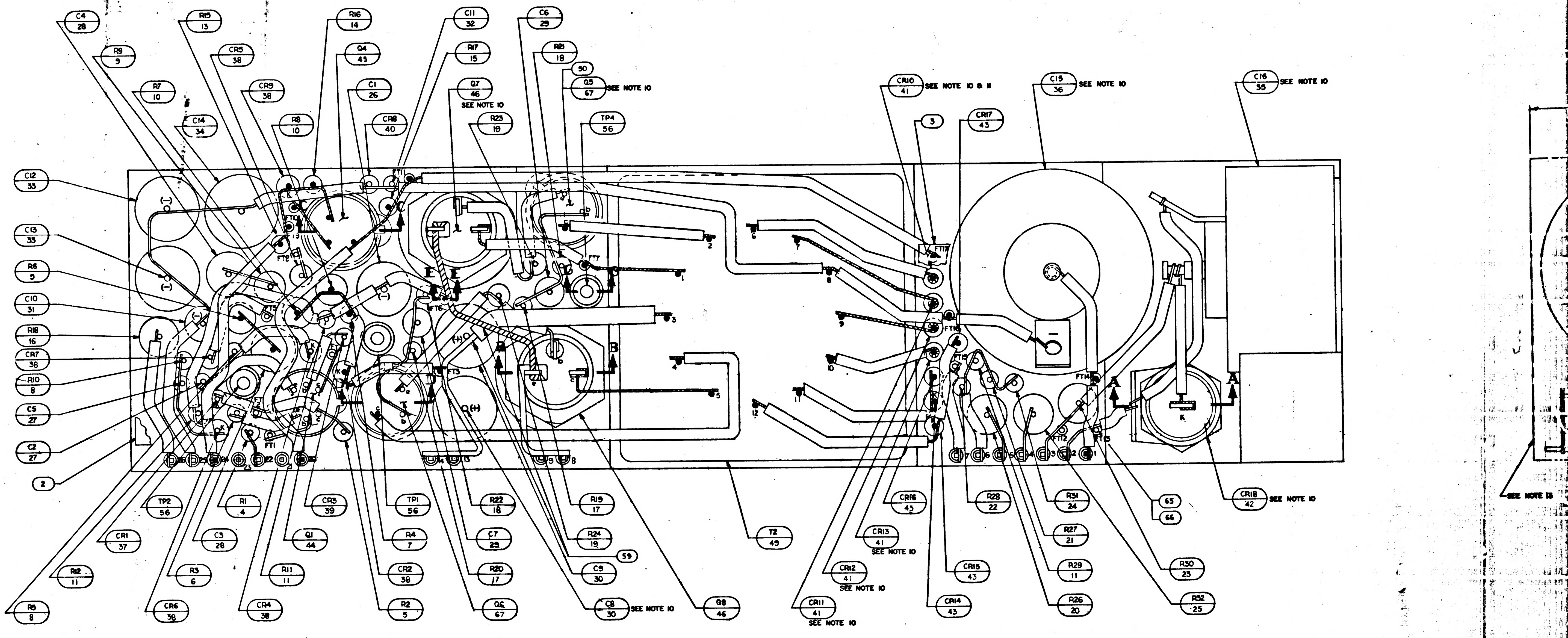
1.580 REF
SEE NOTE 14
APPLICABLE DASH NO.
1.719 REF
PULSE TORQUING
POWER SUPPLY
1007412
REV
SERIAL NO.
TP3
TP1
TP2
DWG REV LTR

MARKING VIEW
SCALE 2/1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CR5 38
Q4 43
R17 15
R21 18
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R7 10
CR9 38
C1 26
Q7 46 SEE NOTE 10
C14 34
R8 10
CR8 40
R23 19
TP4 56
CR10 41 SEE NOTE 10 & 11
3
CR17 43
C15 36 SEE NOTE 10
C16 35 SEE NOTE 10
C12 33
C13 33
R6 5
C10 31
R18 16
CR7 38
R10 8
C5 27
C2 27
2
TP2 56
R1 4
CR3 39
TP1 56
R22 18
R19 17
CR16 43
R28 22
R31 24
65
66
CR18 42 SEE NOTE 10
SEE NOTE 13
CR1 37
C3 28
Q1 44
R4 7
C7 29
R24 19
T2 45
CR13 41 SEE NOTE 10
R27 21
59
R12 11
R3 6
R11 11
CR2 38
R20 17
C9 30
CR12 41 SEE NOTE 10
CR15 43
R29 11
R30 23
R5 8
CR6 38
CR4 38
R2 5
Q6 67
C8 30 SEE NOTE 10
Q8 46
CR11 41 SEE NOTE 10
CR14 43
R26 20
R32 25
A
B
E
FT1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
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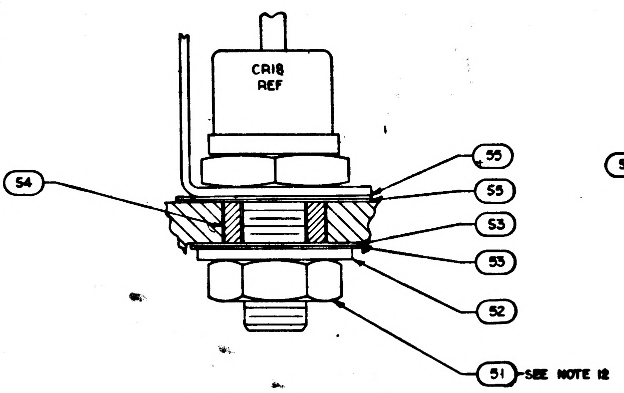
6. ON FIND NO'S 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
7. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
8. STAKE FIND NO. 4 THRU 34,37 THRU 48, 50, 54 AND 67 PER ND 1002009 METHOD C AND CENTRALIZE.
9. AR DENOTES AS REQUIRED
10. SOLDER PER ND 1002071
11. ENCAPSULATE PER ND 1002036 STYCAST 1090 CATALYST 11, CURE AT 160°F FOR 3 HOURS AND POST CURE AT 180°F FOR 7 HOURS.
12. MOUNTING TORQUE TO BE 10–14 IN. LBS.
13. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
14. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
15. PROCURE PER PS 1007052.
16. BOND FIND NO. 68 AND 69 TO FIND NO. 62 PER ND 1002237.
17. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
18. BOND FIND NO. 35, 36 AND 40 PER ND 1002084 TYPE F.


CR18 REF
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53
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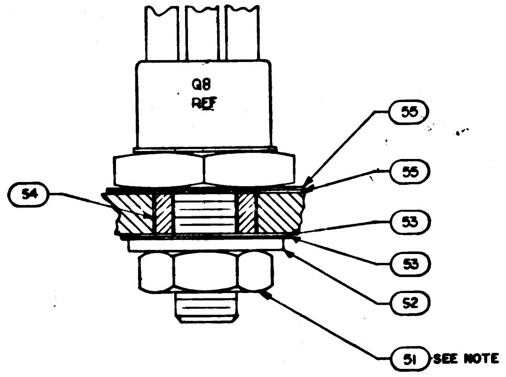
51 SEE NOTE 12

SECTION A-A


Q8 REF
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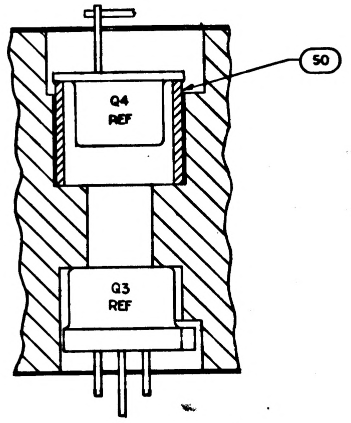
51 SEE NOTE 12

SECTION B-B

TYP Q6 & Q7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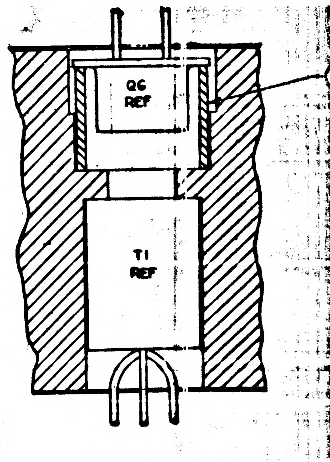
SECTION C-C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SECTION D-D

F1

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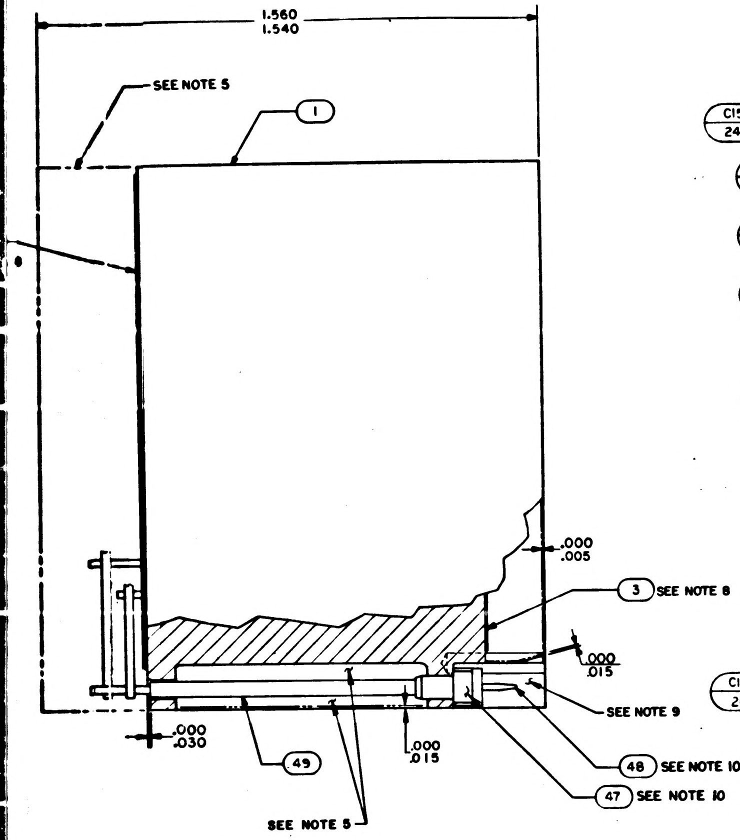
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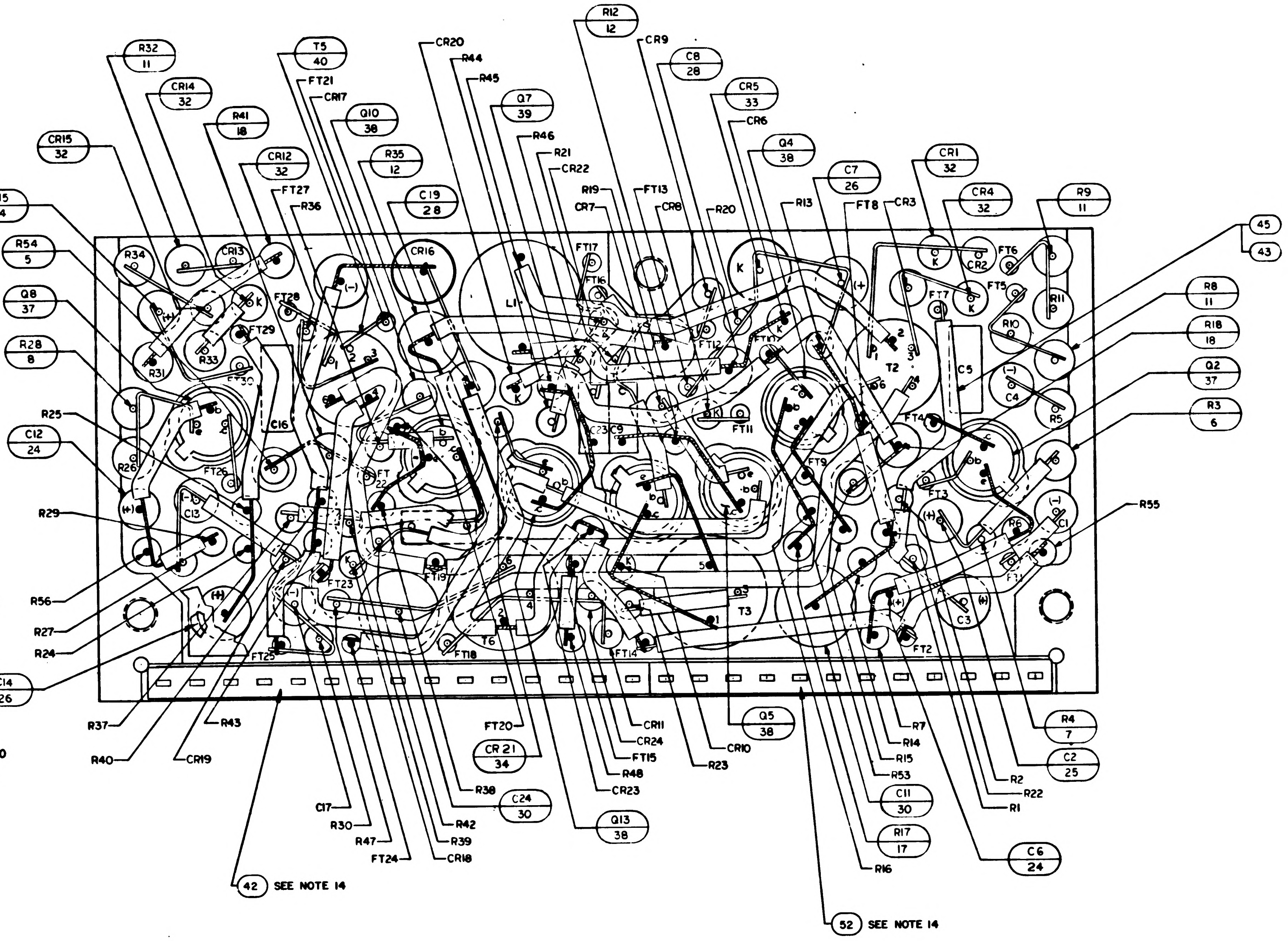
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CR12 32
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FT13
CR7
CR8
R20
R13
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FT8
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CR4 32
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CR18
R42
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R38
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Q13 38
R48
CR23
FT15
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R16
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R15
R14
R7
R4 7
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R2
R1
C6 24
42 SEE NOTE 14
52 SEE NOTE 14
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R26
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CR16
L1
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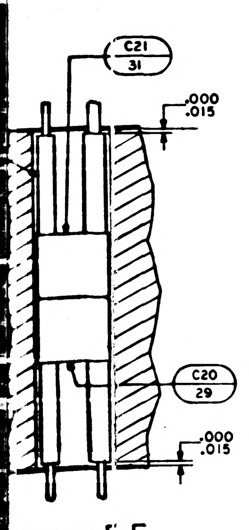
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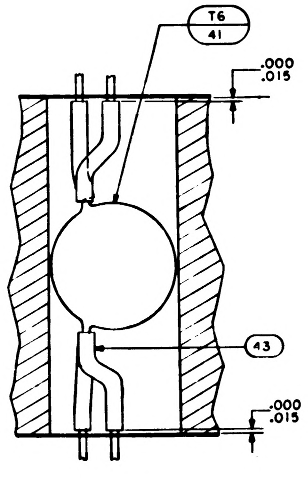
SECTION E-E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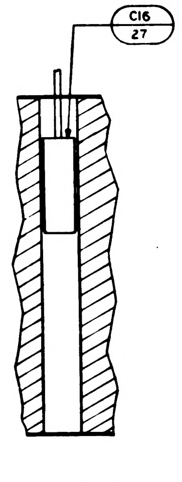
SECTION F-F



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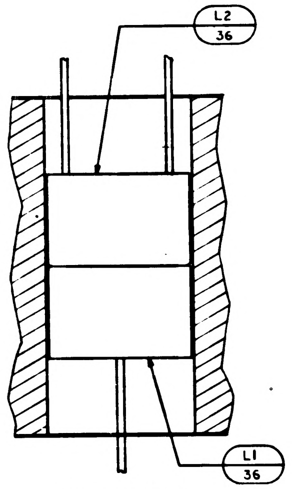

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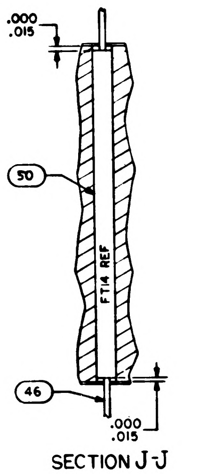
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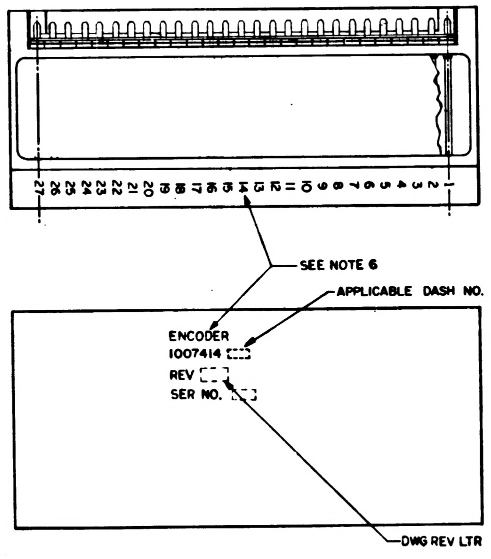
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SEE NOTE 6
APPLICABLE DASH NO.
ENCODER
1007414
REV
SER NO.
DWG REV LTR

MARKING VIEW
SCALE 2/1

			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO.
			☒		1010034	SCHEMATIC	REF
			1		1010385	DIODE	53
			1		1008540-12	GASKET, CONNECTOR MINIATURE	52
			AR		SEE NOTE 12	INSULATION, TAPE	51
			AR		1006776-22	INSULATION, SLEEVING	50
			AR		1006776-20	INSULATION, SLEEVING	49
			27		1006782-4	CONTACT WRAPOST MALE MINIATURE	48
			27		1006775	INSULATOR WRAPOST MALE MINIATURE	47
			AR		1006757-8	WIRE ELEC .020 DIA	46
			AR		1006757-1	WIRE ELEC .010 X .020	45
			14		1008025-1	INSULATOR BUSHING	44
			AR		1006776-21	INSULATION, SLEEVING	43
			1		1008540-15	GASKET, CONNECTOR MINIATURE	42
			2		1010344-2	TRANSFORMER	41
			4		1010366	TRANSFORMER	40
			2		1010285	TRANSISTOR	39
			8		1010357	TRANSISTOR	38
			4		1010397-1	TRANSISTOR	37
			2		1010309-005	COIL	36
			2		1010286-001	DIODE	35
			10		1010370	DIODE	34
			2		1010265-12	DIODE	33
			10		1010362-2	DIODE	32
			1		1010359-11	CAPACITOR	31
			2		1010375-21	CAPACITOR	30
			5		1010359-17	CAPACITOR	29
			2		1010279-223	CAPACITOR	28
			2		1010359-29	CAPACITOR	27
			4		1010393-37	CAPACITOR	26
			2		1006755-65	CAPACITOR	25
			6		1006755-69	CAPACITOR	24
			1		1006750-44	RESISTOR	23
			2		1006750-72	RESISTOR	22
			2		1010369-140	RESISTOR	21
			2		1006750-40	RESISTOR	20
			6		1006750-52	RESISTOR	19
			2		1006760-44	RESISTOR	18
			2		1006750-54	RESISTOR	17
			2		1006750-63	RESISTOR	16
			2		1006750-8	RESISTOR	15
			3		1006750-56	RESISTOR	14
			2		1006750-65	RESISTOR	13
			2		1010312-029	RESISTOR	12
			8		1010364-252	RESISTOR	11
			2		1006750-30	RESISTOR	10
			2		1006750-73	RESISTOR	9
			2		1010364-444	RESISTOR	8
			2		1006750-33	RESISTOR	7
			2		1010364-60	RESISTOR	6
			4		1006750-49	RESISTOR	5
			2		1006750-23	RESISTOR	4
			1		1008057-2	INSULATOR, BOTTOM	3
			1		1008057-1	INSULATOR, TOP	2
			1		1008066	HEATSINK	1

QUANTITY REQUIRED
LIST OF PARTS AND MATERIALS

1007414 A

2

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577 1007575		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS XX±.02 XXX±.005
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN Salame DATE 30 SEP 64
CHECKED A. Udorich 3 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

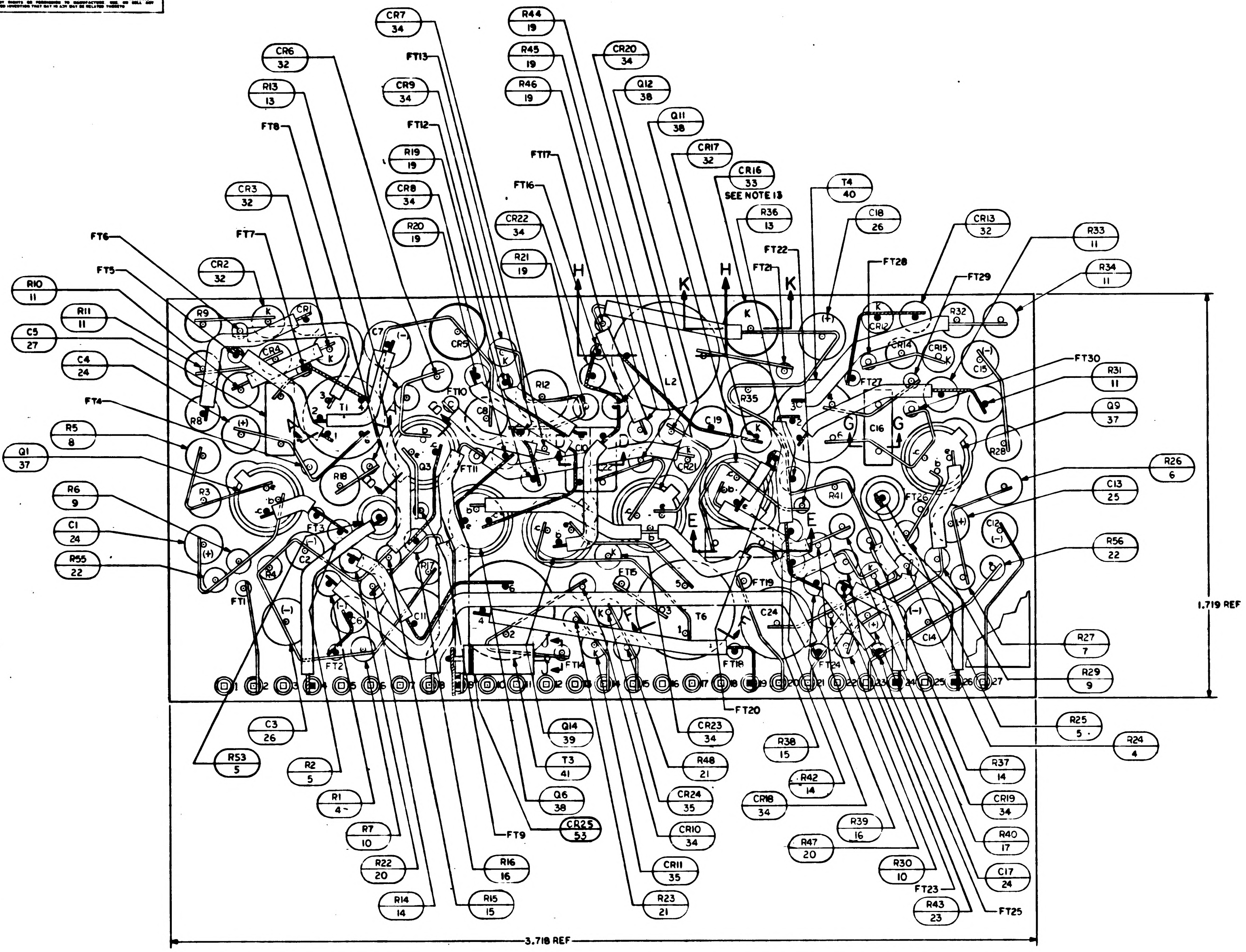
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ENCODER MODULE
ASSEMBLY

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007414
SCALE 5:1
WT
SHEET 1 OF 1

1007414 REV A

2/1007414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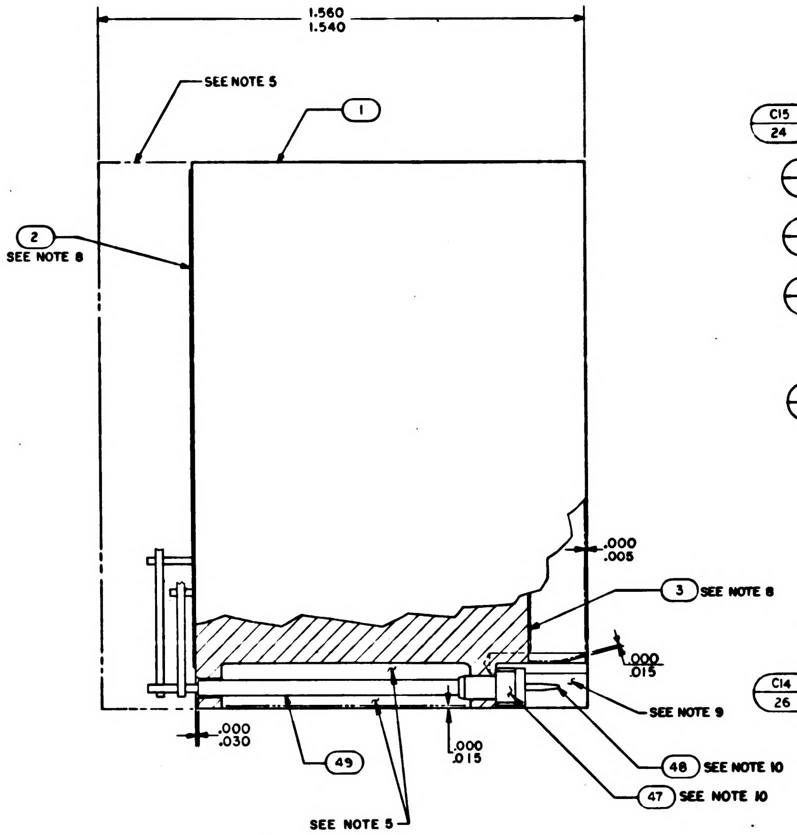
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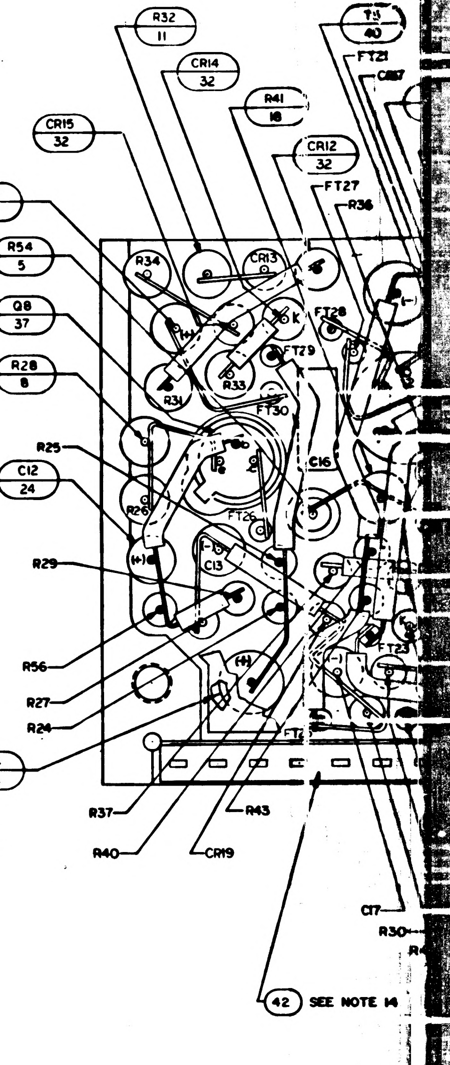
SEE NOTE 5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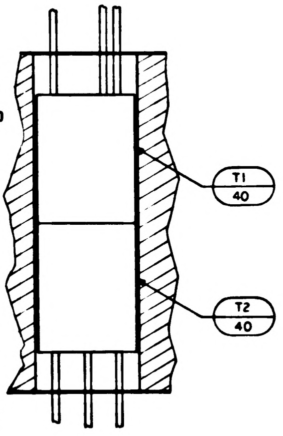
C12 24
R29
R56
R27
R24
C14 26
R37
R40
R43
CR19
C17
R30
42 SEE NOTE 14

NOTES:

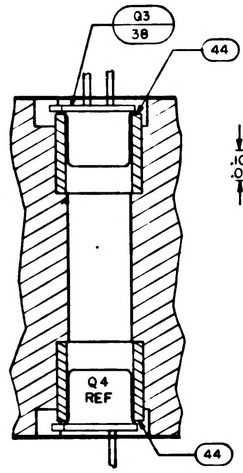
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAX OF .005 WHEN THE HEATSINK OUTLINE EXCEED THE ENCAPSULANT OUTLINE THE MAX DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
6. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
7. STAKE ALL COMPONENTS AND FIND NO. 44 PER ND 1002009 METHOD C
8. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU,
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR

9. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
10. INSTALL FIND NO. 47 AND FIND NO. 48 PER ND 1002136.
11. BOND FIND NO. 51 TO FIND NO. 33 PER MIL-I-15126, COND C-2/23/50 BEFORE ASSEMBLING TO FIND NO. 1
12. INSULATION TAPE PER MIL-I-15126 TYPE MFT, 2.5,1/2 WIDE
13. PROCURE PER PS 1007054.

14. BOND FIND NO. 42 AND FIND NO. 52 TO FIND NO. 47 PER ND 1002237.
15. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
16. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.



SECTION A-A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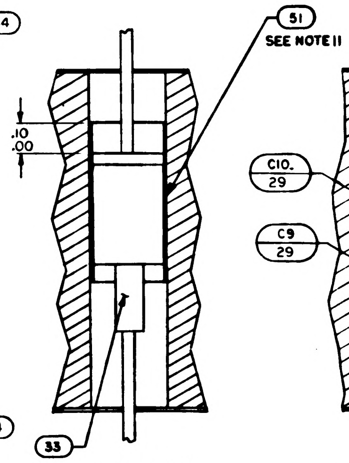
SECTION B-B

TYPICAL INSTALLATION FOR FIND NO'S, 37, 38 AND 39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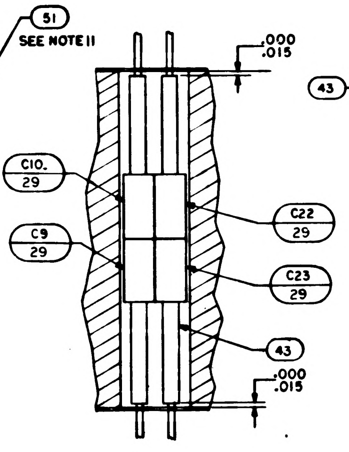
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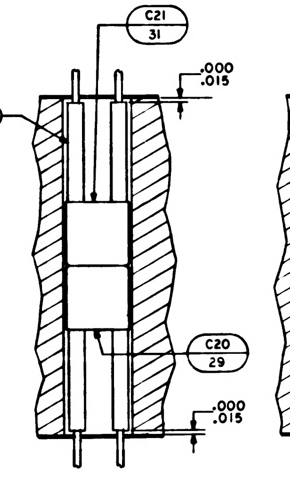
SECTION D-D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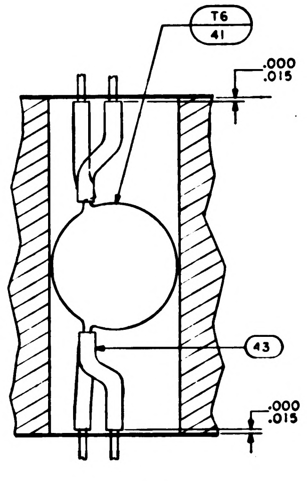
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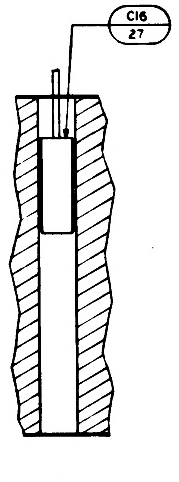
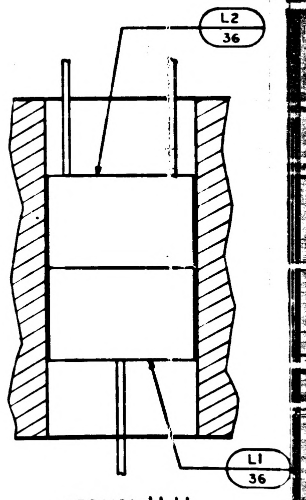
SECTION F-F



SECTION G-G



SECTION H-H

1007414 REV A

1/71007414

SYM	DESCRIPTION	DATE	APPROVAL
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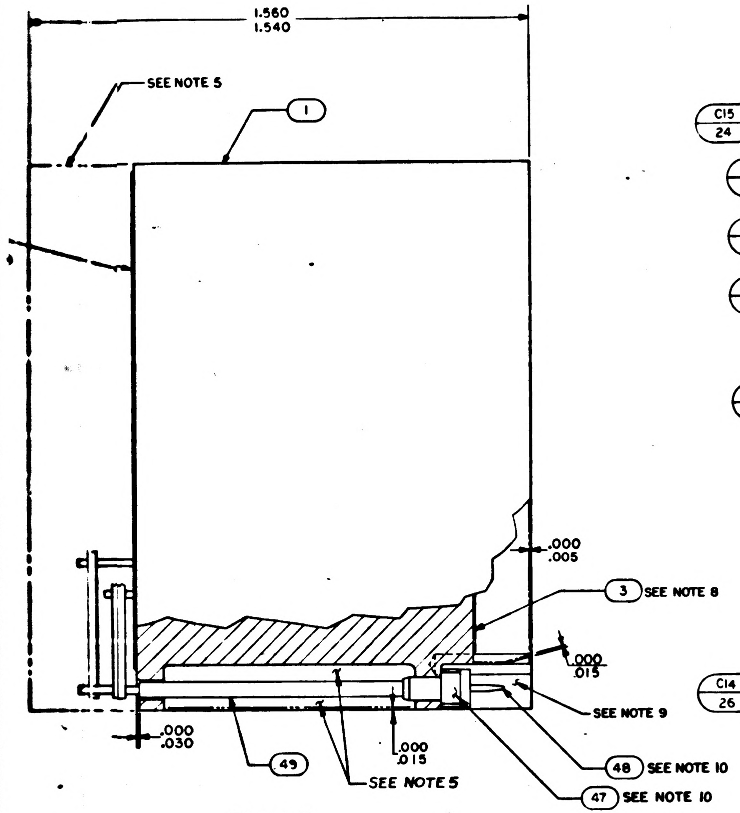
B	REVISED PER TDRR 19407	1-JUN -65	A.F.W. DEM

REVISIONS 3716



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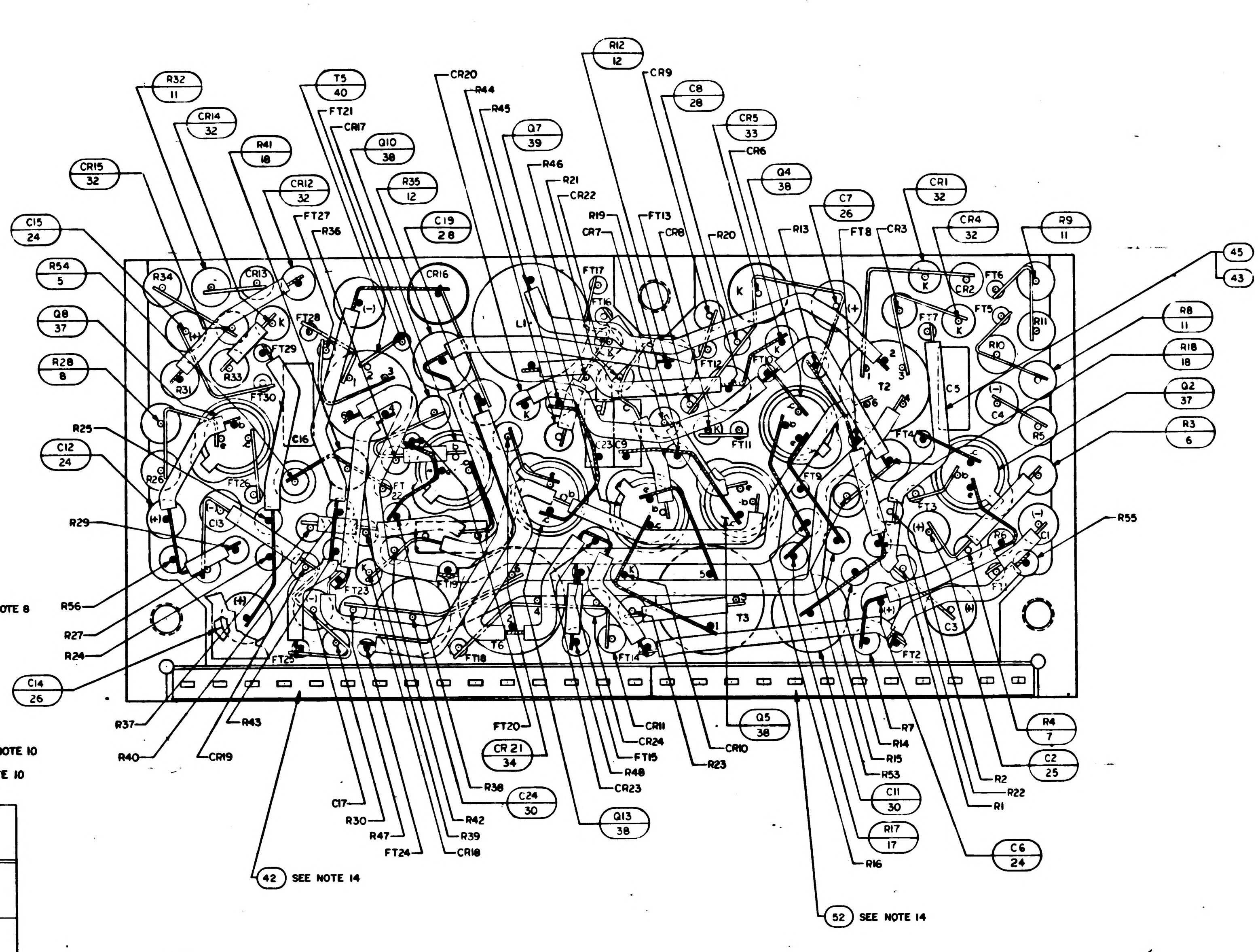

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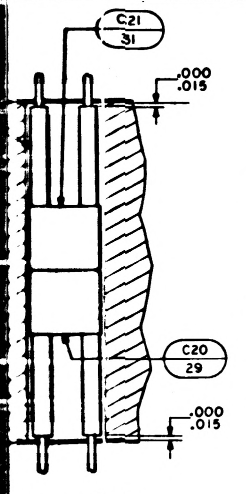
TABLE I

TERIAL	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER AT PERIMETER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
HESIVE	.12 MIN 100% OF PERIMETER .25 MIN 80% OF PERIMETER	.25 MIN 100% OF PERIMETER	N/A
DHESIVE	CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	.25 MIN 100% OF PERIMETER	N/A
RIMER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 TO .06 OF EXTERNAL EDGE.



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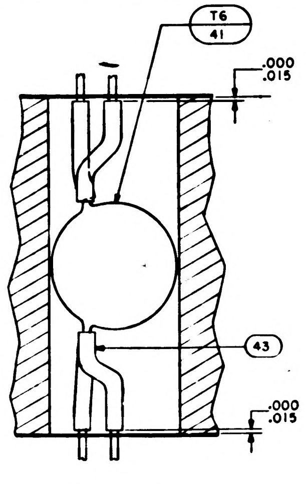
SECTION E-E



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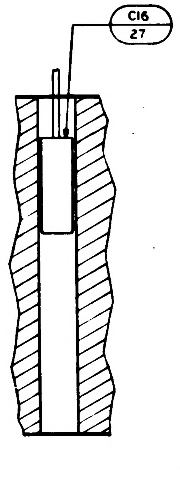
SECTION F-F



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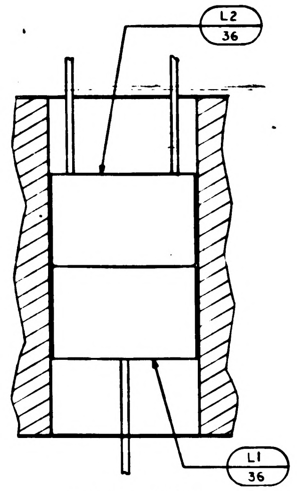

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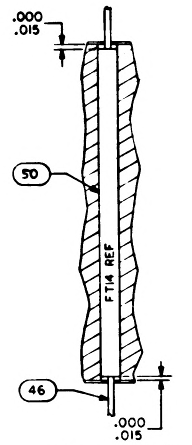

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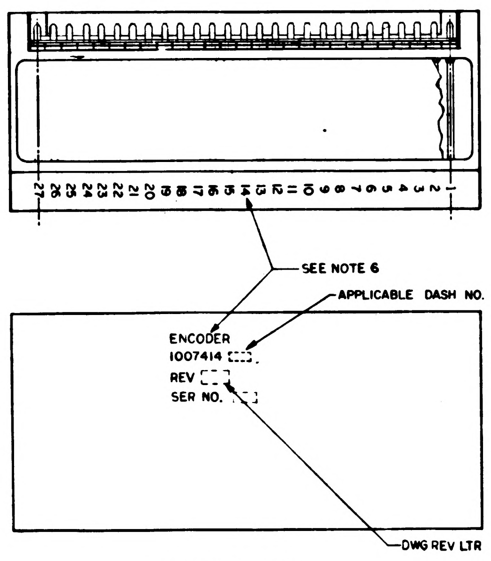
SECTION J-J



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SEE NOTE 6
APPLICABLE DASH NO.
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1007414
REV
SER NO.
DWG REV LTR

MARKING VIEW
SCALE 2/1

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			1		1008540-12	GASKET, CONNECTOR MINIATURE	52
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			AR		1006776-22	INSULATION, SLEEVING	50
			AR		1006776-20	INSULATION, SLEEVING	49
			27		1006782-4	CONTACT WRAPOST MALE MINIATURE	48
			27		1006775	INSULATOR WRAPOST MALE MINIATURE	47
			AR		1006757-8	WIRE ELEC .020 DIA	46
			AR		1006757-1	WIRE ELEC .018 X .020	45
			14		1008025-1	INSULATOR BUSHING	44
			AR		1006776-21	INSULATION, SLEEVING	43
			1		1008540-15	GASKET, CONNECTOR MINIATURE	42
			2		1010344-2	TRANSFORMER	41
			4		1010366	TRANSFORMER	40
			2		1010285	TRANSISTOR	39
			8		1010357	TRANSISTOR	38
			4		1010397-1	TRANSISTOR	37
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			10		1010362-2	DIODE	32
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			2		1010279-223	CAPACITOR	28
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			2		1006755-65	CAPACITOR	25
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			4		1006750-49	RESISTOR	5
			2		1006750-23	RESISTOR	4
			1		1008057-2	INSULATOR, BOTTOM	3
			1		1008057-1	INSULATOR, TOP	2
			1		1008066	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577 1007575		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN Solome DATE 30SEP64
CHECKED A. Udmach 3 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ENCODER MODULE
ASSEMBLY

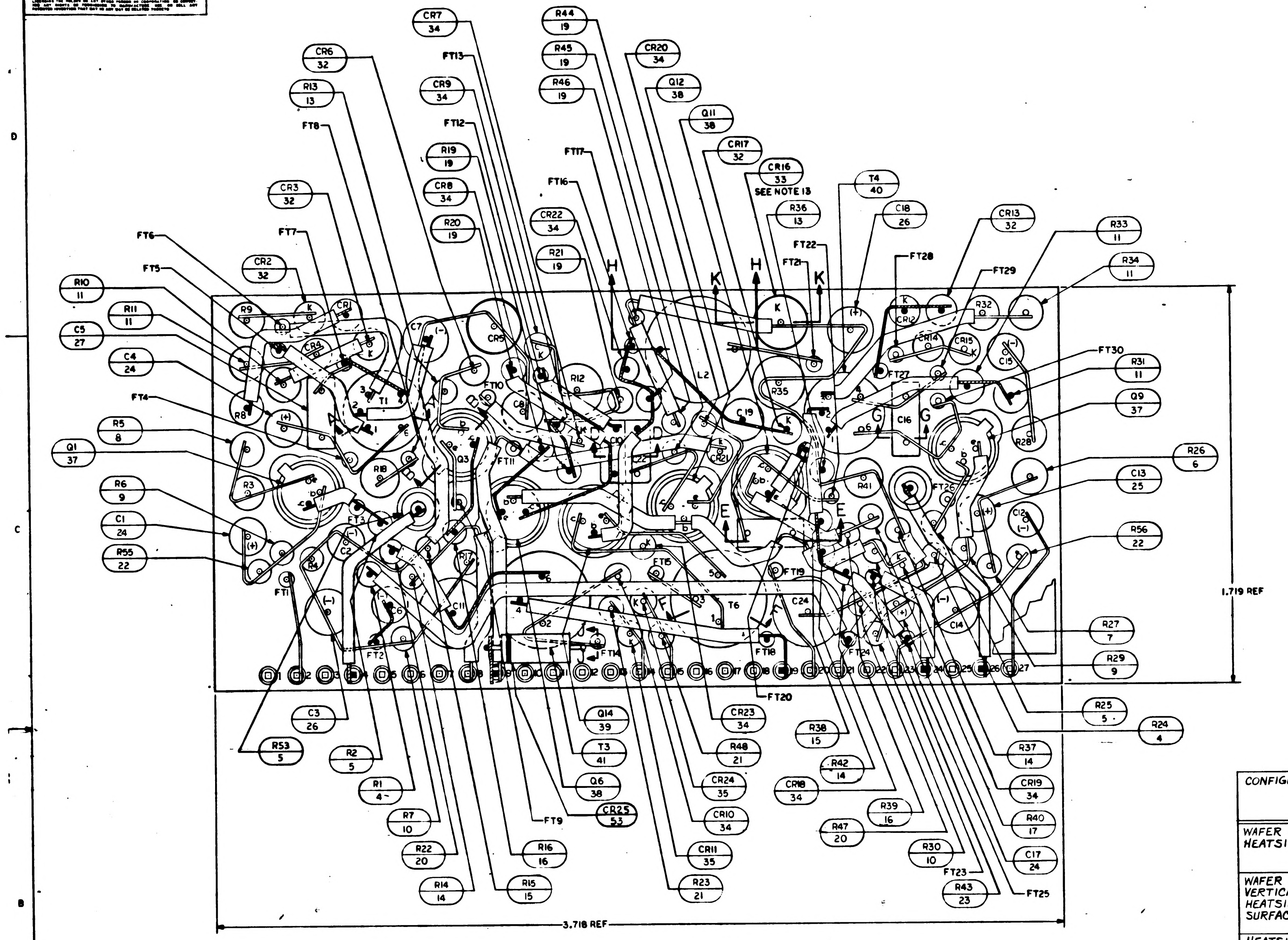
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007414
SCALE 5:1
WT
SHEET 1 OF 1

1007414 B

1007414 REV B

2/1007414

[illegible]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Q9 37
R26 6
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R27 7
R29 9
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K
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FT1
FT2
FT3
FT9
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FT11
FT14
FT15
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FT19
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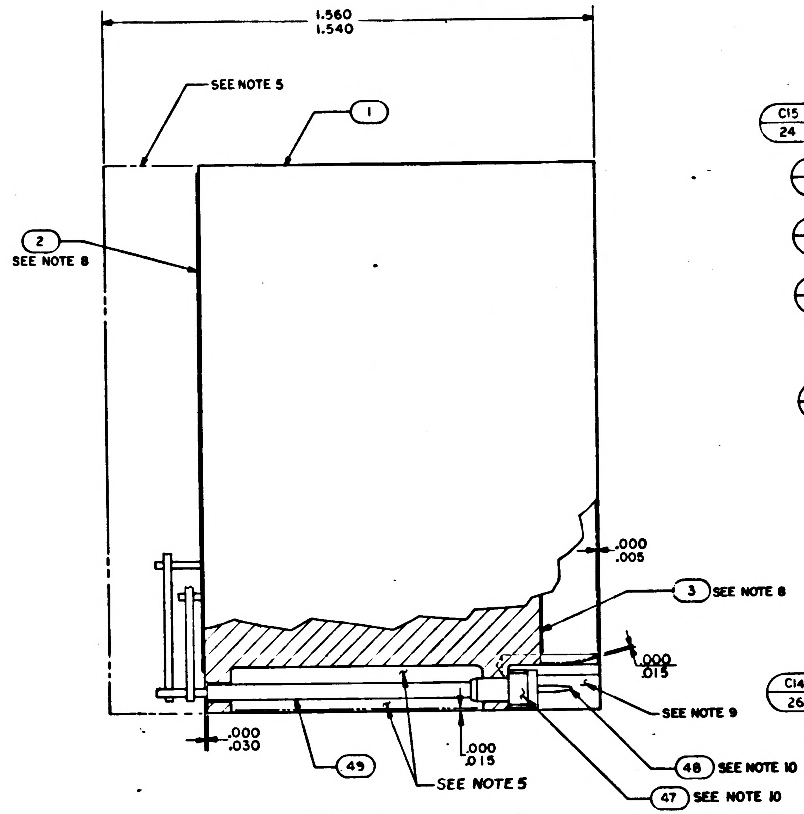
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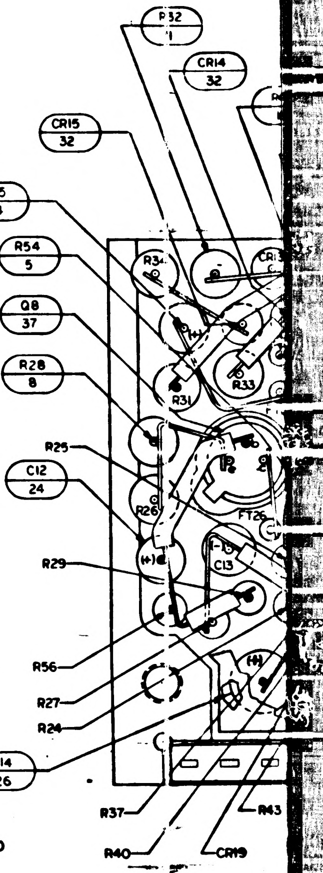
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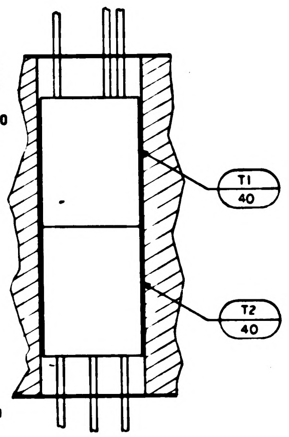
R37
R40
R43
CR19

TABLE I

CONFIGURATION	MATERIAL	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER AT PERIMETER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	ADHESIVE	.12 MIN 100% OF PERIMETER .25 MIN 80% OF PERIMETER	.25 MIN 100% OF PERIMETER	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	ADHESIVE	CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	.25 MIN 100% OF PERIMETER	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	PRIMER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 TO .06 OF EXTERNAL EDGE.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAX OF .005 WHEN THE HEATSINK OUTLINE EXCEED THE ENCAPSULANT OUTLINE THE MAX DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
6. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
7. STAKE ALL COMPONENTS AND FIND NO. 44 PER ND 1002009 METHOD C
8. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU,
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
9. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
10. INSTALL FIND NO. 47 AND FIND NO. 48 PER ND 1002136.
11. BOND FIND NO. 51 TO FIND NO. 33 PER MIL-I-15126, COND C-2/23/50 BEFORE ASSEMBLING TO FIND NO. 1
12. INSULATION TAPE PER MIL-I-15126 TYPE MFT, 2.5,1/2 WIDE
13. PROCURE PER PS 1007054.
14. BOND FIND NO. 42 AND FIND NO. 52 TO FIND NO. 47 PER ND 1002237.
15. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
16. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
17. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF PRIMER BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE I. PRIMER TO CONSIST OF 6 PARTS BY VOLUME OF 1012504-1 AND ONE PART BY VOLUME OF 1012504-2. APPLY MATERIAL AND PRIMER AS INDICATED IN TABLE I.



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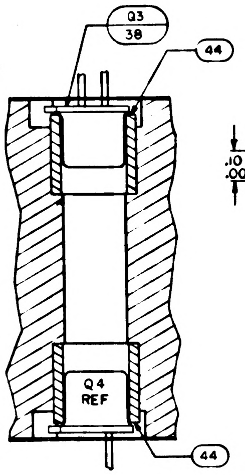
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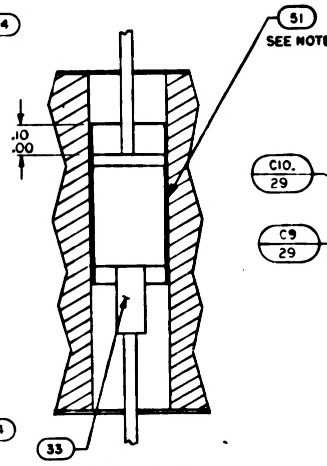
SECTION B-B
TYPICAL INSTALLATION
FOR FIND NO'S, 37, 38 AND 39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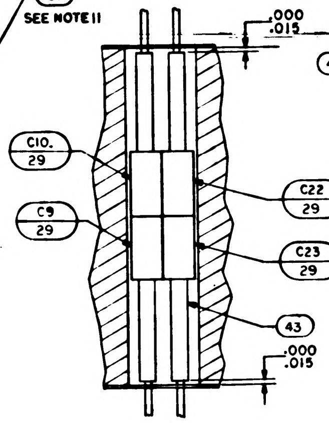
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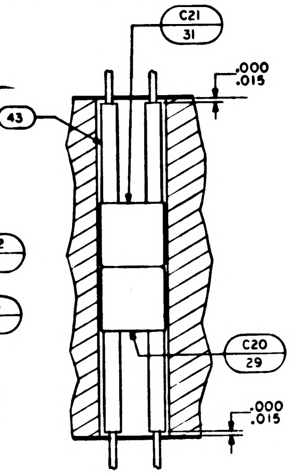
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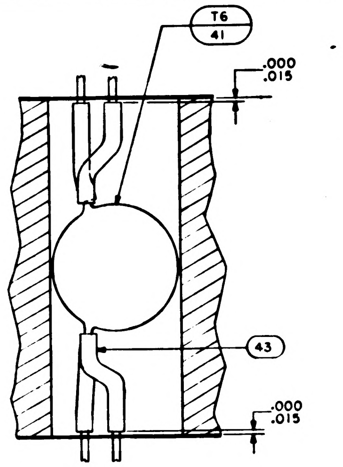
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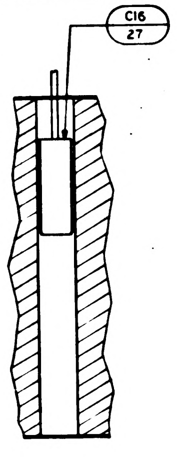

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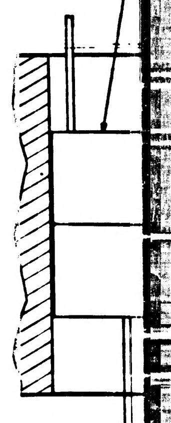

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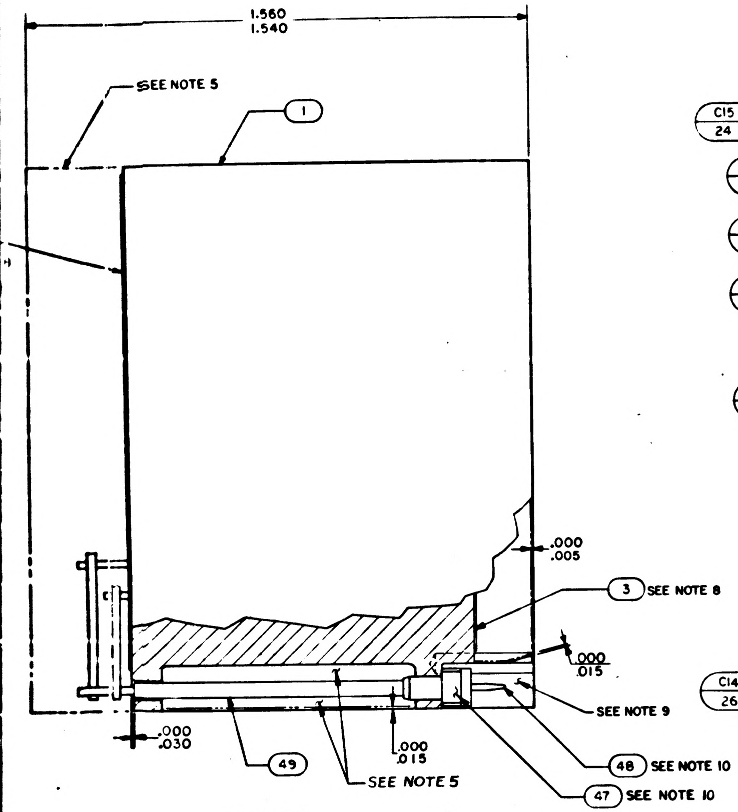
1007414 REV B

1/1007414

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR17355	12-MAR 65	M.G. E.F.
B	REVISED PER TDRR 19407	1-JUN -65	A.J.W. MEM
C	REVISED PER TDRR19455	2-JUN 65	M.G. E.F.



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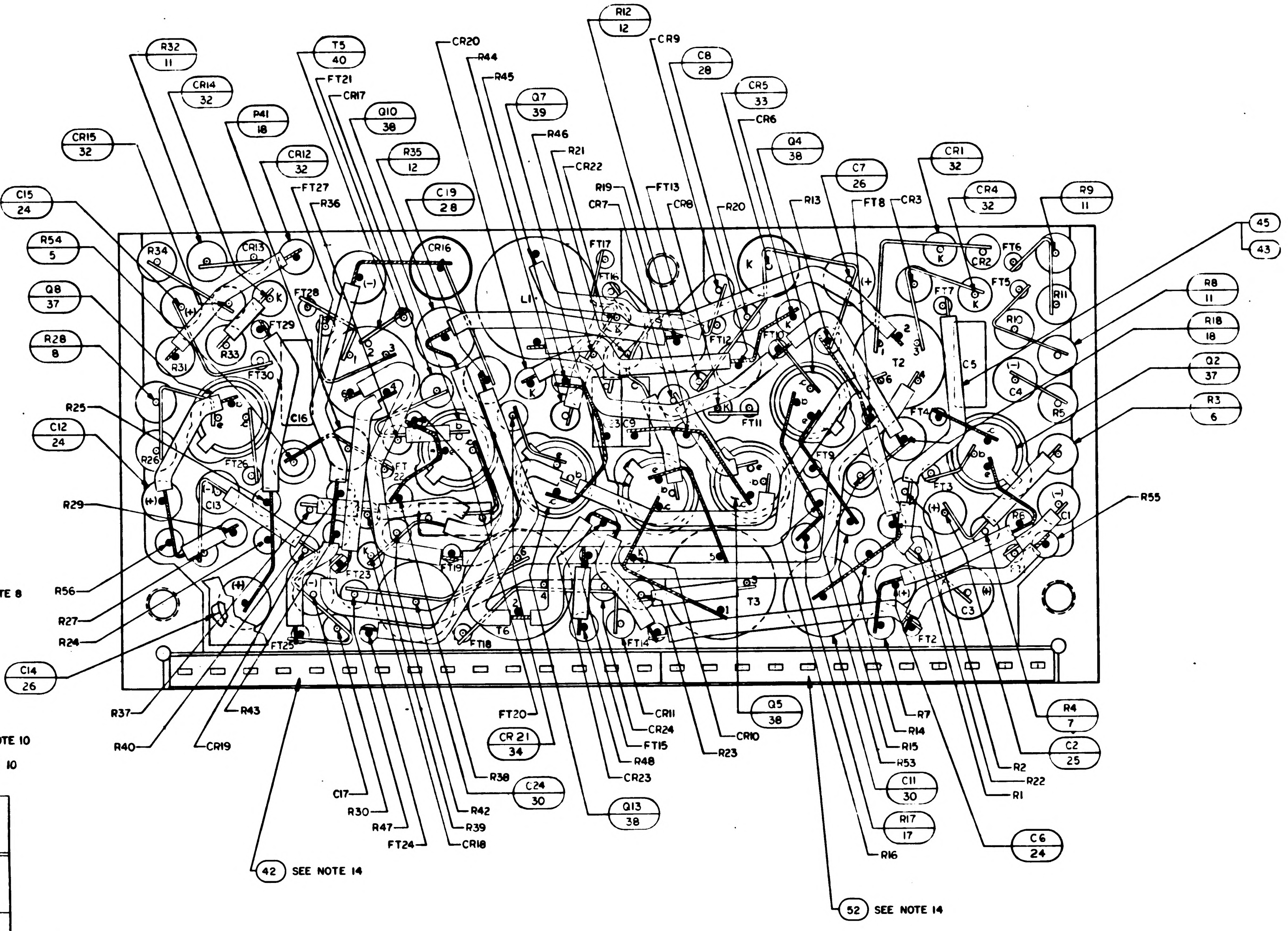

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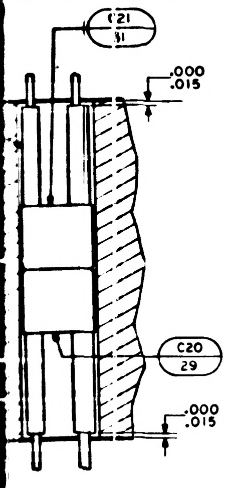
R30
C17
42 SEE NOTE 14
52 SEE NOTE 14

TABLE I

BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.



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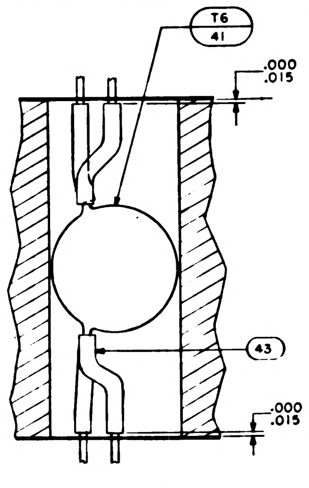
SECTION E-E



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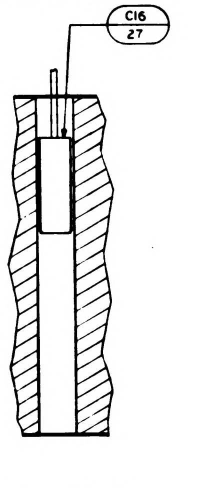

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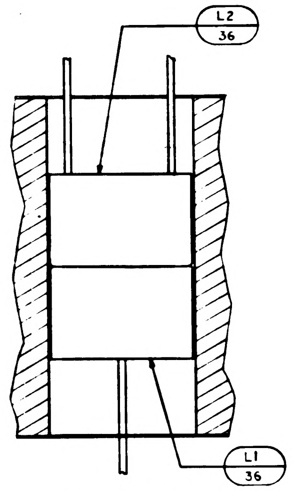

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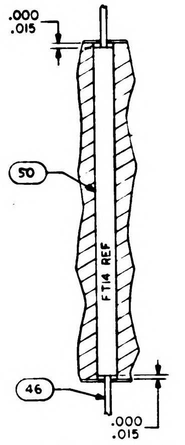

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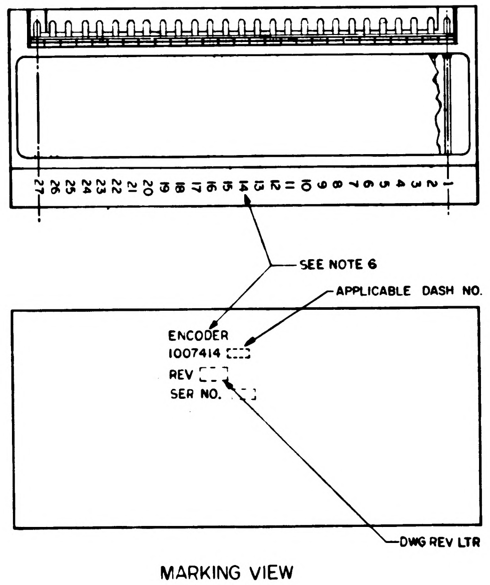

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REV
SER NO.
DWG REV LTR

MARKING VIEW
SCALE 2/1

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			AR		SEE NOTE 12	INSULATION, TAPE	51
			AR		1006776-22	INSULATION, SLEEVING	50
			AR		1006776-20	INSULATION, SLEEVING	49
			27		1006782-4	CONTACT WRAPOST MALE MINIATURE	48
			27		1006775	INSULATOR WRAPOST MALE MINIATURE	47
			AR		1006757-8	WIRE ELEC .020 DIA	46
			AR		1006757-1	WIRE ELEC .010 X .020	45
			14		1008025-1	INSULATOR BUSHING	44
			AR		1006776-21	INSULATION, SLEEVING	43
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			4		1010366	TRANSFORMER	40
			2		1010285	TRANSISTOR	39
			8		1010357	TRANSISTOR	38
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			2		1010265-12	DIODE	33
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			6		1006755-69	CAPACITOR	24
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			1		1008066	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

1007414 C

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		
1007575		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497

DRAWN Solomon DATE 30 SEP 64
CHECKED Udonich 3 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL 11/4/64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ENCODER MODULE ASSEMBLY

CODE IDENT NO	SIZE	NASA DRAWING NO.
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1007414 REV C

27 1007414

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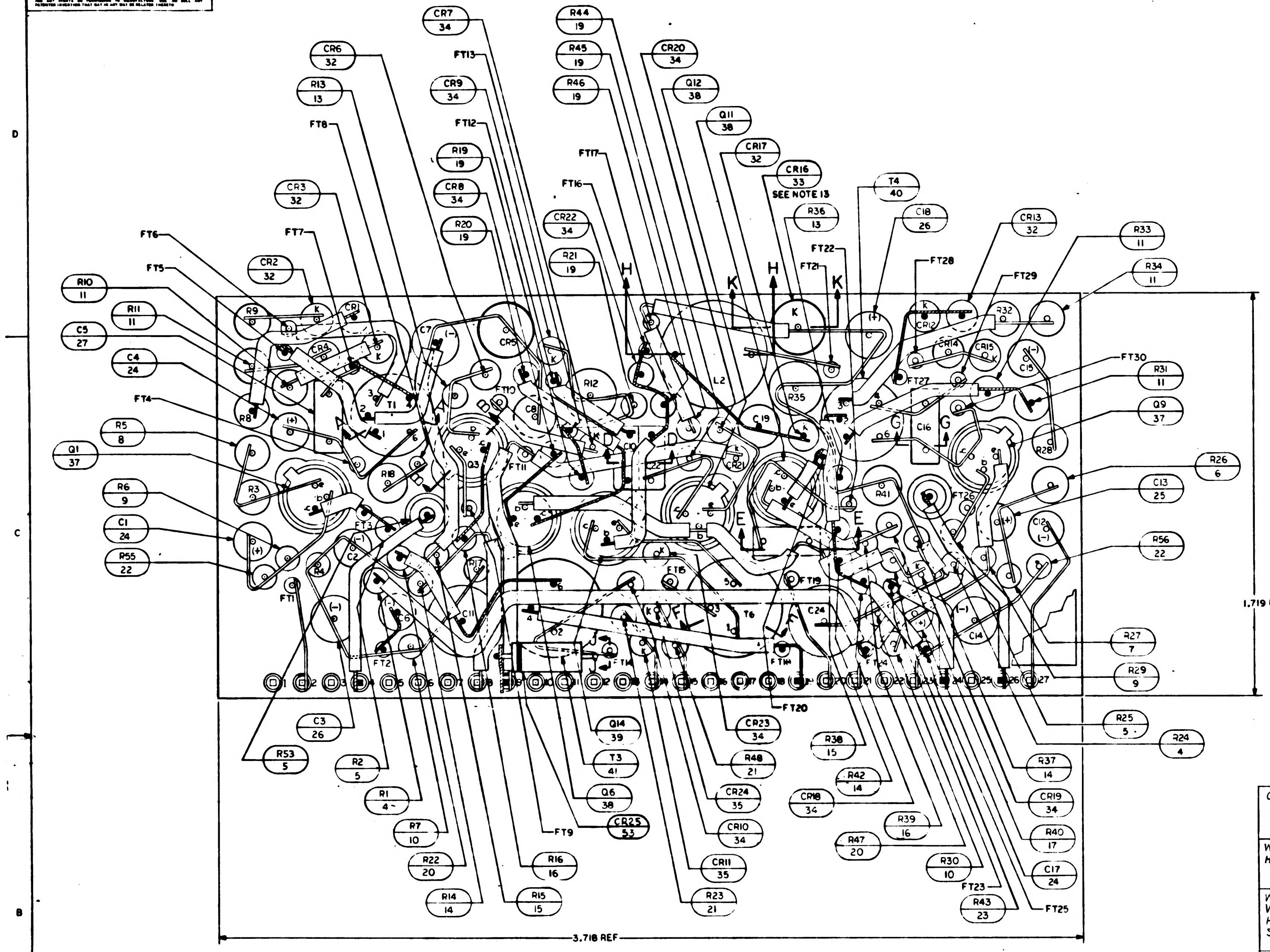
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C13 25
C1 24
R56 22
R55 22
FT1
E
E
R27 7
R29 9
FT20
R25 5
C3 26
Q14 39
CR23 34
R24 4
R53 5
R2 5
T3 41
R48 21
R38 15
R37 14
R1 4
R42 14
CR18 34
CR19 34
Q6 38
CR24 35
R7 10
CR25 53
R39 16
R40 17
FT9
CR10 34
R47 20
R22 20
R16 16
CR11 35
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R14 14
R15 15
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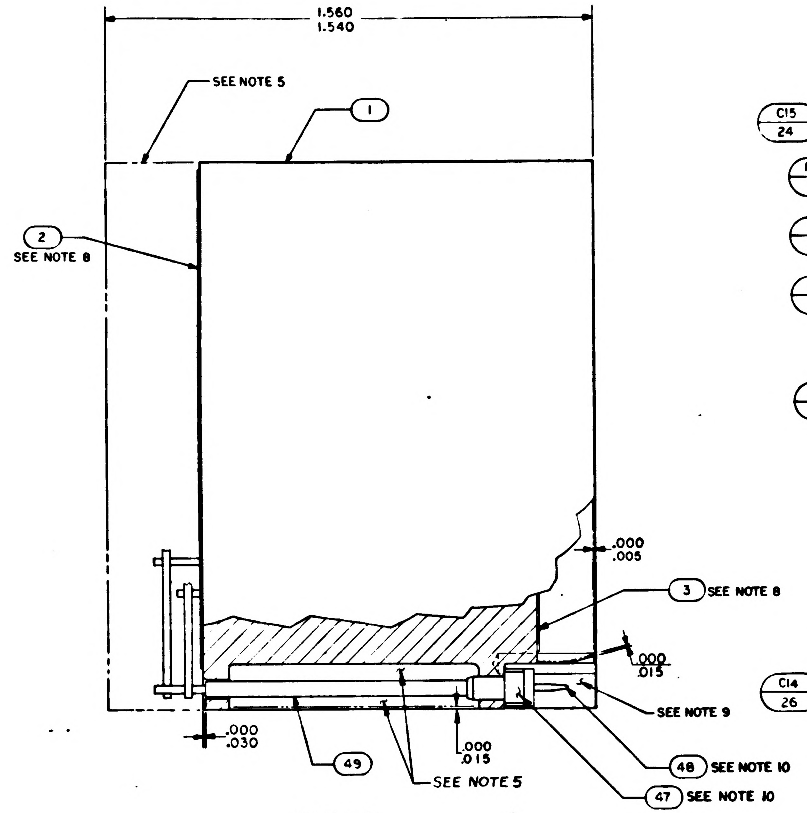
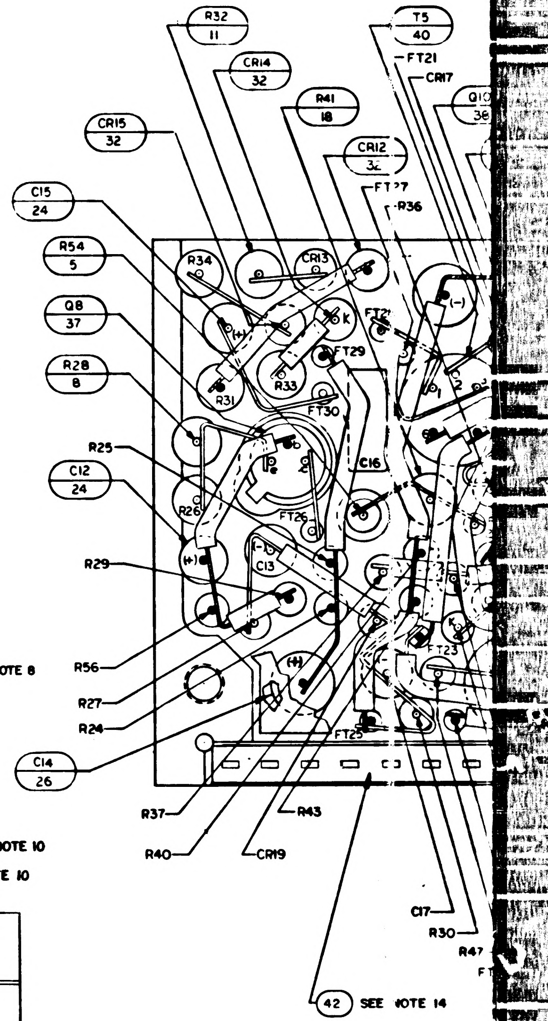
FT23
R43 23
FT25
1.719 REF
3.718 REF


1.560
1.540
SEE NOTE 5
1
2
SEE NOTE 8
.000
.005
3 SEE NOTE 8
.000
.015
SEE NOTE 9
.000
.030
49
.000
.015
SEE NOTE 5
48 SEE NOTE 10
47 SEE NOTE 10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FT21
CR17
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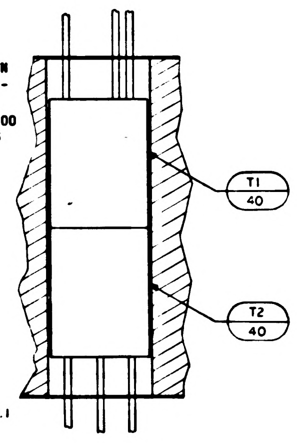
CR15 32
CR12 32
FT27
R36
C15 24
R54 5
Q8 37
R28 8
R25
C12 24
R29
R56
R27
R24
C14 26
R37
R43
R40
CR19
C17
R30
R47
42 SEE NOTE 14

NOTES:

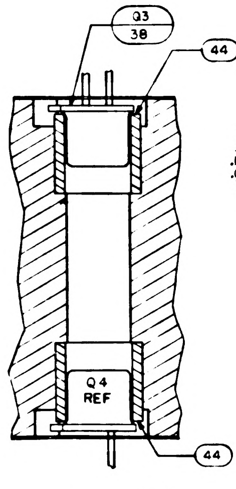
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAX OF .005 WHEN THE HEATSINK OUTLINE EXCEED THE ENCAPSULANT OUTLINE THE MAX DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
6. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
7. STAKE ALL COMPONENTS AND FIND NO. 44 PER ND 1002009 METHOD C
8. ON ITEMS 2 AND 3
    BROKEN PATHS INDICATE INSULATION SLEEVING,
    K INDICATES CATHODE SIDE OF DIODE,
    FT ( ) INDICATES FEED THRU,
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
    C INDICATES COLLECTOR LEAD OF TRANSISTOR,
    B INDICATES BASE LEAD OF TRANSISTOR,
    E INDICATES EMITTER LEAD OF TRANSISTOR
9. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
10. INSTALL FIND NO. 47 AND FIND NO. 48 PER ND 1002136.
11. BOND FIND NO. 51 TO FIND NO. 33 PER MIL-I-15126, COND C-2/23/50 BEFORE ASSEMBLING TO FIND NO. 1
12. INSULATION TAPE PER MIL-I-15126 TYPE MFT, 2.5,1/2 WIDE
13. PROCURE PER PS 1007054.
14. BOND FIND NO. 42 AND FIND NO. 52 TO FIND NO. 47 PER ND 1002237.
15. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
16. BOND A .25 MIN. WIDE ~~PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE~~ HEATSINK AND ~~COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF~~ THE ~~INSULATORS PER ND 1002187 TYPE I.~~
17. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.



SECTION A-A


Q3 38
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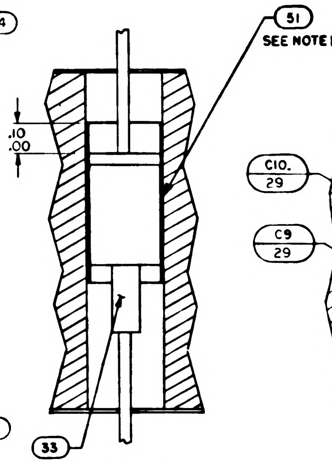
Q4 REF
44

SECTION B-B
TYPICAL INSTALLATION
FOR FIND NO'S. 37, 38 AND 39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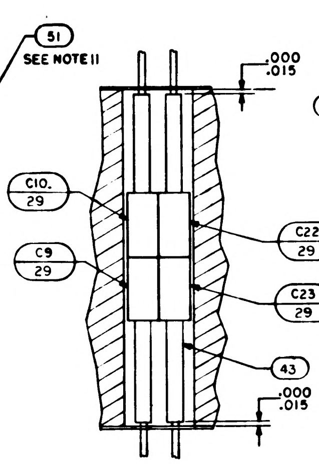
SECTION K-K


.000
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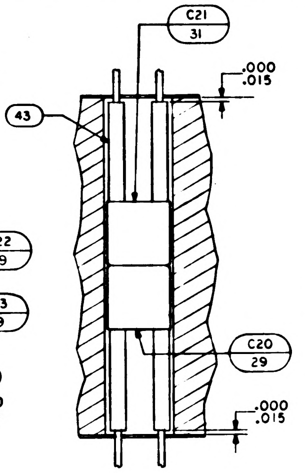
C10. 29
C9 29
C22 29
C23 29
43
.000
.015

SECTION D-D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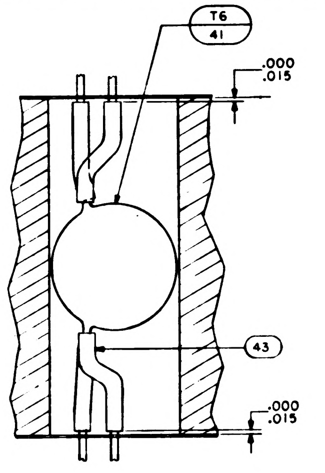
.015
43
C20 29
.000
.015

SECTION E-E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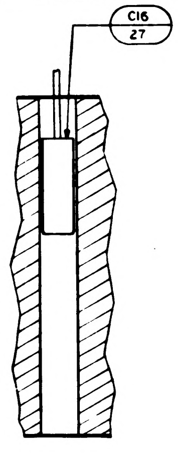
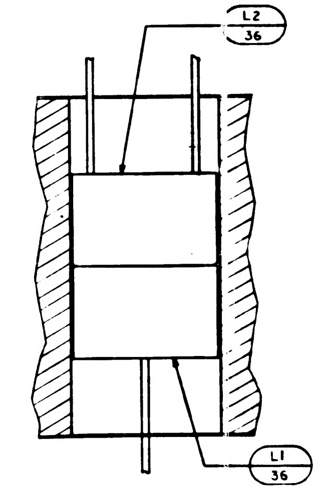
.015
43
.000
.015

SECTION F-F



SECTION G-G



SECTION H-H

1007414 REV C

17/1007414

SYM	DESCRIPTION	DATE	APPROVAL
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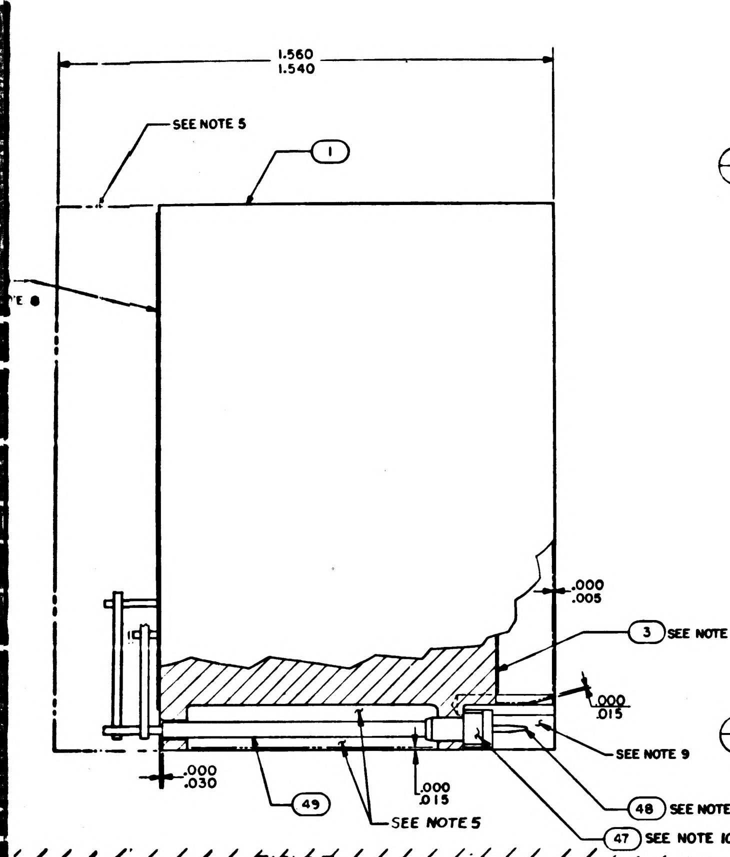
B	REVISED PER TDRR 9407		
C	REVISED PER TDRR 19455		
D	REVISED PER TDRR 9524		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SEE NOTE 8
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SEE NOTE 9
.000
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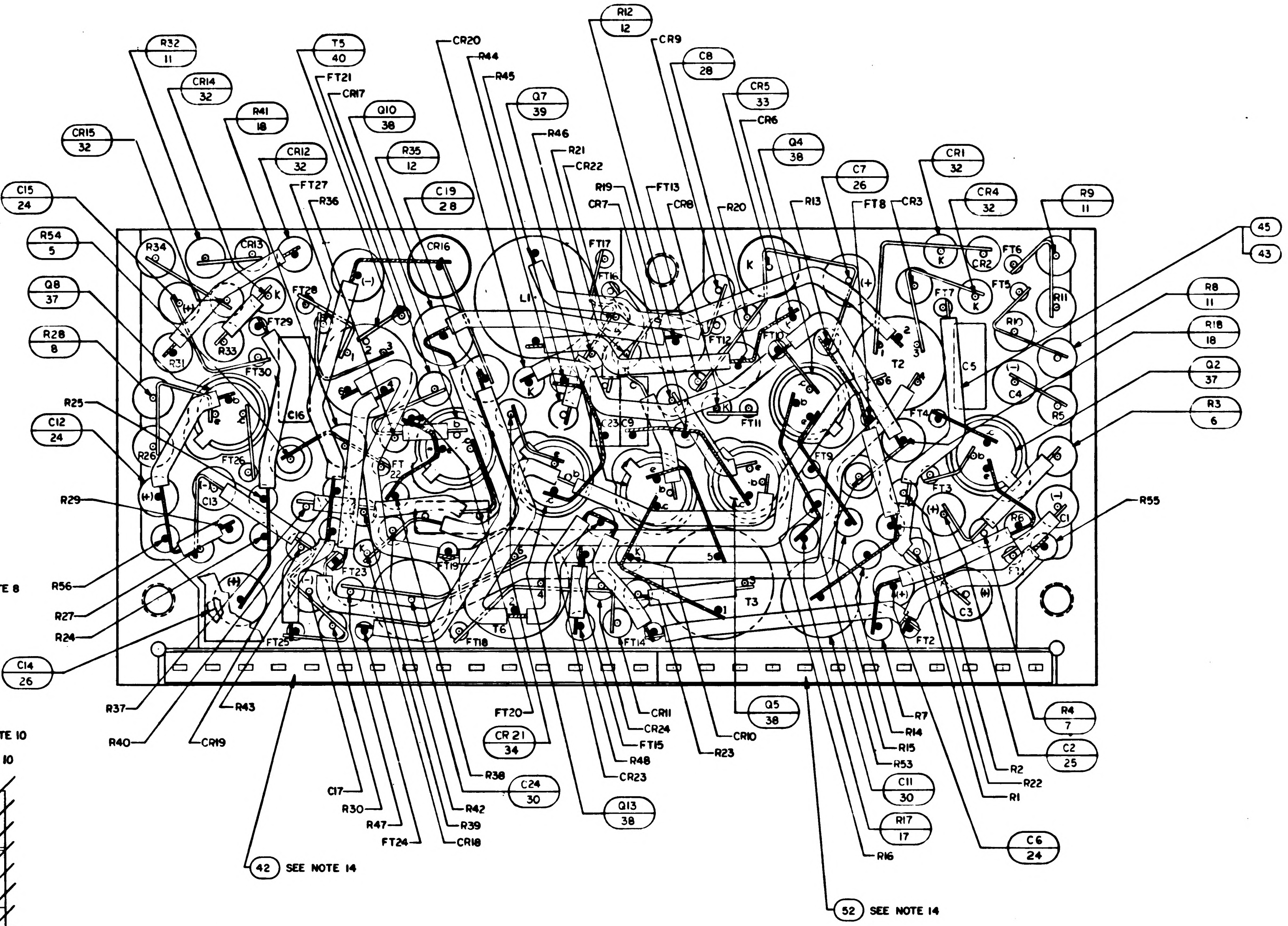
49
.000
.015
SEE NOTE 5
48 SEE NOTE 10
47 SEE NOTE 10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FT21
CR17
R41 18
Q10 38
CR15 32
CR12 32
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CR20
R44
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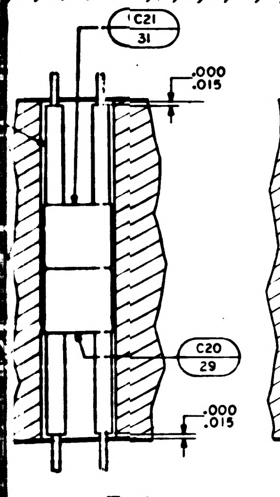
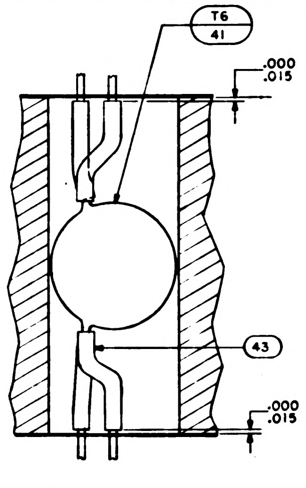
CR9
C8 28
CR5 33
CR6
Q7 39
R46
R21
CR22
Q4 38
C7 26
CR1 32
C15 24
FT27
R36
C19 28
R19
FT13
CR7
CR8
R20
R13
FT8
CR3
CR4 32
R9 11
R54 5
Q8 37
R28 8
45
43
R8 11
R18 18
Q2 37
R3 6
R25
C12 24
R29
R55
R56
R27
R24
C14 26
R37
R40
CR19
R43
FT20
CR21 34
C24 30
FT15
R48
CR23
CR11
CR24
R23
CR10
Q5 38
R7
R14
R15
R53
C11 30
R17 17
R16
R4 7
C2 25
R2
R22
R1
C6 24
C17
R30
R47
FT24
R38
R42
R39
CR18
Q13 38
42 SEE NOTE 14
52 SEE NOTE 14
L1
T2
T3
C5
FT29
FT30
FT26
FT25
FT23
FT22
FT19
FT18
FT14
FT9
FT11
FT12
FT16
FT17
FT4
FT3
FT2
FT5
FT6
FT7
FT28
C16
C13
C3
C4
R33
R34
R26
R11
R5
R6
CR2
CR13
CR16

TABLE I

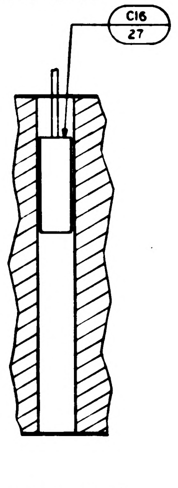
	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .2 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
	CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.


C21 31
.000
.015
C20 29
.000
.015

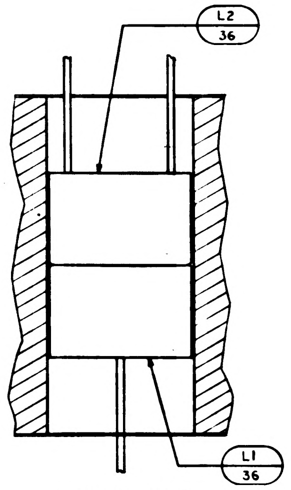
SECTION E-E


T6 41
.000
.015
43
.000
.015

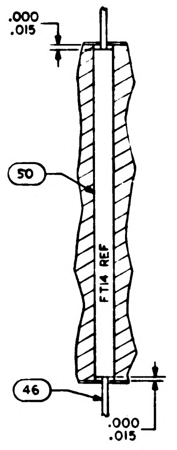
SECTION F-F



SECTION G-G



SECTION H-H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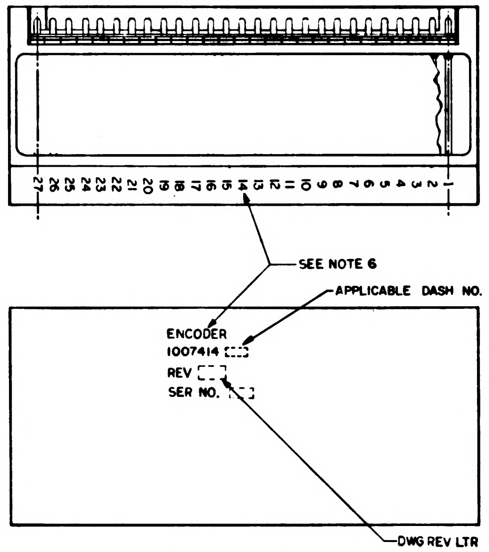
.000
.015

SECTION J-J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SEE NOTE 6
APPLICABLE DASH NO.
ENCODER
1007414
REV
SER NO.
DWG REV LTR

MARKING VIEW
SCALE 2/1

QTY				EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
			☒		1010034	SCHEMATIC	REF
			1		1010385	DIODE	53
			1		1008540-12	GASKET, CONNECTOR MINIATURE	52
			AR		SEE NOTE 12	INSULATION, TAPE	51
			AR		1006776-22	INSULATION, SLEEVING	50
			AR		1006776-20	INSULATION, SLEEVING	49
			27		1006782-4	CONTACT WRAPOST MALE MINIATURE	48
			27		1006775	INSULATOR WRAPOST MALE MINIATURE	47
			AR		1006757-8	WIRE ELEC .020 DIA	46
			AR		1006757-1	WIRE ELEC .010 X .020	45
			14		1008025-1	INSULATOR BUSHING	44
			AR		1006776-21	INSULATION, SLEEVING	43
			1		1008540-15	GASKET, CONNECTOR MINIATURE	42
			2		1010344-2	TRANSFORMER	41
			4		1010366	TRANSFORMER	40
			2		1010285	TRANSISTOR	39
			8		1010357	TRANSISTOR	38
			4		1010397-1	TRANSISTOR	37
			2		1010309-005	COIL	36
			2		1010830-1	DIODE	35
			10		1010370	DIODE	34
			2		1010265-12	DIODE	33
			10		1010362-2	DIODE	32
			1		1010359-11	CAPACITOR	31
			2		1010375-21	CAPACITOR	30
			5		1010359-17	CAPACITOR	29
			2		1010279-223	CAPACITOR	28
			2		1010359-29	CAPACITOR	27
			4		1010393-37	CAPACITOR	26
			2		1006755-65	CAPACITOR	25
			6		1006755-69	CAPACITOR	24
			1		1006750-44	RESISTOR	23
			2		1006750-72	RESISTOR	22
			2		1010369-140	RESISTOR	21
			2		1006750-40	RESISTOR	20
			6		1006750-52	RESISTOR	19
			2		1006760-44	RESISTOR	18
			2		1006750-54	RESISTOR	17
			2		1006750-63	RESISTOR	16
			2		1006750-8	RESISTOR	15
			3		1006750-56	RESISTOR	14
			2		1006750-65	RESISTOR	13
			2		1010312-029	RESISTOR	12
			8		1010364-252	RESISTOR	11
			2		1006750-30	RESISTOR	10
			2		1006750-73	RESISTOR	9
			2		1010364-444	RESISTOR	8
			2		1006750-33	RESISTOR	7
			2		1010364-60	RESISTOR	6
			4		1006750-49	RESISTOR	5
			2		1006750-23	RESISTOR	4
			1		1008057-2	INSULATOR, BOTTOM	3
			1		1008057-1	INSULATOR, TOP	2
			1		1008066	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		
1007575		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX ±.02 XXX ±.005 — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN Solomon DATE 30 SEP 64
CHECKED A. Udovich 3 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

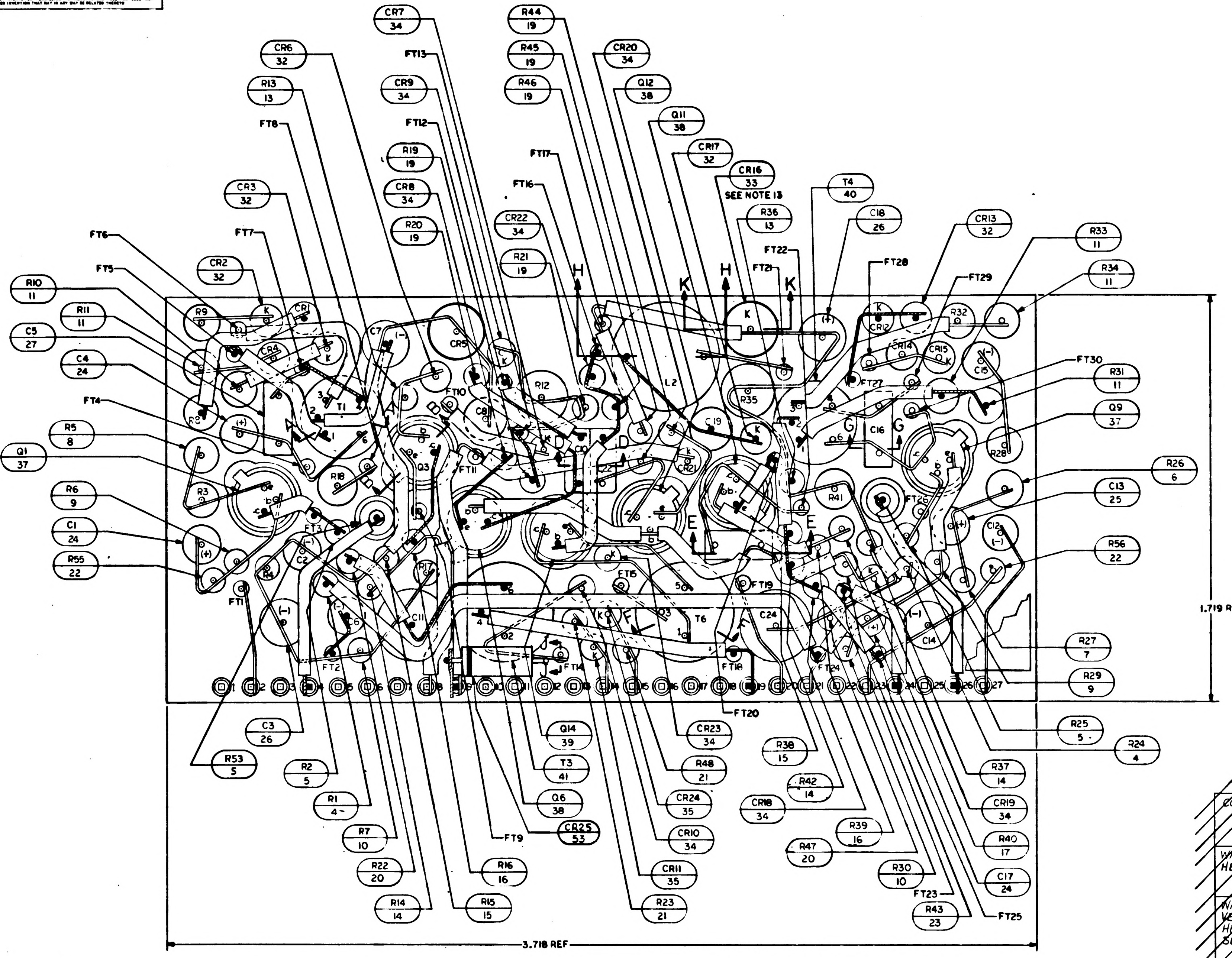
ENCODER MODULE
ASSEMBLY

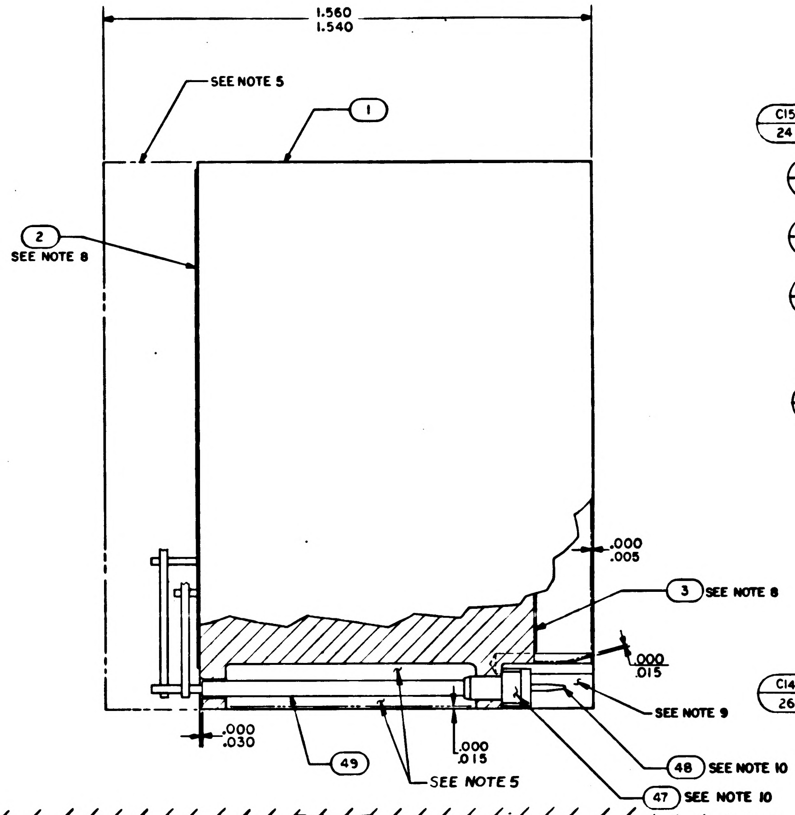
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007414
SCALE 5:1
WT
SHEET 1 OF 1

1007414 D

2/1007414

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.





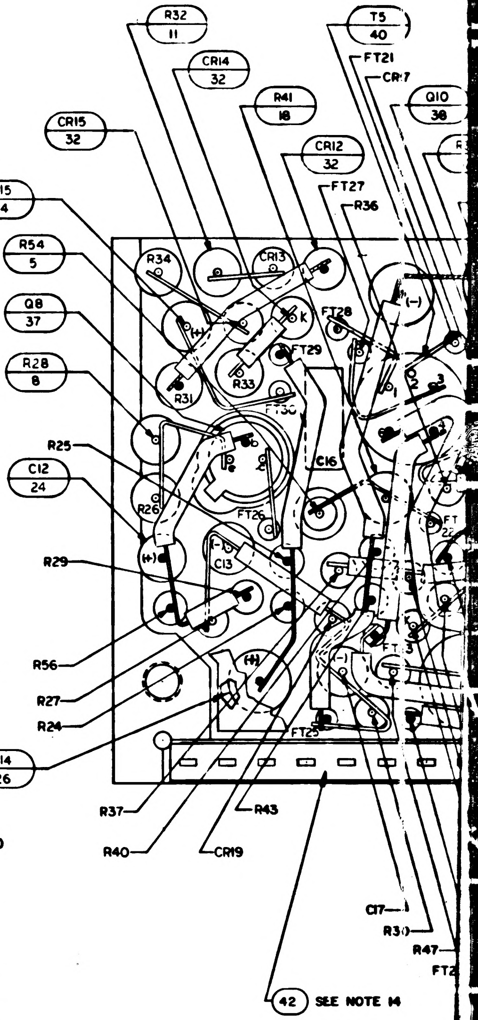
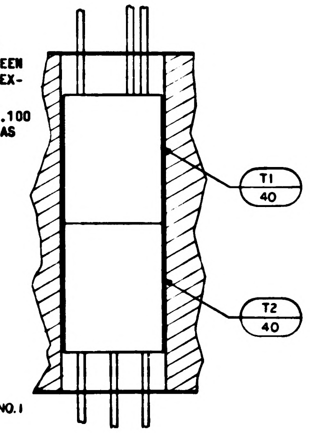


TABLE I

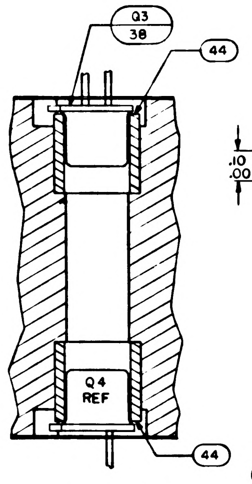
CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAX OF .005 WHEN THE HEATSINK OUTLINE EXCEED THE ENCAPSULANT OUTLINE THE MAX DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
6. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
7. STAKE ALL COMPONENTS AND FIND NO. 44 PER ND 1002009 METHOD H
8. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU,
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
9. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
10. INSTALL FIND NO. 47 AND FIND NO. 48 PER ND 1002136.
11. BOND FIND NO. 51 TO FIND NO. 33 PER MIL-I-15126, COND C-2/23/50 BEFORE ASSEMBLING TO FIND NO. 1
12. INSULATION TAPE PER MIL-I-15126 TYPE MFT, 2.5,1/2 WIDE
13. PROCURE PER PS 1007054.
14. BOND FIND NO. 42 AND FIND NO. 52 TO FIND NO. 47 PER ND 1002237.
15. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
16. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~

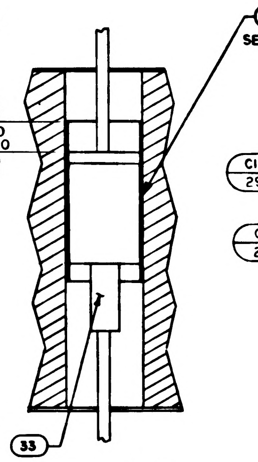


SECTION A-A

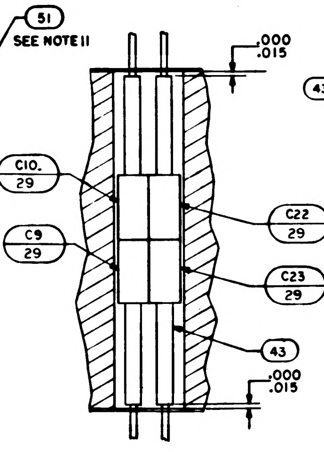


SECTION B-B

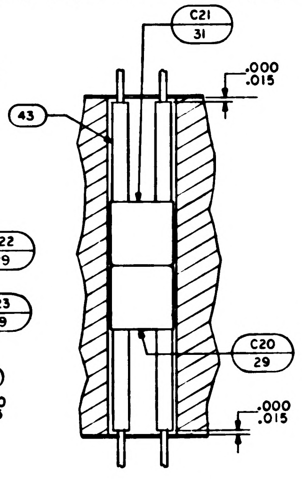
TYPICAL INSTALLATION
FOR FIND NO'S. 37, 38 AND 39



SECTION K-K



SECTION D-D



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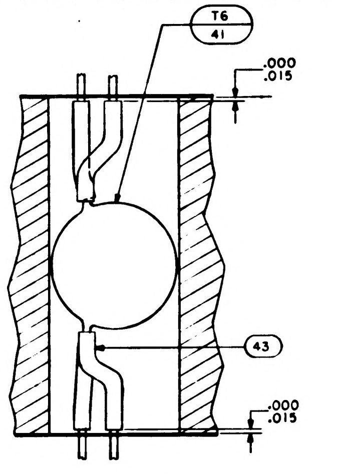

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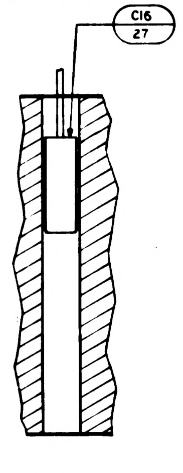
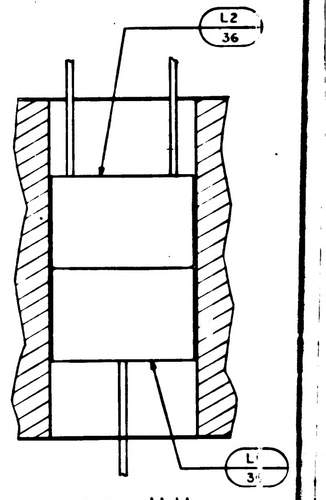


SECTION G-G



SECTION H-H

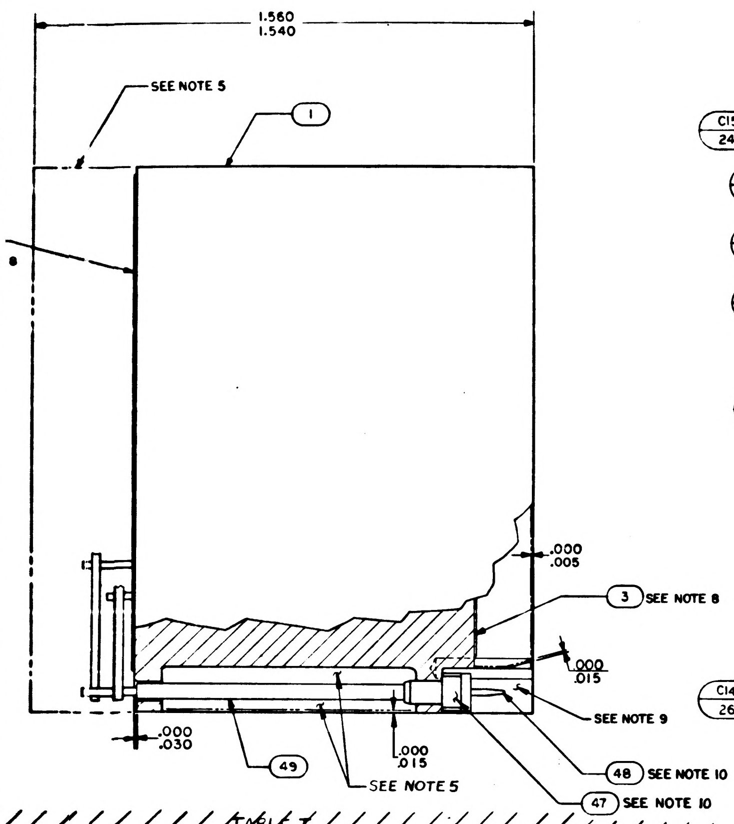
~~17. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~

18. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPULATION.
19. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

1007414 REV D

1/1007414

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 7355	[illegible]	[illegible]
B	REVISED PER TDRR 9407	[illegible]	[illegible]
C	REVISED PER TDRR 19455	[illegible]	[illegible]
D	REVISED PER TDRR 9524	[illegible]	[illegible]
E	REVISED PER TDRR 20143	19 JUN 65	[illegible]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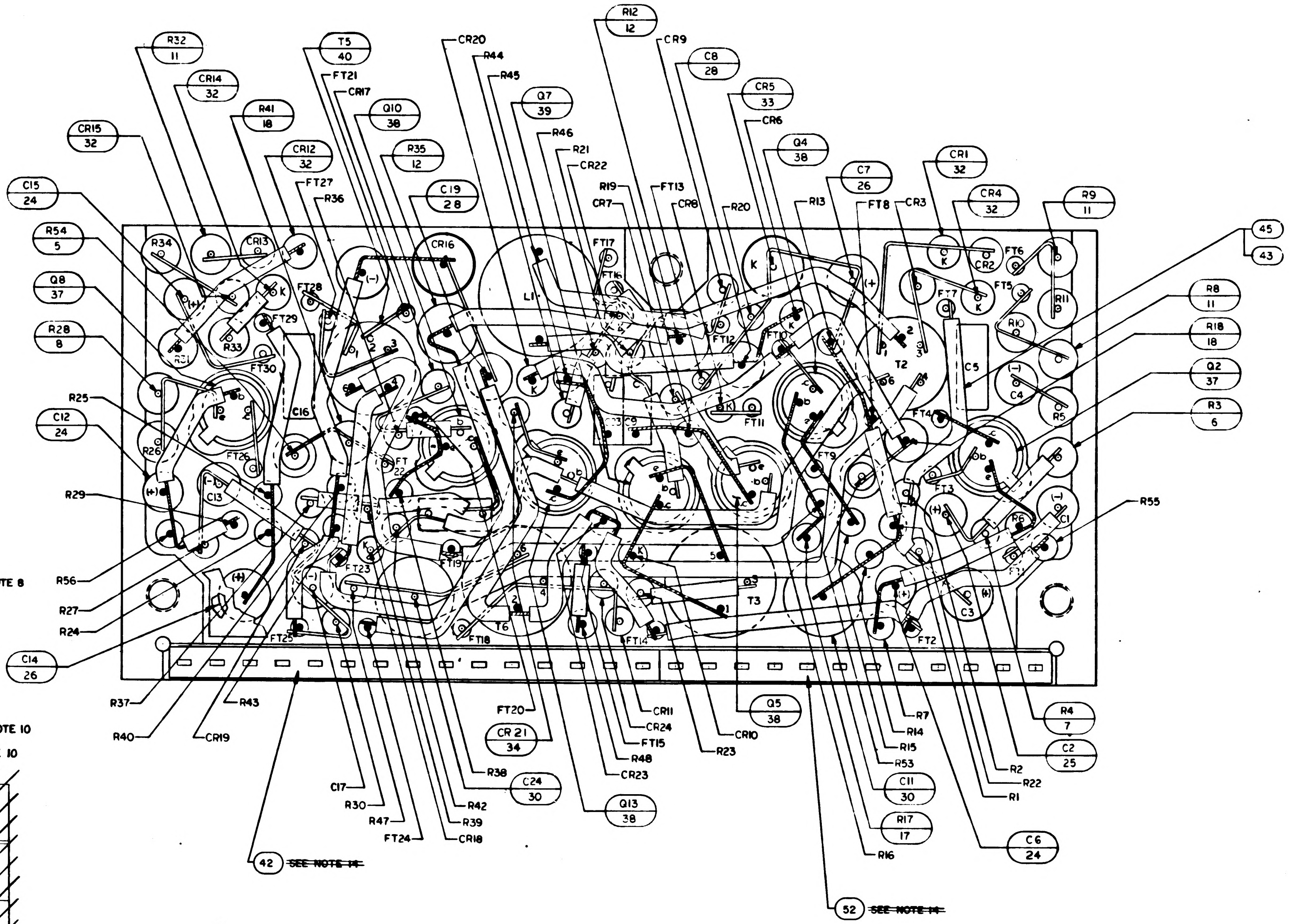
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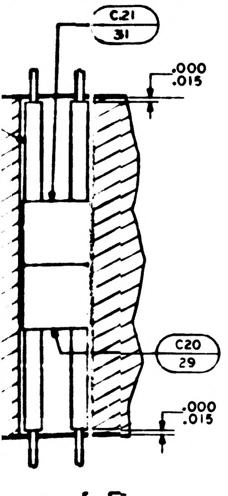
R30
R47
FT24
R38
C24 30
R42
R39
CR18
Q13 38
42 ~~SEE NOTE 14~~
52 ~~SEE NOTE 14~~

TABLE I

	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
	CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.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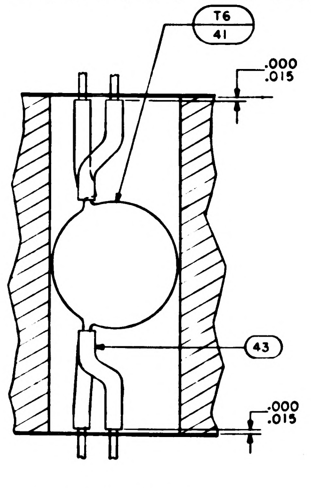
SECTION E-E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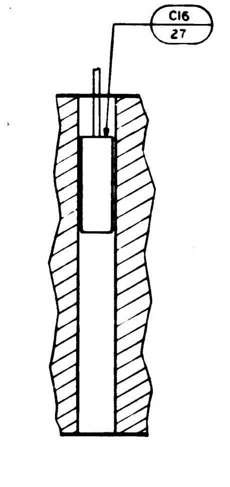

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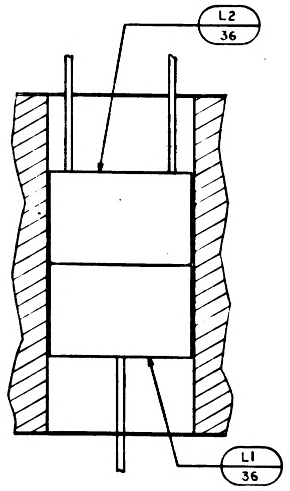

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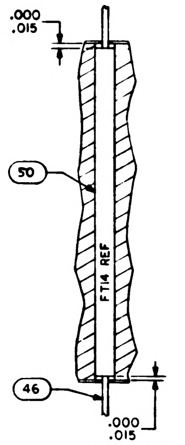
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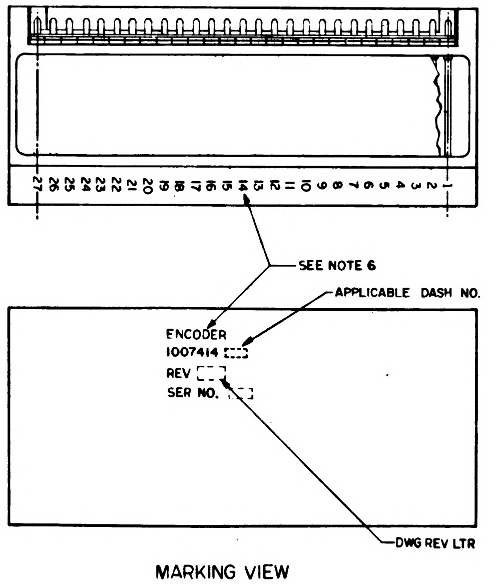
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SEE NOTE 6
APPLICABLE DASH NO.
ENCODER
1007414
REV
SER NO.
DWG REV LTR

MARKING VIEW
SCALE 2/1

			☒		1010034	SCHEMATIC	REF
			1		1010385	DIODE	53
			1		1008540-12	GASKET, CONNECTOR MINIATURE	52
			AR		SEE NOTE 12	INSULATION, TAPE	51
			AR		1006776-22	INSULATION, SLEEVING	50
			AR		1006776-20	INSULATION, SLEEVING	49
			27		1006782-4	CONTACT WRAPOST MALE MINIATURE	48
			27		1006775	INSULATOR WRAPOST MALE MINIATURE	47
			AR		1006757-8	WIRE ELEC .020 DIA	46
			AR		1006757-1	WIRE ELEC .010 X .020	45
			14		1008025-1	INSULATOR BUSHING	44
			AR		1006776-21	INSULATION, SLEEVING	43
			1		1008540-15	GASKET, CONNECTOR MINIATURE	42
			2		1010344-2	TRANSFORMER	41
			4		1010366	TRANSFORMER	40
			2		1010285	TRANSISTOR	39
			8		1010357	TRANSISTOR	38
			4		1010397-1	TRANSISTOR	37
			2		1010309-005	COIL	36
			2		1010830 -1	DIODE	35
			10		1010370	DIODE	34
			2		1010265-12	DIODE	33
			10		1010362-2	DIODE	32
			1		1010359-11	CAPACITOR	31
			2		1010375-21	CAPACITOR	30
			5		1010359-17	CAPACITOR	29
			2		1010279-223	CAPACITOR	28
			2		1010359-29	CAPACITOR	27
			4		1010393-37	CAPACITOR	26
			2		1006755-65	CAPACITOR	25
			6		1006755-69	CAPACITOR	24
			1		1006750-44	RESISTOR	23
			2		1006750-72	RESISTOR	22
			2		1010369-140	RESISTOR	21
			2		1006750-40	RESISTOR	20
			6		1006750-52	RESISTOR	19
			2		1006760-44	RESISTOR	18
			2		1006750-54	RESISTOR	17
			2		1006750-63	RESISTOR	16
			2		1006750-8	RESISTOR	15
			3		1006750-56	RESISTOR	14
			2		1006750-65	RESISTOR	13
			2		1010312-029	RESISTOR	12
			8		1010364-252	RESISTOR	11
			2		1006750-30	RESISTOR	10
			2		1006750-73	RESISTOR	9
			2		1010364-444	RESISTOR	8
			2		1006750-33	RESISTOR	7
			2		1010364-60	RESISTOR	6
			4		1006750-49	RESISTOR	5
			2		1006750-23	RESISTOR	4
			1		1008057-2	INSULATOR, BOTTOM	3
			1		1008057-1	INSULATOR, TOP	2
			1		1008066	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

1007414 E

NEXT ASSY	USED ON	APPLICABLE DASH NO.
007577		
07575		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN Solomon DATE 30 SEP 64
CHECKED [illegible] 3 OCT 64
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible] 11-4-64
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

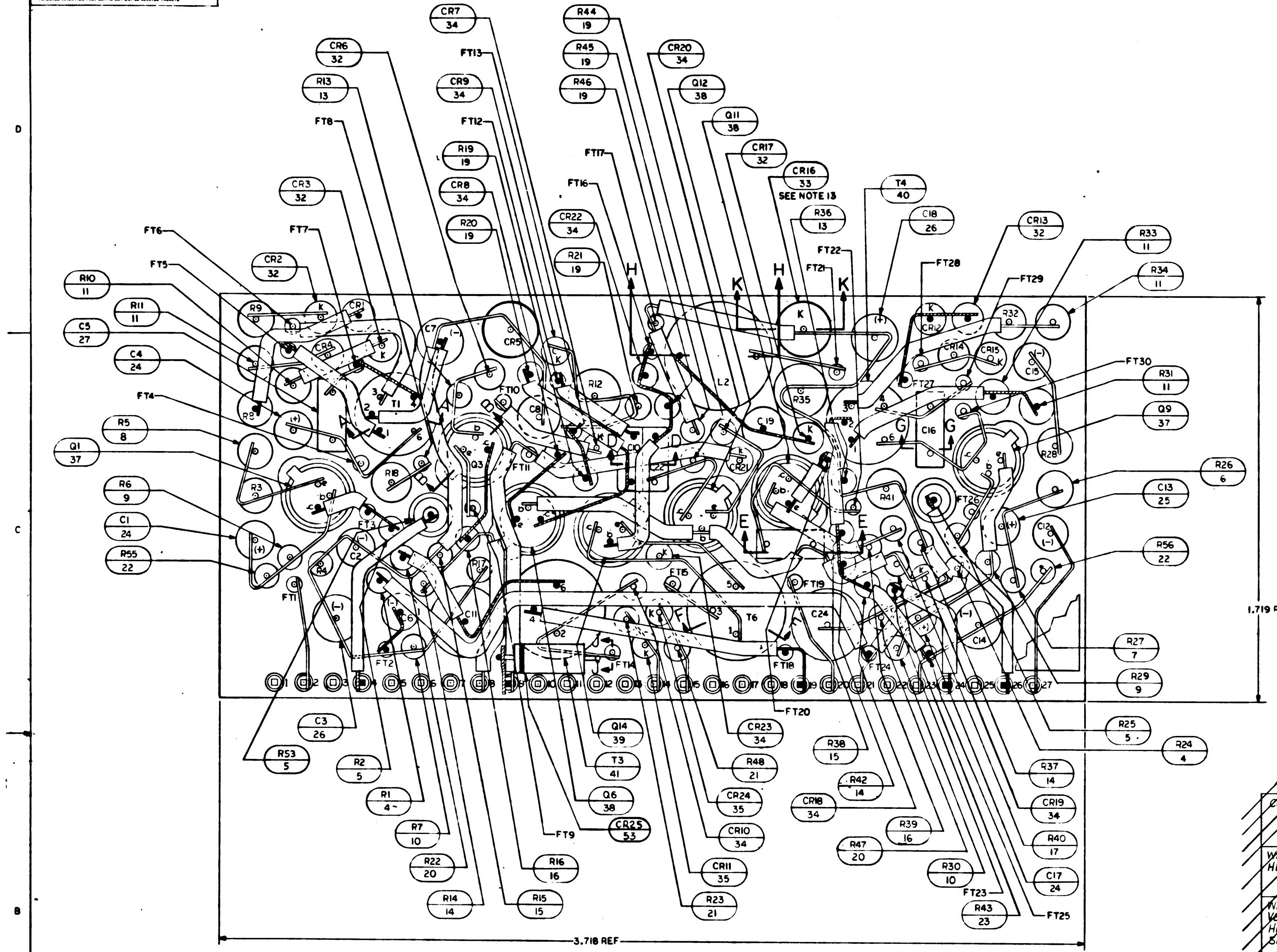
ENCODER MODULE
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007414
SCALE 5:1
WT
SHEET 1 OF 1

1007414 E

27-1007414

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO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FT30
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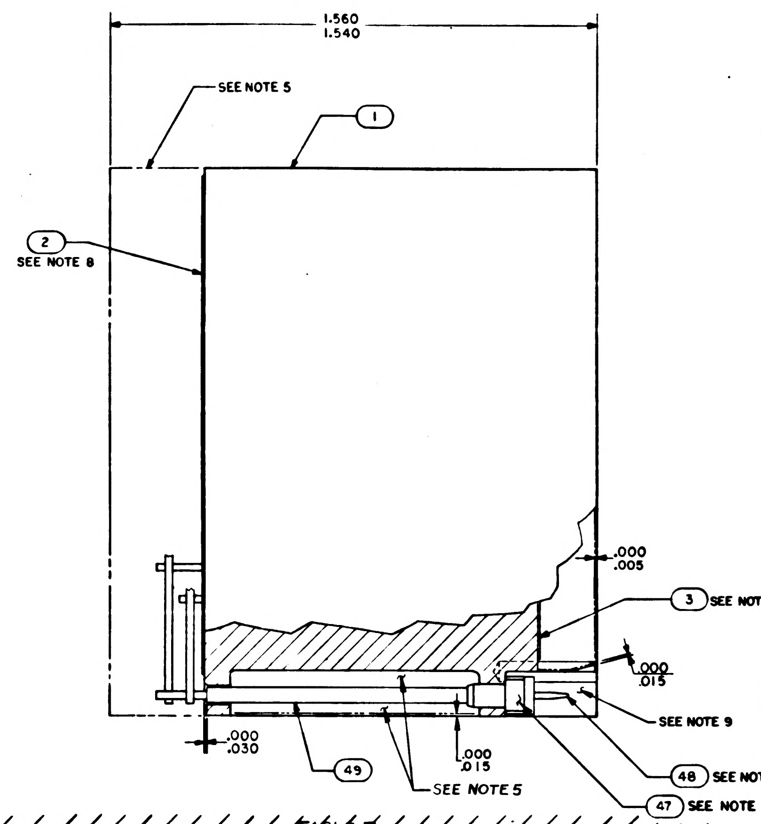
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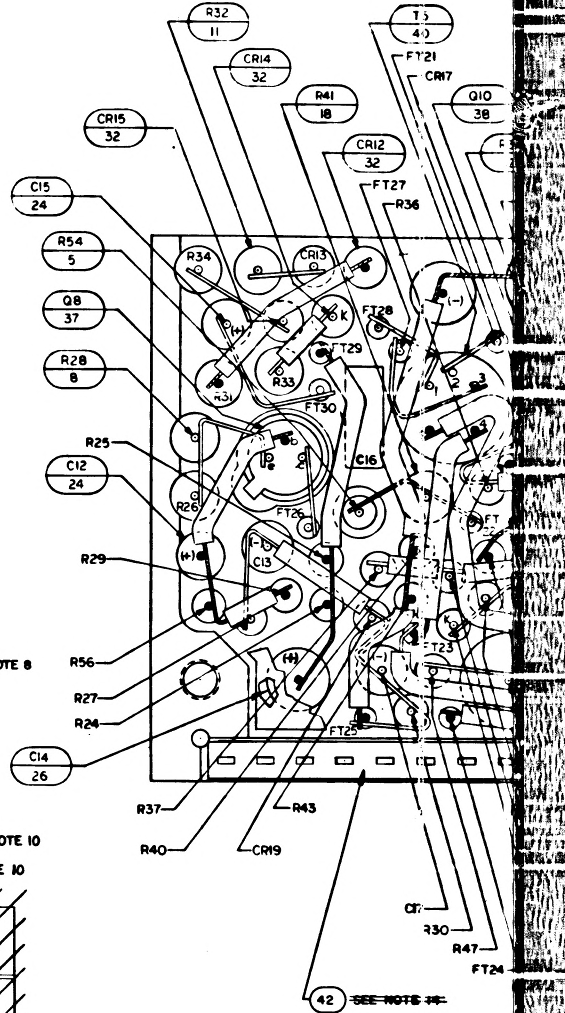
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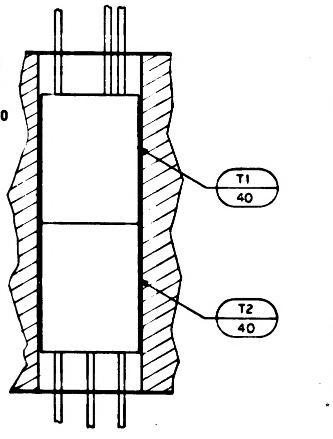
FT24
42 SEE NOTE 14

TABLE I

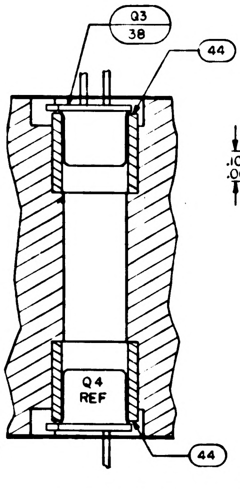
CONFIGURAT ON	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAX OF .005 WHEN THE HEATSINK OUTLINE EXCEED THE ENCAPSULANT OUTLINE THE MAX DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
6. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
7. STAKE ALL COMPONENTS AND FIND NO. 44 PER ND 1002009 METHOD H
8. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU,
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
9. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
10. INSTALL FIND NO. 47 AND FIND NO. 48 PER ND 1002136.
11. BOND FIND NO. 51 TO FIND NO. 33 PER MIL-I-15126, COND C-2/23/50 BEFORE ASSEMBLING TO FIND NO. 1
12. INSULATION TAPE PER MIL-I-15126 TYPE MFT, 2.5, 1/2 WIDE
13. PROCURE PER PS 1007054.
14. ~~BOND FIND NO. 42 AND FIND NO. 32 TO FIND NO. 47 PER ND 1002237.~~
15. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
16. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
17. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
18. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPULATION.
19. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.



SECTION A-A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Q4 REF
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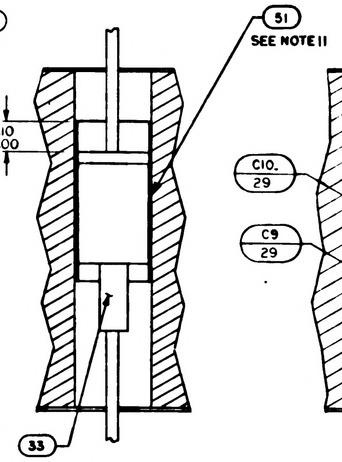
SECTION B-B

TYPICAL INSTALLATION FOR FIND NO'S. 37, 38 AND 39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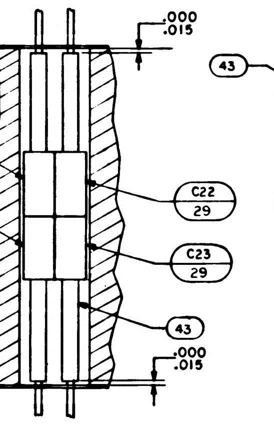
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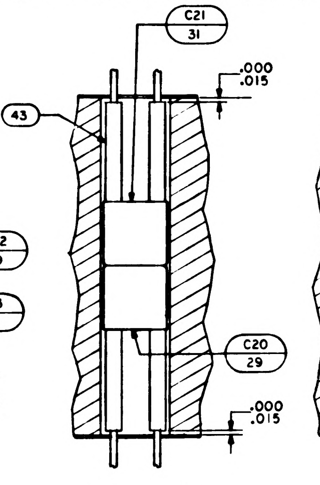
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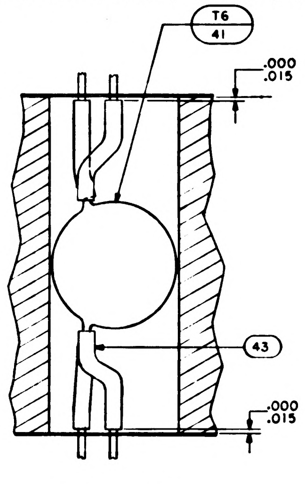
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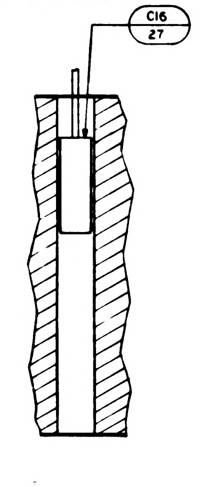
SECTION F-F



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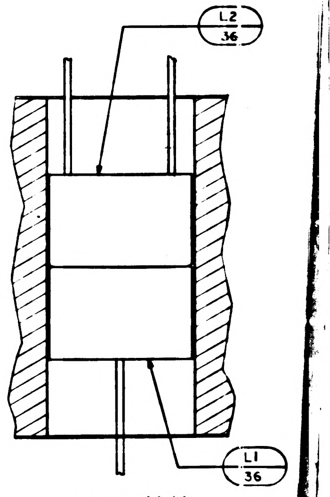

SECTION H-H

1007414 REV E

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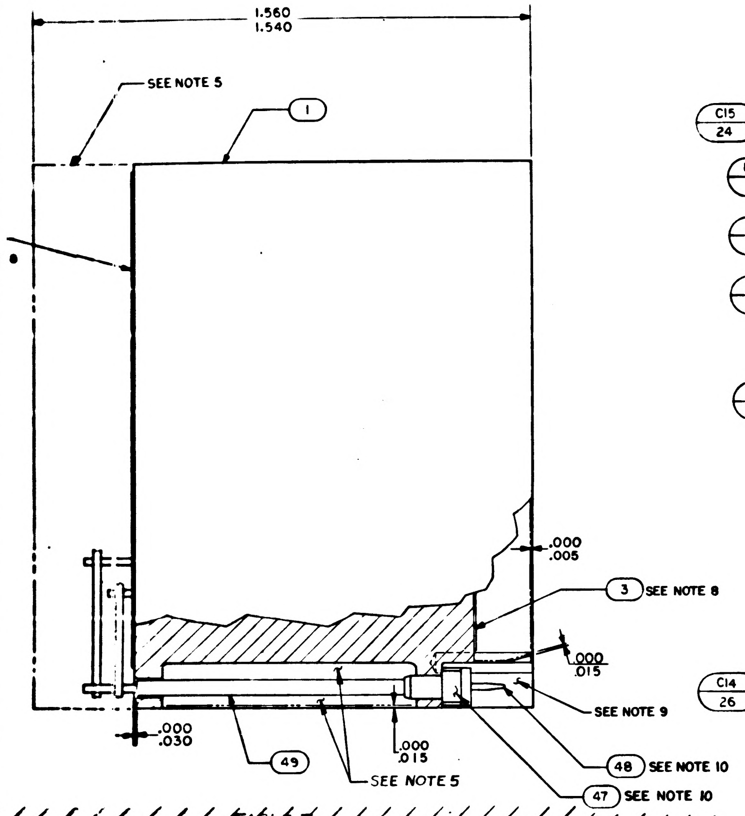
B	REVISED PER TDRR 19407	1-JUN-65	
C	REVISED PER TDRR 19455	2-JUN-65	M.G.
D	REVISED PER TDRR 19524	3-JUN-65	
E	REVISED PER TDRR 20143	19 JUN 65	DRD
F	REVISED PER TDRR 22975	8 OCT 65	2GB



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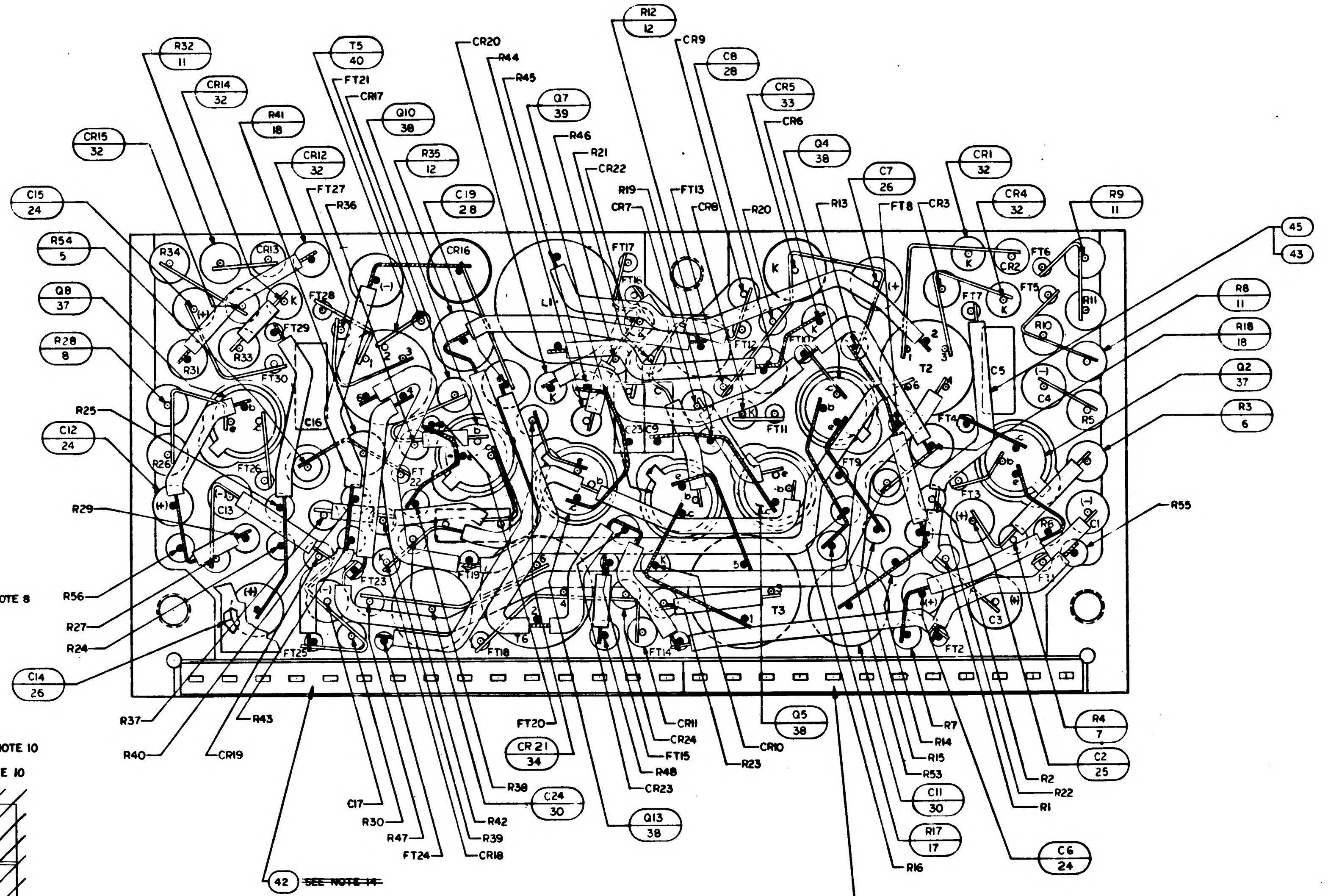

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FT21
CR17
Q10 38
CR20
R44
R45
Q7 39
R12 12
CR9
C8 28
CR5 33
CR6
Q4 38
CR15 32
CR12 32
FT27
R36
R35 12
C19 28
R46
R21
CR22
R19
FT13
CR7
CR8
R20
R13
C7 26
FT8
CR3
CR1 32
CR4 32
R9 11
45
43
C15 24
R54 5
R34
CR13
CR16
L1
FT17
FT16
K
FT6
FT5
CR2
R11
R8 11
R18 18
Q2 37
R3 6
Q8 37
R28 8
R33
R31
FT28
FT29
FT30
FT12
FT10
FT7
T2
C5
C4
R10
R5
C16
C23
C9
FT11
FT9
FT4
FT3
R25
C12 24
R26
FT26
R29
C13
FT1
FT22
FT19
CR23
T3
C1
R55
R56
R27
R24
T4
FT23
T6
FT18
FT14
FT2
C3
C14 26
FT25
R37
R40
CR19
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FT20
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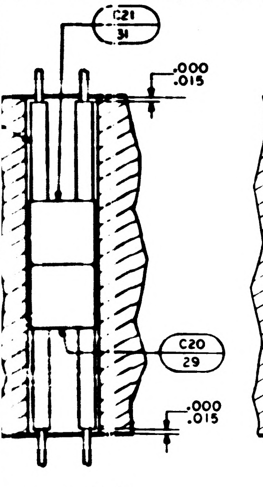
CR11
CR24
FT15
R48
CR23
CR10
R23
Q5 38
R7
R14
R15
R53
C11 30
R17 17
R16
R4 7
C2 25
R2
R22
R1
C6 24
C17
R30
R47
FT24
R42
R39
CR18
R38
C24 30
Q13 38
42 ~~SEE NOTE 14~~
52 ~~SEE NOTE 14~~

TABLE I

	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
[illegible]	AREA .12 FROM EXTERNAL [illegible] SURFACE. 80% OF AREA [illegible] FROM EXTERNAL [illegible] SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
	CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.



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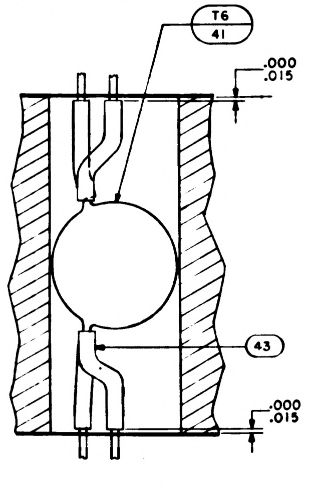
.015
C20 29
.000
.015

SECTION E-E



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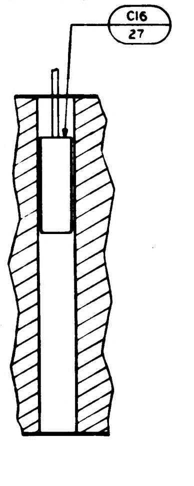
SECTION F-F



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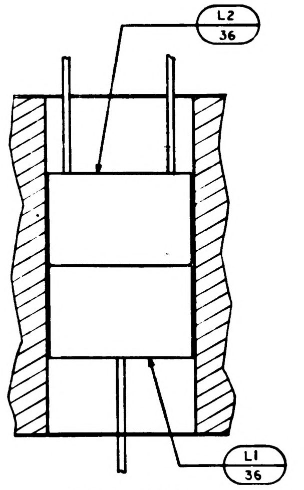

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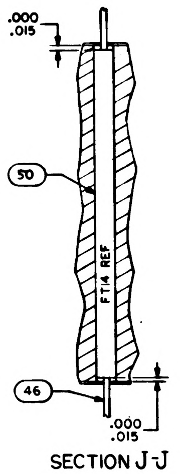

.000
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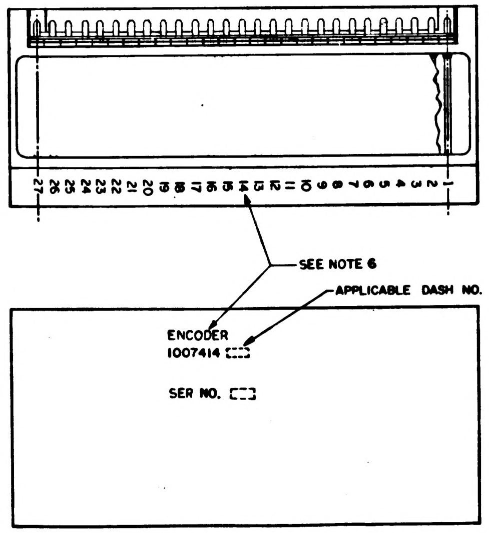
.000
.015

SECTION J-J



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SEE NOTE 6
APPLICABLE DASH NO.
ENCODER
1007414
SER NO.

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
			011				
			☒		1010034	SCHEMATIC	REF
			1		1010385	DIODE	53
			1		1008540-12	GASKET, CONNECTOR MINIATURE	52
			AR		SEE NOTE 12	INSULATION, TAPE	51
			AR		1006776-22	INSULATION, SLEEVING	50
			AR		1006776-20	INSULATION, SLEEVING	49
			27		1006782-4	CONTACT WRAPOST MALE MINIATURE	48
			27		1006775	INSULATOR WRAPOST MALE MINIATURE	47
			AR		1006757-8	WIRE ELEC .020 DIA	46
			AR		1006757-1	WIRE ELEC .010 X .020	45
			14		1008025-1	INSULATOR BUSHING	44
			AR		1006776-21	INSULATION, SLEEVING	43
			1		1008540-15	GASKET, CONNECTOR MINIATURE	42
			2		1010344-2	TRANSFORMER	41
			4		1010366	TRANSFORMER	40
			2		1010285	TRANSISTOR	39
			8		1010357	TRANSISTOR	38
			4		1010397-1	TRANSISTOR	37
			2		1010309-005	COIL	36
			2		1010830-1	DIODE	35
			10		1010370	DIODE	34
			2		1010265-12	DIODE	33
			10		1010362-2	DIODE	32
			1		1010359-11	CAPACITOR	31
			2		1010375-21	CAPACITOR	30
			5		1010359-17	CAPACITOR	29
			2		1010279-223	CAPACITOR	28
			2		1010359-29	CAPACITOR	27
			4		1010393-37	CAPACITOR	26
			2		1006755-65	CAPACITOR	25
			6		1006755-69	CAPACITOR	24
			1		1006750-44	RESISTOR	23
			2		1006750-72	RESISTOR	22
			2		1010369-140	RESISTOR	21
			2		1006750-40	RESISTOR	20
			6		1006750-52	RESISTOR	19
			2		1006760-44	RESISTOR	18
			2		1006750-54	RESISTOR	17
			2		1006750-63	RESISTOR	16
			2		1006750-8	RESISTOR	15
			3		1006750-56	RESISTOR	14
			2		1006750-65	RESISTOR	13
			2		1010312-029	RESISTOR	12
			8		1010364-252	RESISTOR	11
			2		1006750-30	RESISTOR	10
			2		1006750-73	RESISTOR	9
			2		1010364-444	RESISTOR	8
			2		1006750-33	RESISTOR	7
			2		1010364-60	RESISTOR	6
			4		1006750-49	RESISTOR	5
			2		1006750-23	RESISTOR	4
			1		1008057-2	INSULATOR, BOTTOM	3
			1		1008057-1	INSULATOR, TOP	2
			1		1008066	HEATSINK	1

LIST OF PARTS AND MATERIALS

F
1007414

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		
07575		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Solomon DATE 30 SEP 64
CHECKED L. Udomich 3 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ENCODER MODULE ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	1007414

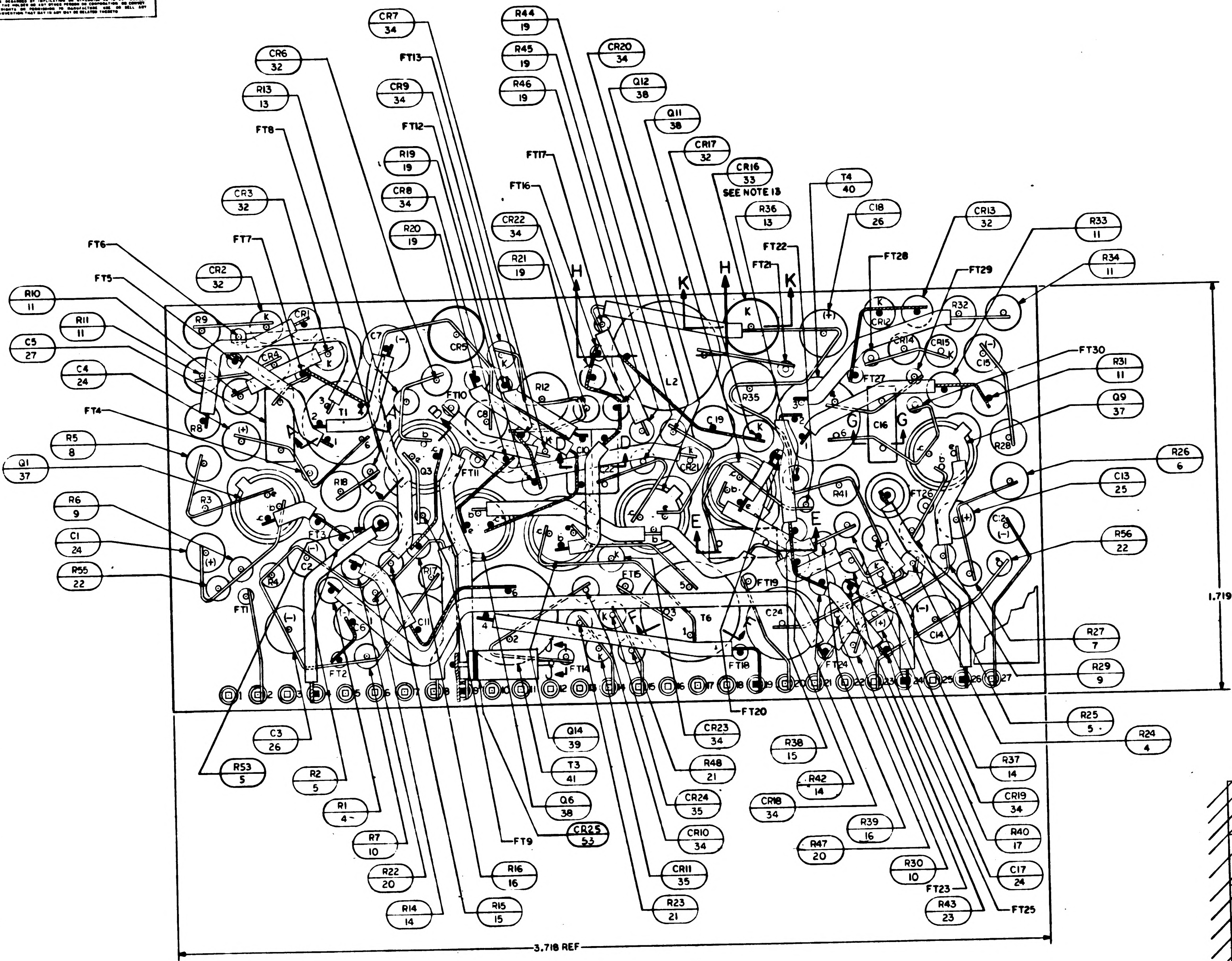
SCALE 5:1 WT SHEET 1 OF 1

2

1007414 F

2/1007414

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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FT8
R19 19
CR8 34
R20 19
FT17
FT16
CR22 34
R21 19
CR17 32
CR16 33
SEE NOTE 13
R36 13
T4 40
C18 26
CR13 32
R33 11
R34 11
FT22
FT21
FT28
FT29
CR3 32
CR2 32
FT6
FT7
FT5
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R11 11
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R5 8
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FT1
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Q9 37
R26 6
C13 25
R56 22
R27 7
R29 9
R25 5
R24 4
H
K
H
K
E
E
D
D
G
G
F
F
C3 26
R53 5
R2 5
R1 4
R7 10
R22 20
R14 14
R15 15
R16 16
FT9
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Q6 38
T3 41
Q14 39
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CR24 35
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CR11 35
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R42 14
CR18 34
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R30 10
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FT14
FT2
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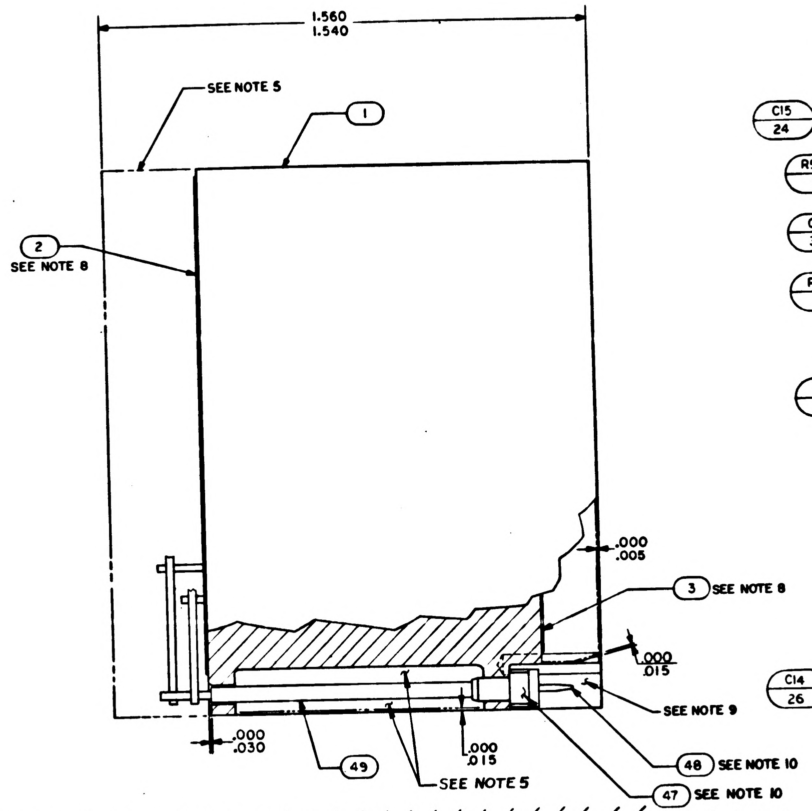
1.719 REF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1
2
SEE NOTE 8
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3 SEE NOTE 8
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.015
SEE NOTE 9
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47 SEE NOTE 10
.000
.030
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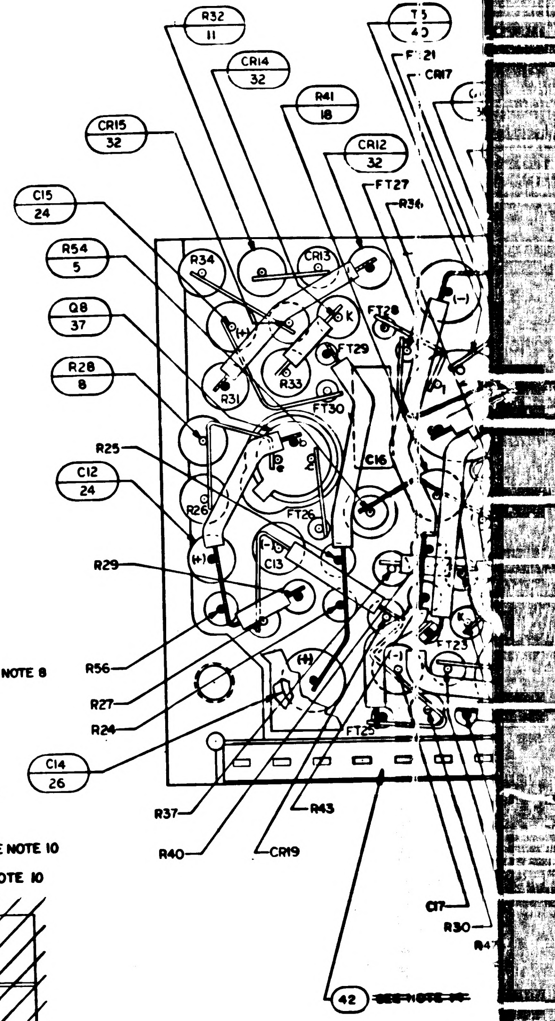
.015
SEE NOTE 5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FT27
R36
C15 24
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R28 8
R25
C12 24
R29
R56
R27
R24
C14 26
R37
R40
R43
CR19
C17
R30
42 SEE NOTE 14

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.

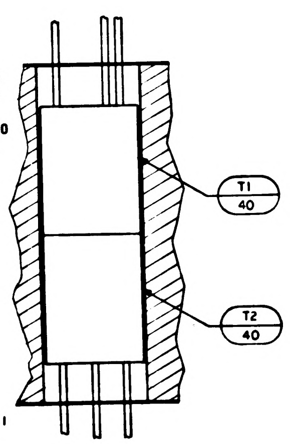
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAX OF .005 WHEN THE HEATSINK OUTLINE EXCEED THE ENCAPSULANT OUTLINE THE MAX DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
6. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
7. STAKE ALL COMPONENTS AND FIND NO. 44 PER ND 1002009 METHOD J
8. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU,
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR

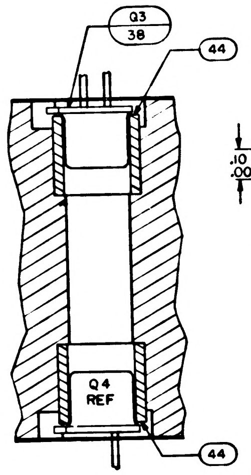
9. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
10. INSTALL FIND NO. 47 AND FIND NO. 48 PER ND 1002136.
11. BOND FIND NO. 51 TO FIND NO. 33 PER MIL-I-15126, COND C-2/23/50 BEFORE ASSEMBLING TO FIND NO. 1
12. INSULATION TAPE PER MIL-I-15126 TYPE MFT, 2.5, 1/2 WIDE
13. PROCURE PER PS 1007054.

~~14. BOND FIND NO. 42 AND FIND NO. 52 TO FIND NO. 47 PER ND 1002237.~~

15. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
16. BOND A .25 MIN. ~~WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE~~ HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ~~ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~



SECTION A-A


Q3 38
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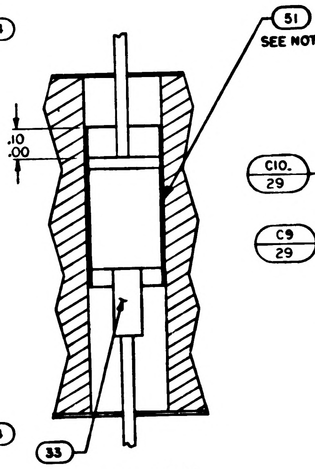
Q4 REF
44

SECTION B-B
TYPICAL INSTALLATION
FOR FIND NO'S, 37, 38 AND 39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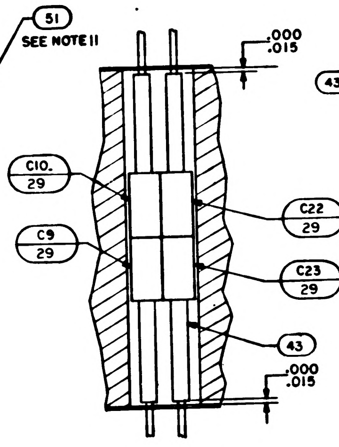
SECTION K-K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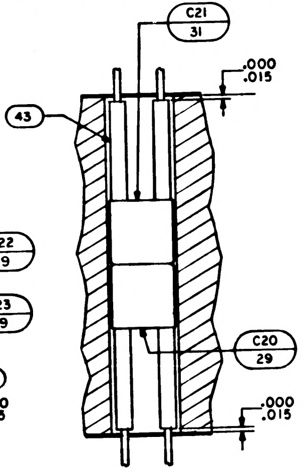
SECTION D-D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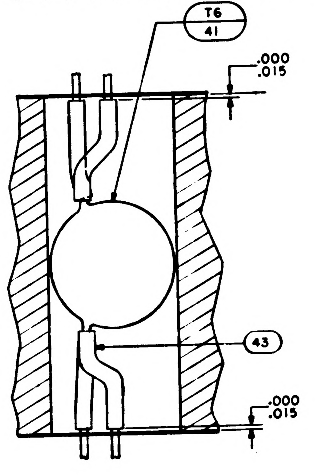
SECTION E-E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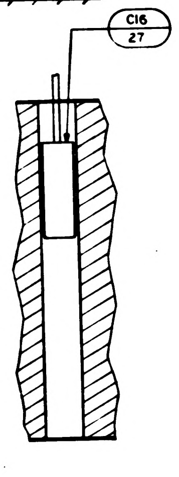
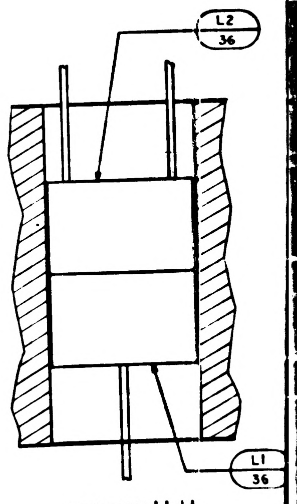
SECTION F-F



SECTION G-G



SECTION H-H

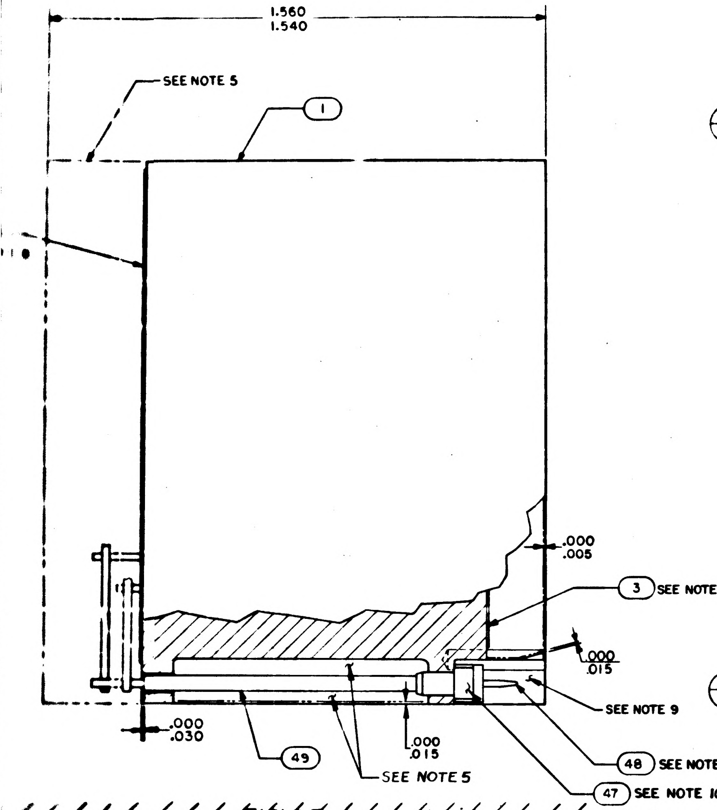
~~17. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~

18. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPULATION.
19. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ~~ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS.~~ ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

1007414 REV F

1 7 1 0 0 7 4 1 4

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 7355	2-MAR 65	
B	REVISED PER TDRR 9407	65	
C	REVISED PER TDRR 19455	2-JUN 65	M.S.
D	REVISED PER TDRR 19524	65	
E	REVISED PER TDRR 20143	19 JUN 65	
F	REVISED PER TDRR 22975	8 OCT 65	
G	REVISED PER TDRR 26375	25 FEB 66	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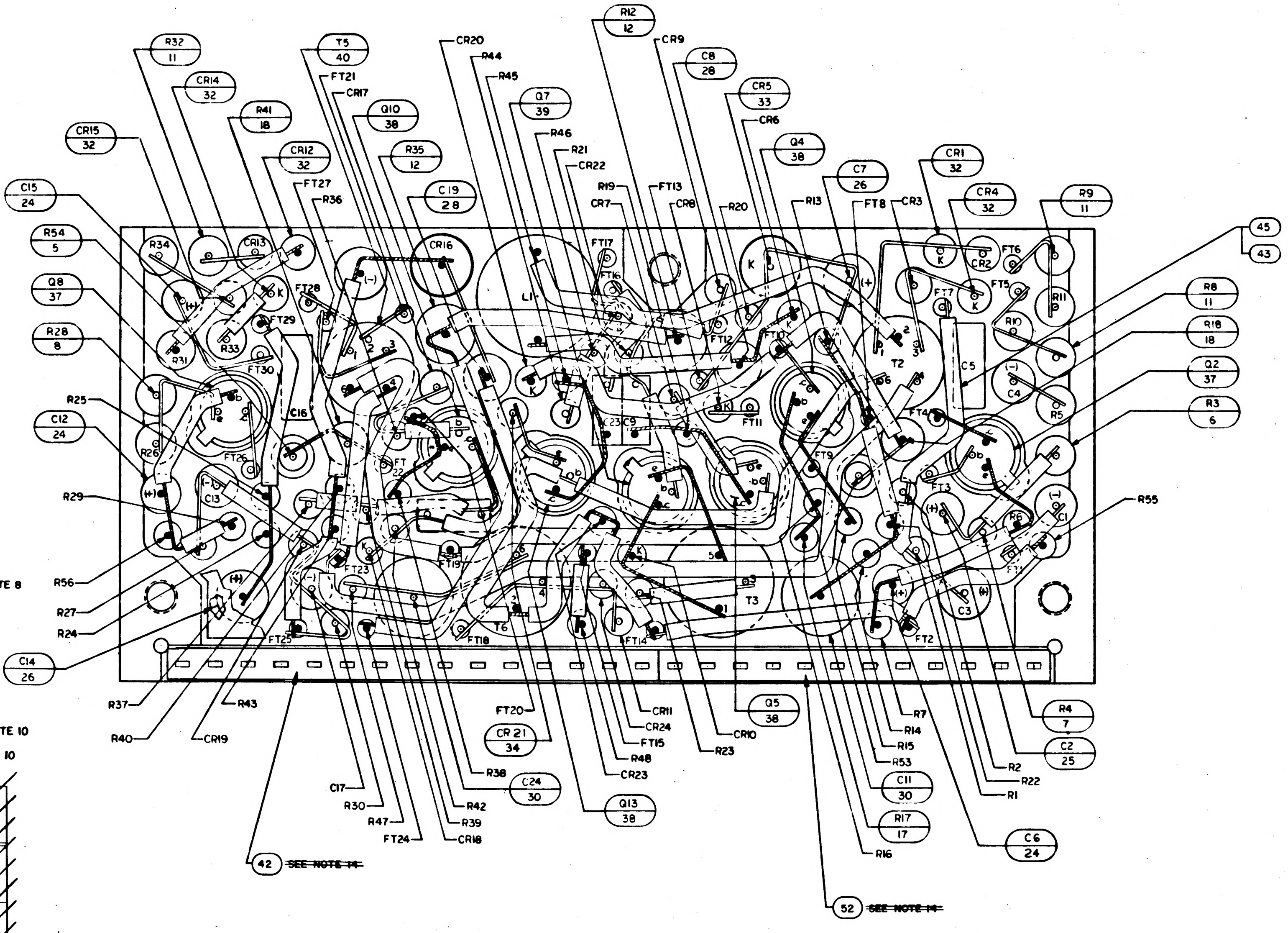
SEE NOTE 5
48 SEE NOTE 10
47 SEE NOTE 10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CR17
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R21
CR22
R12 12
CR9
C8 28
CR5 33
CR6
Q4 38
C7 26
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CR4 32
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C15 24
R54 5
Q8 37
R28 8
R25
C12 24
R29
R56
R27
R24
C14 26
R37
R40
R43
CR19
FT27
R36
C19 28
R19
CR7
FT13
CR8
R20
R13
FT8
CR3
45
43
R8 11
R18 18
Q2 37
R3 6
R55
R4 7
C2 25
R2
R22
R1
C6 24
Q5 38
R7
R14
R15
R53
C11 30
R17 17
R16
CR10
R23
CR11
CR24
FT15
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CR23
FT20
CR 21 34
C24 30
Q13 38
R38
R42
R39
CR18
C17
R30
R47
FT24
42 SEE NOTE 14
52 SEE NOTE 14
R34
CR13
CR16
L1
FT17
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FT11
FT9
FT7
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FT4
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FT30
R33
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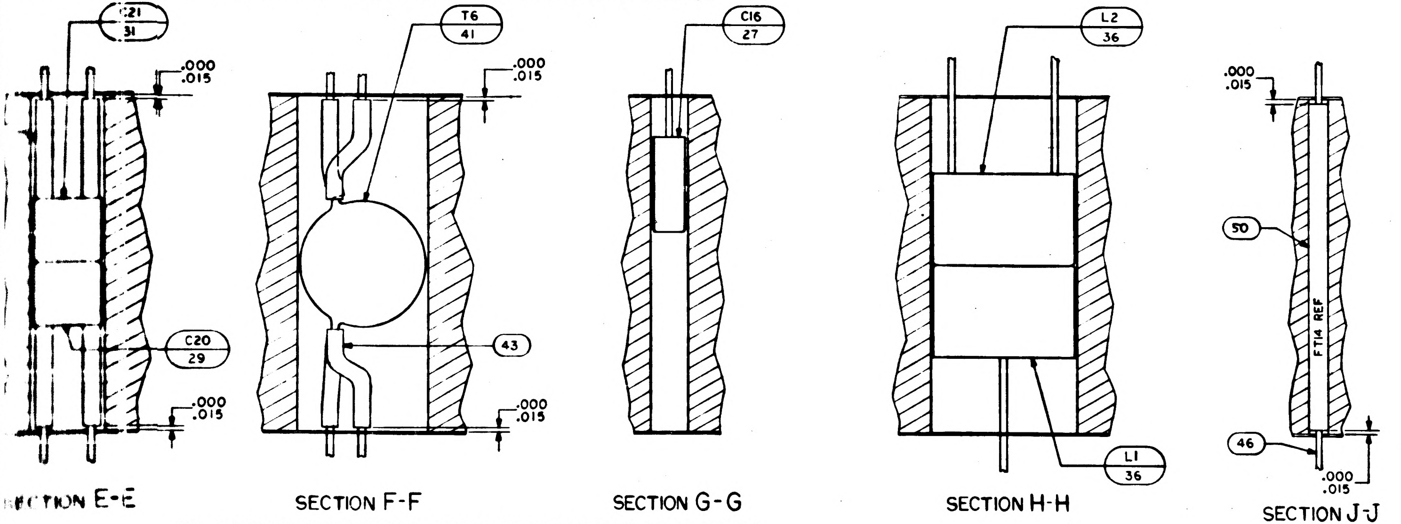
C16
C13
CR2
R11
R10
T2
C5
C4
R5
C3
C1
T3
T6
C9
C23
R26
K

TABLE I

BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
AREA .12 FROM EXTERNAL SURFACE. 90% OF AREA EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
CORNER FILLET & ERTICAL SURFACE O WITHIN .03 ±.03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.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.015
SECTION E-E
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.015
SECTION F-F
C16 27
SECTION G-G
L2 36
L1 36
SECTION H-H
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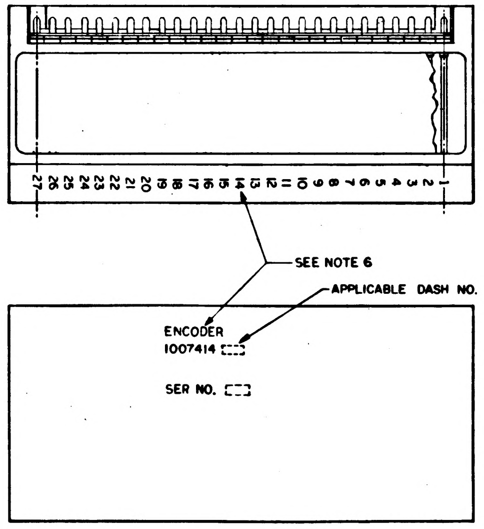
.015
50
FT14 REF
46
.000
.015
SECTION J-J

20. MOISTUREPROOF PER ND1002292 AS REQUIRED BY FIND NO. 54 USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD1008867 AFTER PAINTING AND STENCILING.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SEE NOTE 6
APPLICABLE DASH NO.
ENCODER
1007414
SER NO.

MARKING VIEW
SCALE 2/1

		021	011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
		AR	–		SEE NOTE 20	MOISTUREPROOFING	54
		⨯	⨯		1010034	SCHEMATIC	REF
		1	1		1010385	DIODE	53
		1	1		1008540-12	GASKET, CONNECTOR MINIATURE	52
		AR	AR		SEE NOTE 12	INSULATION, TAPE	51
		AR	AR		1006776-22	INSULATION, SLEEVING	50
		AR	AR		1006776-20	INSULATION, SLEEVING	49
		27	27		1006782-4	CONTACT WRAPOST MALE MINIATURE	48
		27	27		1006775	INSULATOR WRAPOST MALE MINIATURE	47
		AR	AR		1006757-8	WIRE ELEC .020 DIA	46
		AR	AR		1006757-1	WIRE ELEC .010 X .020	45
		14	14		1008025-1	INSULATOR BUSHING	44
		AR	AR		1006776-21	INSULATION, SLEEVING	43
		1	1		1008540-15	GASKET, CONNECTOR MINIATURE	42
		2	2		1010344-2	TRANSFORMER	41
		4	4		1010366	TRANSFORMER	40
		2	2		1010285	TRANSISTOR	39
		8	8		1010357	TRANSISTOR	38
		4	4		1010397-1	TRANSISTOR	37
		2	2		1010309-005	COIL	36
		2	2		1010830-1	DIODE	35
		10	10		1010370	DIODE	34
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		1	1		1008057-2	INSULATOR, BOTTOM	3
		1	1		1008057-1	INSULATOR, TOP	2
		1	1		1008066	HEATSINK	1

QUANTITY REQUIRED
LIST OF PARTS AND MATERIALS

1007414 G

NEXT ASSY	USED ON	APPLICABLE DASH NO.
007577 07575		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS XX ±.02 XXX ±.005
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497

DRAWN Solomon DATE 30 SEP 64
CHECKED A. Udmich 3 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 1-4-66
MIT APPROVAL

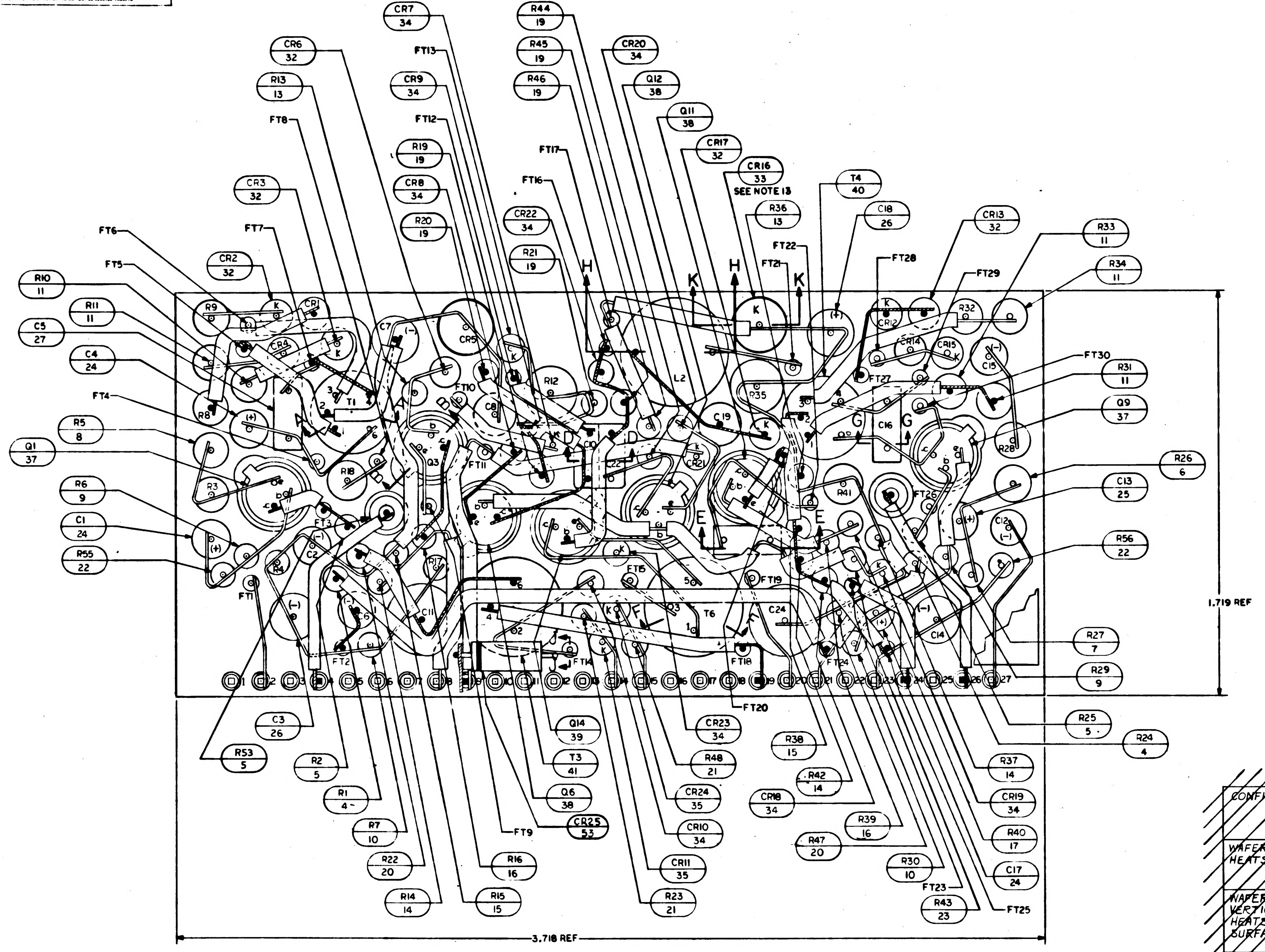
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ENCODER MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007414
SCALE 5:1
WT
SHEET 1 OF 1

1007414 G

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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CR16 33 SEE NOTE 13
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CR8 34
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FT16
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R36 13
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CR13 32
R33 11
CR22 34
FT22
FT21
FT28
FT6
FT7
R21 19
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K
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FT29
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C4 24
FT30
R31 11
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FT4
R5 8
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D
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R6 9
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C1 24
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E
F
F
R56 22
R55 22
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R29 9
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R38 15
R37 14
R1 4
Q6 38
R42 14
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R7 10
CR25 53
CR10 34
R39 16
R40 17
FT9
R47 20
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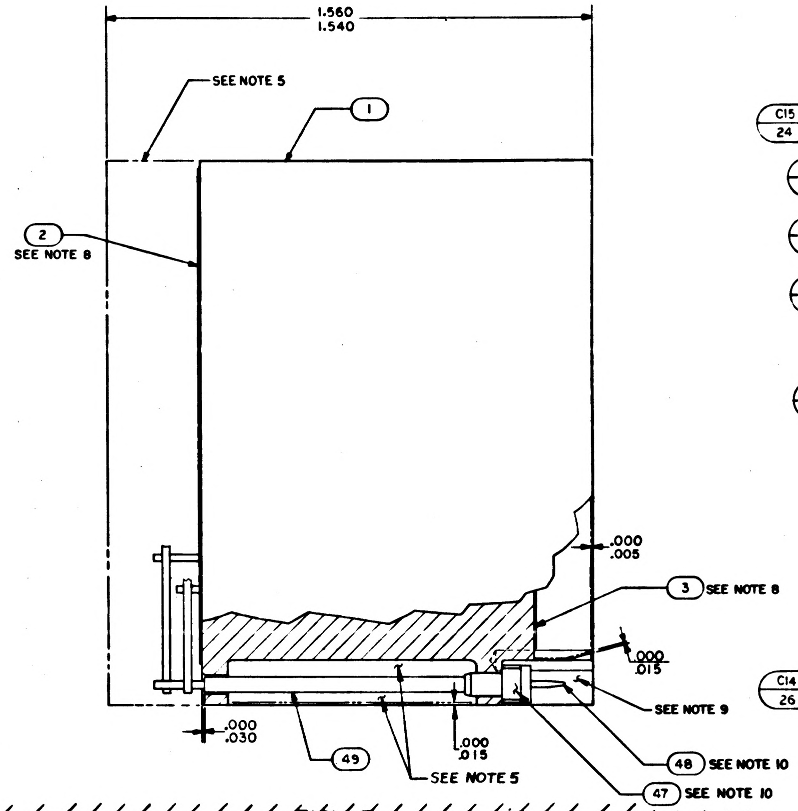
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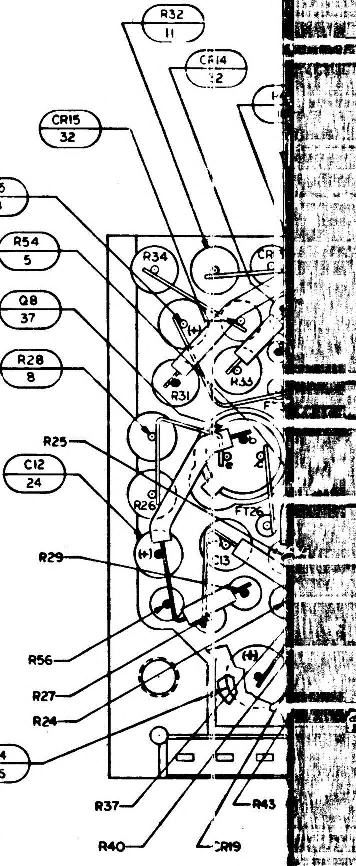
47 SEE NOTE 10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R37
R40
R43
CR19

TABLE I

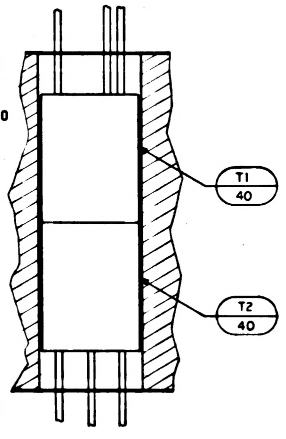
CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 90% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.

NOTES:

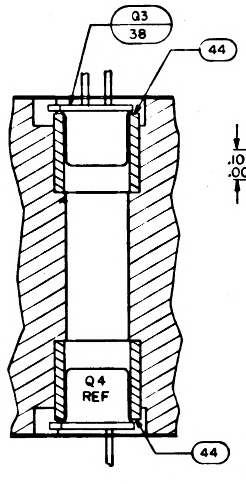
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAX OF .005 WHEN THE HEATSINK OUTLINE EXCEED THE ENCAPSULANT OUTLINE THE MAX DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
6. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
7. STAKE ALL COMPONENTS AND FIND NO. 44 PER ND 1002009 METHOD J
8. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU,
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
9. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
10. INSTALL FIND NO. 47 AND FIND NO. 48 PER ND 1002136.
11. BOND FIND NO. 51 TO FIND NO. 33 PER MIL-I-15126, COND C-2/23/50 BEFORE ASSEMBLING TO FIND NO. 1
12. INSULATION TAPE PER MIL-I-15126 TYPE MFT, 2.5, 1/2 WIDE
13. PROCURE PER PS 1007054.

~~14. BOND FIND NO. 42 AND FIND NO. 32 TO FIND NO. 47 PER ND 1002237.~~

15. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
16. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~



SECTION A-A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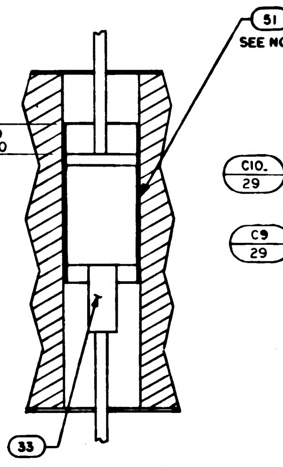
SECTION B-B

TYPICAL INSTALLATION FOR FIND NO'S, 37, 38 AND 39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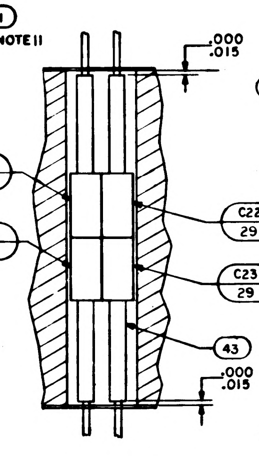
SECTION K-K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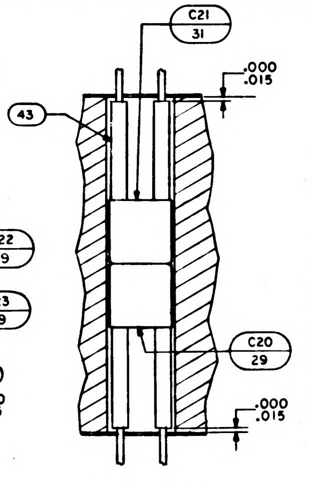
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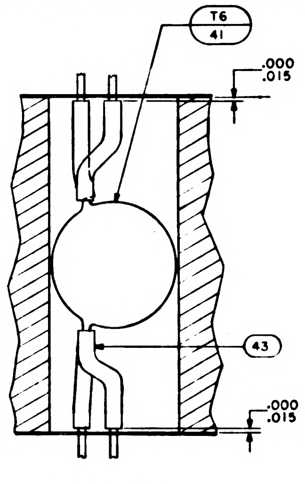
SECTION E-E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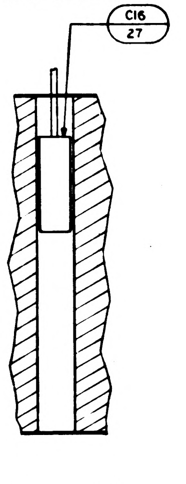
SECTION F-F



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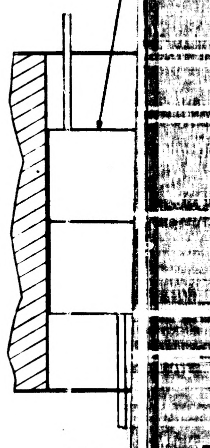


SECTIO

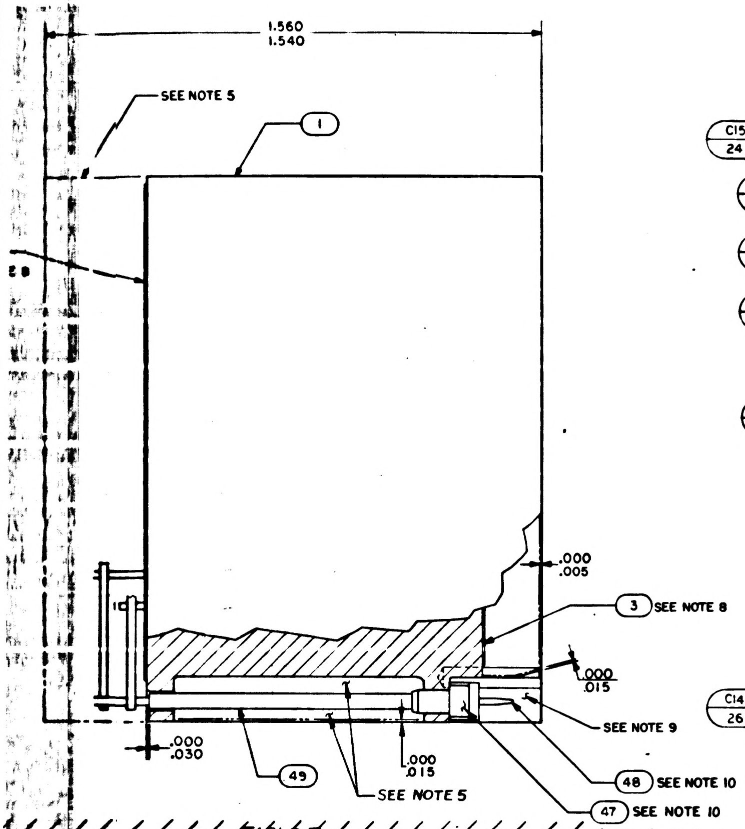
~~17. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~

18. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPULATION.
19. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ~~ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS.~~ ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.
20. MOISTUREPROOF PER ND1002292 AS REQUIRED BY FIND NO. 54 USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD 1008867 AFTER PAINTING AND STENCILING.

1007414 RE G

17/1007414

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR17355	12-MAR 65	M.G.
B	REVISED PER TDRR 19407	1-JUN-65	A.F.W. MEM
C	REVISED PER TDRR19455	2-JUN 65	M.G. EF
D	REVISED PER TDRR 19524	3-JUN 65	EF
E	REVISED PER TDRR 20143	19 JUN 65	DRD
F	REVISED PER TDRR 22975	8 OCT 65	RGB
G	REVISED PER TDRR 26375	25 FEB 66	JIM
H	REVISED PER TDRR29752	28-JUN 66	KWH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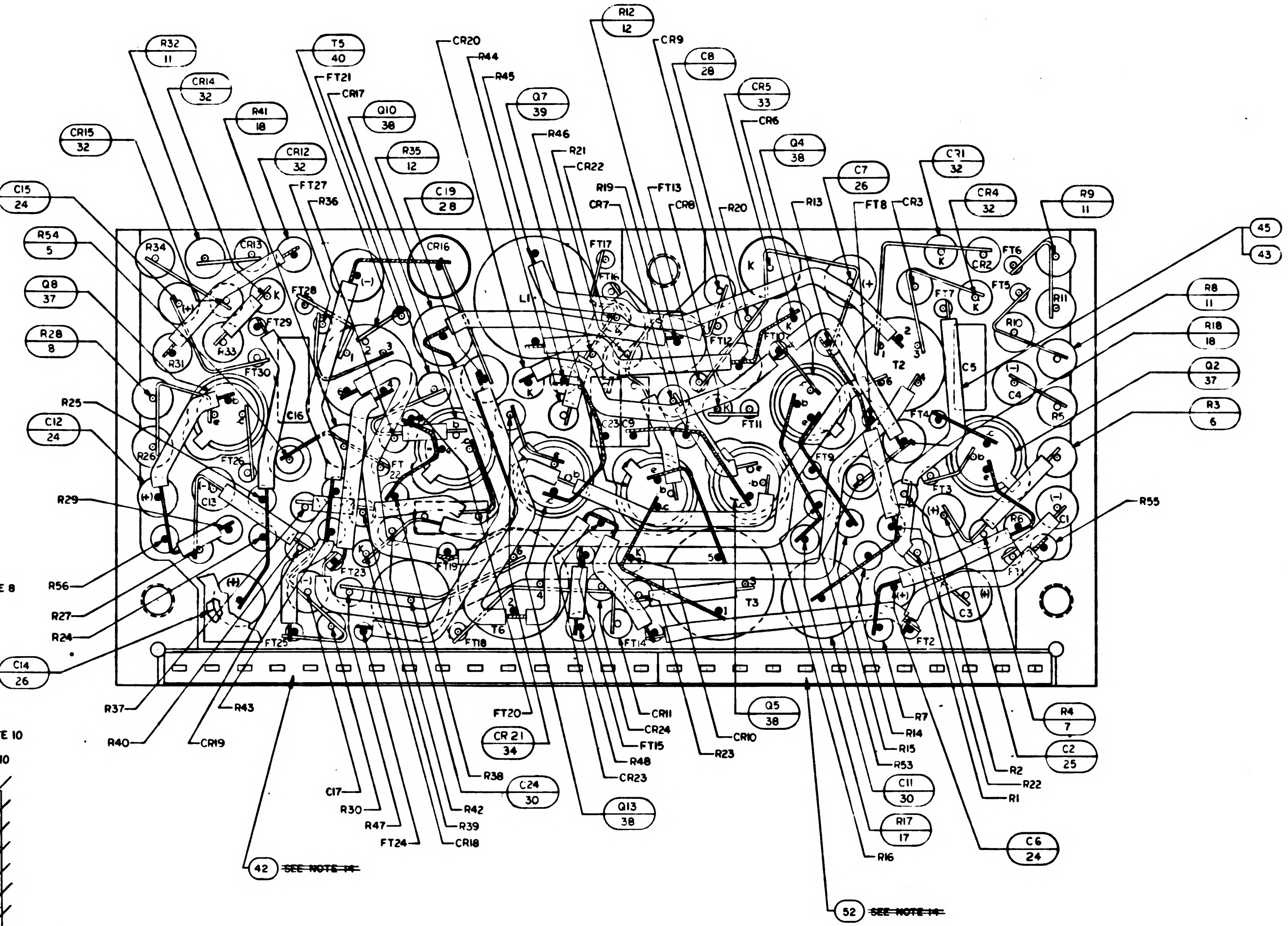
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FT8
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R7
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C6 24
C2 25
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R8 11
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T6
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FT6
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FT9
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FT19
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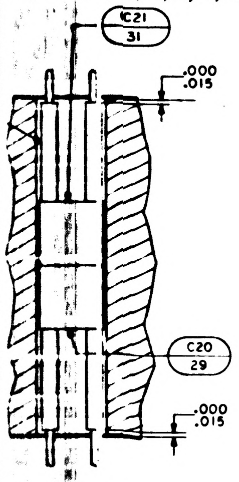
FT25
FT26
FT28
FT29
FT30
R10
R11
R31
R33
R34
CR13
CR1
CR2

TABLE I

BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
100% OF AREA .12 FROM EXTERNAL HEAT SINK SURFACE. 90% OF AREA .25 FROM EXTERNAL HEAT-SINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ±.03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.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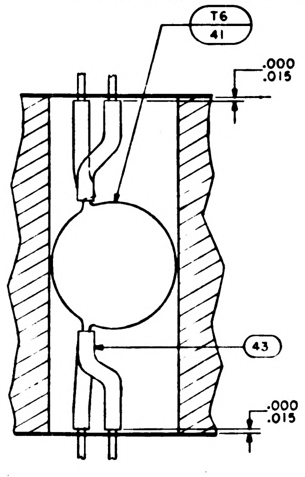
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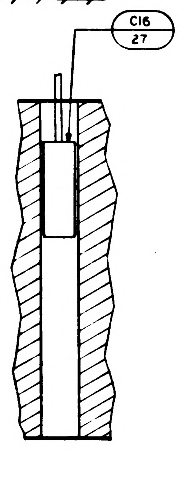

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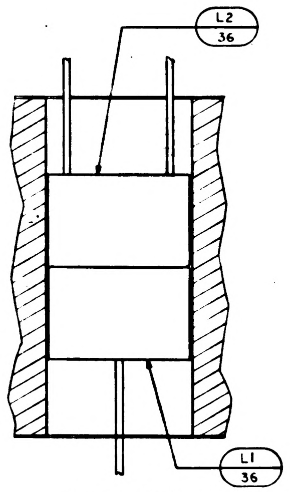

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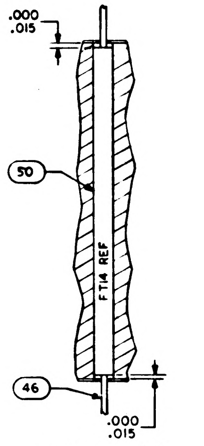
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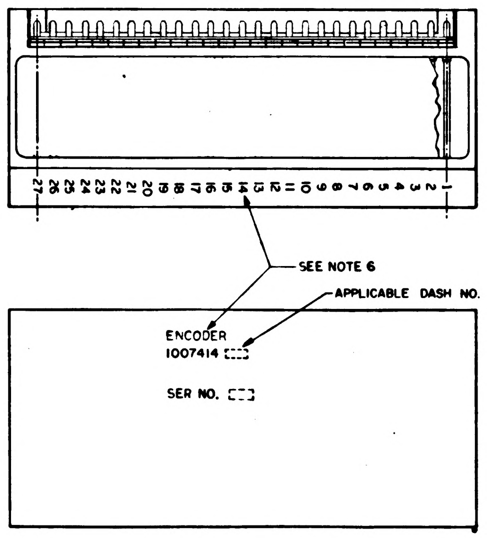
SECTION J-J

20. MOISTUREPROOF PER ND1002292 AS REQUIRED BY FIND NO. 54 USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD1008867 AFTER PAINTING AND STENCILING.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SEE NOTE 6
APPLICABLE DASH NO.
ENCODER
1007414 [ ]
SER NO. [ ]

MARKING VIEW
SCALE 2/1

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		1	1		1008540-12	GASKET, CONNECTOR MINIATURE	52
		AR	AR		SEE NOTE 12	INSULATION, TAPE	51
		AR	AR		1006776-22	INSULATION, SLEEVING	50
		AR	AR		1006776-20	INSULATION, SLEEVING	49
		27	27		1006782-4	CONTACT WRAPOST MALE MINIATURE	48
		27	27		1006775	INSULATOR WRAPOST MALE MINIATURE	47
		AR	AR		1006757-8	WIRE ELEC .020 DIA	46
		AR	AR		1006757-1	WIRE ELEC .010 X .020	45
		14	14		1008025-1	INSULATOR BUSHING	44
		AR	AR		1006776-21	INSULATION, SLEEVING	43
		1	1		1008540-15	GASKET, CONNECTOR MINIATURE	42
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		2	2		1010364-444	RESISTOR	8
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		2	2		1010364-60	RESISTOR	6
		4	4		1006750-49	RESISTOR	5
		2	2		1006750-23	RESISTOR	4
		1	1		1008057-2	INSULATOR, BOTTOM	3
		1	1		1008057-1	INSULATOR, TOP	2
		1	1		1008066	HEATSINK	1
		021	011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
007577		
07575		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
Cambridge Mass
Contract NAS 9-497
DRAWN Solomon DATE 30 SEP 64
CHECKED A. Udomich 3 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL
11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ENCODER MODULE
ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO
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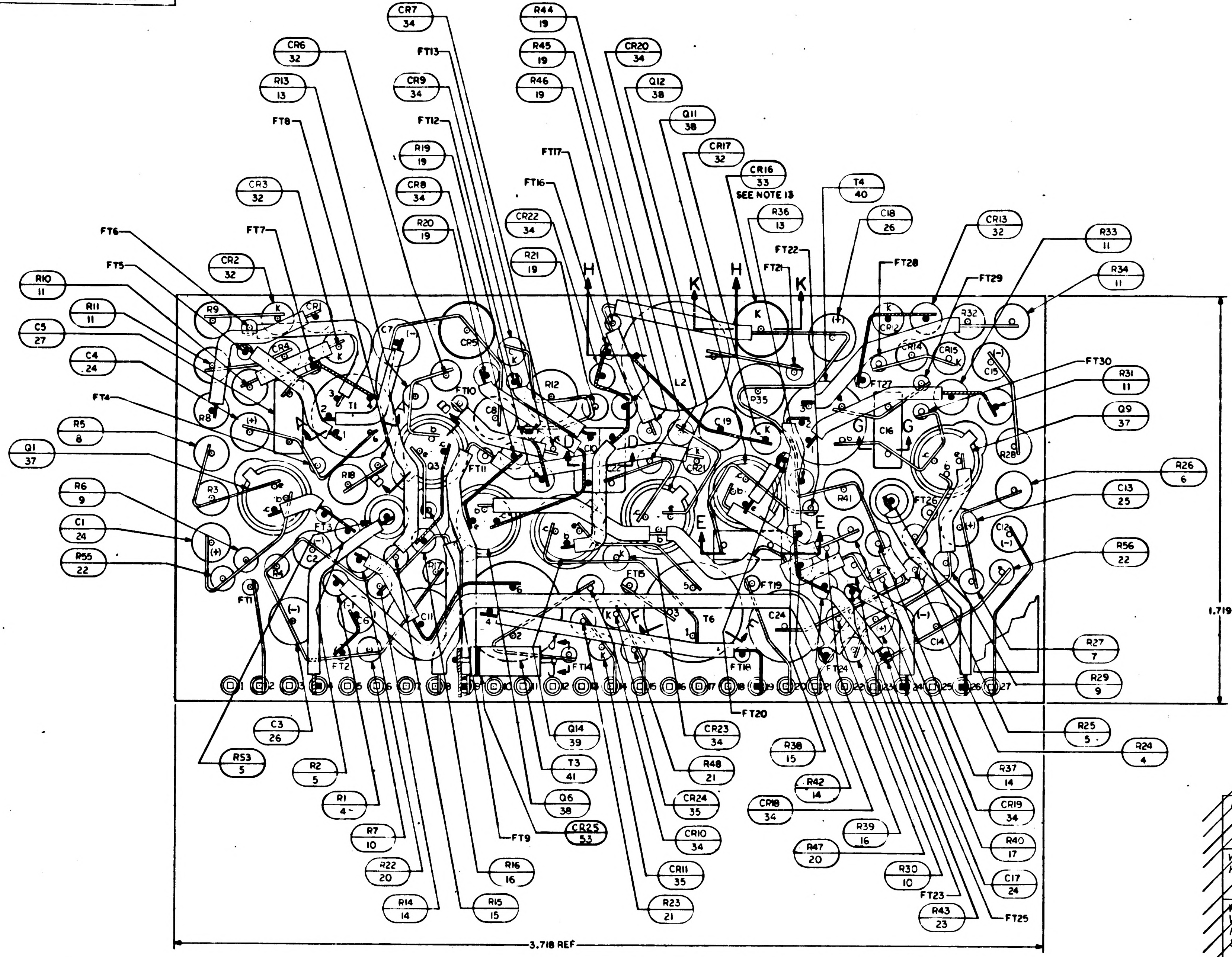
SCALE 5:1	WT	SHEET 1 OF 1

1007414 H

1007414 RF H

27 1007414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CR6 32
R13 13
FT13
CR9 34
FT12
R19 19
CR8 34
R20 19
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FT6
FT5
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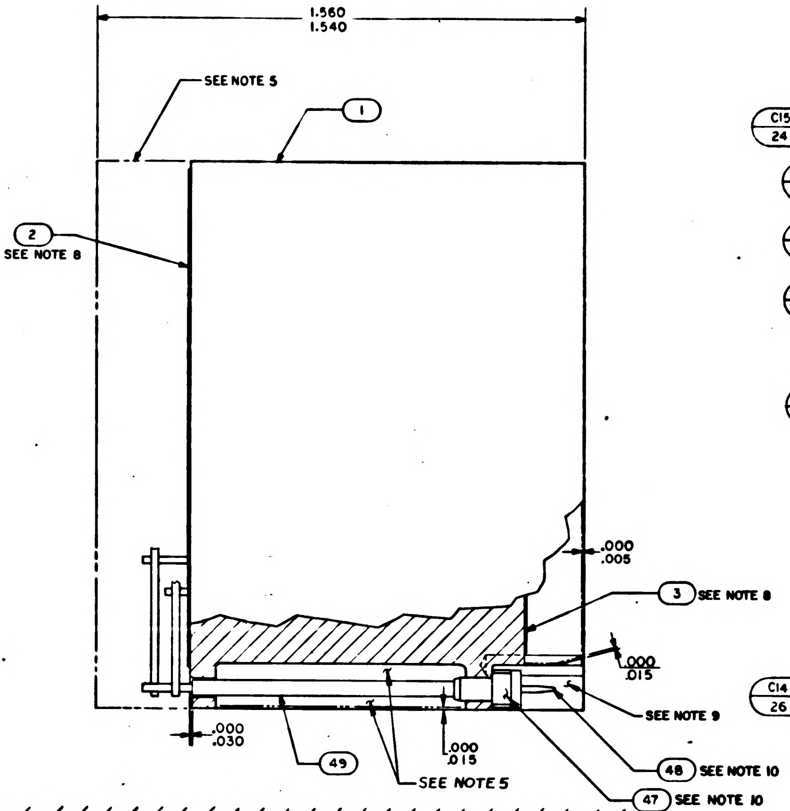
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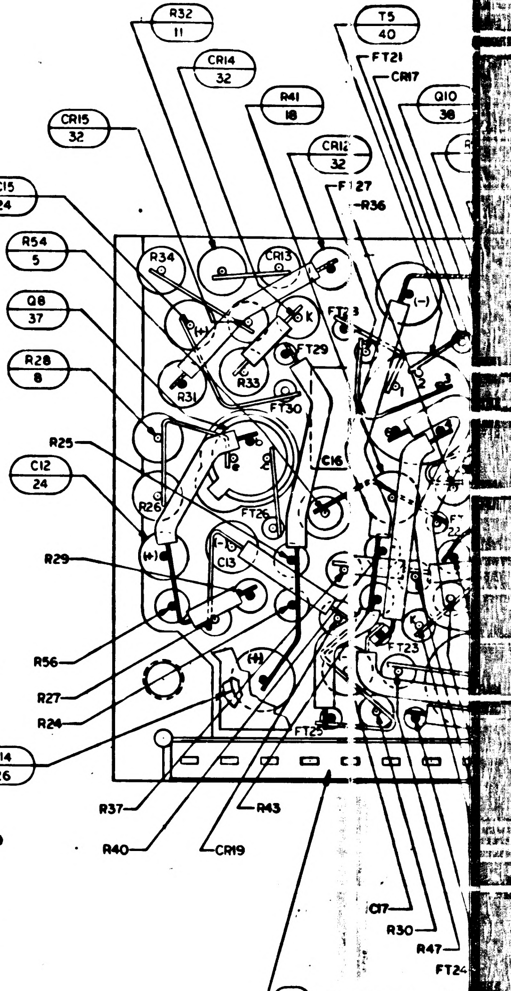
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R37
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R40
CR19
C17
R30
R47
FT24
42 SEE NOTE 14

TABLE I

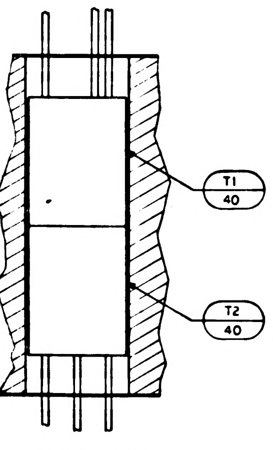
CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.

NOTES:

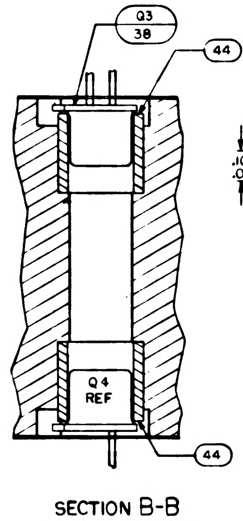
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAX OF .005 WHEN THE HEATSINK OUTLINE EXCEED THE ENCAPSULANT OUTLINE THE MAX DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
6. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
7. STAKE ALL COMPONENTS AND FIND NO. 44 PER ND 1002009 METHOD J
8. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU,
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
9. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
10. INSTALL FIND NO. 47 AND FIND NO. 48 PER ND 1002136.
11. BOND FIND NO. 51 TO FIND NO. 33 PER MIL-I-15126. COND C-2/23/50 BEFORE ASSEMBLING TO FIND NO. 1
12. INSULATION TAPE PER MIL-I-15126 TYPE MFT, 2.5, 1/2 WIDE
13. PROCURE PER PS 1007054.

~~14. BOND FIND NO. 42 AND FIND NO. 52 TO FIND NO. 47 PER ND 1002237.~~

15. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
16. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~



SECTION A-A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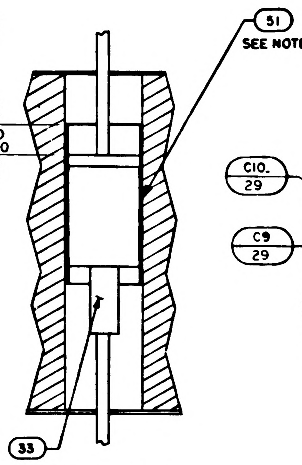
Q4 REF
44

SECTION B-B
TYPICAL INSTALLATION
FOR FIND NO'S, 37, 38 AND 39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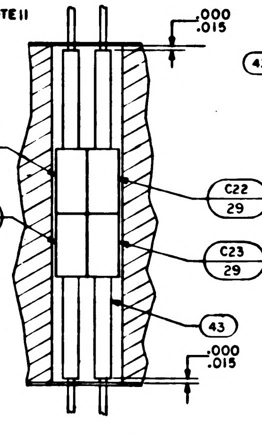
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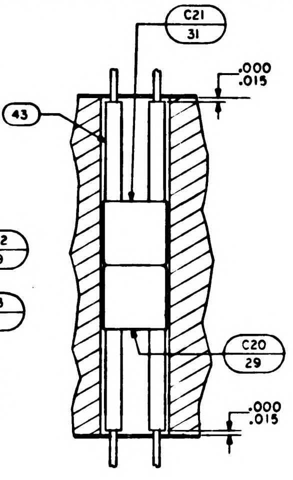
.015

SECTION D-D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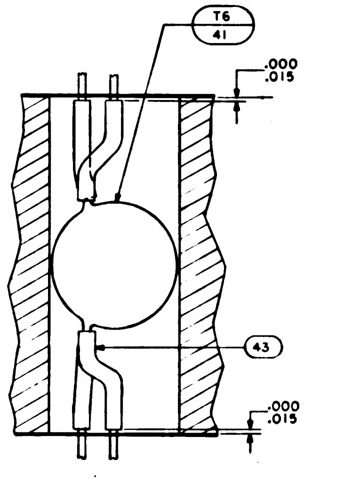
SECTION E-E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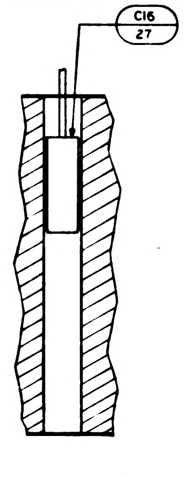
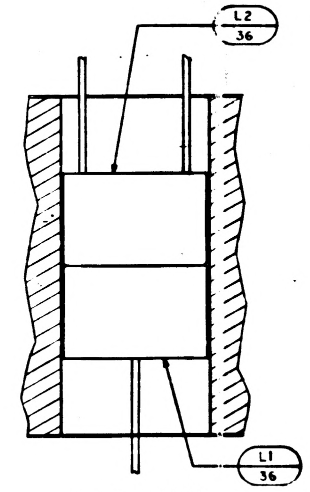
SECTION F-F



SECTION G-G

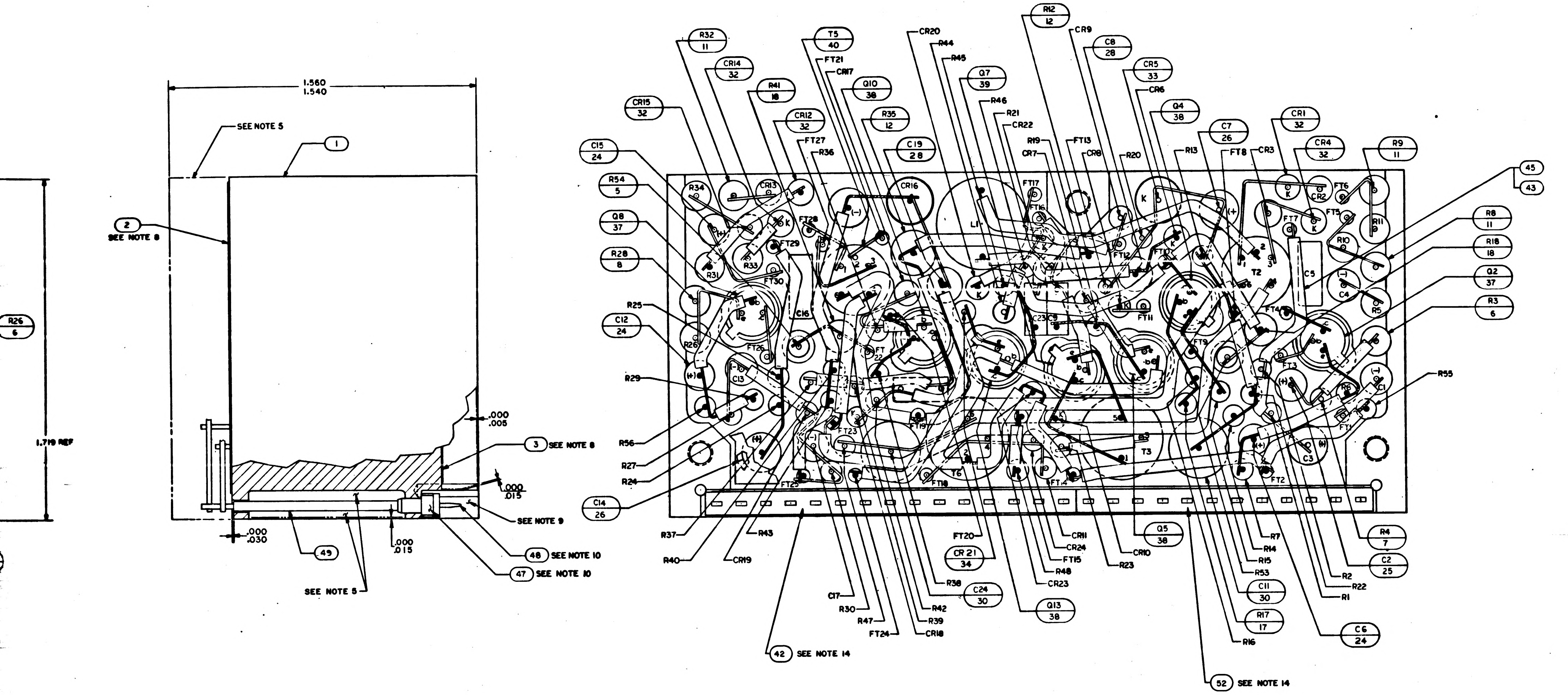


SECTION H-H

~~17. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~

18. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPULATION.
19. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ~~ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS.~~ ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.
20. MOISTUREPROOF PER ND1002292 AS REQUIRED BY FIND NO. 54 USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD1008867 AFTER PAINTING AND STENCILING.

SYM	DESCRIPTION	DATE	APPROVED
	REVISIONS		



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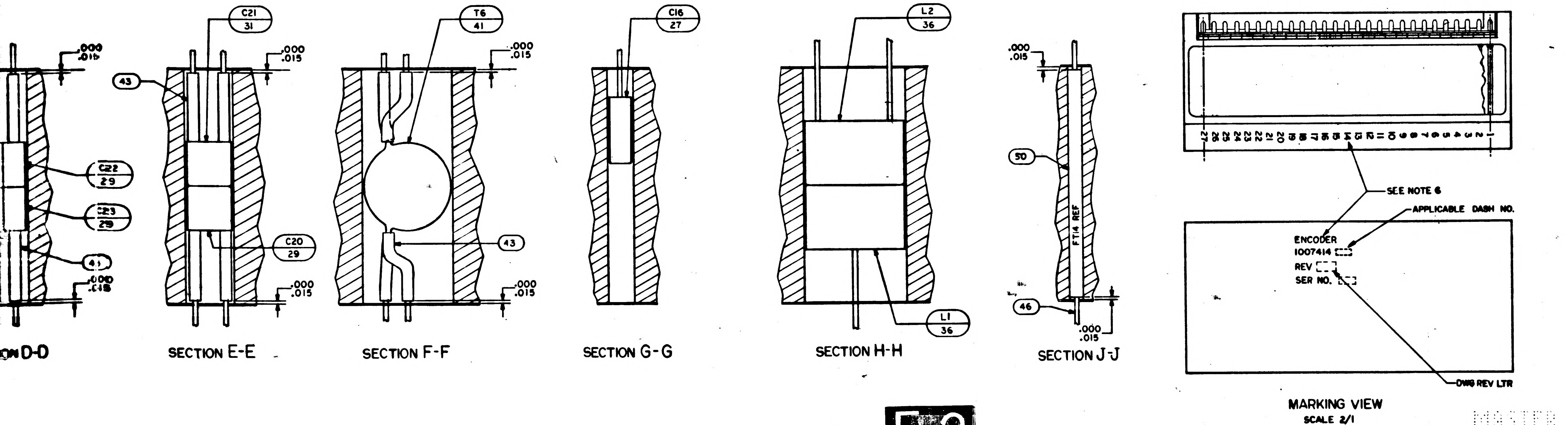
52 SEE NOTE 14



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SEE NOTE 6
APPLICABLE DASH NO.
ENCODER
1007414
REV
SER NO.
DWG REV LTR

SECTION D-D

SECTION E-E

SECTION F-F

SECTION G-G

SECTION H-H

SECTION J-J

MARKING VIEW
SCALE 2/1

MASTER

E-2

			☒		1010034	SCHEMATIC	REF
			1		1010385	DIODE	53
			1		1008540-12	GASKET, CONNECTOR MINIATURE	52
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			AR		1006776-22	INSULATION, SLEEVING	50
			AR		1006776-20	INSULATION, SLEEVING	49
			27		1006782-4	CONTACT WRAPOST MALE MINIATURE	48
			27		1006775	INSULATOR WRAPOST MALE MINIATURE	47
			AR		1006757-8	WIRE ELEC .020 DIA	46
			AR		1006757-1	WIRE ELEC .010 X .020	45
			14		1008025-1	INSULATOR BUSHING	44
			AR		1006776-21	INSULATION, SLEEVING	43
			1		1008540-15	GASKET, CONNECTOR MINIATURE	42
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			4		1010366	TRANSFORMER	40
			2		1010285	TRANSISTOR	39
			8		1010357	TRANSISTOR	38
			4		1010397-1	TRANSISTOR	37
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			2		1010286-001	DIODE	35
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			10		1010362-2	DIODE	32
			1		1010359-11	CAPACITOR	31
			2		1010375-21	CAPACITOR	30
			5		1010359-17	CAPACITOR	29
			2		1010279-223	CAPACITOR	28
			2		1010359-29	CAPACITOR	27
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			1		1008066	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577 1007575		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Solano DATE 30 SEP 64
CHECKED Ulrich 3 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ENCODER MODULE ASSEMBLY

CODE IDENT NO. | SIZE J | NASA DRAWING NO. 1007414
SCALE 5:1 | WT | SHEET 1 OF 1

1007414

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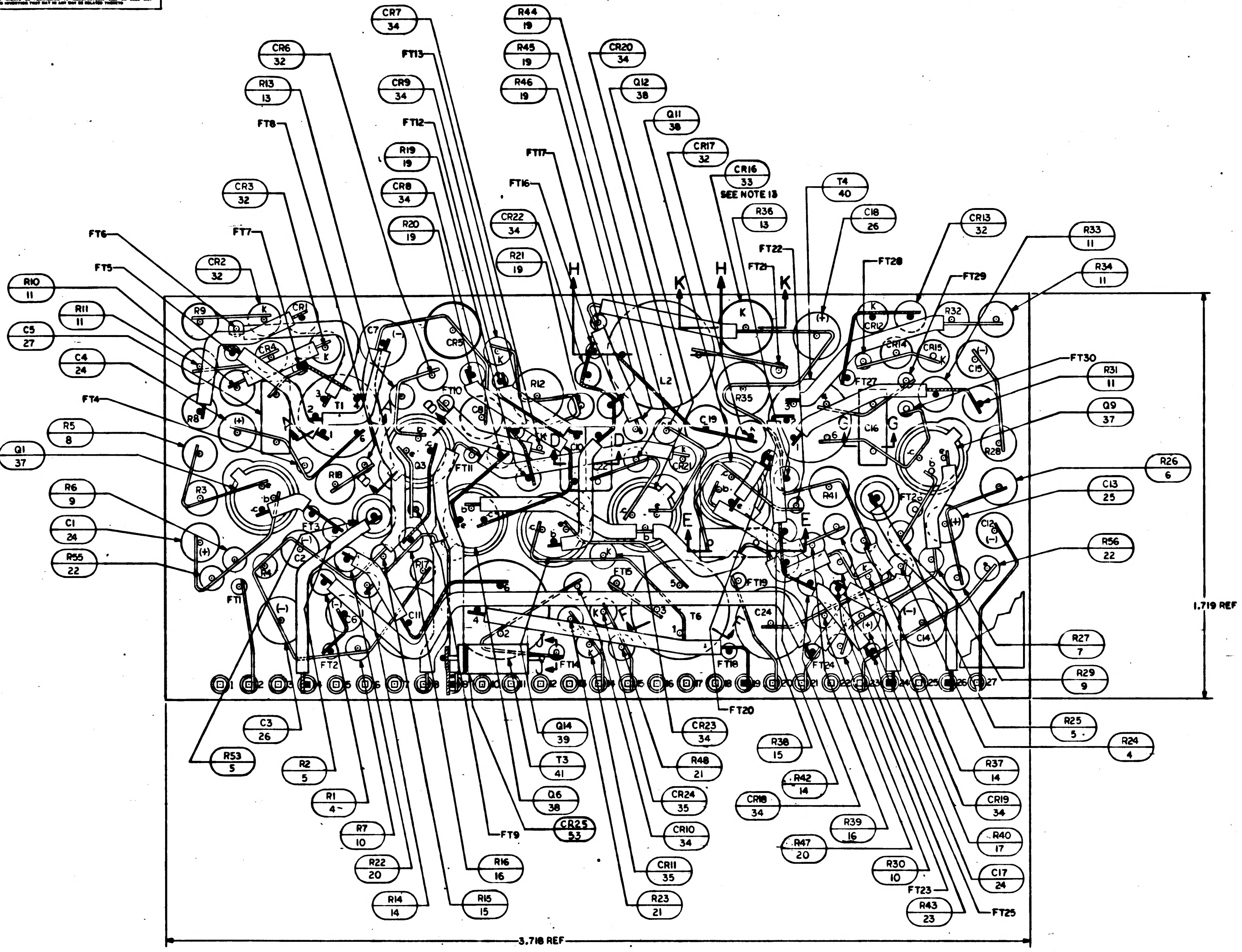
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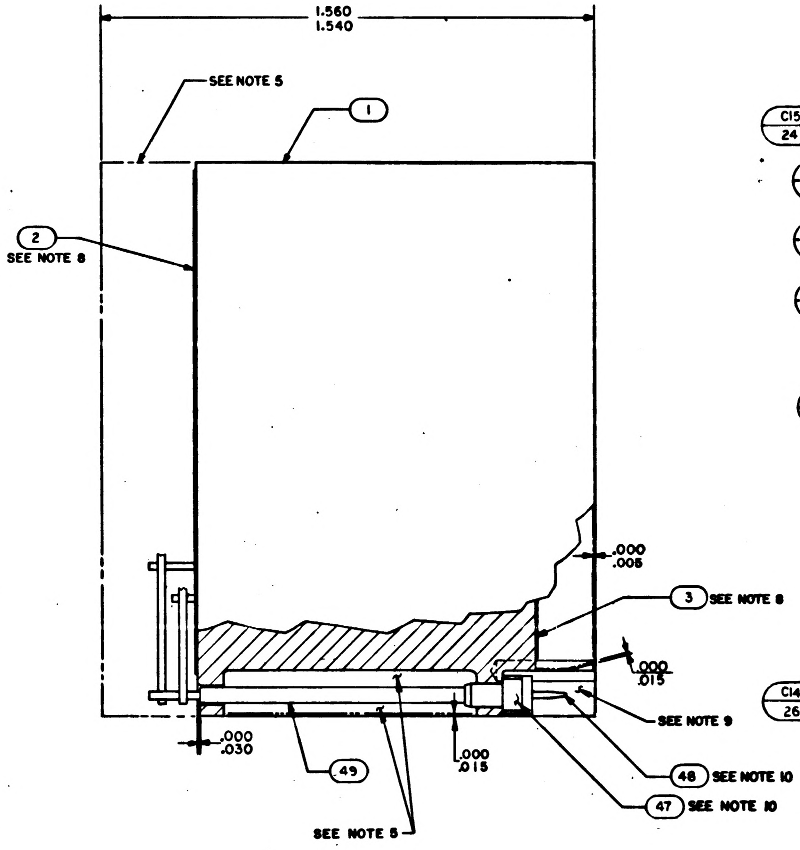
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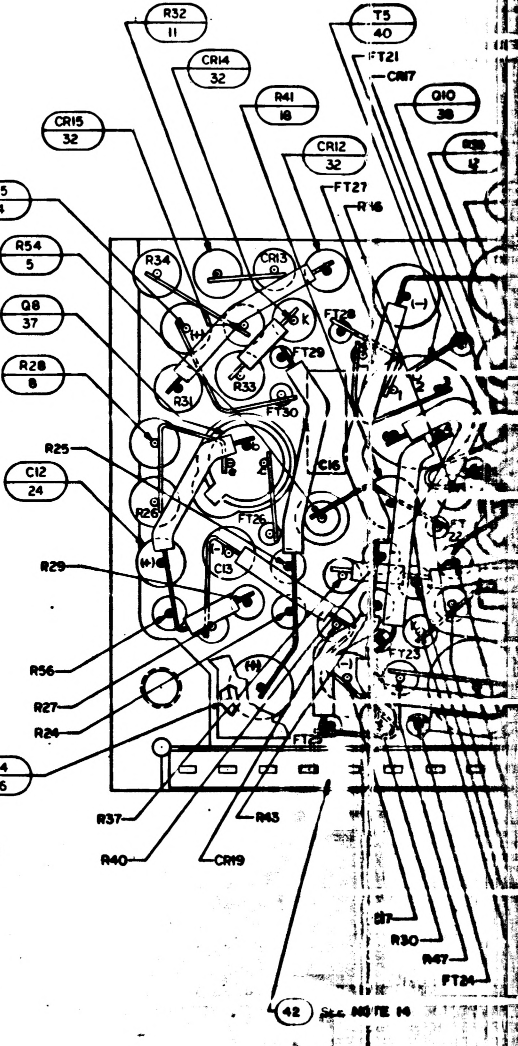
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C12 24
R29
R56
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R43
R40
CR19
R30
R47
FT24
42 SEE NOTE 14

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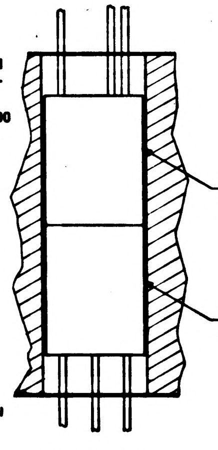
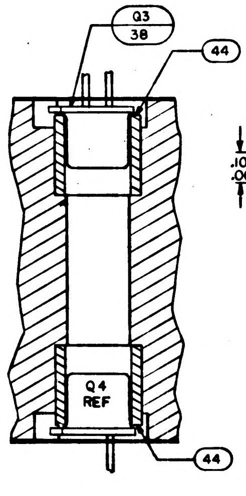
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAX OF .005 WHEN THE HEATSINK OUTLINE EXCEED THE ENCAPSULANT OUTLINE THE MAX DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
6. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
7. STAKE ALL COMPONENTS AND FIND NO. 44 PER ND 1002009 METHOD C
8. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU,
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR

9. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
10. INSTALL FIND NO. 47 AND FIND NO. 48 PER ND 1002136.
11. BOND FIND NO. 51 TO FIND NO. 33 PER MIL-I-15126, COND C-2/23/50 BEFORE ASSEMBLING TO FIND NO. 1
12. INSULATION TAPE PER MIL-I-15126 TYPE MFT, 2.5,1/2 WIDE
13. PROCURE PER PS 1007054.

14. BOND FIND NO. 42 AND FIND NO. 52 TO FIND NO. 47 PER ND 1002237.
15. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.



SECTION A-A


Q3 38
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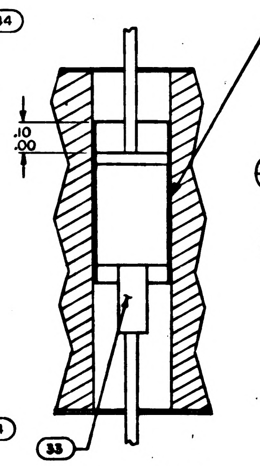
Q4 REF
44

SECTION B-B
TYPICAL INSTALLATION
FOR FIND NO'S 5,37,38 AND 39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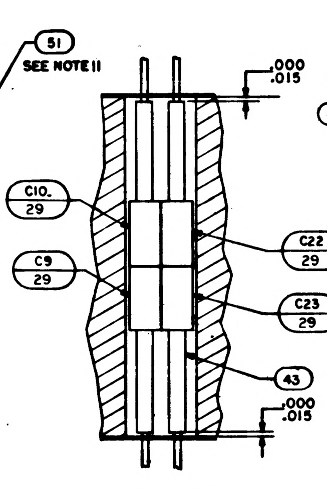
33

SECTION K-K


C10 29
C9 29
C22 29
C23 29
43
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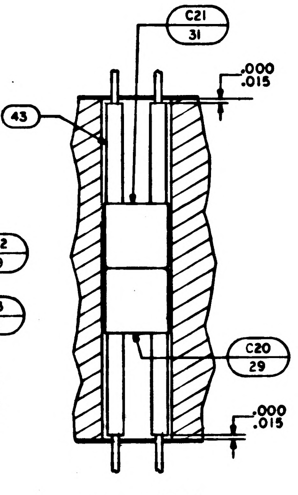
.000 .015

SECTION D-D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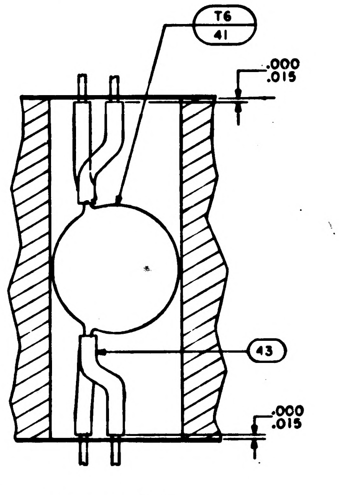
SECTION E-E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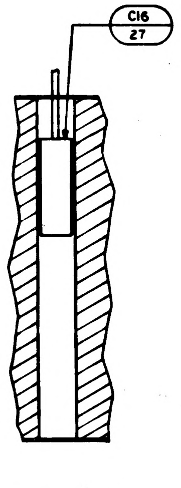
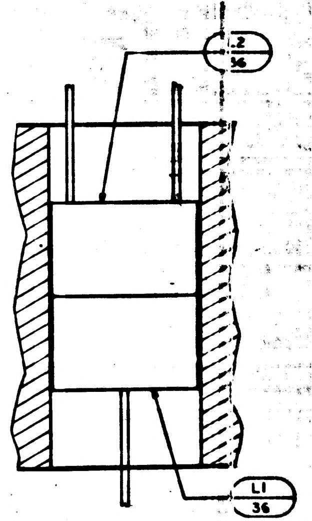
SECTION F-F



SECTION G-G



SECTION H-H

1007414

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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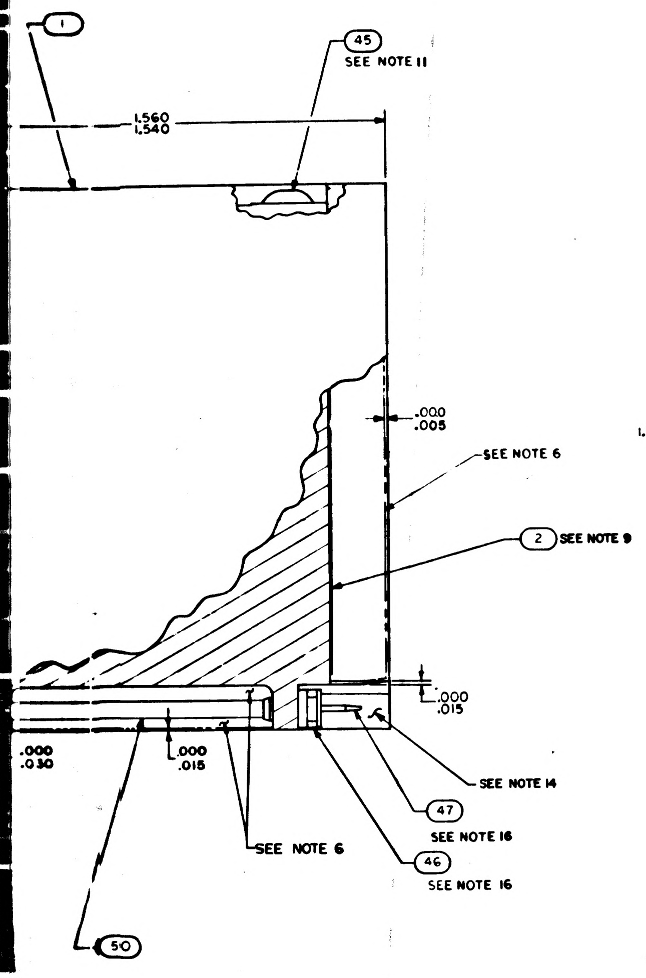

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SEE NOTE 11
1.560
1.540
.000
.005
SEE NOTE 6
2 SEE NOTE 9
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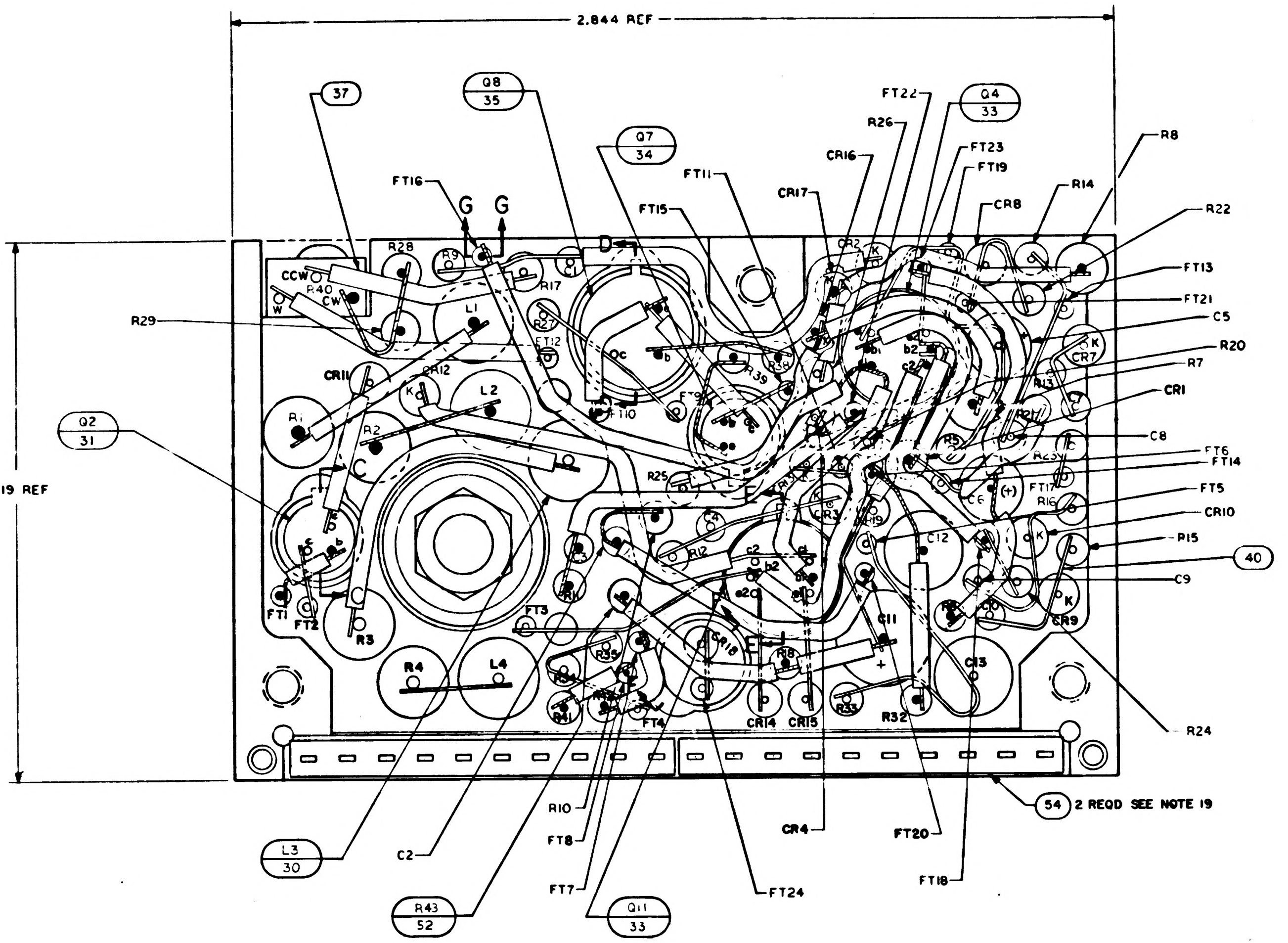
SEE NOTE 14
47
SEE NOTE 16
SEE NOTE 6
46
SEE NOTE 16
50



2.844 REF
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Q7
34
FT16
G
G
FT15
FT11
CR17
CR16
FT22
R26
Q4
33
FT23
FT19
CR8
R14
R8
R22
FT13
FT21
C5
R20
R7
CR1
C8
FT6
FT14
FT5
CR10
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R17
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FT2
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R4
L4
FT3
R25
R10
CR4
C12
C11
C13
R32
CR14
CR15
FT4
FT17
R16
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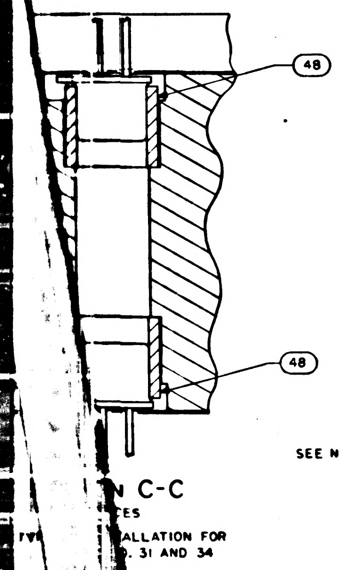
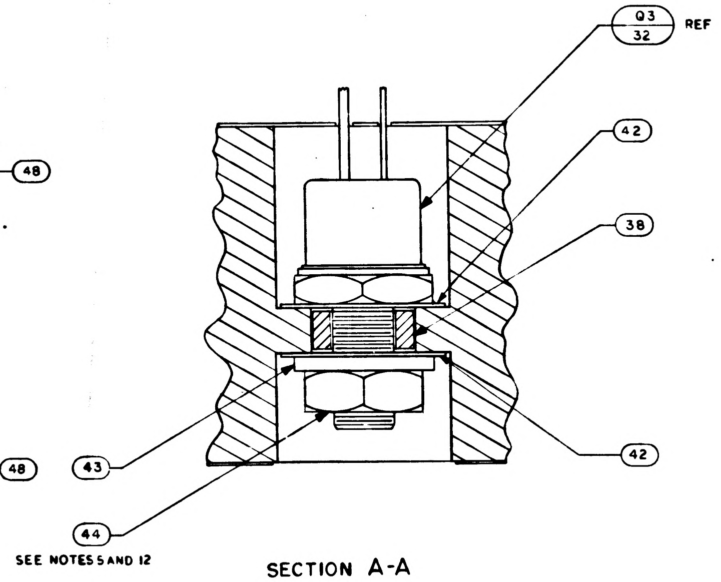
FT24
FT20
FT18



N C-C
...CES
...ALLATION FOR
...0, 31 AND 34



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32
REF
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38
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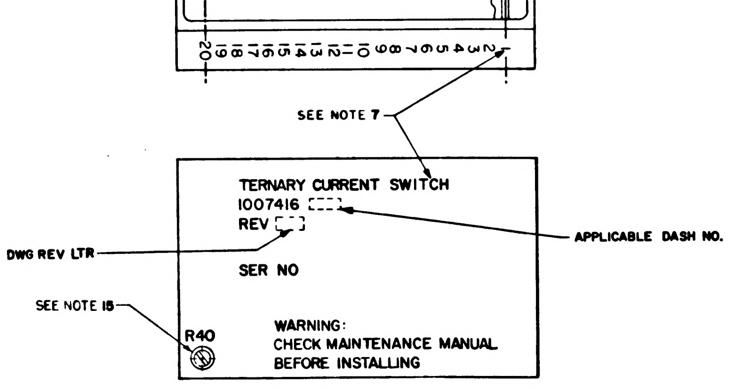
44
SEE NOTES 5 AND 12

SECTION A-A



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SEE NOTE 7
TERNARY CURRENT SWITCH
1007416
REV
SER NO
APPLICABLE DASH NO.
DWG REV LTR
SEE NOTE 15
R40
WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2/1

					PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
					1010016	SCHEMATIC DIAGRAM ELECTRICAL	REF
			2		1008540-10	GASKET, CONNECTOR MINIATURE	54
			1		1010372-6	DIODE	53
			1		1006750-40	RESISTOR	52
			AR		1006776-22	INSULATION SLEEVING	51
			AR		1006776-20	INSULATION SLEEVING	50
			2		1006750-53	RESISTOR, FIXED MF 7.5K 1/4W ± 2%	49
			4		1008025-1	INSULATOR, BUSHING	48
			20		1006782-4	CONTACT, WRAPOST MALE MINAT	47
			20		1006775	INSULATOR, WRAPOST MALE MINAT	46
			2		1000093-3	SCREW, BUTTON HEAD	45
			1		MS35650-104	NUT, PLAIN, HEX	44
			1		1008020-1	WASHER, FLAT	43
			2		1008024-1	WASHER, INSULATOR	42
			AR		1006787-2	WIRE, ELEC .020 DIA	41
			AR		1006757-1	WIRE, ELEC .010 X .020	40
			2		1008025-2	INSULATOR, BUSHING	39
			1		1008021-1	INSULATOR, BUSHING	38
			AR		1006776-21	INSULATION SLEEVING	37
							36
			2		1010600	TRANSISTOR	35
			2		1006752	TRANSISTOR	34
			4		1010376-4	TRANSISTOR	33
			1		1010269-1	TRANSISTOR SP322	32
			2		1010357-1	TRANSISTOR	31
			4		1010388-39	INDUCTOR .01HY 75MA ±5%	30
			2		1010384	DIODE	29
			3		1010394	DIODE	28
			6		1010385	DIODE	27
							26
			4		1010462-6	DIODE	25
			1		1010393-39	CAP, FIXED TANT, 6.8UF 50V ±10%	24
			2		1006777-33	CAP, FIXED CER, .022UF 100V ±10%	23
			4		1006777-20	CAP., FIXED CER, 470UUF 100V ±10%	22
			2		1006755-73	CAP, FIXED TANT, 2.2UF 35V ±20%	21
			4		1006777-13	CAP., FIXED CER, 100UUF 100V ±10%	20
			1		1010373-10	RESISTOR, VAR, 10K 1W ±5%	19
			2		1010369-87	RESISTOR	18
			2		1010369-148	RESISTOR, FIXED COMP, 20 1/4W ±2%	17
							16
			2		1006750-53	RESISTOR, FIXED MF, 7.5K 1/4W ±2%	15
			1		1010364-683	RESISTOR, FIXED MF, 178K 1/8W ±1%	14
			1		1010364-635	RESISTOR, FIXED MF, 100K 1/8W ±1%	13
			1		1006750-62	RESISTOR, FIXED MF, 18K 1/4W ±2%	12
			6		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
			2		1006750-56	RESISTOR, FIXED MF, 10 K 1/4W ±2%	10
			3		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	9
			1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±1%	8
			6		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ±2%	7
			2		1006760-56	RESISTOR, FIXED MF, 10K 1/2W ±2%	6
			2		1006750-18	RESISTOR, FIXED MF, 270 1/4W ±2%	5
			4		1010389-80	RESISTOR, FIXED WW 10K 3W ±1%	4
			1		1008019-2	INSULATOR, TOP	3
			1		1008019-1	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1
QUANTITY REQUIRED			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 — ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN J. Kelinger DATE 30 SEP 64
CHECKED R. Udonck 3 OCT 64
APPROVAL
APPROVAL 11/9/64
NASA APPROVAL 1-12-65
MIT APPROVAL 12 Nov 64

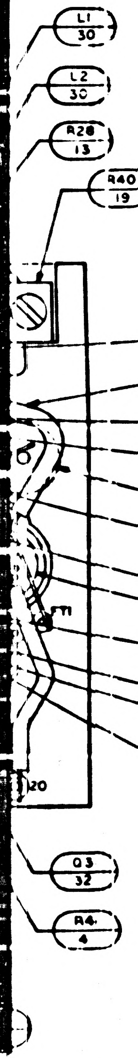
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

CODE IDENT NO. — SIZE J NASA DRAWING NO. 1007416
SCALE 5/1 WT SHEET 1 OF 1

1007416

3/1007416



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L2 30
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R40 19
R29 14
37
CR11 27
CR12 27
R1 4
R2 4
SEE NOTE 13
FT1
Q1 31
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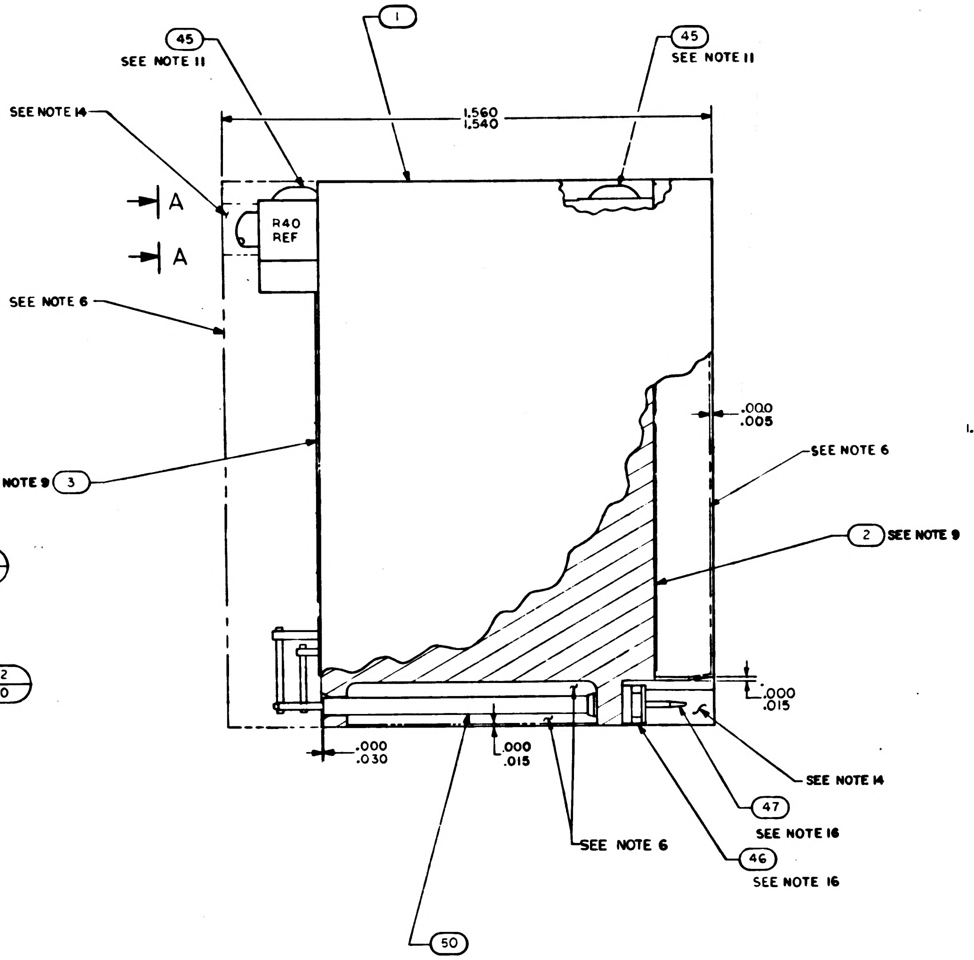
C3 20
C2 20
R3 4
20
Q3 32
R4 4
9
R42 49



45 SEE NOTE 11
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45 SEE NOTE 11
SEE NOTE 14
1.560
1.540
A
A
R40 REF
SEE NOTE 6
SEE NOTE 9 3
.000
.005
SEE NOTE 6
2 SEE NOTE 9
.000
.015
.000
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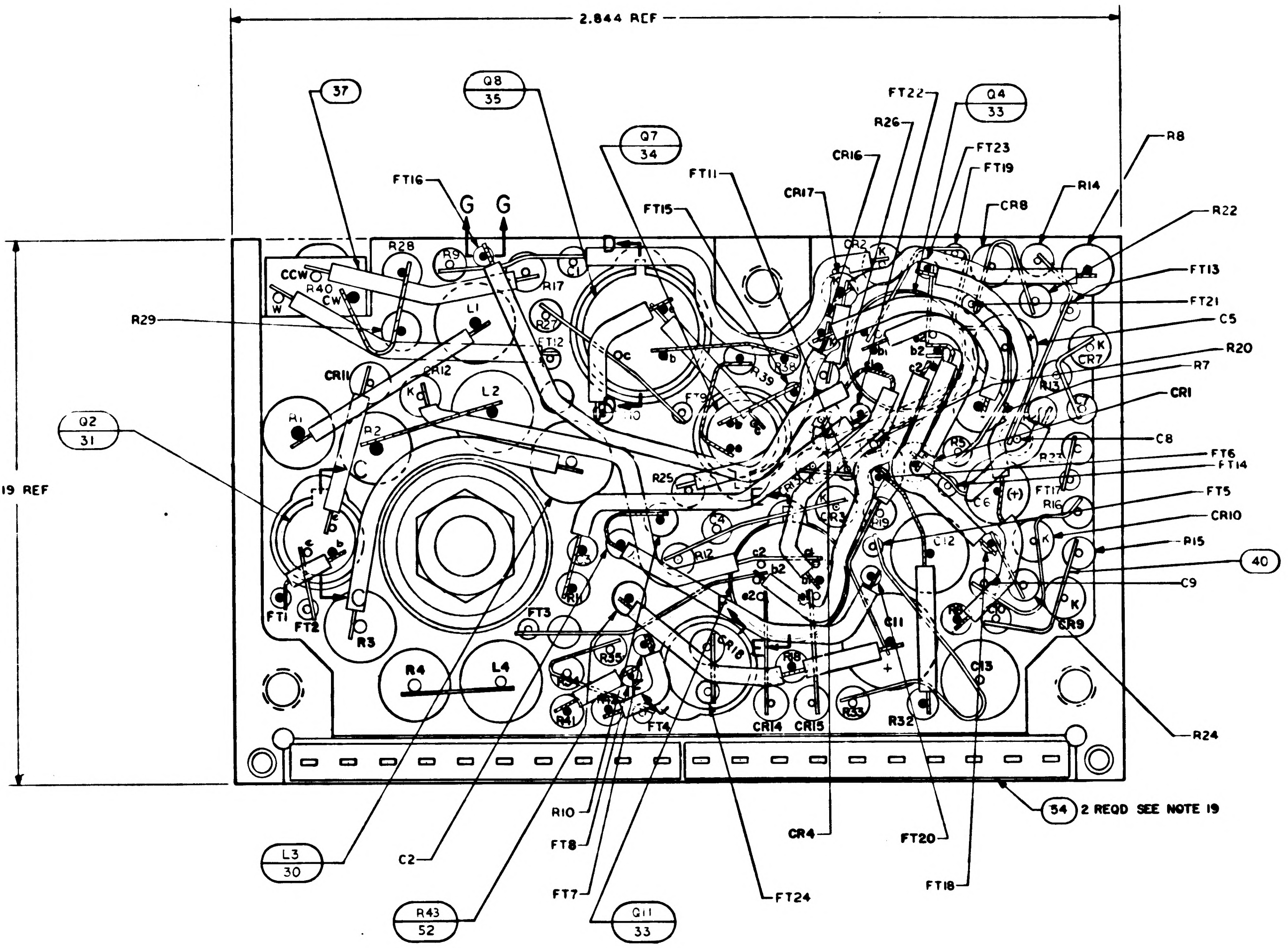
.000
.015
SEE NOTE 14
47
SEE NOTE 16
SEE NOTE 6
46
SEE NOTE 16
50



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FT19
R8
FT16
G
G
FT11
CR17
R14
FT15
CR8
R22
R28
R40
CCW
CW
R17
D
FT13
R29
L1
FT12
FT21
C5
R20
R7
CR11
CR12
L2
R13
CR7
CR1
Q2 31
R1
R2
C8
FT6
FT14
1.719 REF
R25
C6
FT17
R16
FT5
CR10
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R15
40
C9
FT1
FT2
R3
FT3
C11
CR9
R4
L4
C13
R24
CR14
CR15
R32
FT4
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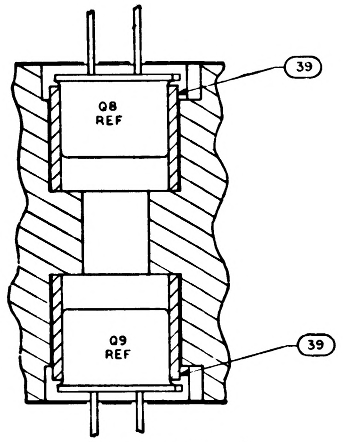
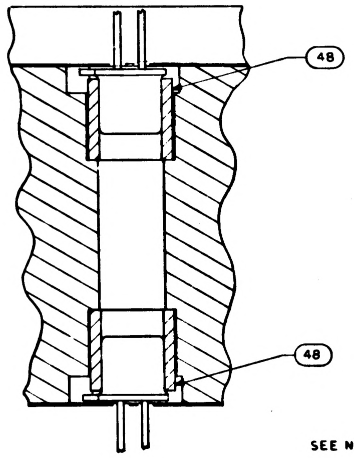
FT24
FT18
L3 30
R43 52
Q11 33

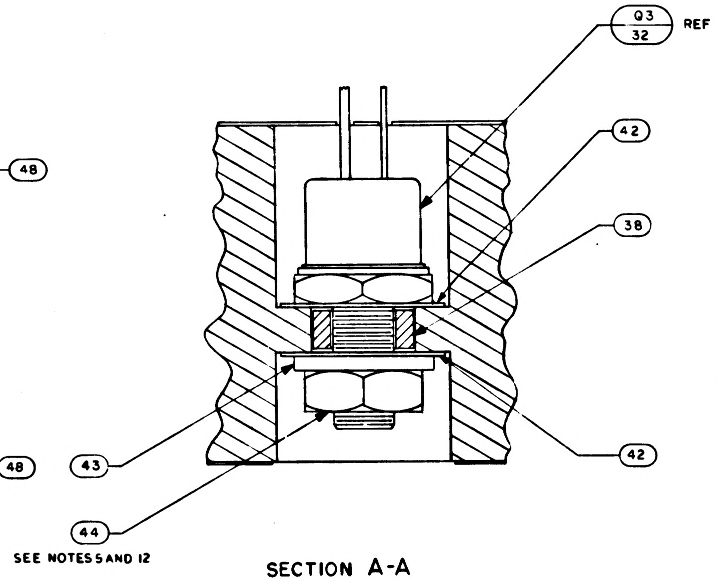


Q8 REF
39
Q9 REF
39

SECTION D-D

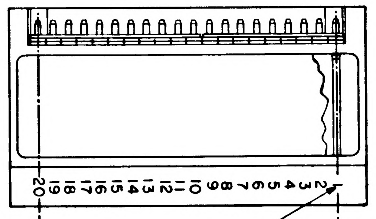


SECTION C-C
2 PLACES
TYPICAL INSTALLATION FOR FIND NO. 31 AND 34



Q3 32 REF
42
38
43
42
44
SEE NOTES 5 AND 12

SECTION A-A



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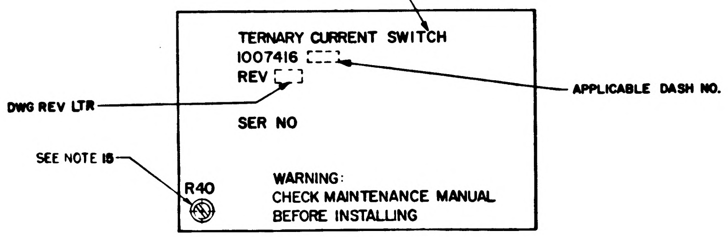
SEE NOTE 7



TERNARY CURRENT SWITCH
1007416
REV
SER NO
APPLICABLE DASH NO.
DWG REV LTR
SEE NOTE 18
R40
WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2/1

☒	1010C
2	1008
1	1010
1	1006
AR	1006
AR	1006
2	1006
4	1008
20	1006
20	1006
2	1000
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1	100
2	100
AR	1000
AR	1000
2	100
1	100
AR	100
2	101C
2	100
4	101C
1	101
2	101
4	101C
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4	101
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4	100
2	100
4	100
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2	10
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1	10
1	10
1	10
6	10
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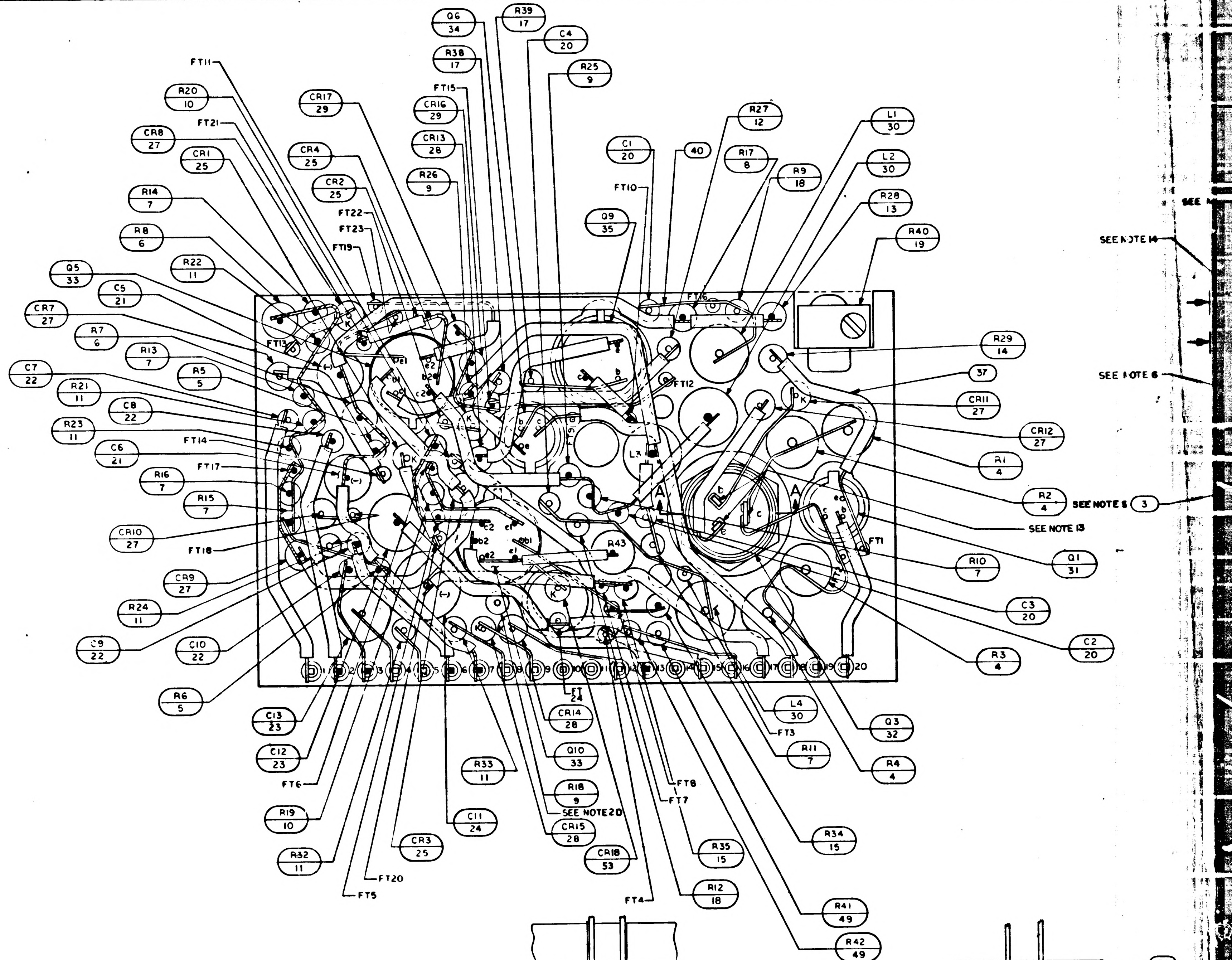
3	10
1	10
6	10
2	1
2	10
4	10
1	1
1	10
1	10
QUANTITY REQUIRED	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± XX±.02 ±
XXX±.005
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

1007574		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES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FT15
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FT21
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CR8 27
CR1 25
CR4 25
R26 9
C1 20
40
R17 8
R9 18
L2 30
R14 7
CR2 25
FT10
R28 13
FT22
FT23
Q9 35
R40 19
R8 6
FT19
R22 11
Q5 33
C5 21
FT16
CR7 27
FT13
R7 6
R13 7
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C7 22
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37
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CR11 27
C8 22
R23 11
CR12 27
FT14
C6 21
R1 4
FT17
R16 7
R2 4
SEE NOTE 5
3
R15 7
SEE NOTE 13
CR10 27
FT1
Q1 31
FT18
R10 7
CR9 27
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R24 11
C2 20
C9 22
C10 22
R3 4
R6 5
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L4 30
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FT3
Q3 32
C12 23
Q10 33
R11 7
FT6
R33 11
R4 4
R18 9
FT8
SEE NOTE 20
FT7
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C11 24
CR15 28
R34 15
CR3 25
CR18 53
R35 15
R32 11
FT20
FT4
R12 18
FT5
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SEE NOTE 14
SEE NOTE 6
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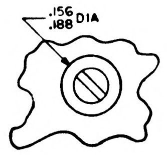
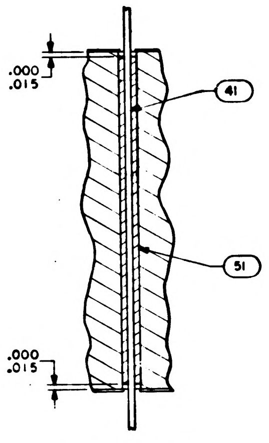


VIEW A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. APPLY SEALING COMPOUND, MIL-S-22473 GRADE A TO FIND NO. 44
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
8. STAKE FIND NO. 4 THRU FIND NO.15,17 THRU 25,27 THRU 36,38,39,49,52, & 53 PER ND1002009 METHOD C
9. ON FIND NO'S 2 AND 3
   - BROKEN PATHS INDICATE INSULATION SLEEVING
   - K INDICATES CATHODE SIDE OF DIODE
   - FT() INDICATES FEED THRU
   - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
   - C INDICATES COLLECTOR LEAD OF TRANSISTOR
   - B INDICATES BASE LEAD OF TRANSISTOR,
   - E INDICATES EMITTER LEAD OF TRANSISTOR
   - B() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   - B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   - E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
10. AR DENOTES AS REQUIRED
11. APPLY ZINC CHROMATE PRIMER MIL-P-8585 TO THREADS OF FIND NO.45
12. MOUNTING TORQUE FOR FIND NO.44 , 10/15 INCH POUNDS
13. SOLDER PER ND1002071
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
16. INSTALL FIND NO.46 AND FIND NO. 47 PER ND 1002136
17. PROCURE PER PS 1007016
18. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
19. BOND FIND NO. 54 TO FIND NO 46 PER ND1002237
20. CUT LEAD OF FIND NO. 9 AT INSULATOR LEVEL
21. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.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51
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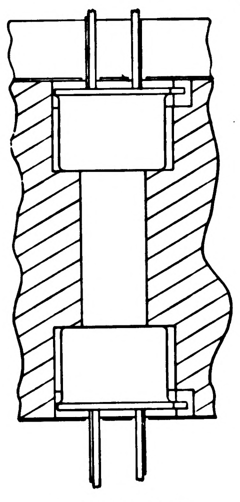
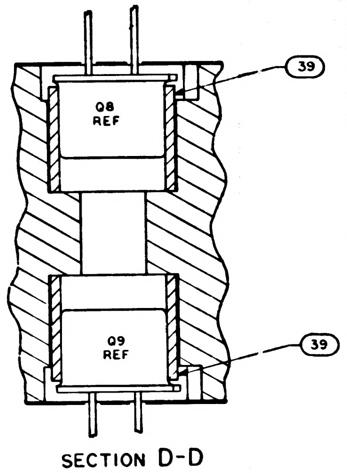
SECTION G-G



SECTION E-E
2 PLACES
TYPICAL INSTALLATION FOR FIND NO. 33


39
Q8
REF
Q9
REF
39

SECTION D-D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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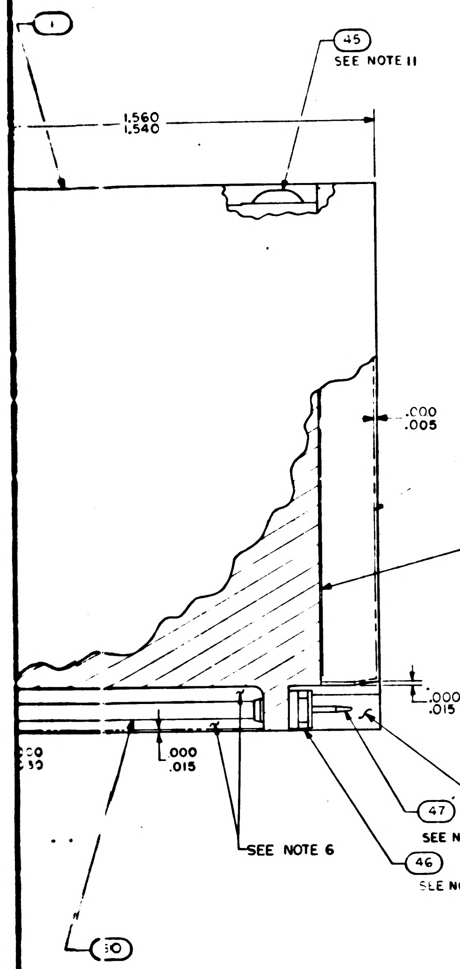
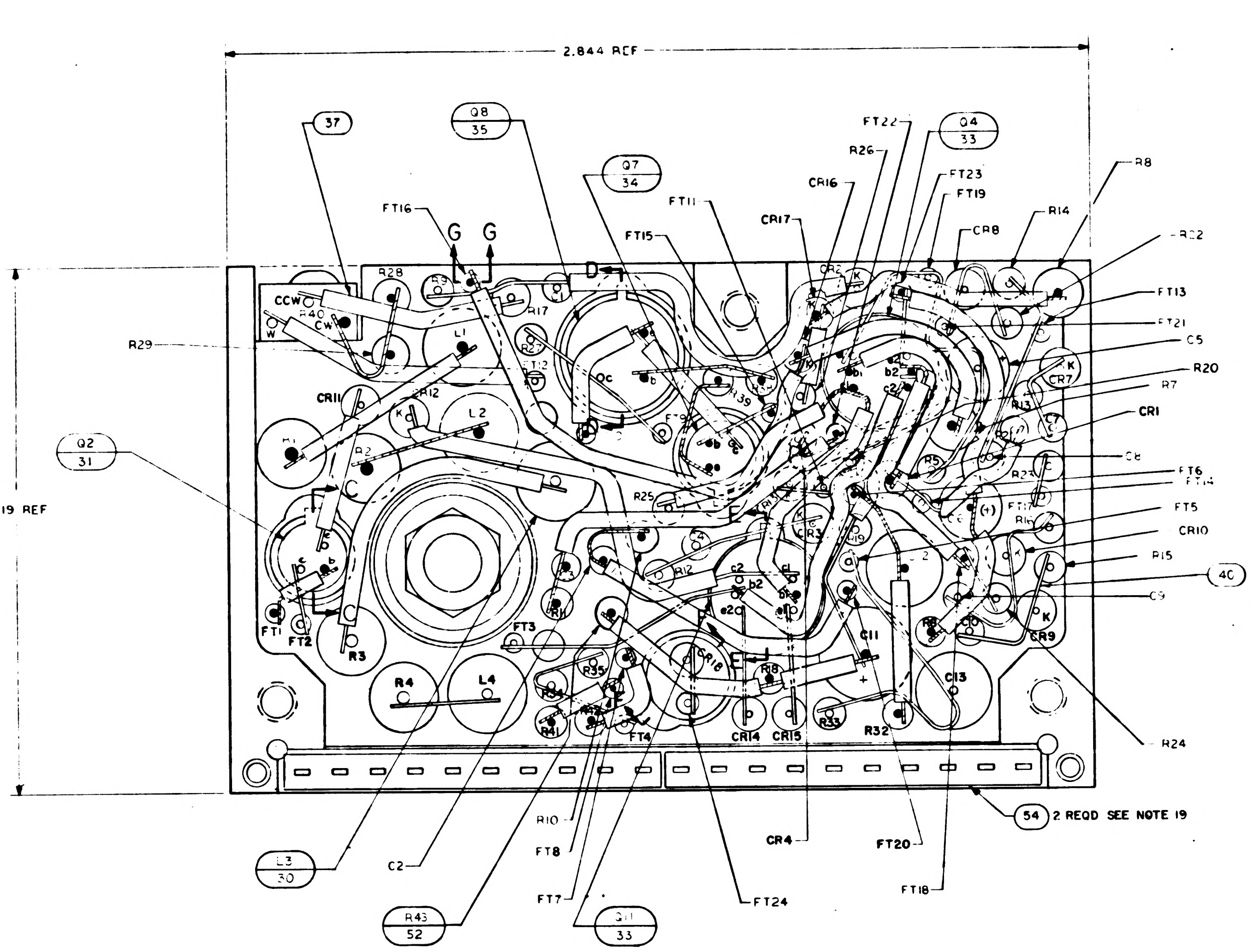
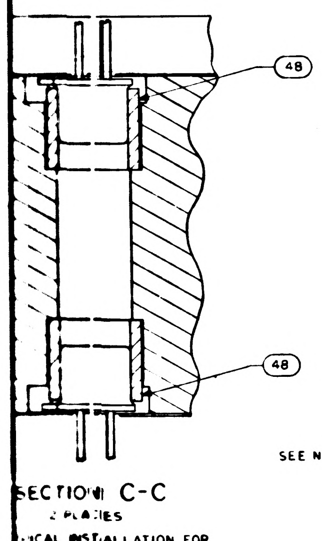
B	REVISED PER TDRR-19456	-JUN 65	B AU



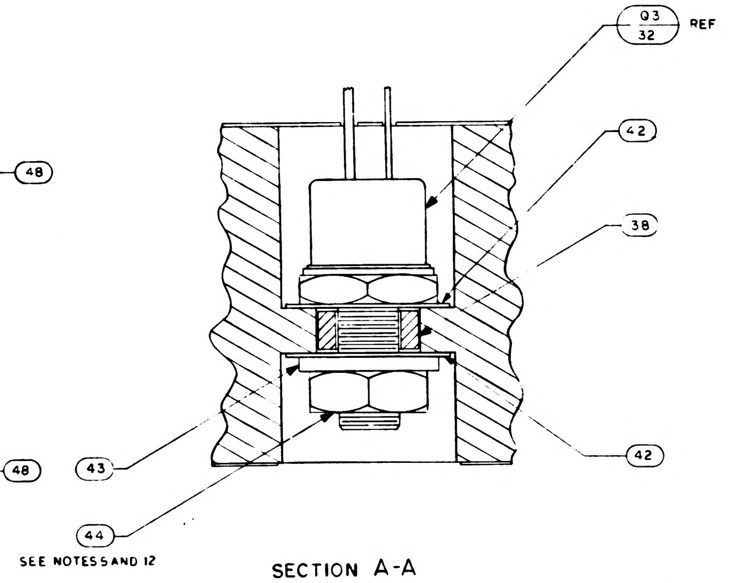
1
45
SEE NOTE 11
1.560
1.540
.000
.005
SEE NOTE 6
2 SEE NOTE 9
.000
.015
.000
.015
SEE NOTE 14
47
SEE NOTE 16
46
SEE NOTE 16
SEE NOTE 6
50



2.844 REF
1.719 REF
37
Q8
35
Q7
34
Q4
33
Q2
31
FT22
R26
CR16
FT23
FT19
R8
FT11
CR17
CR8
R14
R22
FT16
G
G
FT15
FT13
FT21
C5
R20
R7
CR1
C8
FT6
FT14
FT5
CR10
R15
40
C9
CR9
R24
R29
CCW
CW
R40
R28
L1
CR11
CR12
L2
R25
FT3
FT1
FT2
R3
R4
L4
R12
C11
C13
CR14
CR15
R32
54 2 REQD SEE NOTE 19
L3
30
C2
R43
52
R10
FT8
FT7
Q1
33
CR4
FT24
FT20
FT18

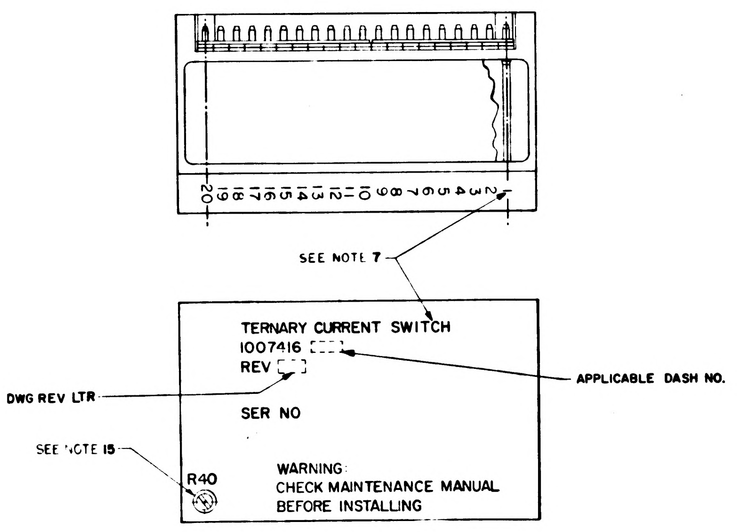


SECTION C-C
2 PLACES
TYPICAL INSTALLATION FOR FIND NO. 31 AND 34



Q3
32
REF
42
38
42
43
44
SEE NOTES 5 AND 12

SECTION A-A



20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 7
TERNARY CURRENT SWITCH
1007416
REV
APPLICABLE DASH NO.
DWG REV LTR
SER NO
SEE NOTE 15
R40
WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2/1

			011	EFFECTIVITY	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
					1010016	SCHEMATIC DIAGRAM ELECTRICAL	REF
			2		1008540-10	GASKET, CONNECTOR MINIATURE	54
			1		1010372-6	DIODE	53
			1		1006750-40	RESISTOR	52
			AR		1006776-22	INSULATION SLEEVING	51
			AR		1006776-20	INSULATION SLEEVING	50
			2		1006750-53	RESISTOR, FIXED MF 7.5K, 1/4W ± 2%	49
			4		1008025-1	INSULATOR, BUSHING	48
			20		1006782-4	CONTACT, WRAPOST MALE MINAT	47
			20		1006775	INSULATOR, WRAPOST MALE MINAT	46
			2		1000093-3	SCREW, BUTTON HEAD	45
			1		MS35650-104	NUT, PLAIN, HEX	44
			1		1008020-1	WASHER, FLAT	43
			2		1008024-1	WASHER, INSULATOR	42
			AR		1006787-2	WIRE, ELEC .020 DIA	41
			AR		1006757-1	WIRE, ELEC .010 X .020	40
			2		1008025-2	INSULATOR, BUSHING	39
			1		1008021-1	INSULATOR, BUSHING	38
			AR		1006776-21	INSULATION SLEEVING	37
							36
			2		1010600	TRANSISTOR	35
			2		1006752	TRANSISTOR	34
			4		1010376-4	TRANSISTOR	33
			1		1010269-1	TRANSISTOR SP322	32
			2		1010357-1	TRANSISTOR	31
			4		1010388-39	INDUCTOR .01HY 75MA ±5%	30
			2		1010384	DIODE	29
			3		1010394	DIODE	28
			6		1010385	DIODE	27
							26
			4		1010462-6	DIODE	25
			1		1010393-39	CAP, FIXED TANT, 6.8UF 50V ±10%	24
			2		1006777-33	CAP, FIXED CER, .022UF 100V ±10%	23
			4		1006777-20	CAP., FIXED CER, 470UUF 100V ±10%	22
			2		1006755-73	CAP, FIXED TANT, 2.2UF 35V ±20%	21
			4		1006777-13	CAP., FIXED CER, 100UUF 100V ±10%	20
			1		1010373-10	RESISTOR, VAR, 10K 1W ±5%	19
			2		1010369-8	RESISTOR	18
			2		1010369-148	RESISTOR, FIXED COMP, 20 1/4W ±2%	17
							16
			2		1006750-53	RESISTOR, FIXED MF, 7.5K 1/4W ±2%	15
			1		1010364-[illegible]	RESISTOR, FIXED MF, 178K 1/8W ±1%	14
			1		1010364-635	RESISTOR, FIXED MF, 100K 1/8W ±1%	13
			1		1006750-62	RESISTOR, FIXED MF, 18K 1/4W ±2%	12
			6		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
			2		1006750-56	RESISTOR, FIXED MF, [illegible]K 1/4W ±2%	10
			3		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	9
			1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±1%	8
			6		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ±2%	7
			2		1006760-66	RESISTOR, FIXED MF, 10K 1/2W ±2%	6
			2		1006750-18	RESISTOR, FIXED MF, 270 1/4W ±2%	5
			4		1010389-80	RESISTOR, FIXED WW 10K 3W ±[illegible]%	4
			1		100[illegible]-2	INSULATOR, TOP	3
			1		1008019-1	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	

QUANTITY REQUIRED
LIST OF MATERIALS

1007574		
NEXT ASSY	USED ON	APPLICABLE DASH NO
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE 30 SEP 64
CHECKED 3 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

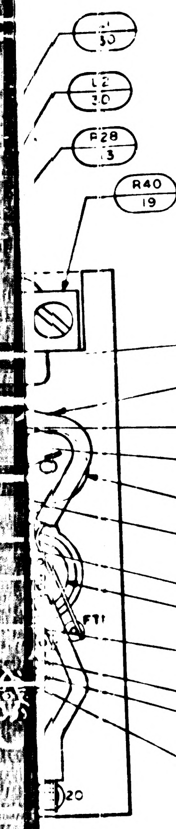
TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 1007416
SCALE 5/1
WT
SHEET 1 OF 1

1007416 REV B

3/1007416

5
4
3
2


L1
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L2
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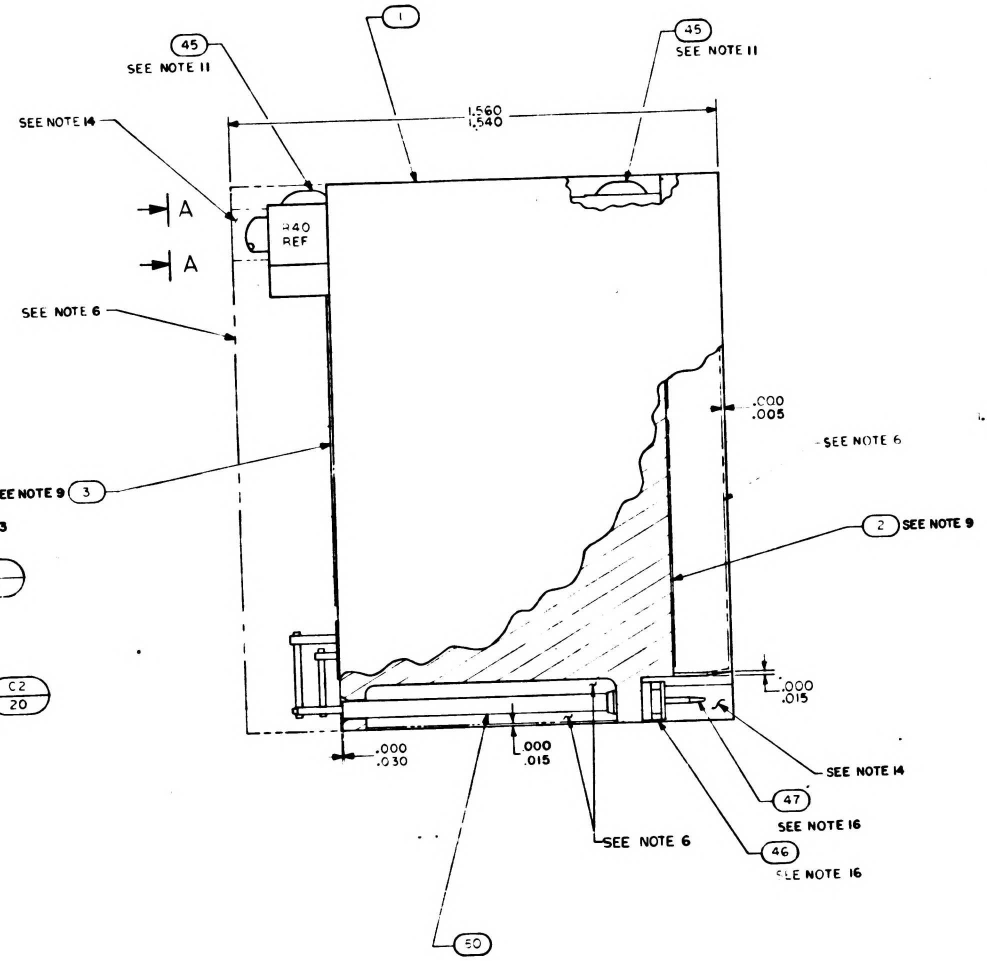
R28
13
R40
19
R29
14
37
CR11
27
CR12
27
R1
4
R2
4
SEE NOTE 13
Q1
31
FT1
R10
7
C3
20
C2
20
R3
4
Q3
32
R4
4
R42
49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SEE NOTE 11
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1.540
SEE NOTE 14
A
A
R40
REF
SEE NOTE 6
.000
.005
SEE NOTE 6
SEE NOTE 9
3
2
SEE NOTE 9
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.015
.000
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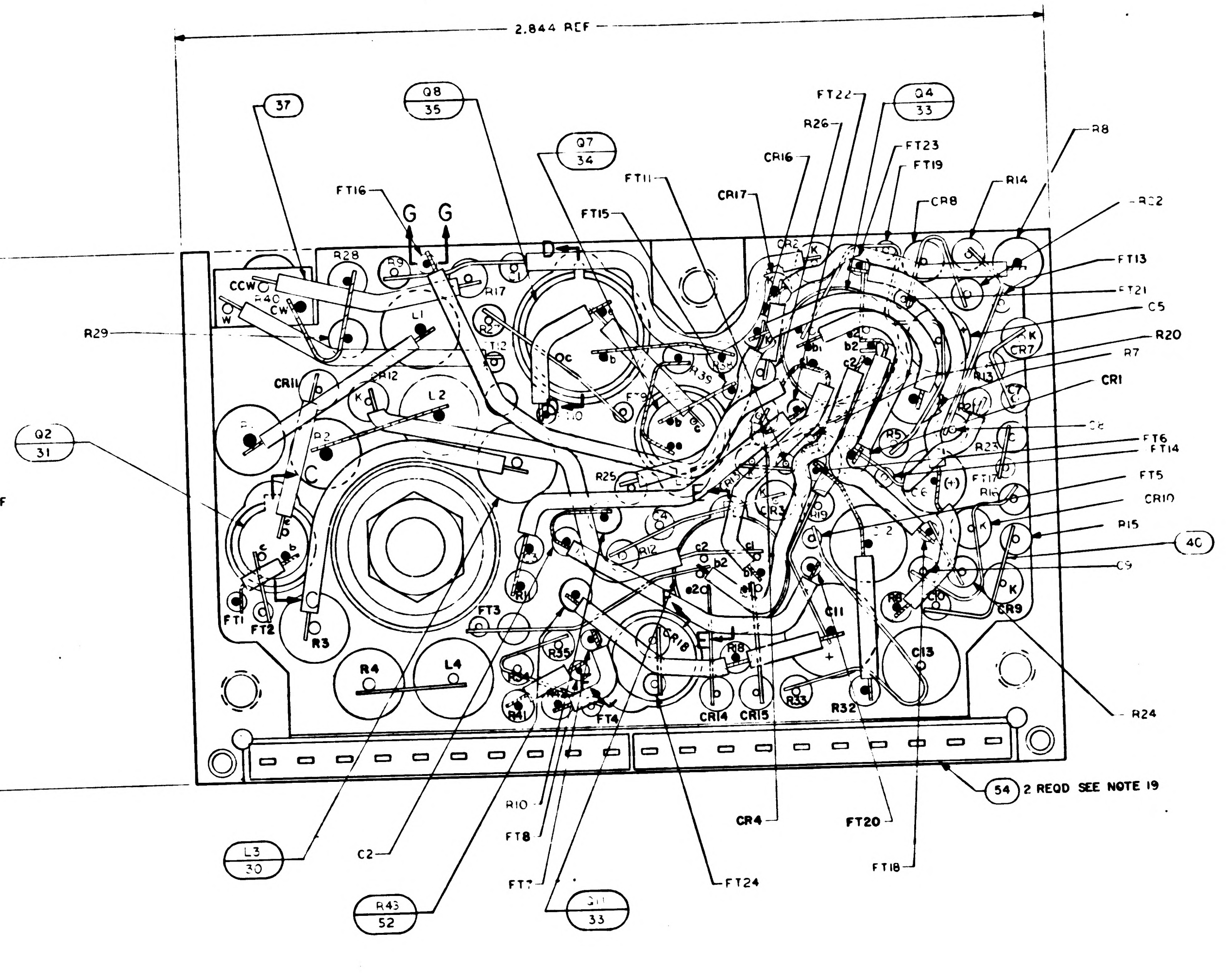
.000
.015
SEE NOTE 14
47
SEE NOTE 16
46
SEE NOTE 16
SEE NOTE 6
50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1.719 REF
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Q7
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FT22
Q4
33
R26
FT23
FT19
R8
CR16
CR17
CR8
R14
R22
FT16
G
G
FT15
FT11
FT13
FT21
C5
R29
R20
R7
CR1
Q2
31
C6
FT6
FT14
FT5
CR10
R15
40
C9
CR9
R24
R28
R40
CCW
CW
R17
L1
L2
CR11
R12
R2
R25
FT1
FT2
R3
R4
L4
FT3
CR18
CR14
CR15
R32
C13
C11
FT4
54
2 REQD SEE NOTE 19
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C2
R10
FT8
FT7
R43
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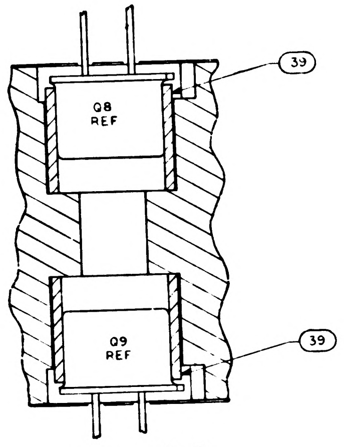
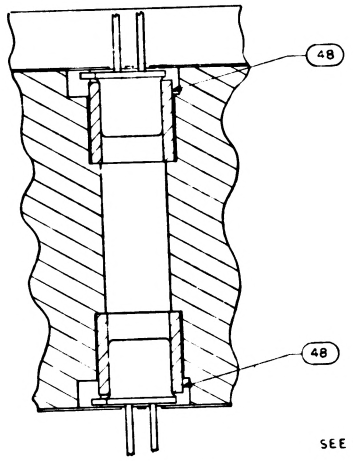
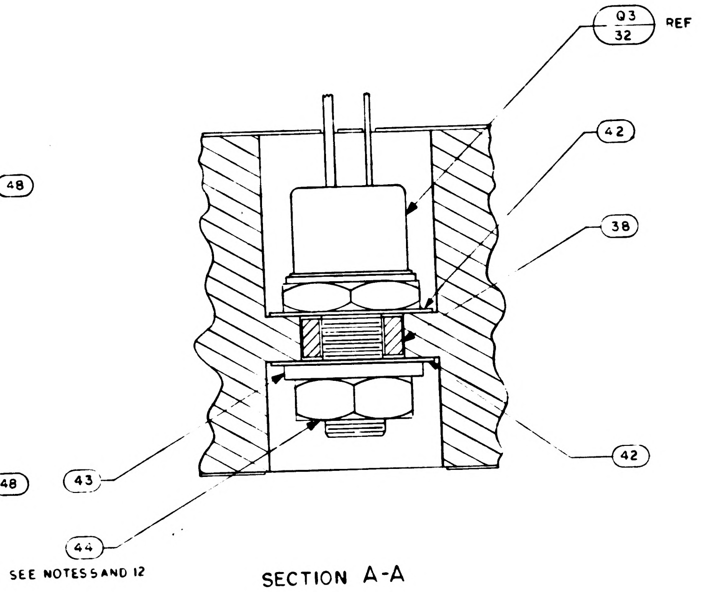
33
CR4
FT20
FT24
FT18


39
Q8
REF
Q9
REF
39

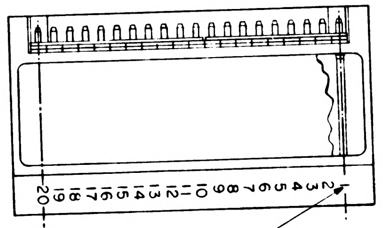
SECTION D-D



SECTION C-C
2 PLACES
TYPICAL INSTALLATION FOR
FIND NO. 3[?] AND 34


Q3
32
REF
42
38
42
43
44
SEE NOTES 5 AND 12

SECTION A-A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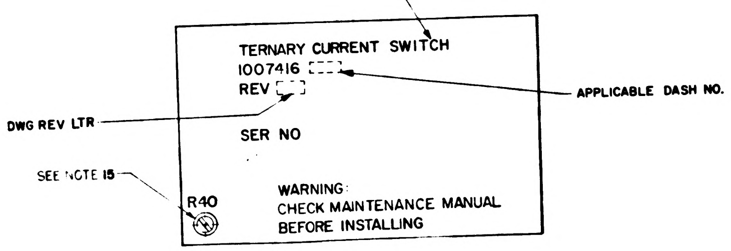
SEE NOTE 7


DWG REV LTR
APPLICABLE DASH NO.
SEE NOTE 15
R40

TERNARY CURRENT SWITCH
1007416 [ ]
REV [ ]

SER NO

WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2/1

011	
X	1010016
2	1008540
1	101037
1	1006750
AR	1006776
AR	1006776
2	100675
4	100807
20	1006782
20	1006775
2	1000093
1	MS3565
1	1008020
2	100802
AR	100678
AR	100675
2	100802
1	100802
AR	100677
2	101060
2	100675
4	101037
1	101026
2	101035
4	101038
2	101038
3	101039
6	101038
4	10104
1	101039
2	10067
4	10067
2	10067
4	10067
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2	10103
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1	10103
1	10067
6	10067
2	1006
3	1006
1	10103
6	1006
2	1006
2	1006
4	10103
1	005
1	1006
1	1007

QUANTITY REQUIRED | EFFECTIVITY

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± -- DECIMALS XX ±.0 XXX ±.005 ANGLES ± --
DO NOT SCALE THIS DRAWING
MATERIAL --
HEAT TREATMENT --
FINAL FINISH --

DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

NEXT ASSY	USED ON	APPLICABLE DASH NO
1007574		
APPLICATION		

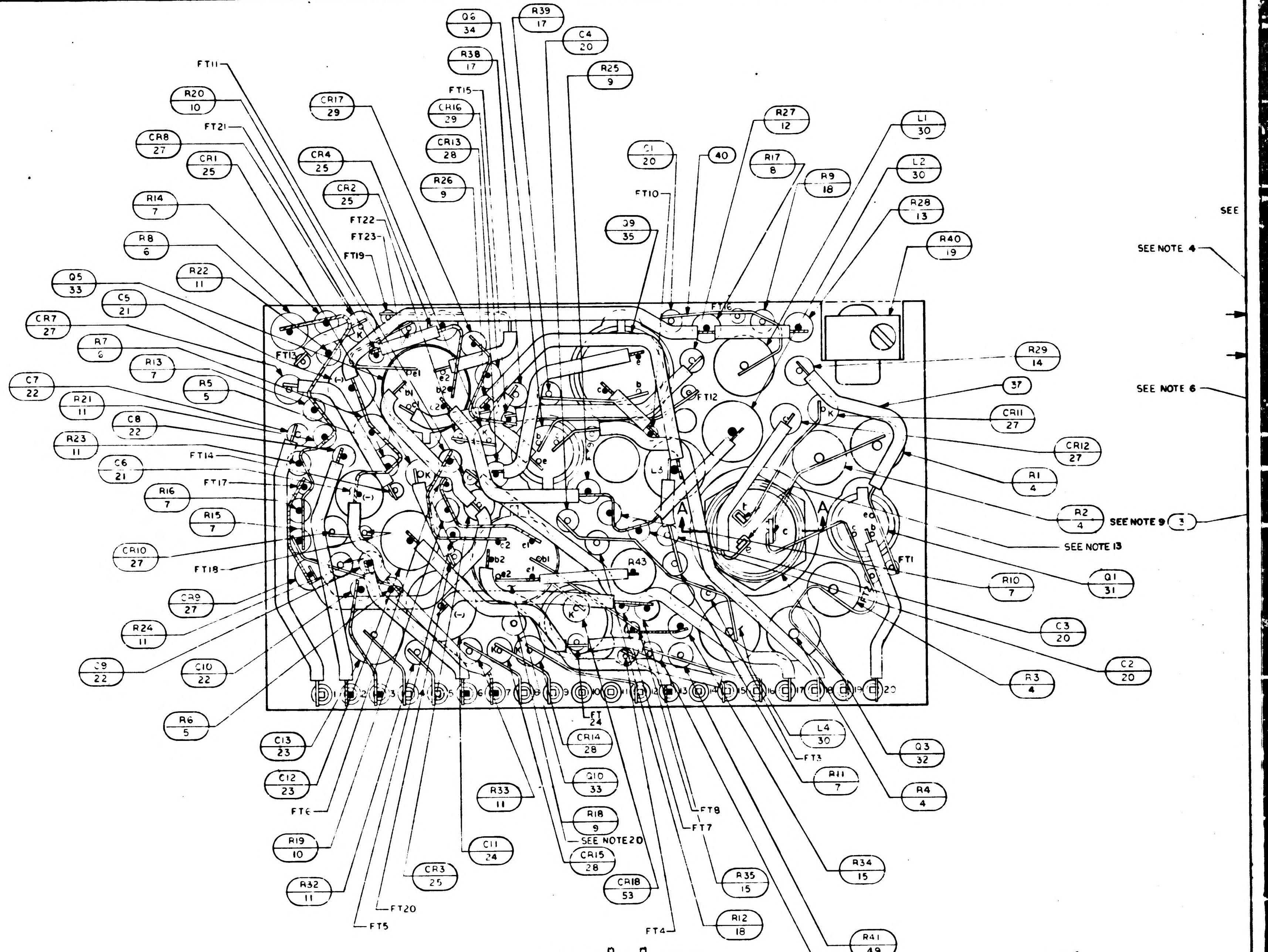
THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

1007416 REV LTR B

1007416 REV LTR B

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ±.03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE



Q6 34
R39 17
C4 20
R38 17
R25 9
FT11
FT15
R20 10
CR17 29
CR16 29
CR13 28
R27 12
L1 30
FT21
CR8 27
CR1 25
CR4 25
R26 9
C1 20
40
R17 8
R9 18
L2 30
CR2 25
FT10
R28 13
R14 7
FT22
FT23
Q9 35
R40 19
R8 6
FT19
SEE
SEE NOTE 4
Q5 33
R22 11
C5 21
CR7 27
FT13
FT16
R7 6
R13 7
C7 22
R5 5
R29 14
R21 11
C8 22
FT12
37
SEE NOTE 6
CR11 27
R23 11
FT14
CR12 27
C6 21
FT17
R1 4
R16 7
R2 4
SEE NOTE 9
3
R15 7
SEE NOTE 13
Q1 31
CR10 27
FT1
FT18
R43
R10 7
CR9 27
C3 20
R24 11
C2 20
C9 22
C10 22
R3 4
R6 5
FT 24
L4 30
C13 23
CR14 28
FT3
Q3 32
R11 7
C12 23
Q10 33
R4 4
FT6
R33 11
R18 9
FT8
FT7
SEE NOTE 20
R19 10
C11 24
CR15 28
R34 15
CR3 25
CR18 53
R35 15
R32 11
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FT5
FT4
R12 18
R41 49
R42 49
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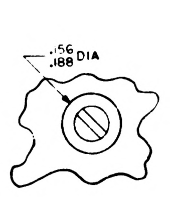
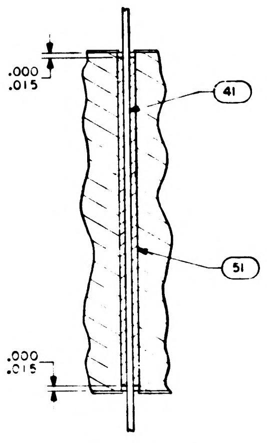
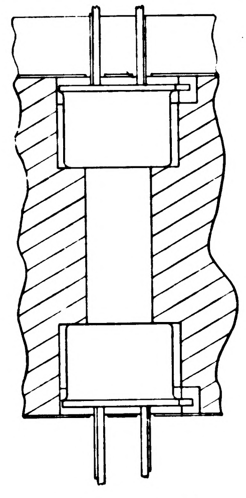


VIEW A-A

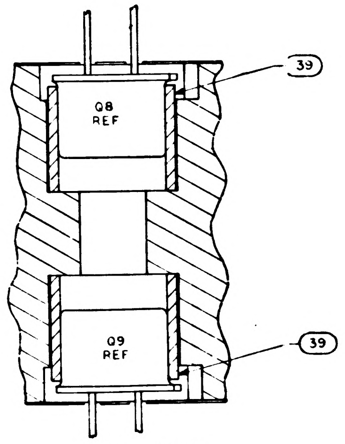


.000
.015
41
51
.000
.015

SECTION G-G



SECTION E-E
2 PLACES
TYPICAL INSTALLATION FOR
FIND NO. 33



39
Q8
REF
Q9
REF
39

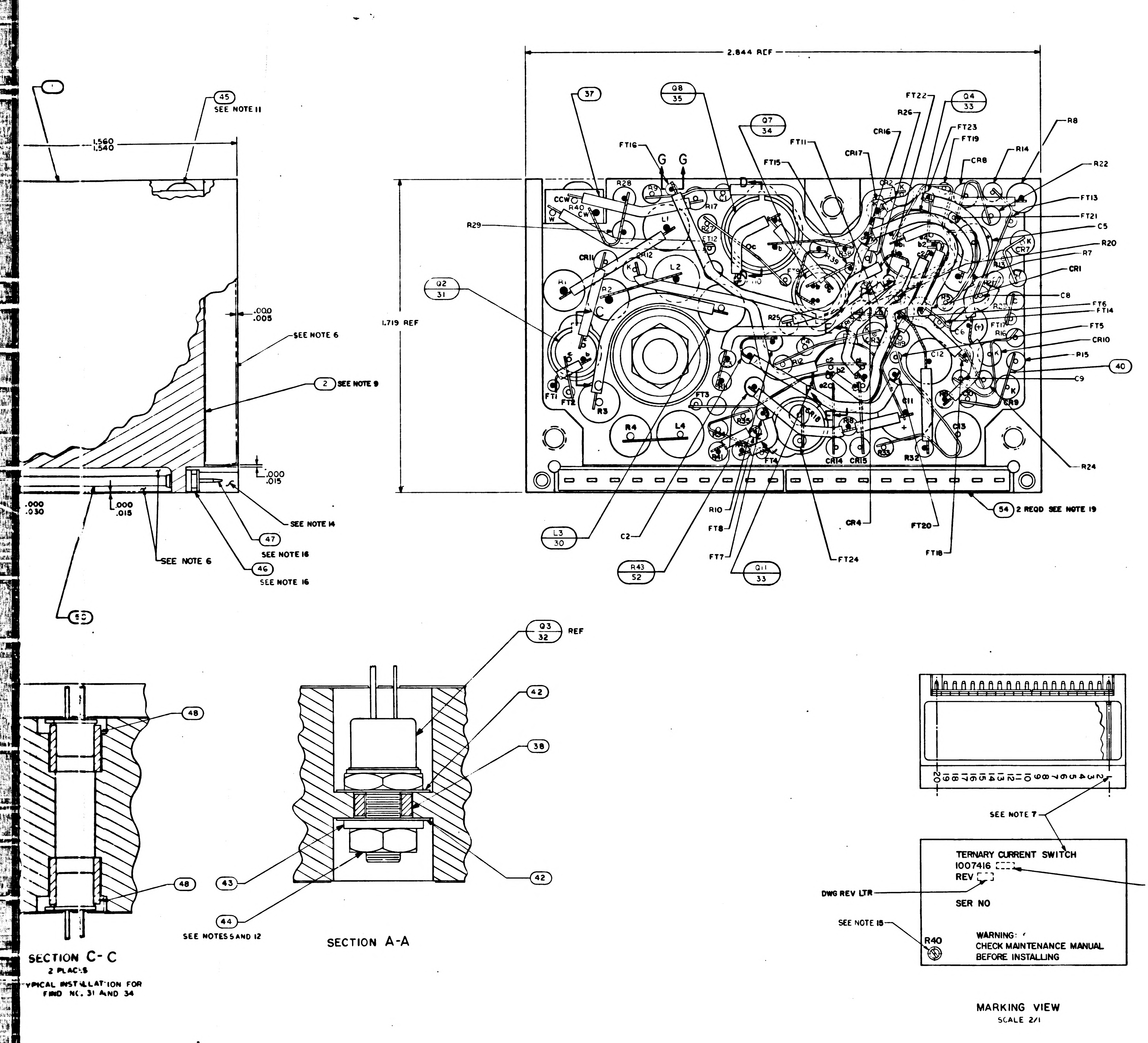
SECTION D-D

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. APPLY SEALING COMPOUND, MIL-S-22473 GRADE A TO FIND NO. 44
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
8. STAKE FIND NO. 4 THRU FIND NO. 15, 17 THRU 25, 27 THRU 35, 38, 39, 49, 52, & 53 PER ND1002009 METHOD C
9. ON FIND NO'S 2 AND 3
    - BROKEN PATHS INDICATE INSULATION SLEEVING
    - K INDICATES CATHODE SIDE OF DIODE
    - FT() INDICATES FEED THRU
    - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    - C INDICATES COLLECTOR LEAD OF TRANSISTOR
    - B INDICATES BASE LEAD OF TRANSISTOR,
    - E INDICATES EMITTER LEAD OF TRANSISTOR
    - B() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    - B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    - E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
10. AR DENOTES AS REQUIRED
11. APPLY ZINC CHROMATE PRIMER MIL-P-8585 TO THREADS OF FIND NO.45
12. MOUNTING TORQUE FOR FIND NO.44 10/15 INCH POUNDS
13. SOLDER PER ND1002071
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
16. INSTALL FIND NO.46 AND FIND NO. 47 PER ND 1002136
17. PROCURE PER PS 1007016
18. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
19. BOND FIND NO. 54 TO FIND NO 46 PER ND1002237
20. CUT LEAD OF FIND NO 9 AT INSULATOR LEVEL
21. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
22. *CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPLY ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.*

1007416 REV B

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17317		
B	REVISED PER TDRR-19456	13	
C	REVISED PER TDRR 19525		



2.844 REF
1.719 REF
1.560
1.540
45
SEE NOTE 11
.000
.005
SEE NOTE 6
2 SEE NOTE 9
.000
.015
.000
.030
.000
.015
SEE NOTE 14
47
SEE NOTE 16
SEE NOTE 6
46
SEE NOTE 16
50
37
Q8 35
Q7 34
Q4 33
Q2 31
FT16
G
G
FT11
FT15
CR16
CR17
FT22
R26
FT23
FT19
CR8
R14
R8
R22
FT13
FT21
C5
R20
R7
CR1
C8
FT6
FT14
FT5
CR10
R15
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C9
R24
R29
R28
R39
R40
CCW
CW
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R2
FT12
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C13
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CR7
CR9
R3
FT1
FT2
FT3
R4
L4
R5
CR14
CR15
R33
R32
FT4
54 2 REQD SEE NOTE 19
L3 30
C2
R43 52
R10
FT8
FT7
Q1 33
CR4
FT24
FT20
FT18
Q3 32 REF
42
38
48
48
43
44
42
SEE NOTES 5 AND 12
SECTION A-A
SECTION C-C
2 PLACES
TYPICAL INSTALLATION FOR
FIND NO. 31 AND 34
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 7
TERNARY CURRENT SWITCH
1007416 -
REV
SER NO
WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING
R40
DWG REV LTR
SEE NOTE 18
APPLICABLE DASH NO.
MARKING VIEW
SCALE 2/1

		1010016	SCHEMATIC DIAGRAM ELECTRICAL	REF
2		1008540-10	GASKET, CONNECTOR MINIATURE	54
1		1010372 – 6	DIODE	53
1		1006750-40	RESISTOR	52
AR		1006776-22	INSULATION SLEEVING	51
AR		1006776-20	INSULATION SLEEVING	50
2		1006750-53	RESISTOR, FIXED MF 7.5K 1/4W ± 2%	49
4		1008025-1	INSULATOR, BUSHING	48
20		1006782-4	CONTACT, WRAPOST MALE MINAT	47
20		1006775	INSULATOR, WRAPOST MALE MINAT	46
2		1000093-3	SCREW, BUTTON HEAD	45
1		MS35650-104	NUT, PLAIN, HEX	44
1		1008020-1	WASHER, FLAT	43
2		1008024-1	WASHER, INSULATOR	42
AR		1006787-2	WIRE, ELEC .020 DIA	41
AR		1006757-1	WIRE, ELEC .010 X .020	40
2		1008025-2	INSULATOR, BUSHING	39
1		1008021-1	INSULATOR, BUSHING	38
AR		1006776-21	INSULATION SLEEVING	37
				36
2		1010600	TRANSISTOR	35
2		1006752	TRANSISTOR	34
4		1010376-4	TRANSISTOR	33
1		1010269-1	TRANSISTOR SP322	32
2		1010357-1	TRANSISTOR	31
4		1010388-39	INDUCTOR .01HY 75MA ±5%	30
2		1010384	DIODE	29
3		1010394	DIODE	28
6		1010385	DIODE	27
				26
4		1010833-1	DIODE	25
1		1010393-39	CAP., FIXED TANT, 6.8UF 50V ±10%	24
2		1006777-33	CAP., FIXED CER, .022UF 100V ±10%	23
4		1006777-20	CAP., FIXED CER, 470UUF 100V ±10%	22
2		1006755-73	CAP., FIXED TANT, 2.2UF 35V ±20%	21
4		1006777-13	CAP., FIXED CER, 100UUF 100V ±10%	20
1		1010373-10	RESISTOR, VAR, 10K 1W ±5%	19
2		1010369-87	RESISTOR	18
2		1010369-148	RESISTOR, FIXED COMP, 20 1/4W ±2%	17
				16
2		1006750-53	RESISTOR, FIXED MF, 7.5K 1/4W ±2%	15
1		1010364-683	RESISTOR, FIXED MF, 178K 1/8W ±1%	14
1		1010364-635	RESISTOR, FIXED MF, 100K 1/8W ±1%	13
1		1006750-62	RESISTOR, FIXED MF, 18K 1/4W ±2%	12
6		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
2		1006750-56	RESISTOR, FIXED MF, 10K 1/4W ±2%	10
3		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	9
1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±1%	8
6		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ±2%	7
2		1006760-56	RESISTOR, FIXED MF, 10K 1/2W ±2%	6
2		1006750-18	RESISTOR, FIXED MF, 270 1/4W ±2%	5
4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	4
1		1008019-2	INSULATOR, TOP	3
1		1008019-1	INSULATOR, BOTTOM	2
1		1007008	HEATSINK	1
011 QUANTITY REQUIRED	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		LIST OF MATERIALS		

1007574		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS XX±.02 XXX±.005
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN J. Kilinger DATE 30 SEP 64
CHECKED 3 OCT 64
APPROVAL
APPROVAL 11/9/64
NASA APPROVAL 1-12-64
MIT APPROVAL 12 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

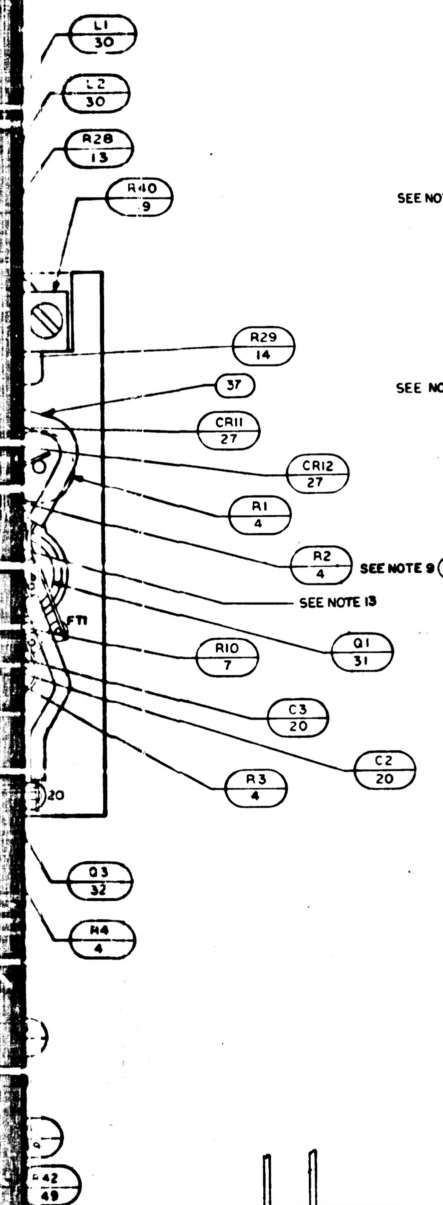
CODE IDENT NO 80230
SIZE J
NASA DRAWING NO. 1007416
SCALE 5/1
WT
SHEET 1 OF 1

1007416 REV LT C

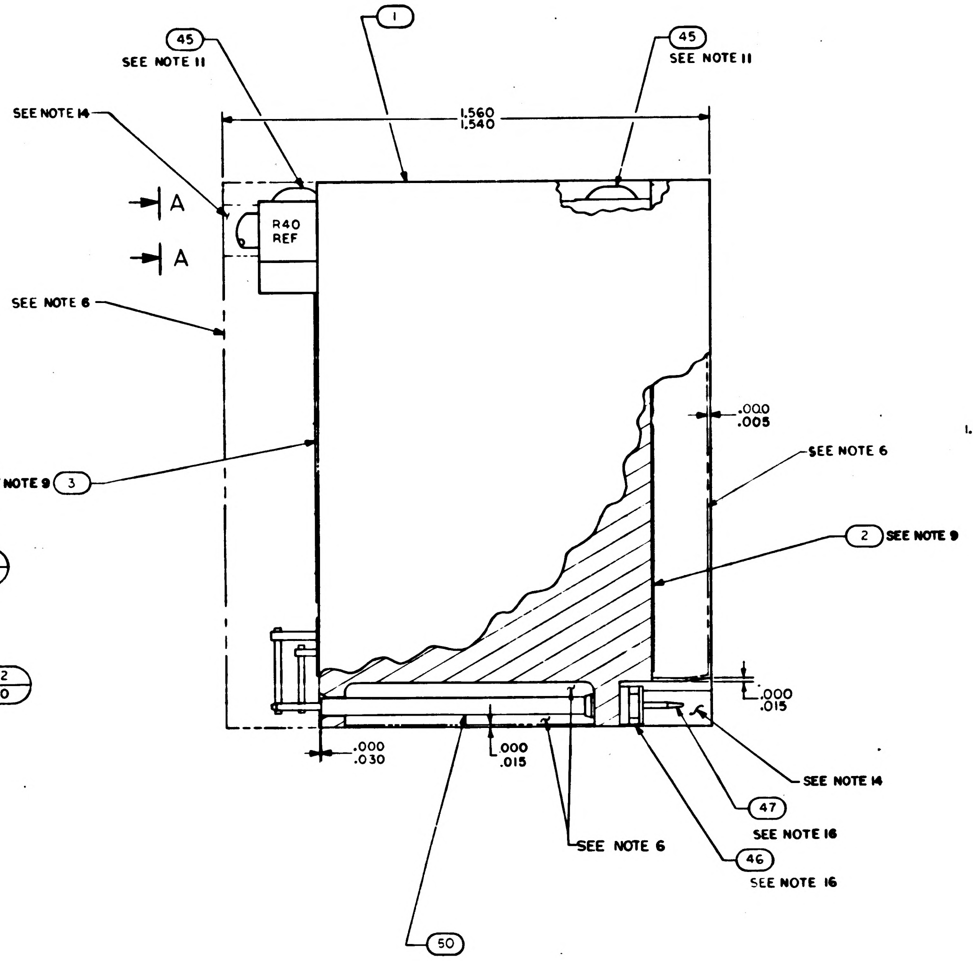
1007416

3/1007416

3H



L1
30
L2
30
R28
13
R40
9
R29
14
37
CR11
27
CR12
27
R1
4
R2
4
SEE NOTE 13
Q1
31
FT1
R10
7
C3
20
C2
20
R3
4
20
Q3
32
R4
4
42
49



45
SEE NOTE 11
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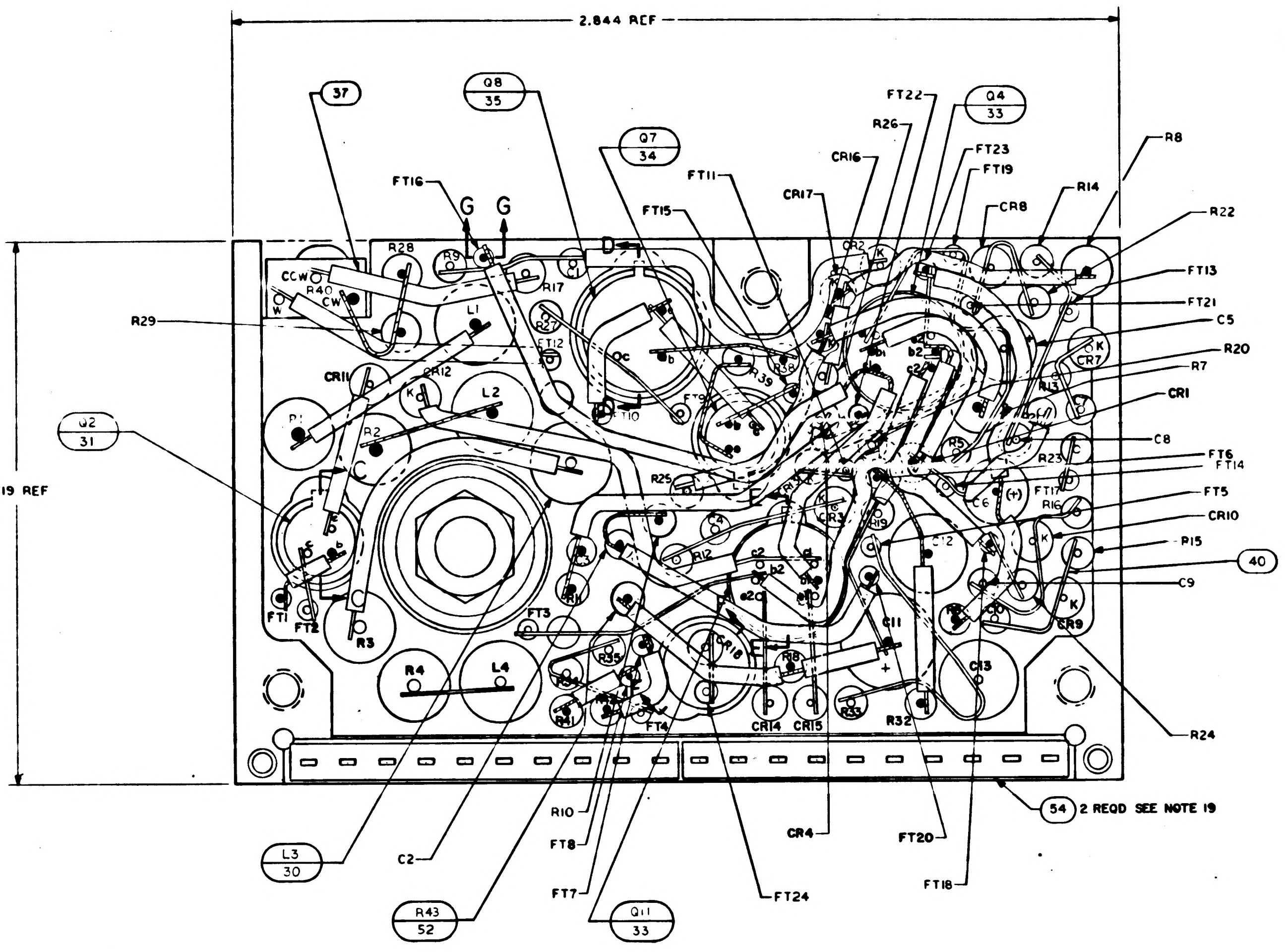
45
SEE NOTE 11
SEE NOTE 14
1.560
1.540
A
A
R40
REF
SEE NOTE 6
.000
.005
SEE NOTE 6
SEE NOTE 9
3
2
SEE NOTE 9
.000
.015
.000
.030
.000
.015
SEE NOTE 14
47
SEE NOTE 16
SEE NOTE 6
46
SEE NOTE 16
50



2.844 REF
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Q7
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FT22
Q4
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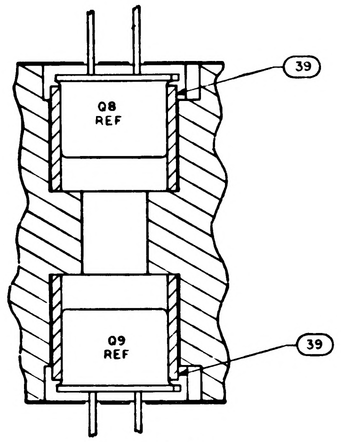
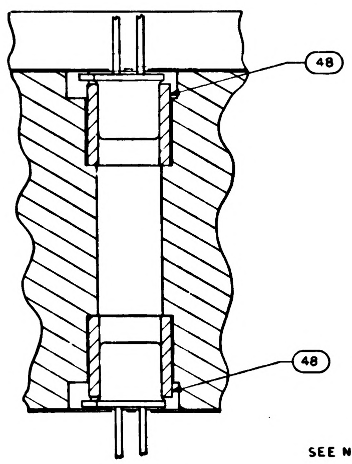
R26
FT23
R8
CR16
FT19
FT16
G
G
FT11
CR17
R14
FT15
CR8
R22
D
FT13
CCW
R40
CW
R28
R9
R17
FT21
R29
L1
R27
FT12
C5
R20
R7
CR11
CR12
L2
CR1
1.719 REF
Q2
31
R1
R2
C
R25
R23
C8
FT6
FT14
FT17
R16
FT5
CR10
P15
40
C9
CR9
FT1
FT2
R3
FT3
R4
L4
C11
C13
R32
CR14
CR15
R33
FT4
R41
R24
54
2 REQD SEE NOTE 19
R10
FT8
FT7
FT24
CR4
FT20
FT18
L3
30
C2
R43
52
Q11
33

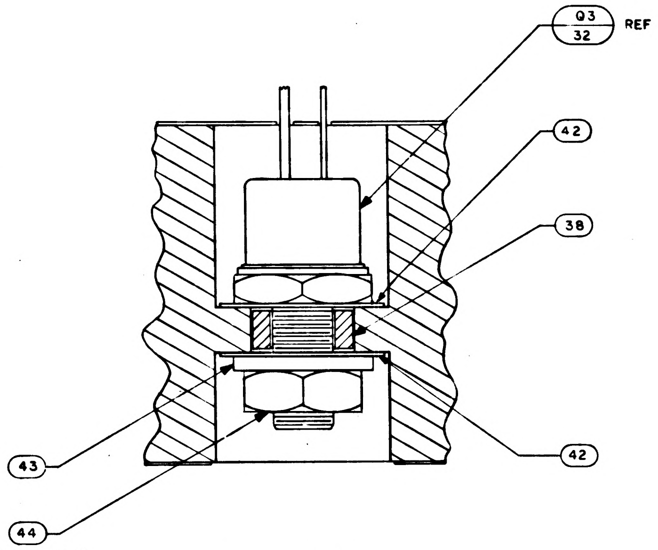


39
Q8
REF
Q9
REF
39

SECTION D-D



SECTION C-C
2 PLACES
TYPICAL INSTALLATION FOR
FIND NO. 31 AND 34



Q3
32
REF
42
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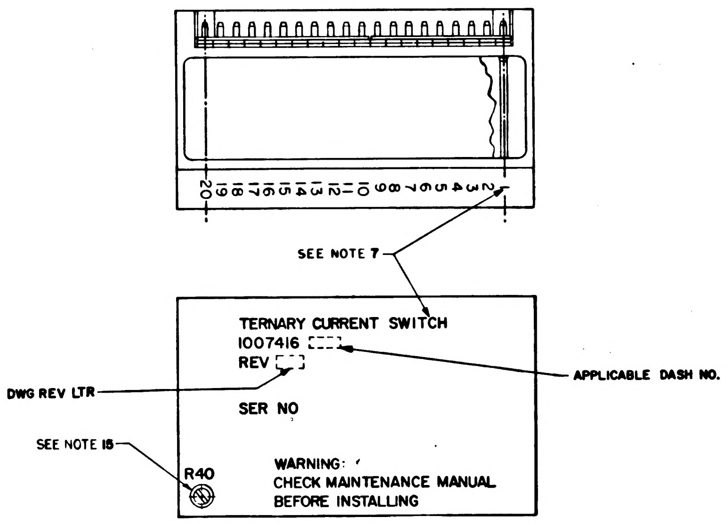
43
44
SEE NOTES 5 AND 12
42

SECTION A-A



20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 7
TERNARY CURRENT SWITCH
1007416
REV
APPLICABLE DASH NO.
DWG REV LTR
SER NO
SEE NOTE 15
R40
WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED		
☒		1010016
2		1008540-
1		1010372-
1		1006750-
AR		1006776-
AR		1006776
2		100675
4		1008025-
20		[illegible]
20		1006775
2		1000093-
1		MS3565
1		1008020-
2		1008024
AR		1006787-
AR		[illegible]
2		1008025-
1		1008021
AR		1006776-
2		1010600
2		1006752
4		1010376-
1		1010269-
2		1010357-
4		1010388-
2		1010384
3		1010394
6		1010385
4		1010833-
1		1010393-
2		1006777
4		1006777
2		1006755
4		1006777-
1		1010373-
2		1010369-
2		1010369-
2		1006750
1		1010364-
1		[illegible]
1		[illegible]
6		100675
2		100675
3		100675
1		1010364
6		100675
2		[illegible]
2		100675
4		1010369
1		[illegible]
1		100801
1		100700
011	EFFECTIVE	

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —//— DECIMALS XX±.02 XXX±.005 ANGLES ± —//—
DO NOT SCALE THIS DRAWING

MATERIAL —//—

HEAT TREATMENT —//—

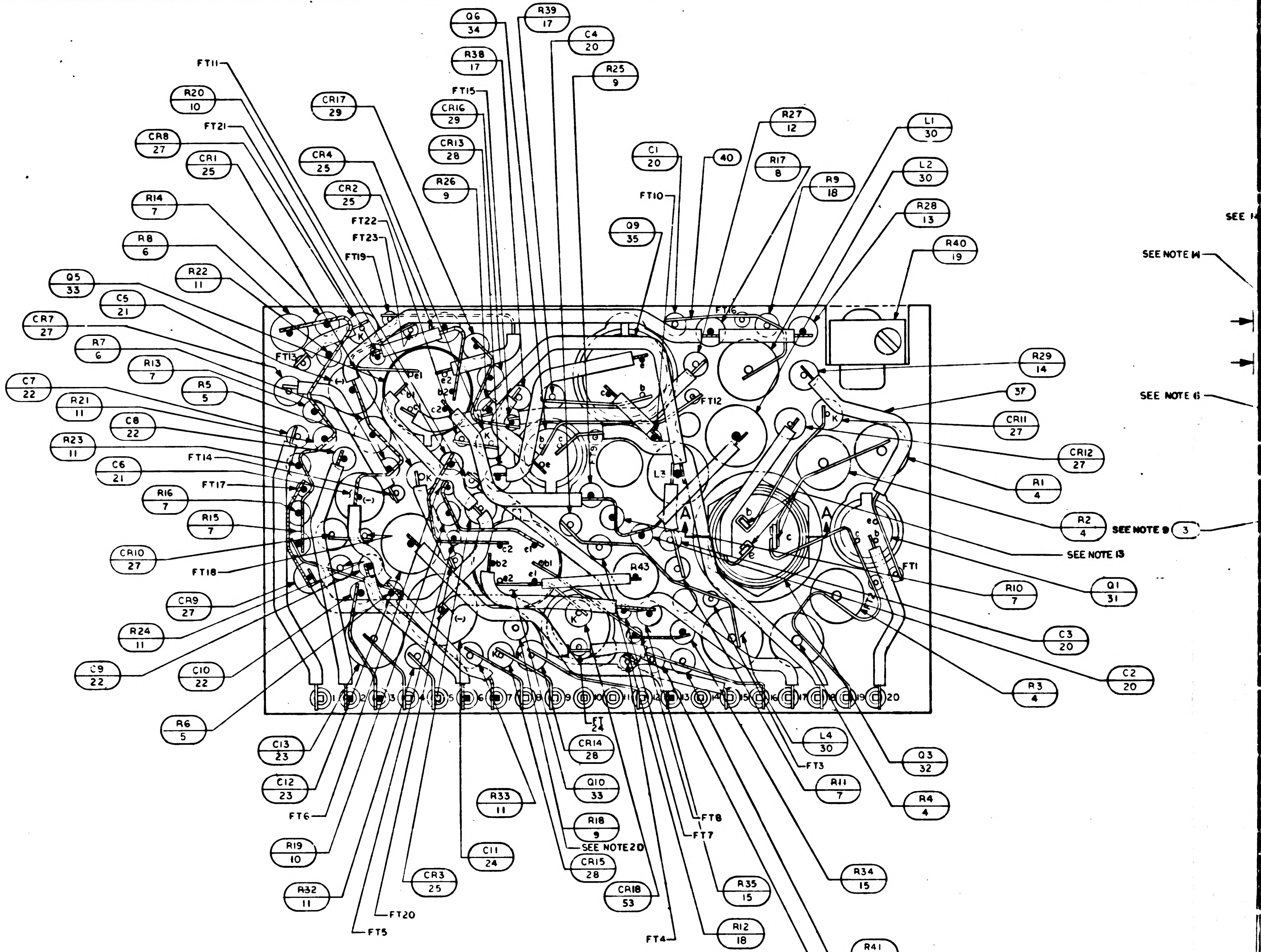
FINAL FINISH —//—

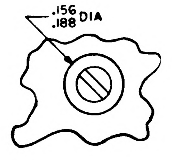
DRAWN
CHECKED
APPROVAL
APPROVAL

1007416 REV LTR C

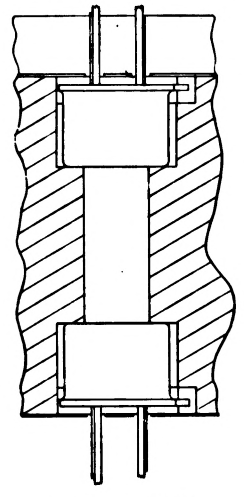
~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE~~

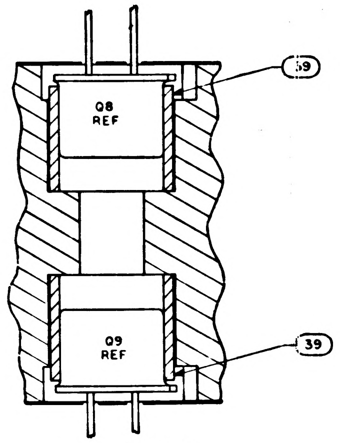

Q6 34
R39 17
C4 20
R38 17
R25 9
FT11
FT15
R20 10
CR17 29
CR16 29
R27 12
FT21
CR13 28
L1 30
CR8 27
CR1 25
CR4 25
C1 20
40
R17 8
R26 9
L2 30
R9 18
CR2 25
FT10
R14 7
R28 13
FT22
FT23
Q9 35
R8 6
R40 19
FT19
R22 11
Q5 33
C5 21
CR7 27
FT16
R7 6
FT13
R13 7
R29 14
C7 22
R5 5
37
FT12
R21 11
CR11 27
C8 22
R23 11
CR12 27
FT14
C6 21
FT17
R1 4
R16 7
R2 4
SEE NOTE 9 3
R15 7
SEE NOTE 13
CR10 27
R43
FT1
FT18
R10 7
Q1 31
CR9 27
FT2
C3 20
R24 11
C9 22
C10 22
C2 20
L3
A
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
R3 4
R6 5
FT 24
L4 30
C13 23
CR14 28
FT3
Q3 32
C12 23
Q10 33
R11 7
R33 11
R4 4
FT6
R18 9
FT8
FT7
SEE NOTE 20
R19 10
C11 24
CR15 28
R34 15
CR3 25
R35 15
R32 11
CR18 53
FT20
R12 18
FT5
FT4
SEE NOTE 14
SEE NOTE 6



VIEW A-A

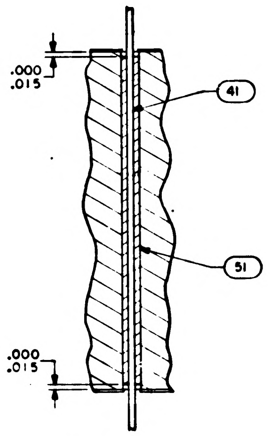

R41 49
R42 49

SECTION E-E
2 PLACES
TYPICAL INSTALLATION FOR
FIND NO. 33


59
Q8
REF
Q9
REF
39

SECTION D-D

24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

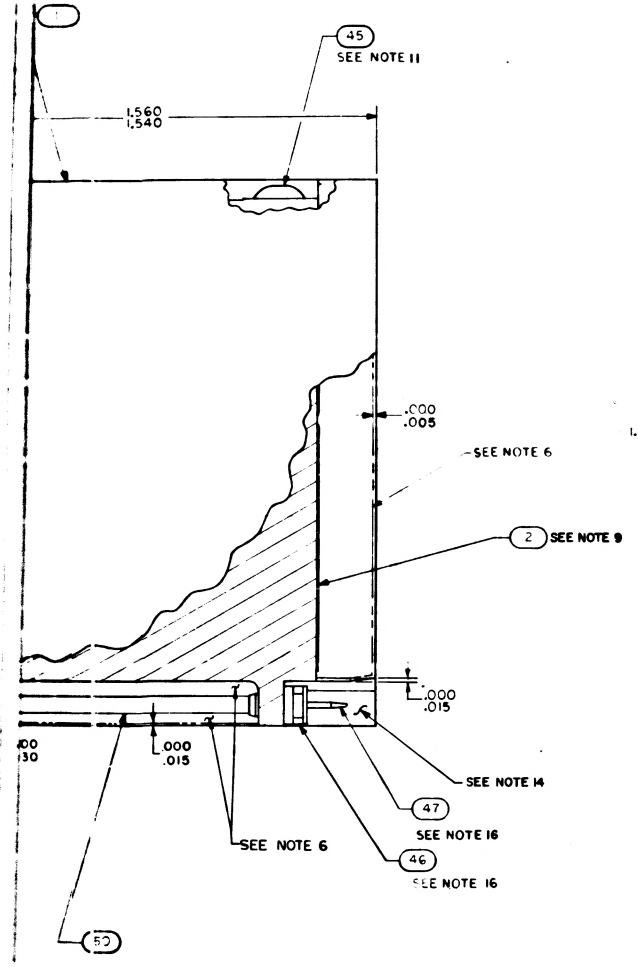

.000
.015
41
51
.000
.015

SECTION G-G

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. APPLY SEALING COMPOUND, MIL-S-22473 GRADE A TO FIND NO. 44
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
8. STAKE FIND NO. 4 THRU FIND NO. 15, 17 THRU 25, 27 THRU 35, 38, 39, 49, 52, & 53 PER ND1002009 METHOD H.
9. ON FIND NO'S 2 AND 3
   - BROKEN PATHS INDICATE INSULATION SLEEVING
   - K INDICATES CATHODE SIDE OF DIODE
   - FT() INDICATES FEED THRU
   - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
   - C INDICATES COLLECTOR LEAD OF TRANSISTOR
   - B INDICATES BASE LEAD OF TRANSISTOR,
   - E INDICATES EMITTER LEAD OF TRANSISTOR
   - B() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   - B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   - E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
10. AR DENOTES AS REQUIRED
11. APPLY ZINC CHROMATE PRIMER MIL-P-8585 TO THREADS OF FIND NO. 45
12. MOUNTING TORQUE FOR FIND NO. 44, 10/15 INCH POUNDS
13. SOLDER PER ND1002071
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
16. INSTALL FIND NO. 46 AND FIND NO. 47 PER ND 1002136
17. PROCURE PER PS 1007016
18. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
19. BOND FIND NO. 54 TO FIND NO 46 PER ND1002237
20. CUT LEAD OF FIND NO. 9 AT INSULATOR LEVEL
21. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPLY ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISE[illegible] RR 17317	[illegible]	MG
B	REVISE[illegible] R-19456	JUN 65	B AU
C	REVISE[illegible] R 2525	3 [illegible] 65	[illegible]
D	REVISE[illegible] 20 43	9 JUN 65	OAD



1
45
SEE NOTE 11
1.560
1.540
.000
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SEE NOTE 6
2 SEE NOTE 9
.000
.015
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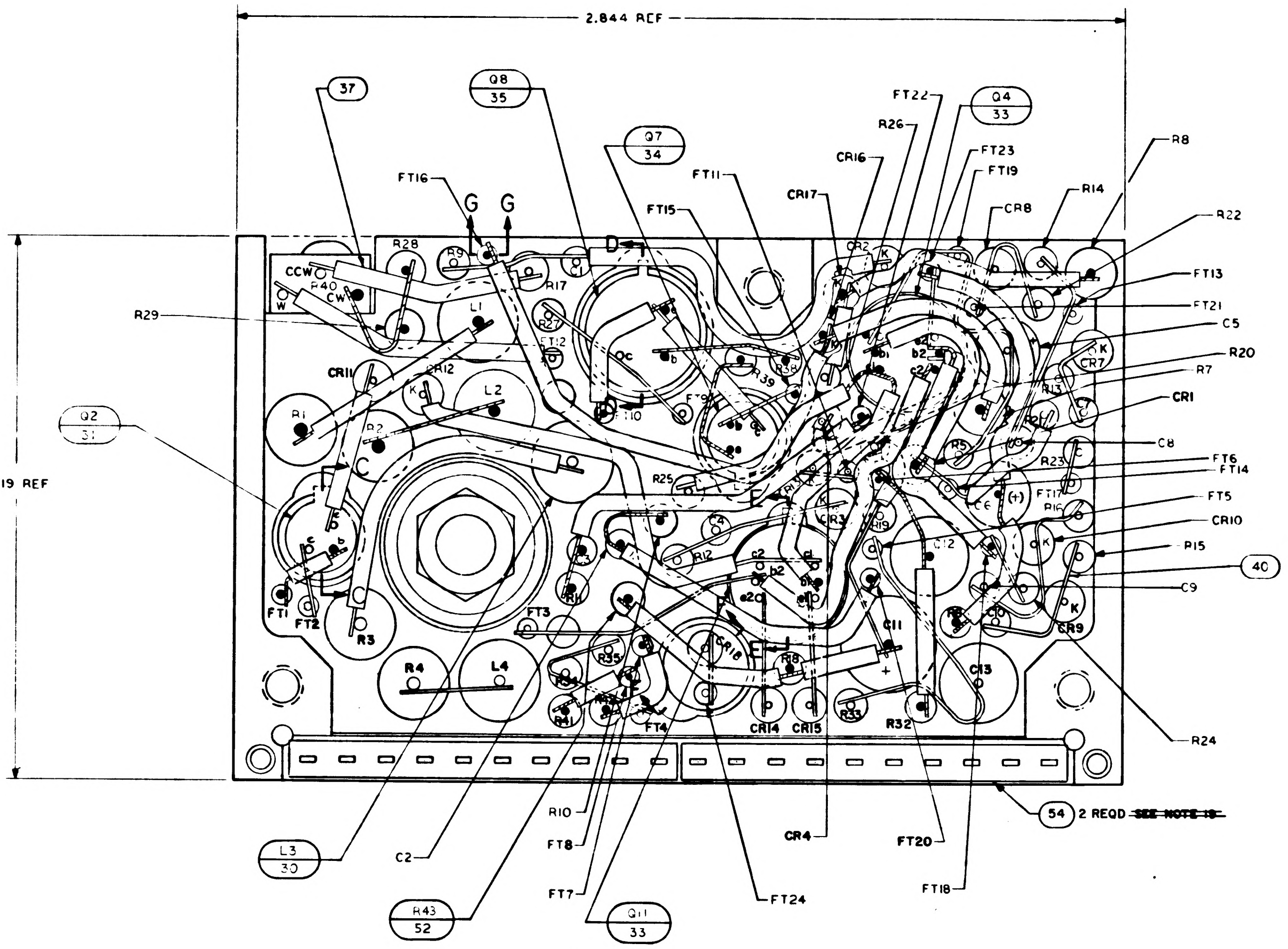
.015
SEE NOTE 14
47
SEE NOTE 16
46
SEE NOTE 16
SEE NOTE 6
50



2.844 REF
1.719 REF
37
Q8 35
Q7 34
Q4 33
Q2 31
FT16
G
G
FT15
FT11
CR16
CR17
FT22
R26
FT23
FT19
CR8
R8
R14
R22
FT13
FT21
C5
R20
R7
CR1
C8
FT6
FT14
FT5
CR10
R15
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C9
CR9
R24
R28
CCW
CW
R40
R29
R17
L1
CR11
CR12
L2
R1
R2
R25
R12
FT1
FT2
R3
FT3
R4
L4
CR14
CR15
R32
C11
C13
FT4
54 2 REQD ~~SEE NOTE 15~~
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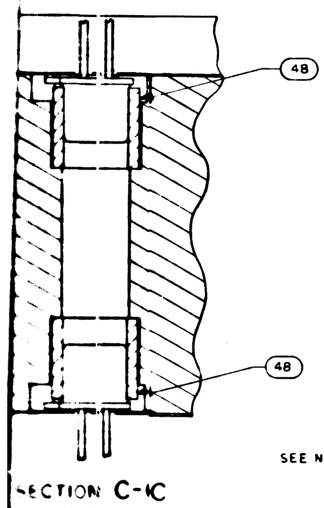
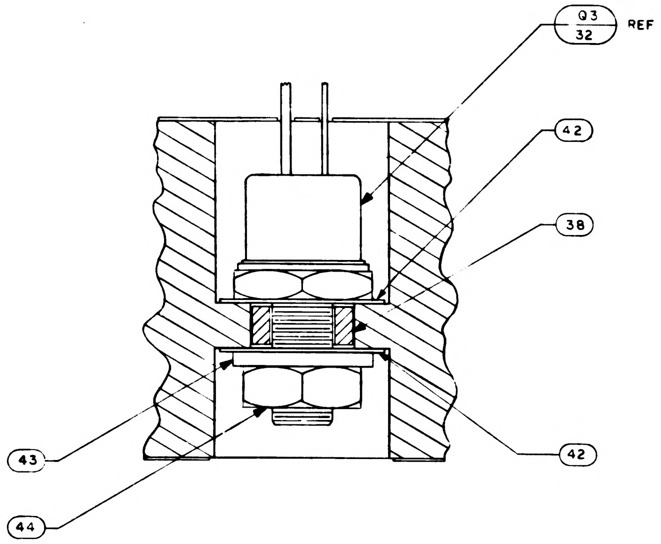
C2
R10
FT8
FT7
R43 52
Q1 33
FT24
CR4
FT20
FT18



ECTION C-C
PLACES
ICAL INSTALLATION FOR
AND 3 AND 34



Q3 32 REF
42
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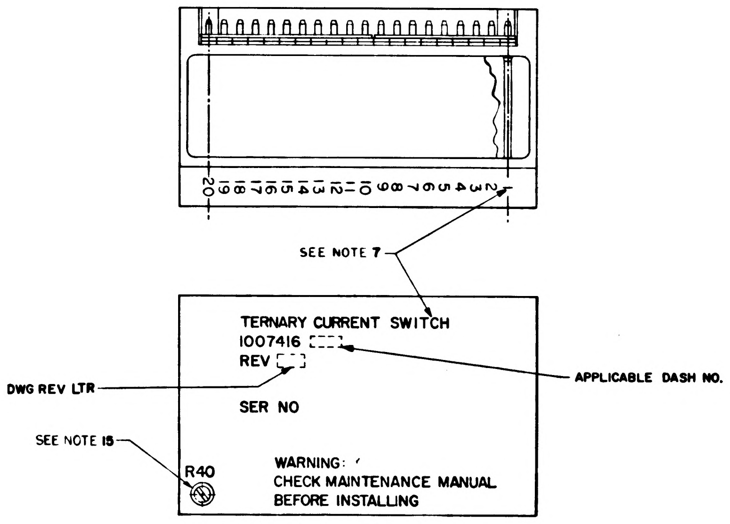
SEE NOTES 5 AND 12

SECTION A-A



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13
12
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6
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4
3
2
1
SEE NOTE 7
TERNARY CURRENT SWITCH
1007416
REV
DWG REV LTR
APPLICABLE DASH NO.
SER NO
SEE NOTE 15
R40
WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			011				
			╳		1010016	SCHEMATIC DIAGRAM ELECTRICAL	REF
			2		1008540-10	GASKET, CONNECTOR MINIATURE	54
			1		1010372-6	DIODE	53
			1		1006750-40	RESISTOR	52
			AR		1006776-22	INSULATION SLEEVING	51
			AR		1006776-20	INSULATION SLEEVING	50
			2		1006750-53	RESISTOR, FIXED MF 7.5K 1/4W ±2%	49
			4		1008025-1	INSULATOR, BUSHING	48
			20		1006782-4	CONTACT, WRAPOST MALE MINAT	47
			20		1006775	INSULATOR, WRAPOST MALE MINAT	46
			2		1000093-3	SCREW, BUTTON HEAD	45
			1		MS35650-104	NUT, PLAIN, HEX	44
			1		1008020-1	WASHER, FLAT	43
			2		1008024-1	WASHER, INSULATOR	42
			AR		1006787-2	WIRE, ELEC .020 DIA	41
			AR		1006757-1	WIRE, ELEC .010 X .020	40
			2		1008025-2	INSULATOR, BUSHING	39
			1		1008021-1	INSULATOR, BUSHING	38
			AR		1006776-21	INSULATION SLEEVING	37
							36
			2		1010600	TRANSISTOR	35
			2		1006752	TRANSISTOR	34
			4		1010376-4	TRANSISTOR	33
			1		1010269-1	TRANSISTOR SP322	32
			2		1010357-1	TRANSISTOR	31
			4		1010388-39	INDUCTOR .01HY 75MA ±5%	30
			2		1010384	DIODE	29
			3		1010394	DIODE	28
			6		1010385	DIODE	27
							26
			4		1010633-1	DIODE	25
			1		1010393-39	CAP, FIXED TANT, 6.8UF 50V ±10%	24
			2		1006777-33	CAP, FIXED CER, .022UF 100V ±10%	23
			4		1006777-20	CAP., FIXED CER, 470UUF 100V ±10%	22
			2		1006755-73	CAP., FIXED TANT, 2.2UF 35V ±20%	21
			4		1006777-13	CAP., FIXED CER, 100UUF 100V ±10%	20
			1		1010373-10	RESISTOR, VAR, 10K 1W ±5%	19
			2		1010369-8	RESISTOR	18
			2		1010369-148	RESISTOR, FIXED COMP, 20 1/4W ±2%	17
							16
			2		1006750-53	RESISTOR, FIXED MF, 7.5K 1/4W ±2%	15
			1		1010364-683	RESISTOR, FIXED MF, 178K 1/8W ±1%	14
			1		1010364-635	RESISTOR, FIXED MF, 100K 1/8W ±1%	13
			1		1006750-62	RESISTOR, FIXED MF, 18K 1/4W ±2%	12
			6		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
			2		1006750-56	RESISTOR, FIXED MF, 10 K 1/4W ±2%	10
			3		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	9
			1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±1%	8
			6		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ±2%	7
			2		1006760-56	RESISTOR, FIXED MF, 10K 1/2W ±2%	6
			2		1006750-18	RESISTOR, FIXED MF, 270 1/4W ±2%	5
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	4
			1		1008019-2	INSULATOR, TOP	3
			1		1008019-1	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS XX ±.02 XXX ±.005
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN J. Zeiringer DATE 30 SEP 64
CHECKED R. Udonch 3 OCT 64
APPROVAL
APPROVAL 4/9/64
NASA APPROVAL 11-2-64
MIT APPROVAL 12 Nov 64

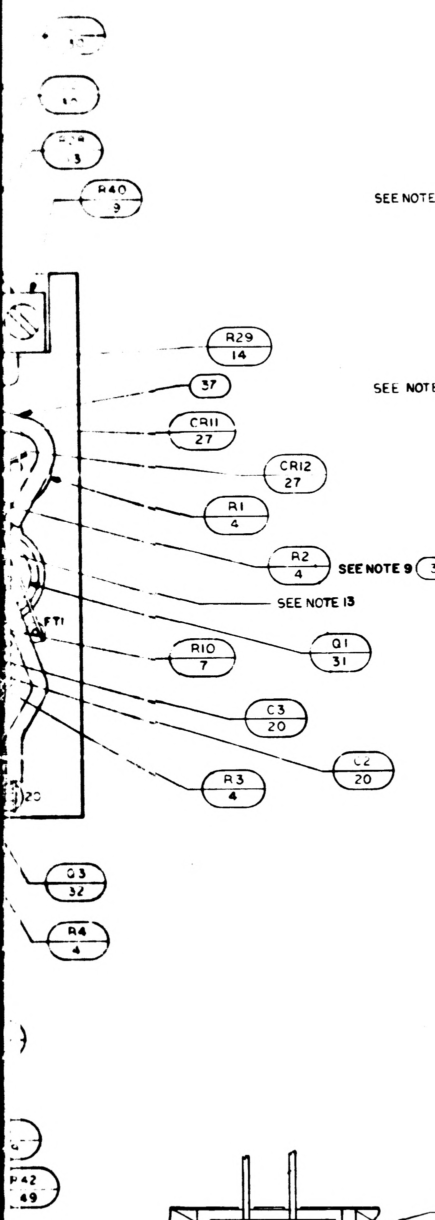
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007416
SCALE 5/1
WT
SHEET 1 OF 1

1007416 REV LTR D

3/1007416


R40
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R29
14
37
CR11
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CR12
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R1
4
R2
4
SEE NOTE 13
Q1
31
FT1
R10
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C3
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C2
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R3
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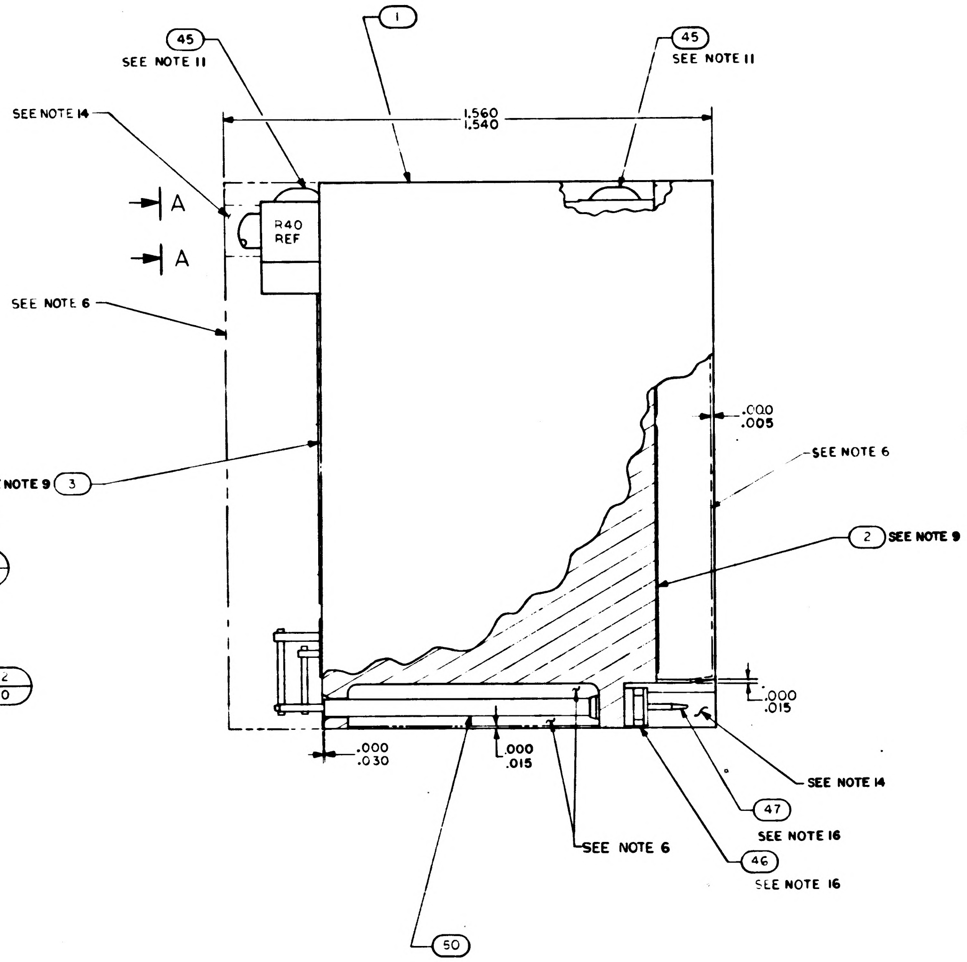
Q3
32
R4
4
20
R42
49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SEE NOTE 11
SEE NOTE 14
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REF
SEE NOTE 6
SEE NOTE 9
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.005
SEE NOTE 6
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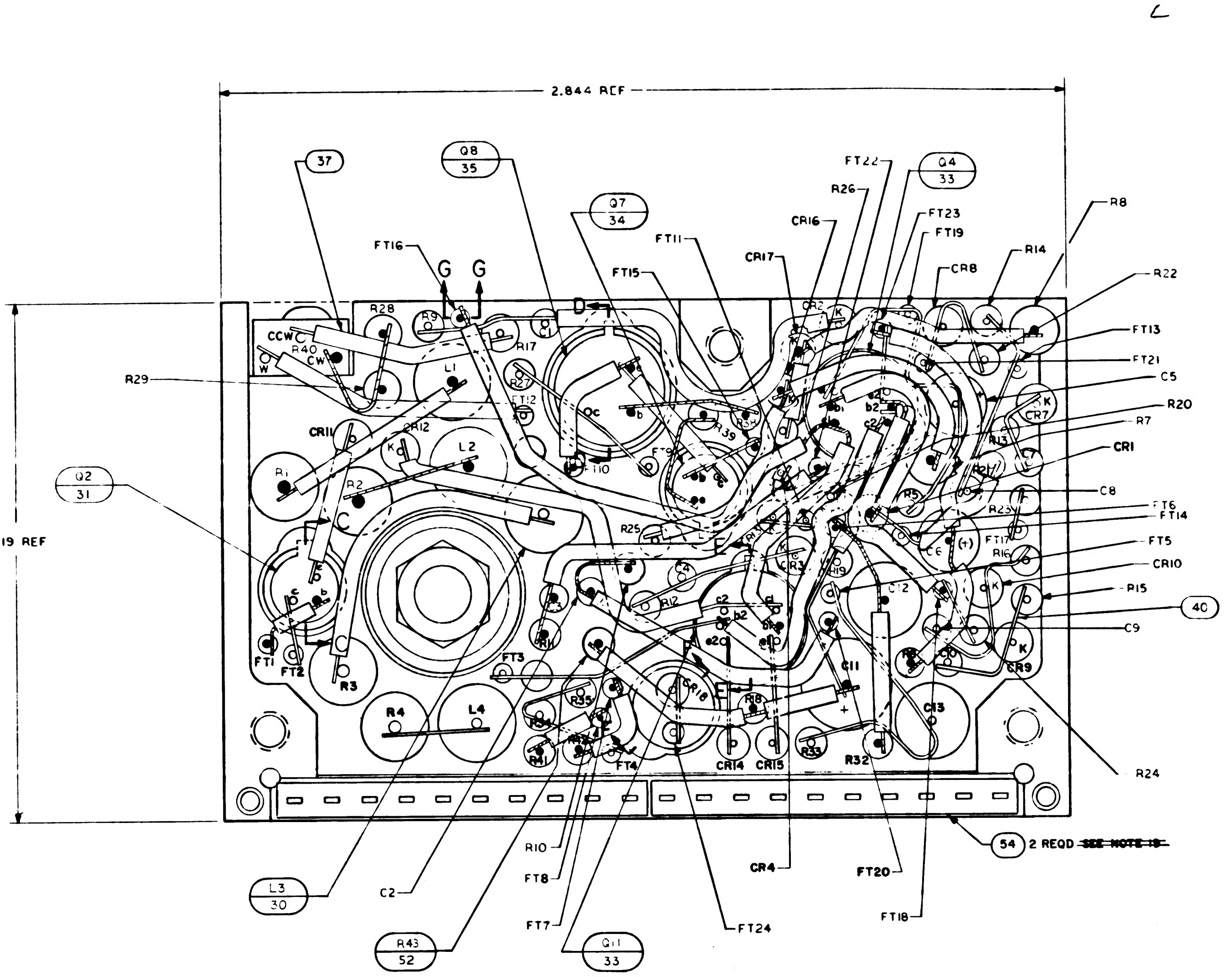
SEE NOTE 9
.000
.015
.000
.030
.000
.015
SEE NOTE 14
47
SEE NOTE 16
SEE NOTE 6
46
SEE NOTE 16
50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FT22
Q4
33
FT23
FT19
CR8
R14
R8
R22
FT13
FT21
C5
R20
R7
CR1
C8
FT6
FT14
FT5
CR10
P15
40
C9
R24
R28
R9
CCW
CW
R40
R17
R29
L1
CR11
CR12
L2
R1
R2
Q2
31
R25
FT3
FT1
FT2
R3
R4
L4
C11
C13
R32
CR14
CR15
FT4
54
2 REQD ~~SEE NOTE 13~~
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FT8
FT7
CR4
FT20
FT24
FT18
L3
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C2
R43
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Q11
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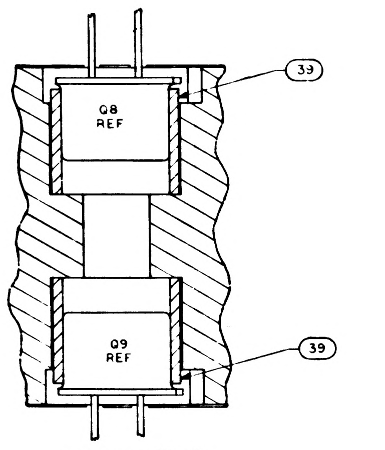
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Q9
REF
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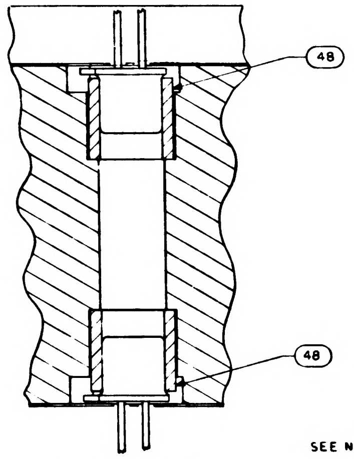
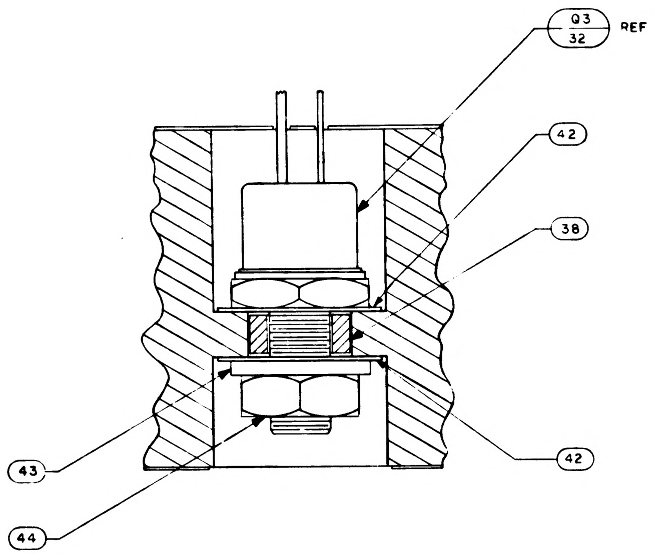
SECTION D-D



SECTION C-C
2 PLACES
TYPICAL INSTALLATION FOR
FIND NO. 31 AND 34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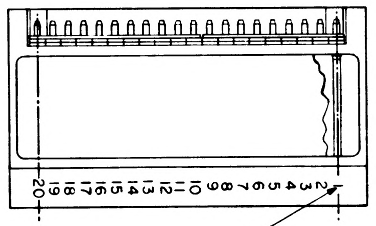
44
SEE NOTES 5 AND 12

SECTION A-A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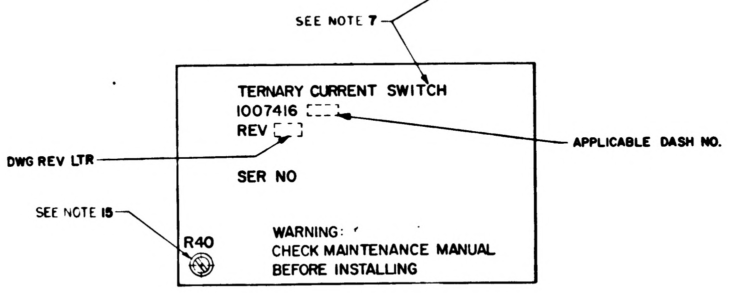
2
1


SEE NOTE 7
APPLICABLE DASH NO.
DWG REV LTR
SEE NOTE 15
R40

TERNARY CURRENT SWITCH
1007416 [ ]
REV [ ]

SER NO

WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2/1

			☒		010016
			2		008540
			1		010372
			1		006750
			AR		006776
			AR		006776
			2		006750
			4		008025
			20		006782
			20		006775
			2		000093
			1		S35650
			1		008020
			2		008024
			AR		006787
			AR		006757
			2		008025
			1		008021
			AR		006776
			2		010600
			2		006752
			4		010376
			1		010269
			2		010357
			4		010388
			2		010384
			3		010394
			6		010385
			4		010833
			1		010393
			2		006777
			4		006777
			2		006755
			4		006777
			1		010373
			2		010369
			2		010369
			2		006750
			1		010364
			1		010364
			1		006750
			6		006750
			2		006750
			3		006750
			1		010364
			6		006750
			2		006760
			2		006750
			4		010389
			1		009019
			1		008019
			1		007000
		-	011	EFFECTIVITY	
QUANTITY REQUIRED					

1007574		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS XX±.02 XXX±.005
ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

HEAT TREATMENT —

FINAL FINISH —

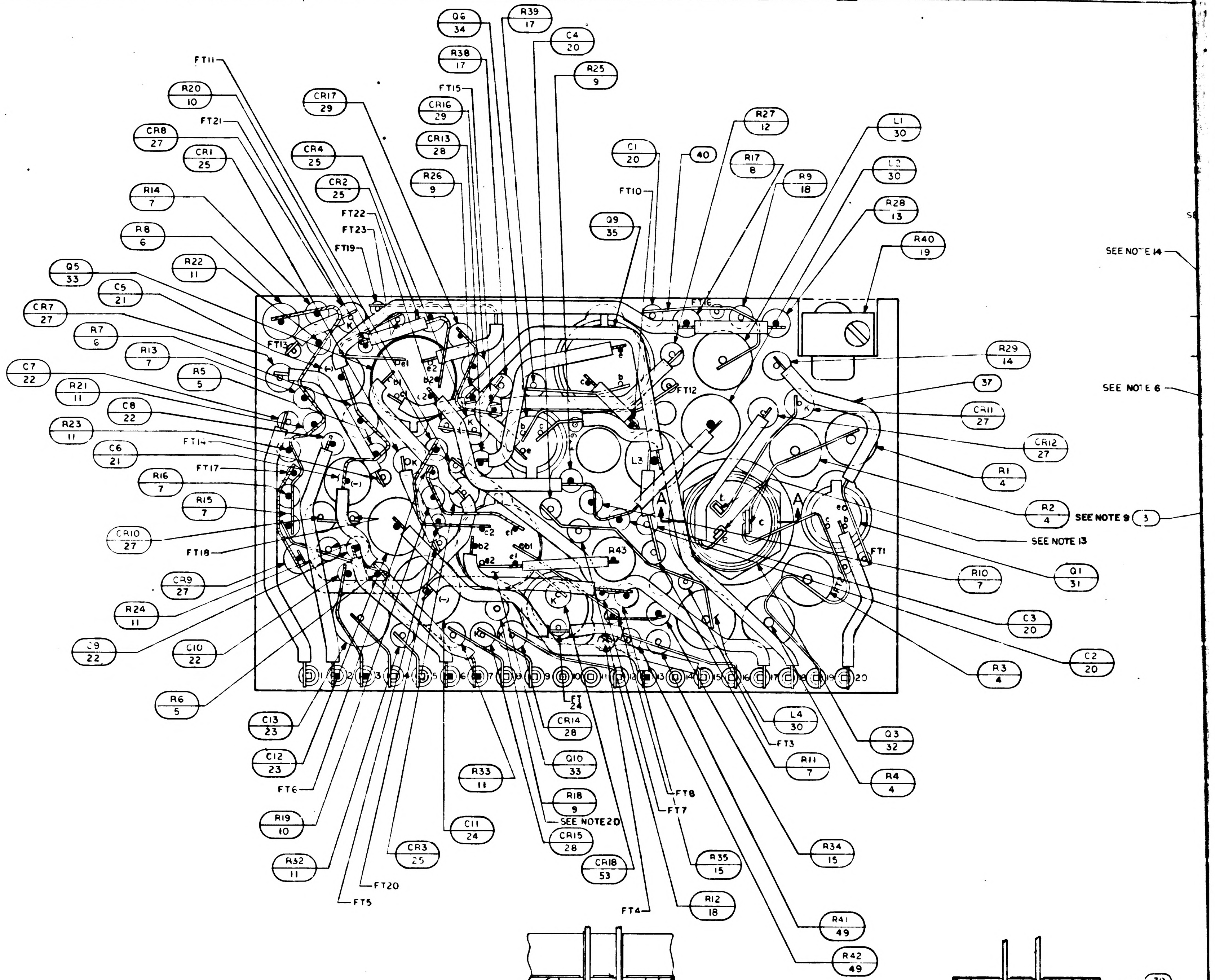
DRAWN
CHECKED
APPROVED
APPROVED
NASA APPROVAL
MIT APPROVAL

INSTRUMENT

1007416 REV D

~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE, 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE~~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R39 17
C4 20
R38 17
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FT11
R20 10
CR17 29
FT15
CR16 29
R27 12
L1 30
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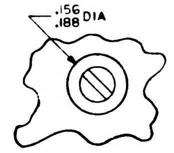
CR1 25
CR4 25
CR13 28
C1 20
40
R17 8
R9 18
L2 30
R14 7
CR2 25
R26 9
FT10
R28 13
FT22
FT23
Q9 35
R40 19
R8 6
FT19
R22 11
Q5 33
C5 21
CR7 27
R7 6
R13 7
FT13
FT16
R29 14
C7 22
R5 5
37
R21 11
C8 22
CR11 27
FT12
R23 11
CR12 27
FT14
C6 21
FT17
L3
R1 4
R16 7
R15 7
R2 4
SEE NOTE 9
3
SEE NOTE 13
CR10 27
FT18
R43
FT1
R10 7
Q1 31
CR9 27
R24 11
C3 20
C9 22
C10 22
C2 20
R3 4
R6 5
FT 24
CR14 28
L4 30
C13 23
FT3
Q3 32
R11 7
C12 23
Q10 33
R33 11
R4 4
FT6
R18 9
FT8
SEE NOTE 20
FT7
R19 10
C11 24
CR15 28
CR3 25
R35 15
R34 15
R32 11
CR18 53
FT20
R12 18
FT5
FT4
R41 49
R42 49
SEE NOTE 14
SEE NOTE 6
A
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

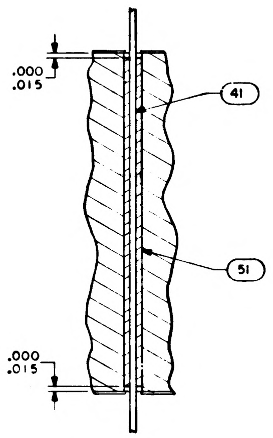


VIEW A-A

24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. APPLY SEALING COMPOUND, MIL-S-22473 GRADE A TO FIND NO. 44
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
8. STAKE FIND NO. 4 THRU FIND NO. 15, 17 THRU 25, 27 THRU 35, 38, 39, 49, 52, & 53 PER ND1002009 METHOD H.
9. ON FIND NO'S 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING
   K INDICATES CATHODE SIDE OF DIODE
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR
   C INDICATES COLLECTOR LEAD OF TRANSISTOR
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   B() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
10. AR DENOTES AS REQUIRED
11. APPLY ZINC CHROMATE PRIMER MIL-P-8585 TO THREADS OF FIND NO.45
12. MOUNTING TORQUE FOR FIND NO.44, 10/15 INCH POUNDS
13. SOLDER PER ND1002071
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
16. INSTALL FIND NO.46 AND FIND NO. 47 PER ND 1002136
17. PROCURE PER PS 1007016
18. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
19. ~~BOND FIND NO. 54 TO FIND NO 46 PER ND1002237~~
20. CUT LEAD OF FIND NO. 9 AT INSULATOR LEVEL
21. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPLY ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.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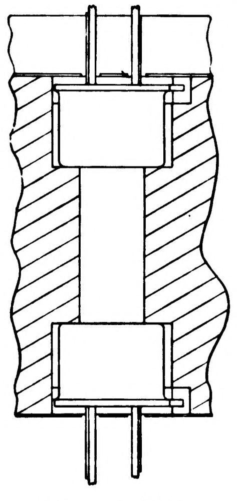
.015
41
51
.000
.015

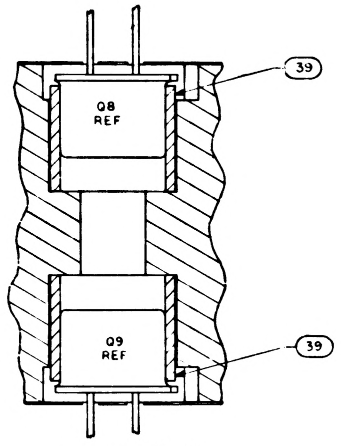
SECTION G-G



SECTION E-E

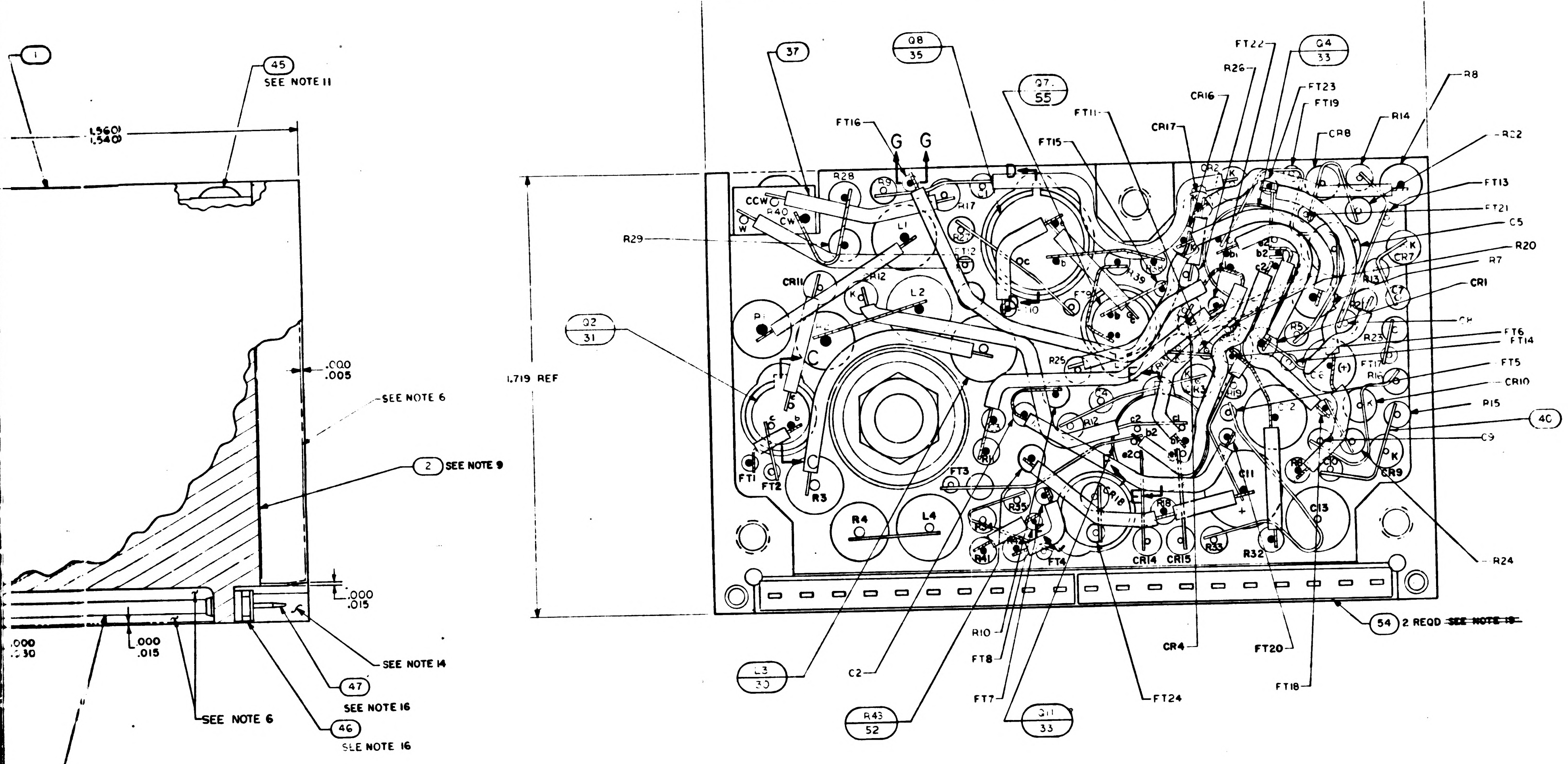
2 PLACES

TYPICAL INSTALLATION FOR FIND NO. 33


Q8 REF
39
Q9 REF
39

SECTION D-D

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17317	2-.-65	M G
B	REVISED PER TDRR-19456	JUN 65	B. AU
C	REVISED PER TDRR 19525	9 JUN 65	WJK
D	REVISED PER TDRR 20143	19 JUN 65	DKD
E	REVISED PER TDRR 21279	30 JUL 65	RLP RWH



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(1)
(45) SEE NOTE 11
SEE NOTE 6
(2) SEE NOTE 9
SEE NOTE 14
(47) SEE NOTE 16
(46) SEE NOTE 16
SEE NOTE 6
(50)
(37)
Q8 35
Q7 55
Q4 33
Q2 31
L3 30
R43 52
Q1 33
(40)
(54) 2 REQD ~~SEE NOTE 18~~
FT16
G G
FT15
FT11
CR17
CR16
R26
FT22
FT23
FT19
CR8
R14
R8
R22
FT13
FT21
C5
R20
R7
CR1
C4
FT6
FT14
FT5
CR10
P15
C9
R24
R29
CR11
CCW
CW
R40
R28
R9
R17
L1
CR12
L2
R25
FT1
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FT3
R12
C11
C13
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CR15
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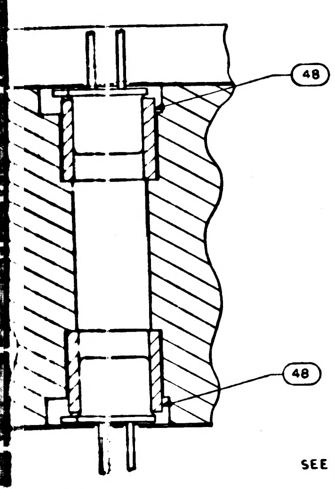
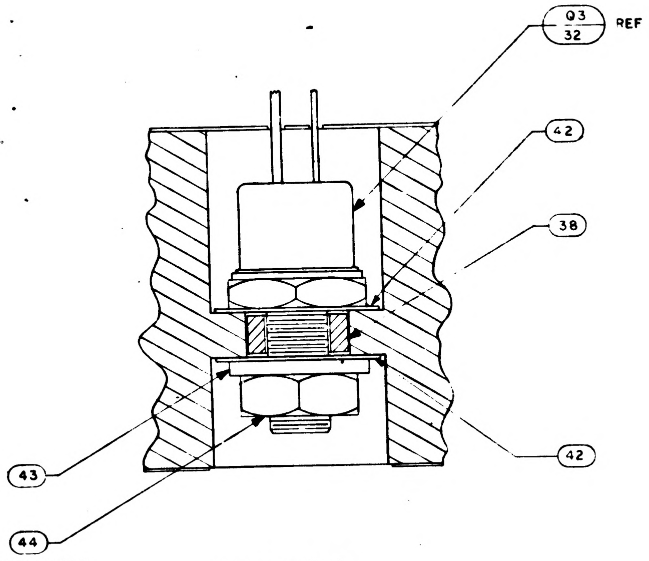
CR9
R10
C2
FT8
FT7
FT4
CR4
FT24
FT20
FT18



SECTION C-C
2 PLACES
TYPICAL INSTALLATION FOR FIND NO. 31 AND 34



Q3 32 REF
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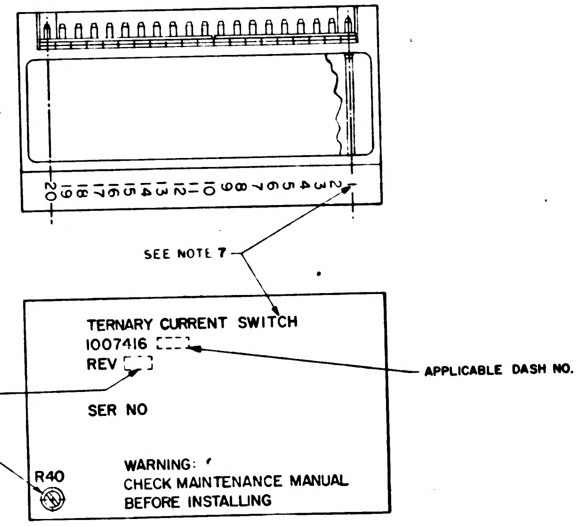
(43)
(44)
SEE NOTES 5 AND 12

SECTION A-A



20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 7
APPLICABLE DASH NO.
DWG REV LTR
SEE NOTE 18
R40

TERNARY CURRENT SWITCH
1007416 -
REV
SER NO
WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED -011	EFFECTIVITY	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
		1010016	SCHEMATIC DIAGRAM ELECTRICAL	REF
2		1010966-1	TRANSISTOR	55
2		1008540-10	GASKET, CONNECTOR MINIATURE	54
1		1010372-6	DIODE	53
1		1006750-40	RESISTOR	52
AR		1006776-22	INSULATION SLEEVING	51
AR		1006776-20	INSULATION SLEEVING	50
2		1006750-53	RESISTOR, FIXED MF 7.5K 1/4W ± 2%	49
4		1008025-1	INSULATOR, BUSHING	48
20		1006782-4	CONTACT, WRAPOST MALE MINAT	47
20		1006775	INSULATOR, WRAPOST MALE MINAT	46
2		1000093-3	SCREW, BUTTON HEAD	45
1		MS35650-104	NUT, PLAIN, HEX	44
1		1008020-1	WASHER, FLAT	43
2		1008024-1	WASHER, INSULATOR	42
AR		1006787-2	WIRE, ELEC .020 DIA	41
AR		1006757-1	WIRE, ELEC .010 X .020	40
2		1008025-2	INSULATOR, BUSHING	39
1		1008021-1	INSULATOR, BUSHING	38
AR		1006776-21	INSULATION SLEEVING	37
				36
2		1010600	TRANSISTOR	35
~~2~~		~~1006752~~	~~TRANSISTOR~~	34
4		1010376-4	TRANSISTOR	33
1		1010269-1	TRANSISTOR SP322	32
2		1010357-1	TRANSISTOR	31
4		1010388-39	INDUCTOR .01HY 75MA ±5%	30
2		1010384	DIODE	29
3		1010394	DIODE	28
6		1010385	DIODE	27
				26
4		1010833-1	DIODE	25
1		1010393-39	CAP, FIXED TANT, 6.8UF 50V ±10%	24
2		1006777-33	CAP, FIXED CER, .022UF 100V ±10%	23
4		1006777-20	CAP., FIXED CER, 470UUF 100V ±10%	22
2		1006755-73	CAP, FIXED TANT, 2.2UF 35V ±20%	21
4		1006777-13	CAP., FIXED CER, 100UUF 100V ±10%	20
1		1010373-10	RESISTOR, VAR, 10K 1W ±5%	[illegible]
2		1010369-8	RESISTOR	[illegible]
2		1010369-148	RESISTOR, FIXED COMP, 20 1/4W ±2%	[illegible]
				16
2		1006750-53	RESISTOR, FIXED MF, 7.5K 1/4W ±2%	[illegible]
1		1010364-633	RESISTOR, FIXED MF, 178K 1/8W ±1%	14
1		1010364-635	RESISTOR, FIXED MF, 100K 1/8W ±1%	13
1		1006750-62	RESISTOR, FIXED MF, 18K 1/4W ±2%	12
6		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
2		1006750-56	RESISTOR, FIXED MF, 10K 1/4W ±2%	10
3		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	9
1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±1%	8
6		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ±2%	7
2		1006760-56	RESISTOR, FIXED MF, 10K 1/2W ±2%	6
2		1006750-18	RESISTOR, FIXED MF, 270 1/4W ±2%	5
4		1010389-60	RESISTOR, FIXED WW 10K 3W ±1%	4
1		[illegible]	INSULATOR, TOP	3
1		1008019-1	INSULATOR, BOTTOM	2
1		1007008	HEATSINK	[illegible]

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO
1007574		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

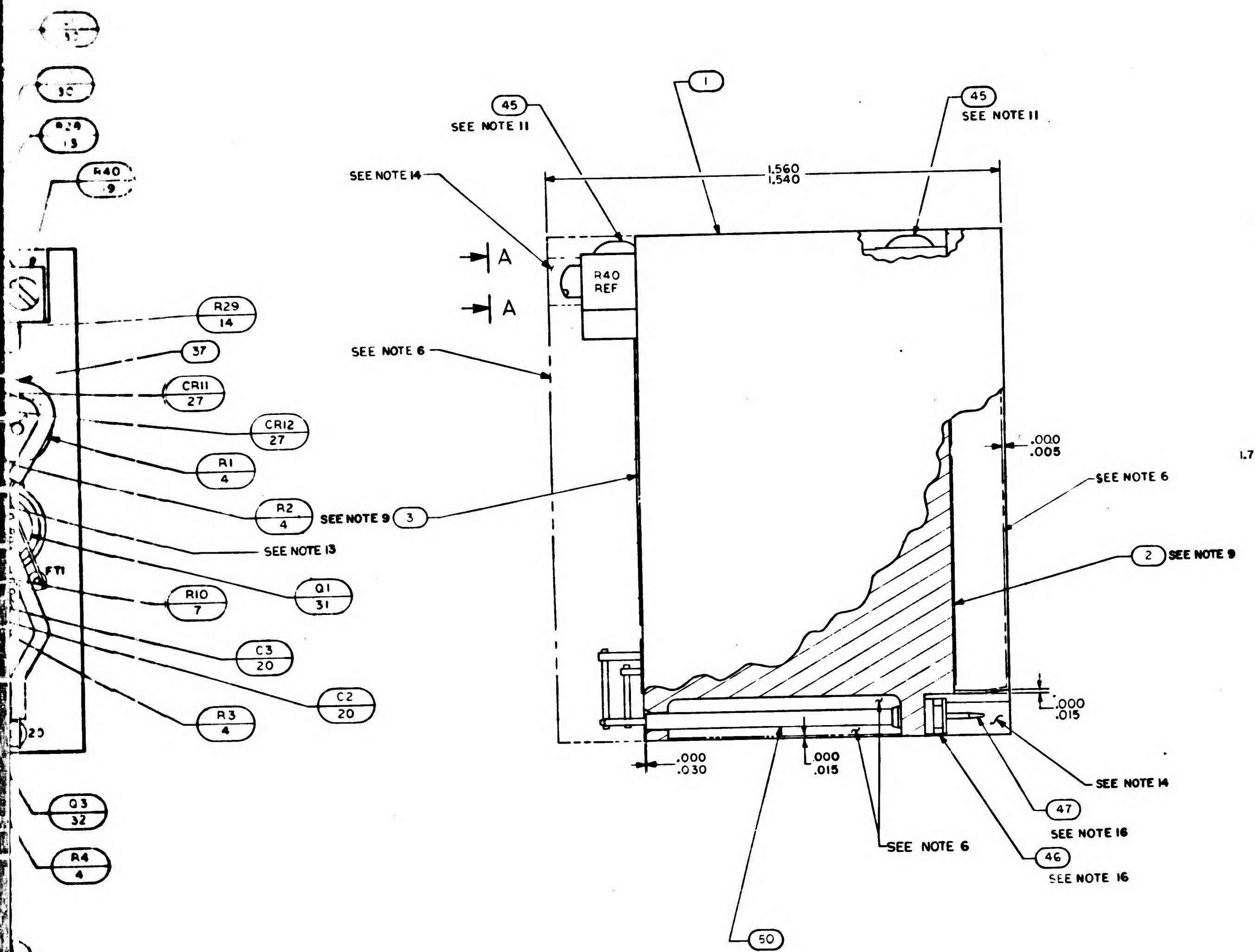
M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

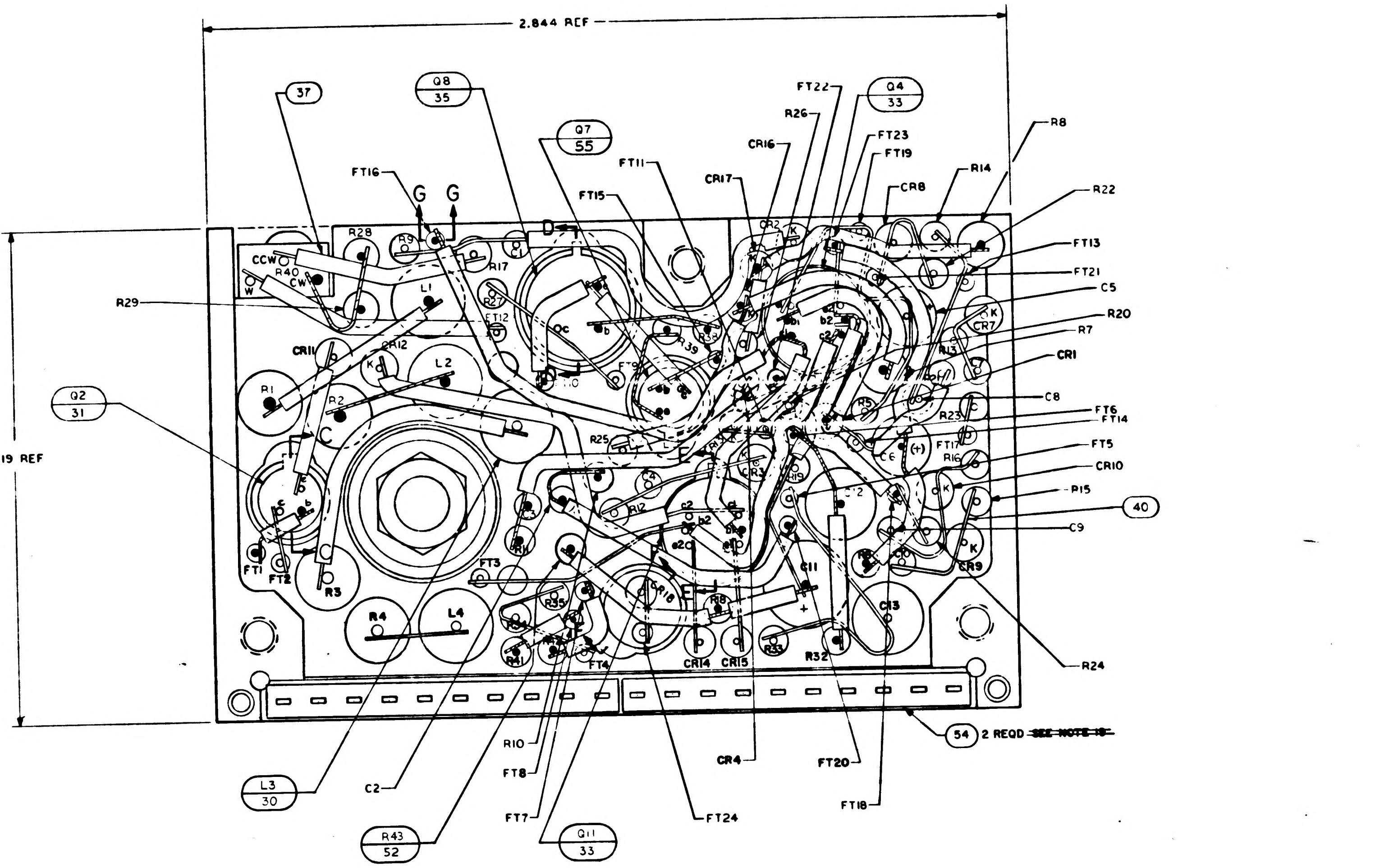
TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO. 1007416
SCALE 2/1
WT
SHEET 1 OF 1

1007416 REV E



R40
9
R29
14
37
CR11
27
CR12
27
R1
4
R2
4
SEE NOTE 13
Q1
31
FT1
R10
7
C3
20
C2
20
R3
4
Q3
32
R4
4
R42
49
45
SEE NOTE 11
1
45
SEE NOTE 11
1.560
1.540
SEE NOTE 14
A
A
R40
REF
SEE NOTE 6
SEE NOTE 9
3
SEE NOTE 6
.000
.005
2
SEE NOTE 9
.000
.015
SEE NOTE 14
47
SEE NOTE 16
46
SEE NOTE 16
SEE NOTE 6
.000
.030
.000
.015
50



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37
Q8
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Q7
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Q4
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R26
FT23
CR16
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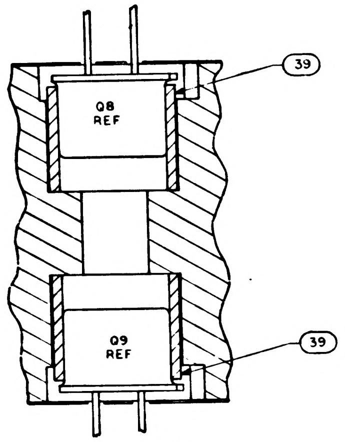
R8
FT11
CR17
CR8
R14
FT16
G
G
FT15
R22
R29
FT13
FT21
C5
R20
R7
CR1
C8
Q2
31
FT6
FT14
FT5
CR10
R15
40
C9
R24
54
2 REQD ~~SEE NOTE 18~~
L3
30
C2
R10
FT8
FT7
R43
52
Q11
33
FT24
CR4
FT20
FT18
R28
R9
L1
R17
CCW
R40
CW
FT12
CR11
CR12
L2
R1
R2
C
FT1
FT2
R3
R4
L4
FT3
R12
R25
R23
FT17
R16
C11
C13
R32
CR14
CR15
CR9
R33



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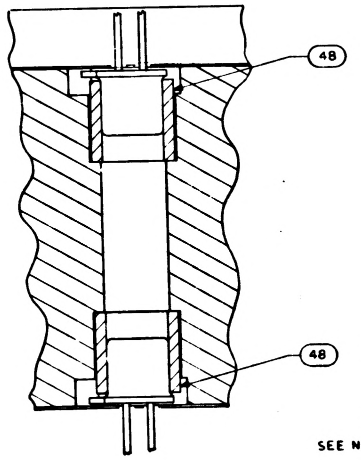
REF
Q9
REF
39

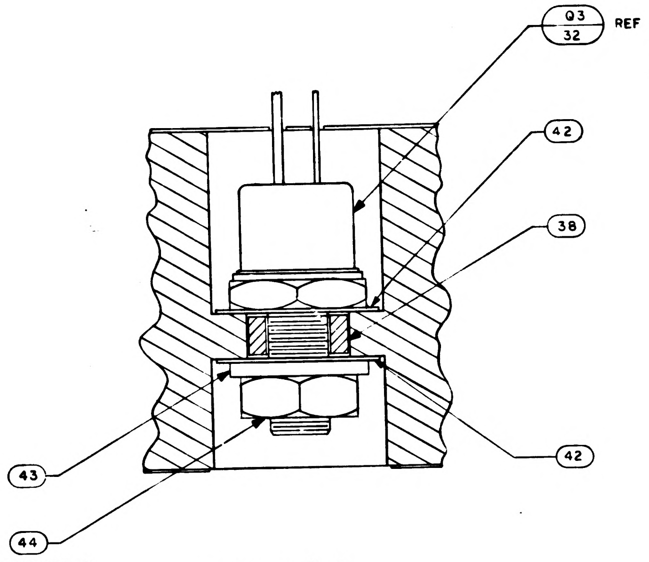
SECTION D-D



SECTION C-C

2 PLACES

TYPICAL INSTALLATION FOR FIND NO. 31 AND 34



Q3
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REF
42
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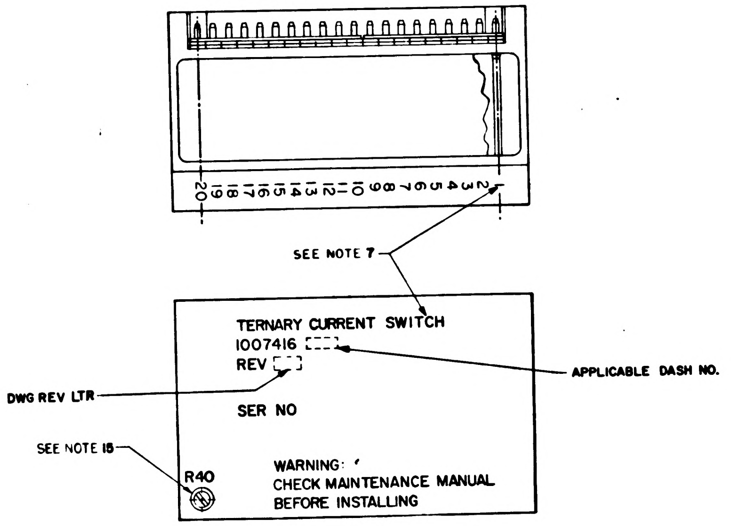
42
43
44
SEE NOTES 5 AND 12

SECTION A-A



20
19
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2
1
SEE NOTE 7
TERNARY CURRENT SWITCH
1007416
REV
SER NO
WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING
R40
APPLICABLE DASH NO.
DWG REV LTR
SEE NOTE 18

MARKING VIEW

SCALE 2/1

			☒		1010016
			2		1010966
			2		1008540
			1		1010372
			1		1006750
			AR		100677
			AR		100677
			2		100675
			4		1008025
			20		100678
			20		100677
			2		100009
			1		MS3565
			1		1008020
			2		100802
			AR		100678
			AR		100675
			2		100802
			1		100802
			AR		100677
			2		1010600
			~~2~~		~~100875~~
			4		1010376
			1		1010269
			2		101035
			4		1010388
			2		1010384
			3		101039
			6		1010385
			4		101063
			1		101039
			2		100677
			4		100677
			2		100675
			4		100677
			1		101037
			2		101036
			2		101036
			2		100675
			1		101036
			1		101036
			1		100675
			6		[illegible]
			2		100675
			3		100675
			1		101036
			6		100675
			2		10067
			2		[illegible]
			4		101036
			1		10050
			1		10080
			1		10070
	-		011	EFFECTIVITY	
QUANTITY REQUIRED					

1007574		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —//— DECIMALS XX±.02 XXX±.005 ANGLES ± —//—
DO NOT SCALE THIS DRAWING

MATERIAL —//—

HEAT TREATMENT —//—

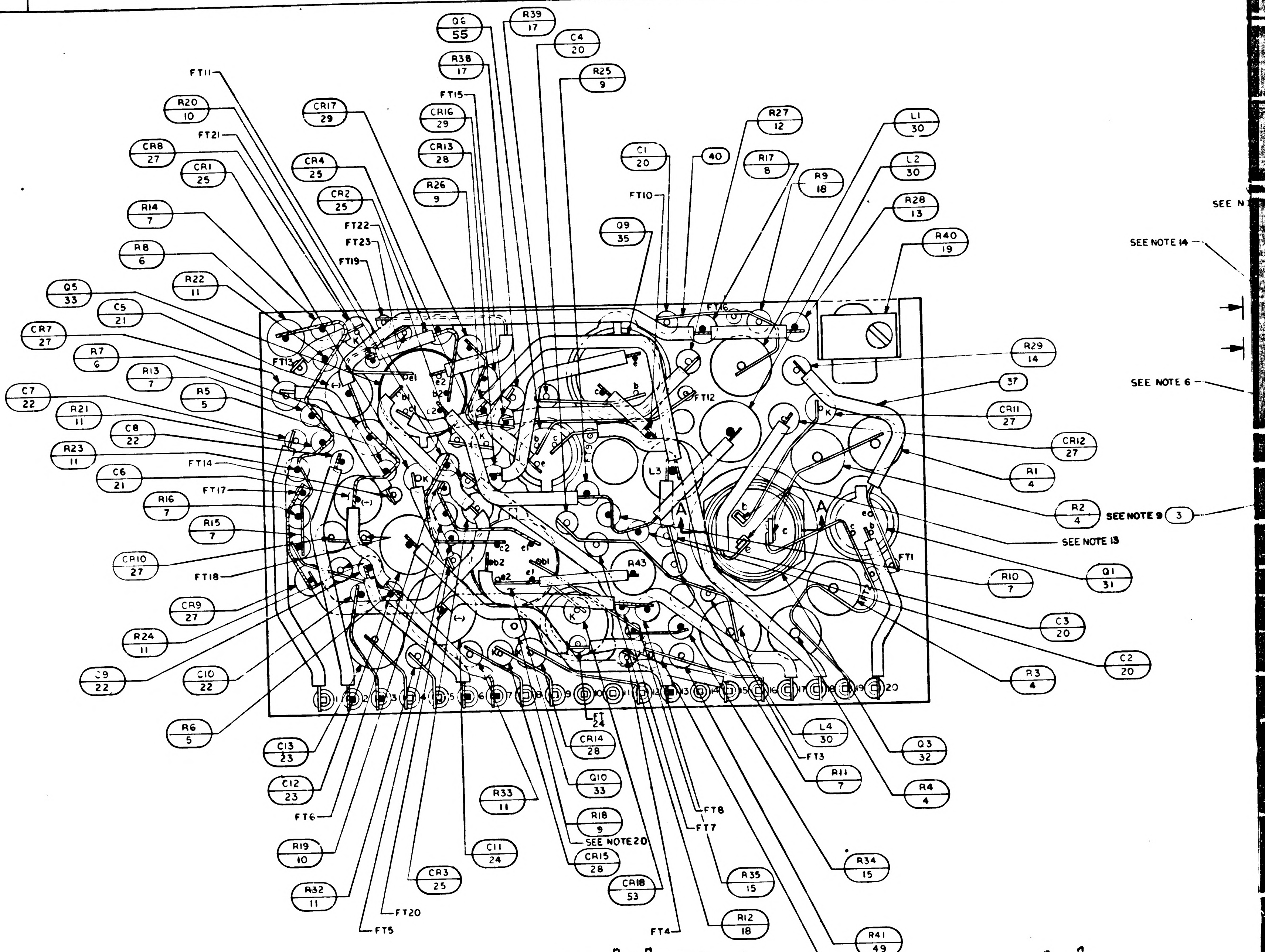
FINAL FINISH —//—

DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL

1007416 REV E

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
~~WAFER AND FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE~~


Q6
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R39
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C4
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R38
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R25
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FT11
FT15
R20
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CR17
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CR16
29
R27
12
L1
30
FT21
CR13
28
C1
20
40
R17
8
CR8
27
CR1
25
CR4
25
R26
9
R9
18
L2
30
FT10
CR2
25
R28
13
R14
7
FT22
FT23
Q9
35
R40
19
R8
6
FT19
SEE NOTE 14
R22
11
Q5
33
C5
21
FT16
CR7
27
R7
6
FT13
R29
14
R13
7
37
SEE NOTE 6
R5
5
C7
22
FT12
CR11
27
R21
11
C8
22
CR12
27
R23
11
FT14
L3
R1
4
C6
21
FT17
A
A
R2
4
SEE NOTE 9
3
R16
7
SEE NOTE 13
R15
7
FT1
Q1
31
R43
CR10
27
R10
7
FT18
FT2
C3
20
CR9
27
R24
11
C2
20
C9
22
C10
22
R3
4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
R6
5
FT 24
L4
30
C13
23
CR14
28
FT3
Q3
32
C12
23
R11
7
Q10
33
R4
4
R33
11
FT8
FT6
R18
9
FT7
SEE NOTE 20
R19
10
C11
24
CR15
28
R34
15
CR3
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R35
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R32
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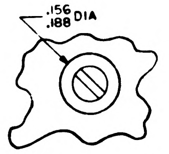
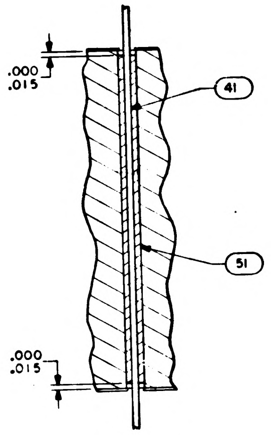
CR18
53
FT20
R12
18
FT5
FT4
R41
49
R42
49



VIEW A-A


.000
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.000
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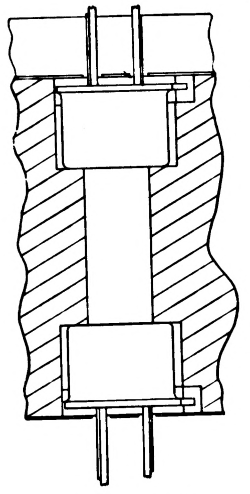
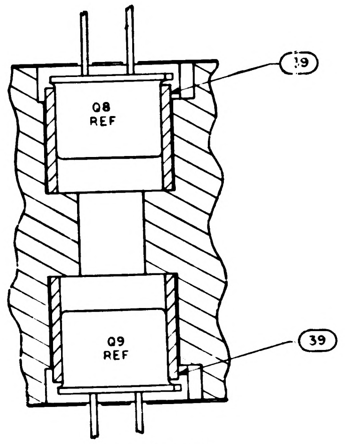
SECTION G-G



SECTION E-E

2 PLACES

TYPICAL INSTALLATION FOR FIND NO. 33


39
Q8
REF
Q9
REF
39

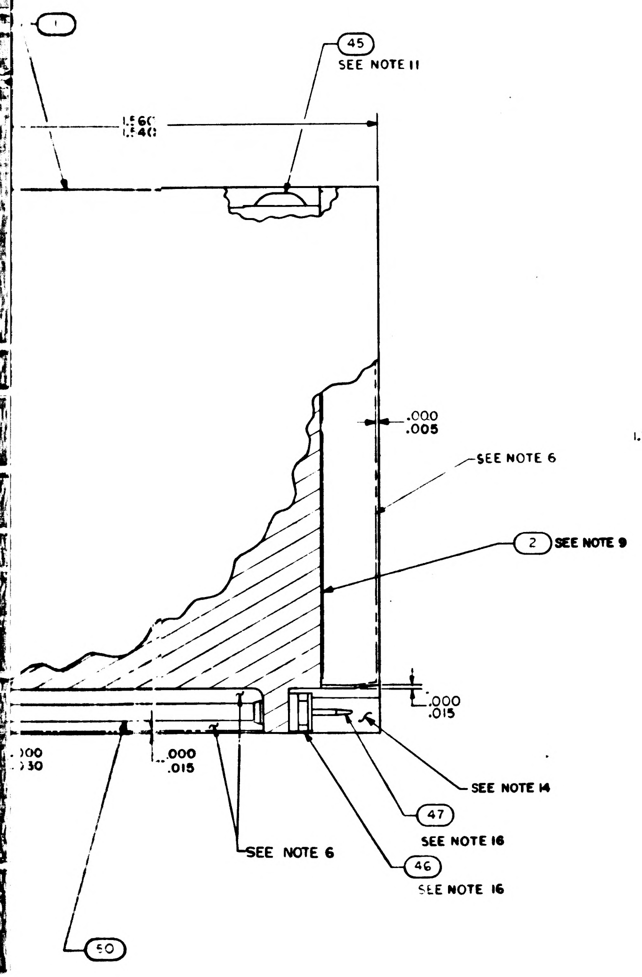
SECTION D-D

24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. APPLY SEALING COMPOUND, MIL-S-22473 GRADE A TO FIND NO. 44
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
8. STAKE FIND NO. 4 THRU FIND NO.15,17 THRU 25,27 THRU 35,38,39,49,52, & 53 PER ND1002009 METHOD H.
9. ON FIND NO'S 2 AND 3
   - BROKEN PATHS INDICATE INSULATION SLEEVING
   - K INDICATES CATHODE SIDE OF DIODE
   - FT() INDICATES FEED THRU
   - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
   - C INDICATES COLLECTOR LEAD OF TRANSISTOR
   - B INDICATES BASE LEAD OF TRANSISTOR,
   - E INDICATES EMITTER LEAD OF TRANSISTOR
   - B() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   - B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   - E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
10. AR DENOTES AS REQUIRED
11. APPLY ZINC CHROMATE PRIMER MIL-P-8585 TO THREADS OF FIND NO.45
12. MOUNTING TORQUE FOR FIND NO.44 , 10/15 INCH POUNDS
13. SOLDER PER ND1002071
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
16. INSTALL FIND NO.46 AND FIND NO. 47 PER ND 1002136
17. PROCURE PER PS 1007016
18. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
19. ~~BOND FIND NO. 54 TO FIND NO 46 PER ND1002237~~
20. CUT LEAD OF FIND NO. 9 AT INSULATOR LEVEL
21. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPLY ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17317	12-4-65	IM
B	REVISED PER TDRR-19456	JUN 65	B. AU
C	REVISED PER TDRR 19525	9 JUN 65	WJK
D	REVISED PER TDRR 20143	19 JUN 65	DKD
E	REVISED PER TDRR 21279	30 JUL 65	RLP RWH
F	REVISED PER TDRR 24381	6 DEC 65	RLP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45
SEE NOTE 11
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1.540
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.005
SEE NOTE 6
2 SEE NOTE 9
.000
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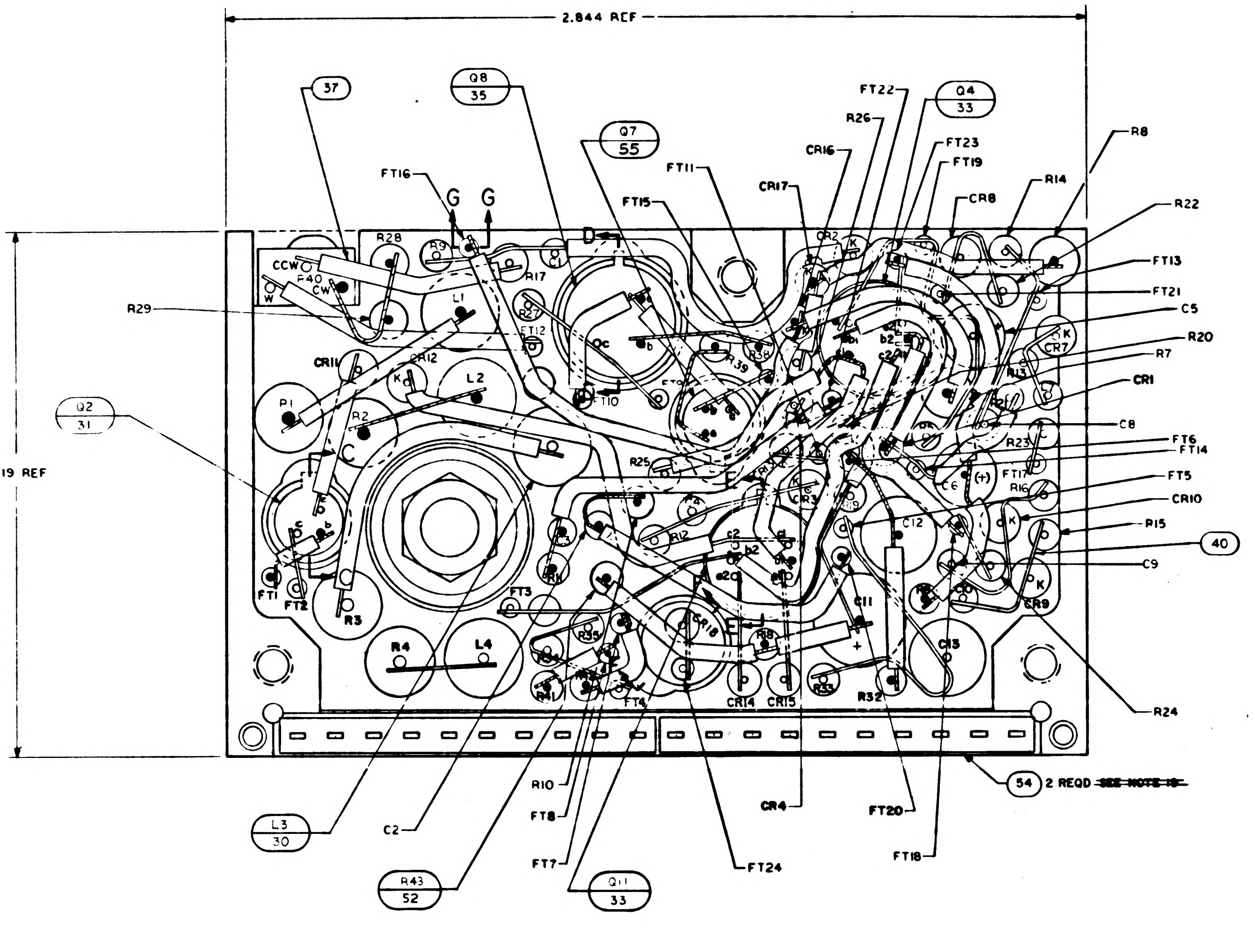
.000
.015
SEE NOTE 14
47
SEE NOTE 16
SEE NOTE 6
46
SEE NOTE 16
50


2.844 REF
1.719 REF
37
Q8 35
Q7 55
Q4 33
Q2 31
FT16
G
G
FT11
FT15
CR16
CR17
FT22
R26
FT23
FT19
CR8
R14
R8
R22
FT13
FT21
C5
R20
R7
CR1
C8
FT6
FT14
FT5
CR10
R15
C9
40
R24
R28
R9
R17
CCW
CW
P40
R29
L1
FT12
CR11
CR12
P1
R2
L2
FT10
R25
C1
FT1
FT2
R3
R4
L4
FT3
R12
C11
C12
C13
CR14
CR15
R32
FT4
CR4
FT20
FT18
54 2 REQD
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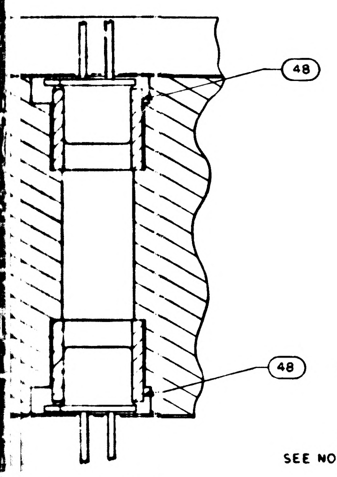
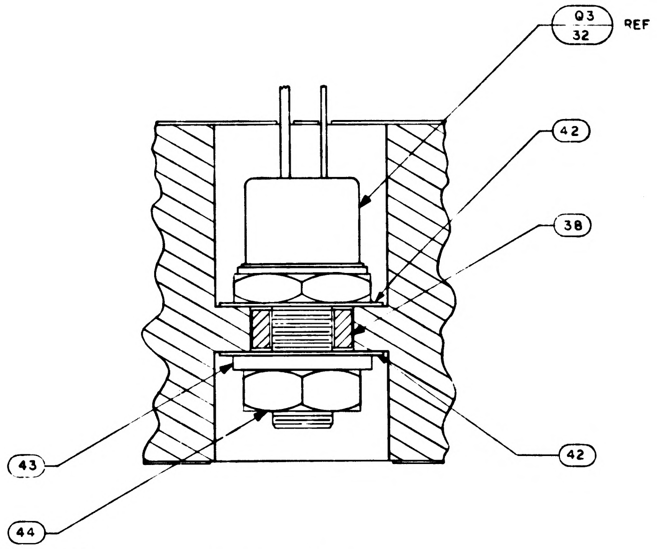
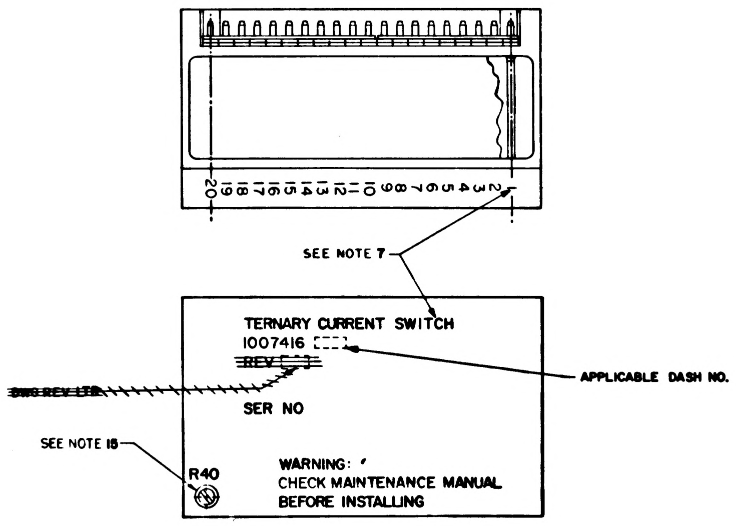
C2
R10
FT8
FT7
R43 52
Q11 33
FT24



SECTION C-C
PLACES
TYPICAL INSTALLATION FOR FIND NO. 31 AND 34


Q3 32
REF
42
38
43
42
44
SEE NOTES 5 AND 12

SECTION A-A


20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 7
APPLICABLE DASH NO.
~~DWG REV LTR~~
SEE NOTE 15

TERNARY CURRENT SWITCH
1007416
~~REV~~
SER NO
R40
WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2/1

			☒		1010016	SCHEMATIC DIAGRAM ELECTRICAL	REF
			2		1010966-1	TRANSISTOR	55
			2		1008540-10	GASKET, CONNECTOR MINIATURE	54
			1		1010372-6	DIODE	53
			1		1006750-40	RESISTOR	52
			AR		1006776-22	INSULATION SLEEVING	51
			AR		1006776-20	INSULATION SLEEVING	50
			2		1006750-53	RESISTOR, FIXED MF 7.5K 1/4W ±2%	49
			4		1008025-1	INSULATOR, BUSHING	48
			20		1006782-4	CONTACT, WRAPOST MALE MINAT	47
			20		1006775	INSULATOR, WRAPOST MALE MINAT	46
			2		1000093-3	SCREW, BUTTON HEAD	45
			1		MS35650-104	NUT, PLAIN, HEX	44
			1		1008020-1	WASHER, FLAT	43
			2		1008024-1	WASHER INSULATOR	42
			AR		1006787-2	WIRE, ELEC .020 DIA	41
			AR		1006757-1	WIRE, ELEC .010 X .020	40
			2		1008025-2	INSULATOR, BUSHING	39
			1		1008021-1	INSULATOR, BUSHING	38
			AR		1006776-21	INSULATION SLEEVING	37
							36
			2		1010600	TRANSISTOR	35
			~~2~~		~~1006752~~	~~TRANSISTOR~~	34
			4		1010376-4	TRANSISTOR	33
			1		1010269-1	TRANSISTOR SP322	32
			2		1010357-1	TRANSISTOR	31
			4		1010388-39	INDUCTOR .01HY 75MA ±5%	30
			2		1010384	DIODE	29
			3		1010394	DIODE	28
			6		1010385	DIODE	27
							26
			4		1010833-1	DIODE	25
			1		1010393-39	CAP, FIXED TANT, 6.8UF 50V ±10%	24
			2		1006777-33	CAP, FIXED CER, .022UF 100V ±10%	23
			4		1006777-20	CAP., FIXED CER, 470UUF 100V ±10%	22
			2		1006755-73	CAP., FIXED TANT, 2.2UF 35V ±20%	21
			4		1006777-13	CAP., FIXED CER, 100UUF 100V ±10%	20
			1		1010373-10	RESISTOR, VAR, 10K 1W ±5%	19
			2		1010369-87	RESISTOR	18
			2		1010369-148	RESISTOR, FIXED COMP, 20 1/4W ±2%	17
							16
			2		1006750-53	RESISTOR, FIXED MF, 7.5K 1/4W ±2%	15
			1		1010364-683	RESISTOR, FIXED MF, 178K 1/8W ±1%	14
			1		1010364-635	RESISTOR, FIXED MF, 100K 1/8W ±1%	13
			1		1006750-62	RESISTOR, FIXED MF, 18K 1/4W ±2%	12
			6		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
			2		1006750-56	RESISTOR, FIXED MF, 10K 1/4W ±2%	10
			3		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	9
			1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±1%	8
			6		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ±2%	7
			2		1006760-56	RESISTOR, FIXED MF, 10K 1/2W ±2%	6
			2		1006750-18	RESISTOR, FIXED MF, 270 1/4W ±2%	5
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	4
			1		1008019-2	INSULATOR, TOP	3
			1		1008019-1	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 — ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN J. Klinger DATE 30 SEP 64
CHECKED A. Udonch 3 OCT 64
APPROVAL
APPROVAL 11/9/64
NASA APPROVAL 11-12-64
MIT APPROVAL 12 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

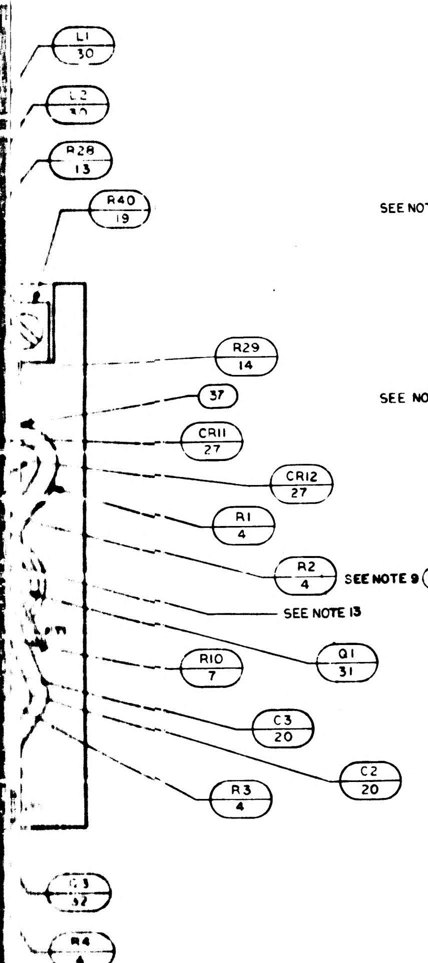
CODE IDENT NO. 80230 | SIZE J | NASA DRAWING NO. 1007416
SCALE 5/1 | WT | SHEET 1 OF 1

1007416 REV F

3/1007416

3H

5 4 3 2



L1
30
C2
20
R28
13
R40
19
R29
14
37
CR11
27
CR12
27
R1
4
R2
4
SEE NOTE 13
Q1
31
R10
7
C3
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C2
20
R3
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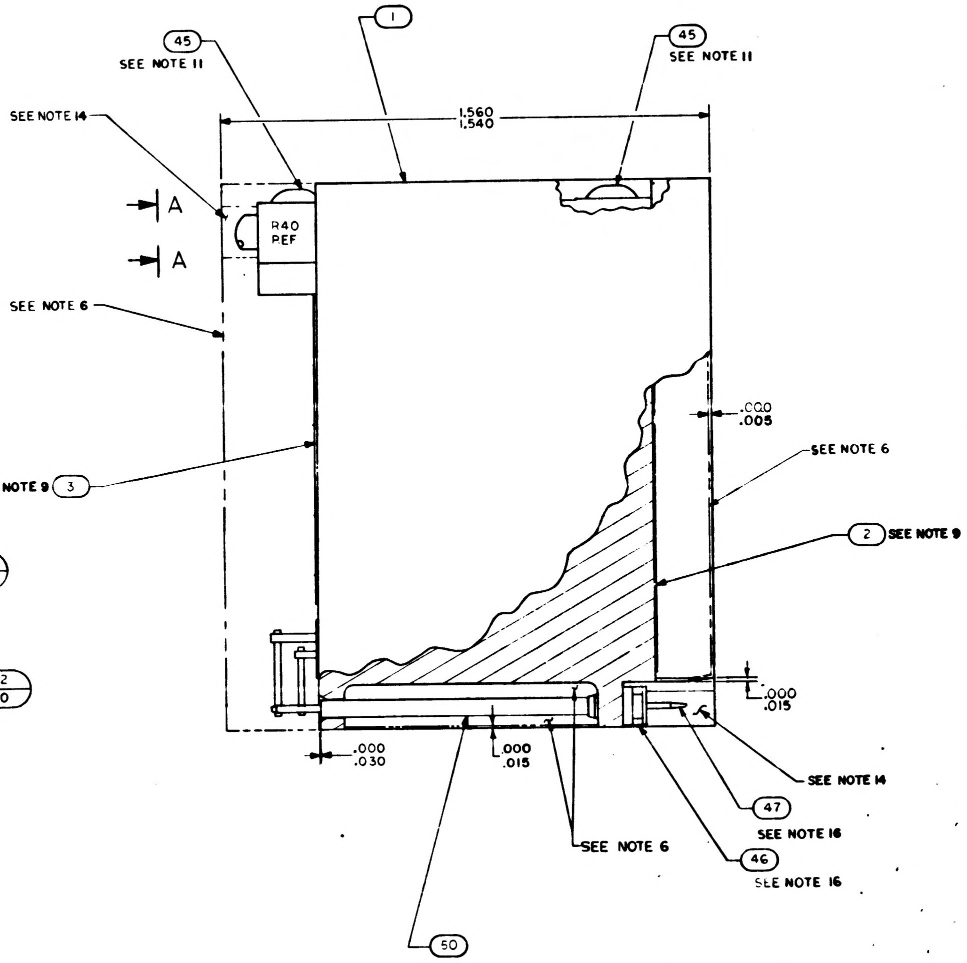
C3
17
R4
4



45
SEE NOTE 11
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45
SEE NOTE 11
SEE NOTE 14
1.560
1.540
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A
R40
REF
SEE NOTE 6
.CO0
.005
SEE NOTE 6
SEE NOTE 9
3
2
SEE NOTE 9
.000
.015
SEE NOTE 14
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SEE NOTE 16
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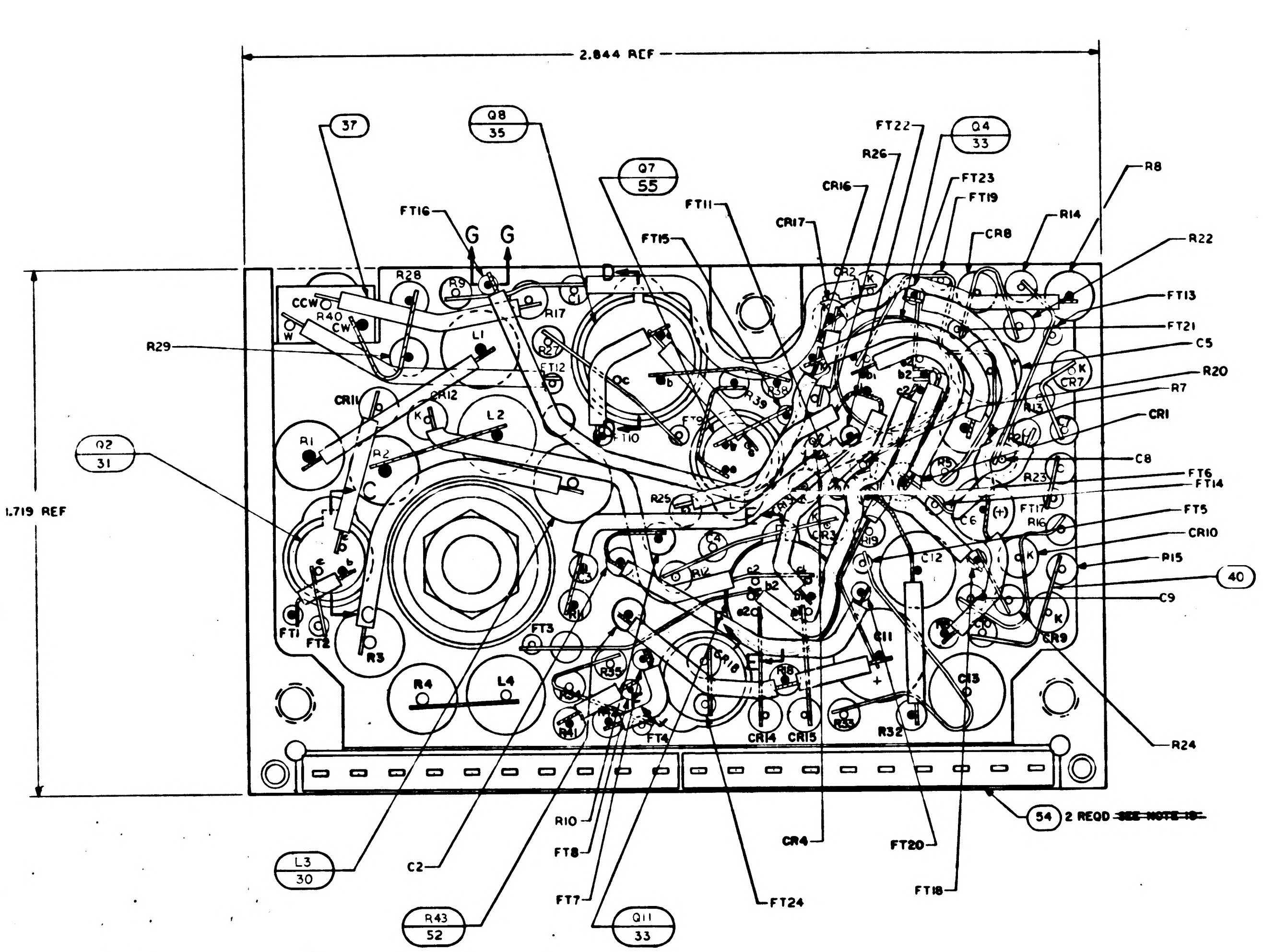
SEE NOTE 16
SEE NOTE 6
.000
.030
.000
.015
50



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Q7
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Q4
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FT22
R26
CR16
FT23
FT19
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FT16
G
G
FT11
FT15
CR17
CR8
R14
R22
CCW
CW
W
R40
R28
R9
R17
FT13
FT21
C5
R29
L1
FT12
CR7
R20
R7
CR1
CR11
CR12
L2
Q2
31
R1
R2
C8
FT6
FT14
FT5
CR10
R15
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C9
FT1
FT2
R3
FT3
R4
L4
C12
C11
C13
CR9
R24
R25
R16
R23
FT17
CR14
CR15
R32
R31
54
2 REQD ~~SEE NOTE 18~~
L3
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C2
R10
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FT7
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Q11
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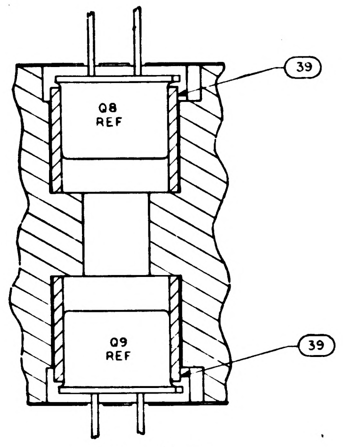
FT24
CR4
FT20
FT18



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REF
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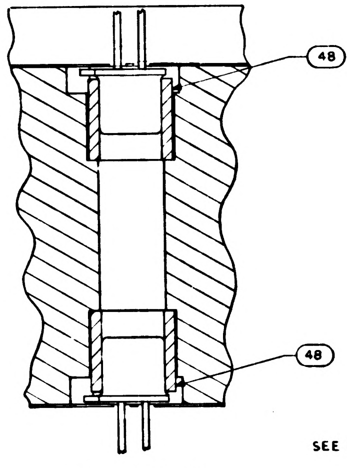
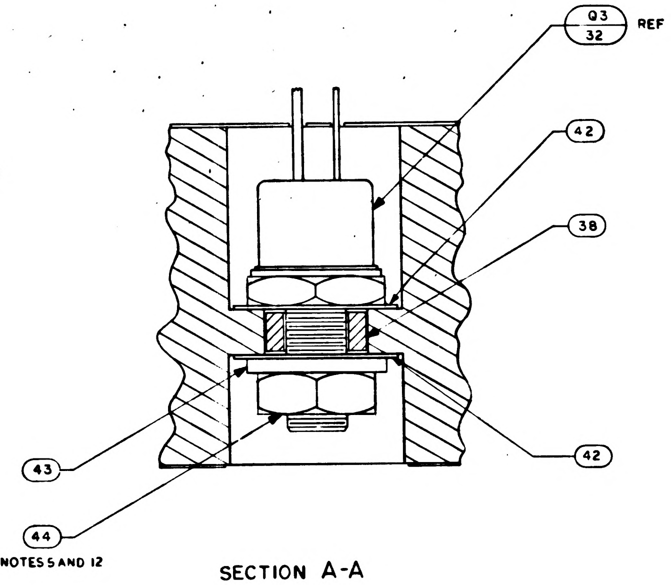
Q9
REF

SECTION D-D



SECTION C-C
2 PLACES
TYPICAL INSTALLATION FOR
FIND NO. 31 AND 34



Q3
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REF
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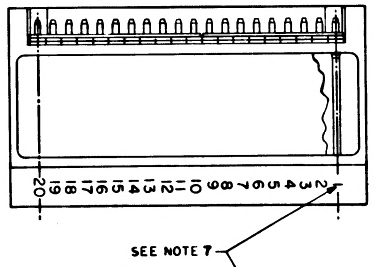
42
SEE NOTES 5 AND 12

SECTION A-A



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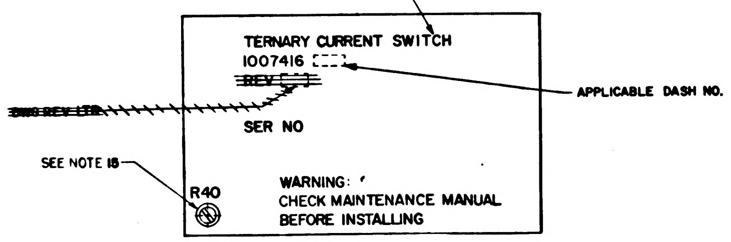
SEE NOTE 7



TERNARY CURRENT SWITCH
1007416
REV
~~DWG REV LTR~~
SER NO
APPLICABLE DASH NO.
SEE NOTE 18
R40
WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2/1

			⊠		10016
			2		1096
			2		0854
			1		1037
			1		0675
			AR		0677
			AR		0677
			2		0675
			4		0802
			20		0678
			20		0677
			2		0009
			1		15356
			1		0802
			2		0802
			AR		0678
			AR		00675
			2		00802
			1		00802
			AR		00677
			2		01060
			~~2~~		~~0067~~
			4		010376
			1		01026
			2		01035
			4		010386
			2		01038
			3		01039
			6		01038
			4		01083
			1		01039
			2		0067
			4		0067
			2		0067
			4		0067
			1		01037
			2		0103
			2		101036
			2		0067
			1		0103
			1		0103
			1		10067
			6		1006
			2		1006
			3		1006
			1		10103
			6		1006
			2		1006
			2		100
			4		10103
			1		1009
			1		1008
			1		1007
	-		011	EFFECTIVITY	
QUANTITY REQUIRED					

007574		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± -//- DECIMALS XX±.02 XXX±.005 ANGLES ± -//-
DO NOT SCALE THIS DRAWING

MATERIAL -//-

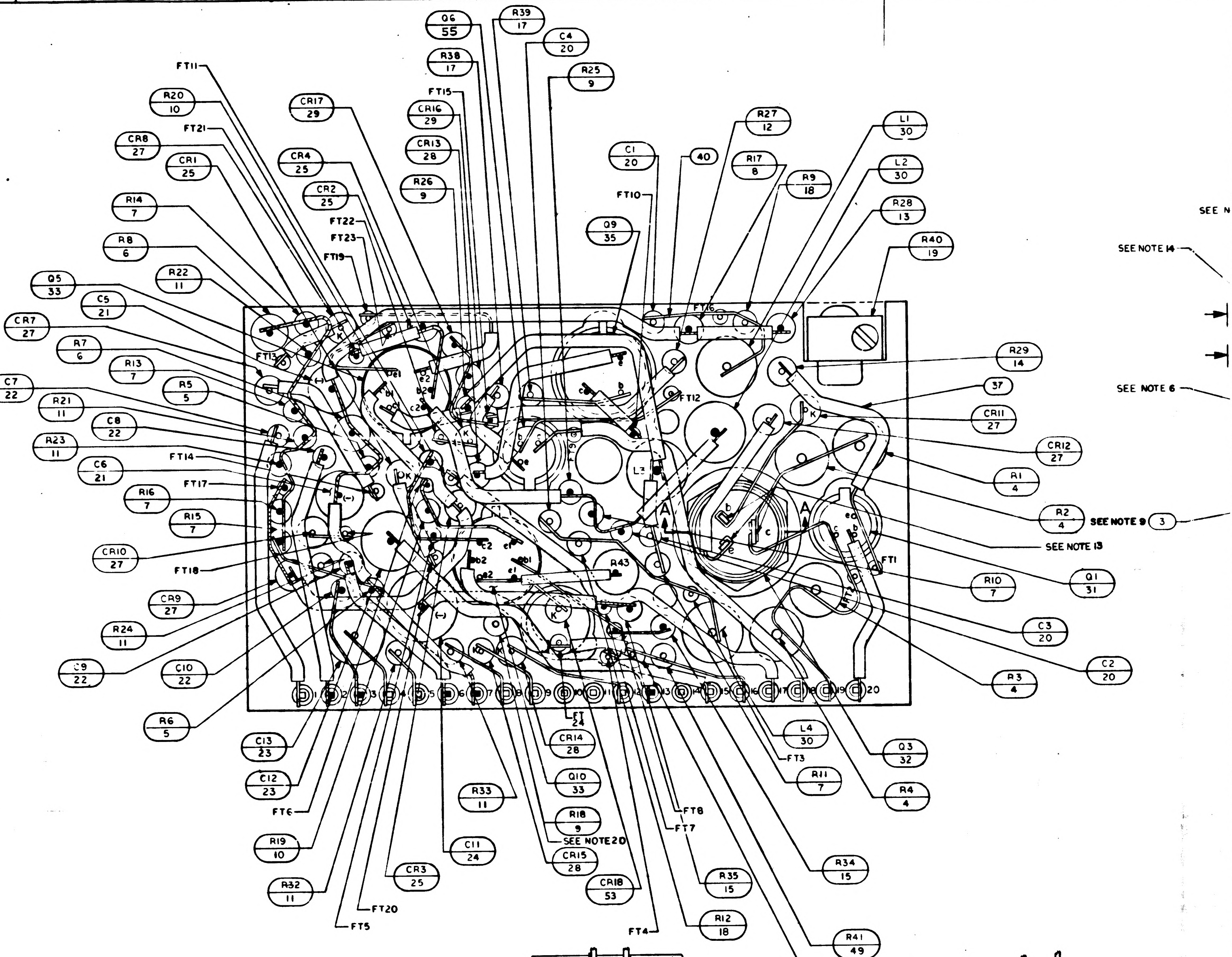
HEAT TREATMENT -//-

FINAL FINISH -//-

DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE, 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE~~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R39 17
C4 20
R38 17
R25 9
FT15
FT11
R20 10
CR17 29
CR16 29
CR13 28
R27 12
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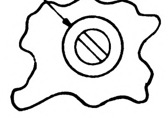
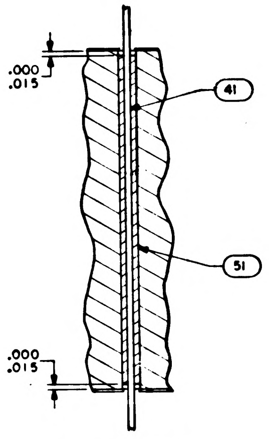
FT21
CR8 27
CR1 25
CR4 25
C1 20
40
R17 8
R9 18
L2 30
R26 9
CR2 25
FT10
R28 13
R14 7
FT22
FT23
Q9 35
R40 19
R8 6
FT19
R22 11
Q5 33
C5 21
CR7 27
R7 6
FT13
R13 7
C7 22
R5 5
R21 11
C8 22
R23 11
FT14
C6 21
FT17
R16 7
R15 7
CR10 27
FT18
CR9 27
R24 11
C9 22
C10 22
R6 5
C13 23
C12 23
FT6
R19 10
R32 11
FT5
FT20
CR3 25
C11 24
R33 11
R18 9
SEE NOTE 20
CR15 28
CR18 53
Q10 33
CR14 28
FT 24
FT8
FT7
R35 15
R12 18
FT4
R41 49
R42 49
R34 15
R4 4
R11 7
FT3
L4 30
Q3 32
R3 4
C2 20
C3 20
R10 7
Q1 31
FT1
SEE NOTE 13
R2 4
SEE NOTE 9 3
R1 4
CR12 27
CR11 27
37
R29 14
SEE NOTE 6
SEE NOTE 14
FT12
FT16
R43
A
A
K
L1
L2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20



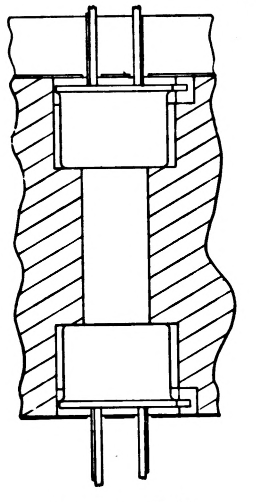
VIEW A-A

NOTES:

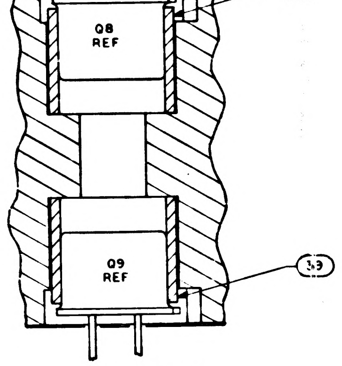
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. APPLY SEALING COMPOUND, MIL-S-22473 GRADE A TO FIND NO. 44
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
8. STAKE FIND NO. 4 THRU FIND NO. 15, 17 THRU 25, 27 THRU 35, 38, 39, 49, 52, & 53 PER ND1002009 METHOD J.
9. ON FIND NO'S 2 AND 3
   - BROKEN PATHS INDICATE INSULATION SLEEVING
   - K INDICATES CATHODE SIDE OF DIODE
   - FT() INDICATES FEED THRU
   - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
   - C INDICATES COLLECTOR LEAD OF TRANSISTOR
   - B INDICATES BASE LEAD OF TRANSISTOR,
   - E INDICATES EMITTER LEAD OF TRANSISTOR
   - B() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   - B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   - E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
10. AR DENOTES AS REQUIRED
11. APPLY ZINC CHROMATE PRIMER MIL-P-8585 TO THREADS OF FIND NO.45
12. MOUNTING TORQUE FOR FIND NO.44, 10/15 INCH POUNDS
13. SOLDER PER ND1002071
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD J.
16. INSTALL FIND NO.46 AND FIND NO. 47 PER ND 1002136
17. PROCURE PER PS 1007016
18. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
19. ~~BOND FIND NO. 54 TO FIND NO 48 PER ND1002237~~
20. CUT LEAD OF FIND NO. 9 AT INSULATOR LEVEL
21. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPLY ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.


.000
.015
41
51
.000
.015

SECTION G-G



SECTION E-E
2 PLACES
TYPICAL INSTALLATION FOR FIND NO. 33

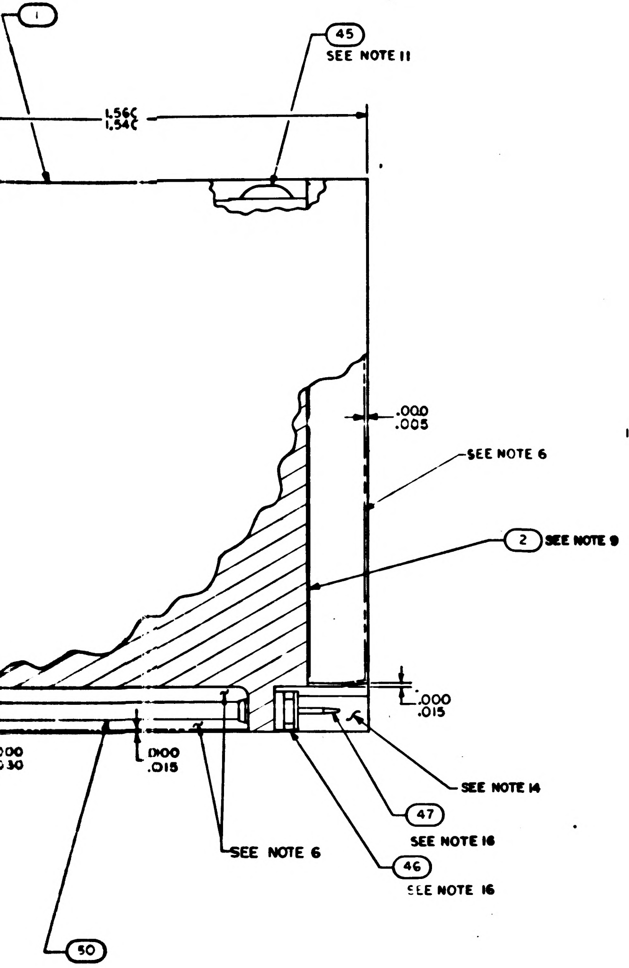

Q8 REF
Q9 REF
39
39

SECTION D-D

1007416 REV F

1-/-1007416

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17317	2-14 65	M Y EF
B	REVISED PER TDRR-19456	1-JUN 65	B. AU
C	REVISED PER TDRR 19525	9 JUN 65	WJK
D	REVISED PER TDRR 20143	19 JUN 65	DKD
E	REVISED PER TDRR 21279	30 JUL 65	RWH
F	REVISED PER TDRR 24381	6 DEC 65	
G	REPLACES REV F, REV F MASTER DAMAGED IN REPRODUCTION PER TDRR 26047	9 FEB 1966	WJK



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45
SEE NOTE 11
1.560
1.540
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SEE NOTE 6
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SEE NOTE 9
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SEE NOTE 14
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SEE NOTE 16
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SEE NOTE 16
SEE NOTE 6
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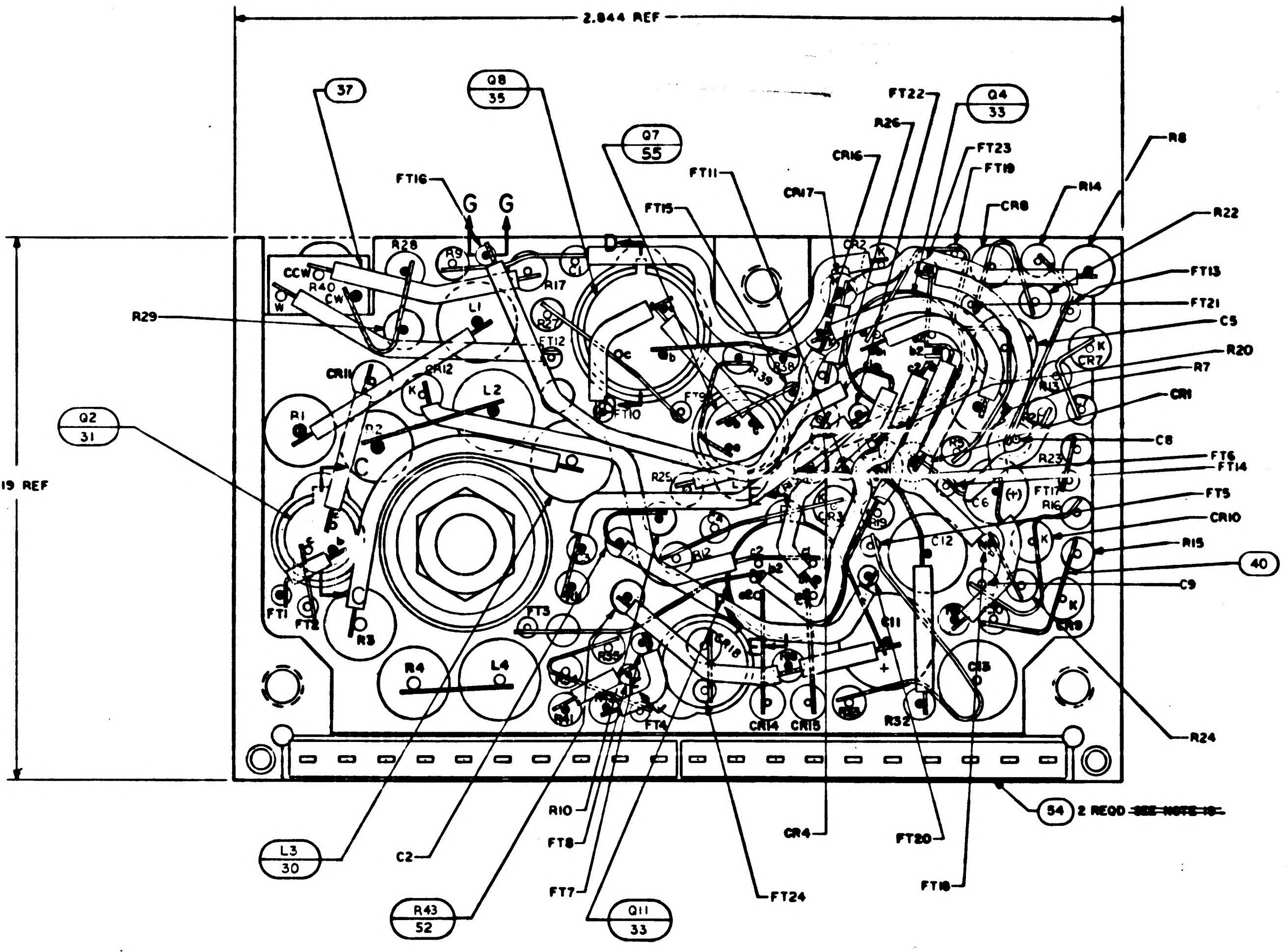

2.844 REF
1.719 REF
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Q8
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Q7
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Q4
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Q2
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L3
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R43
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Q11
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2 REQD
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FT16
FT11
FT15
CR17
CR16
R26
FT22
FT23
FT19
CR8
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FT13
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C5
R20
R7
CR1
C8
FT6
FT14
FT5
CR10
R15
C9
R24
R29
R28
R9
R40
CCW
CW
R17
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L2
R1
R25
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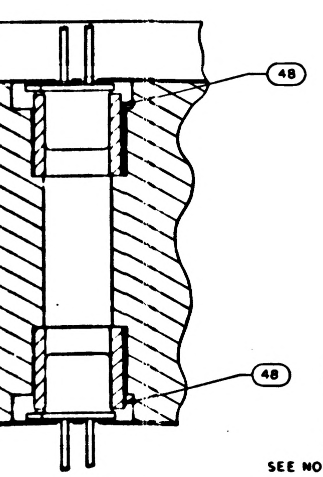
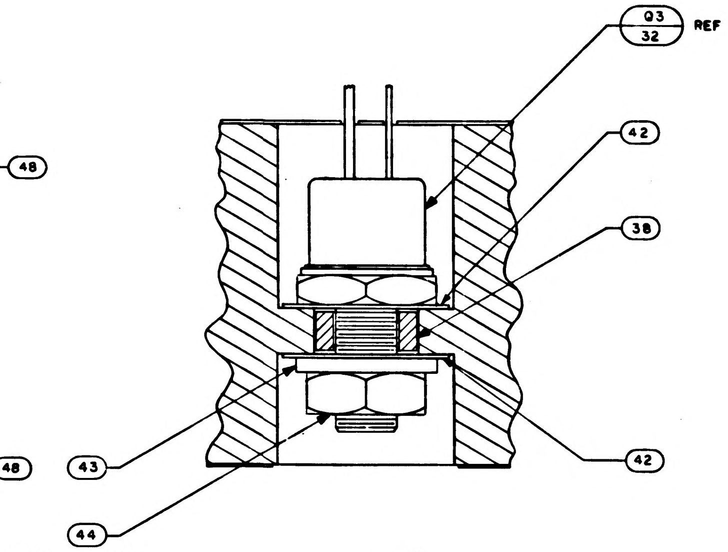
C2
CR4
FT20
FT18
FT24



SECTION C-C
2 PLACES
TYPICAL INSTALLATION FOR FIND NO. 31 AND 34



Q3
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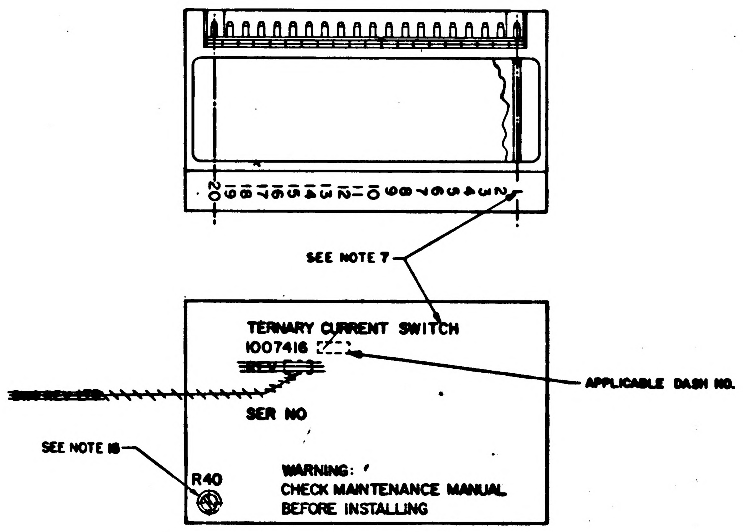
SEE NOTES 5 AND 12

SECTION A-A



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SEE NOTE 7
TERNARY CURRENT SWITCH
1007416
REV
SER NO
APPLICABLE DASH NO.
SEE NOTE 18
R40
WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2/1

			⊠		1010016	SCHEMATIC DIAGRAM ELECTRICAL	REF
			2		1010966-1	TRANSISTOR	55
			2		1008540-10	GASKET, CONNECTOR MINIATURE	54
			1		1010372-6	DIODE	53
			1		1006750-40	RESISTOR	52
			AR		1006776-22	INSULATION SLEEVING	51
			AR		1006776-20	INSULATION SLEEVING	50
			2		1006750-53	RESISTOR, FIXED MF 7.5K 1/4W ± 2%	49
			4		1008025-1	INSULATOR, BUSHING	48
			20		1006782-4	CONTACT, WRAPOST MALE MINAT	47
			20		1006775	INSULATOR, WRAPOST MALE MINAT	46
			2		1000093-3	SCREW, BUTTON HEAD	45
			1		MS35650-104	NUT, PLAIN, HEX	44
			1		1008020-1	WASHER, FLAT	43
			2		1008024-1	WASHER, INSULATOR	42
			AR		1006787-2	WIRE, ELEC .020 DIA	41
			AR		1006757-1	WIRE, ELEC .010 X .020	40
			2		1008025-2	INSULATOR, BUSHING	39
			1		1008021-1	INSULATOR, BUSHING	38
			AR		1006776-21	INSULATION SLEEVING	37
							36
			2		1010600	TRANSISTOR	35
			~~2~~		~~1006788~~	~~TRANSISTOR~~	34
			4		1010376-4	TRANSISTOR	33
			1		1010269-1	TRANSISTOR SP322	32
			2		1010357-1	TRANSISTOR	31
			4		1010388-39	INDUCTOR .01HY 75MA ±5%	30
			2		1010384	DIODE	29
			3		1010394	DIODE	28
			6		1010385	DIODE	27
							26
			4		1010833-1	DIODE	25
			1		1010393-39	CAP, FIXED TANT, 6.8UF 50V ±10%	24
			2		1006777-33	CAP, FIXED CER, .022UF 100V ±10%	23
			4		1006777-20	CAP., FIXED CER, 470UUF 100V ±10%	22
			2		1006755-73	CAP, FIXED TANT, 2.2UF 35V ±20%	21
			4		1006777-13	CAP., FIXED CER, 100UUF 100V ±10%	20
			1		1010373-10	RESISTOR, VAR, 10K 1W ±5%	19
			2		1010369-87	RESISTOR	18
			2		1010369-148	RESISTOR, FIXED COMP, 20 1/4W ±2%	17
							16
			2		1006750-53	RESISTOR, FIXED MF, 7.5K 1/4W ±2%	15
			1		1010364-683	RESISTOR, FIXED MF, 178K 1/8W ±1%	14
			1		1010364-635	RESISTOR, FIXED MF, 100K 1/8W ±1%	13
			1		1006750-62	RESISTOR, FIXED MF, 18K 1/4W ±2%	12
			6		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
			2		1006750-56	RESISTOR, FIXED MF, 10 K 1/4W ±2%	10
			3		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	9
			1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±1%	8
			6		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ±2%	7
			2		1006760-56	RESISTOR, FIXED MF, 10K 1/2W ±2%	6
			2		1006750-18	RESISTOR, FIXED MF, 270 1/4W ±2%	5
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	4
			1		1008019-2	INSULATOR, TOP	3
			1		1008019-1	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1
			-1	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS XX±.02 XXX±.005
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-4065
DRAWN J. Kelinger DATE 30 SEP 64
CHECKED A. Whmeh 3 OCT 64
APPROVAL
APPROVAL 7 Feb 66
NASA APPROVAL E. C. METZGER
MIT APPROVAL 9 Feb 66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH, COMPUTER OUTPUT, ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO
80230	J	1007416

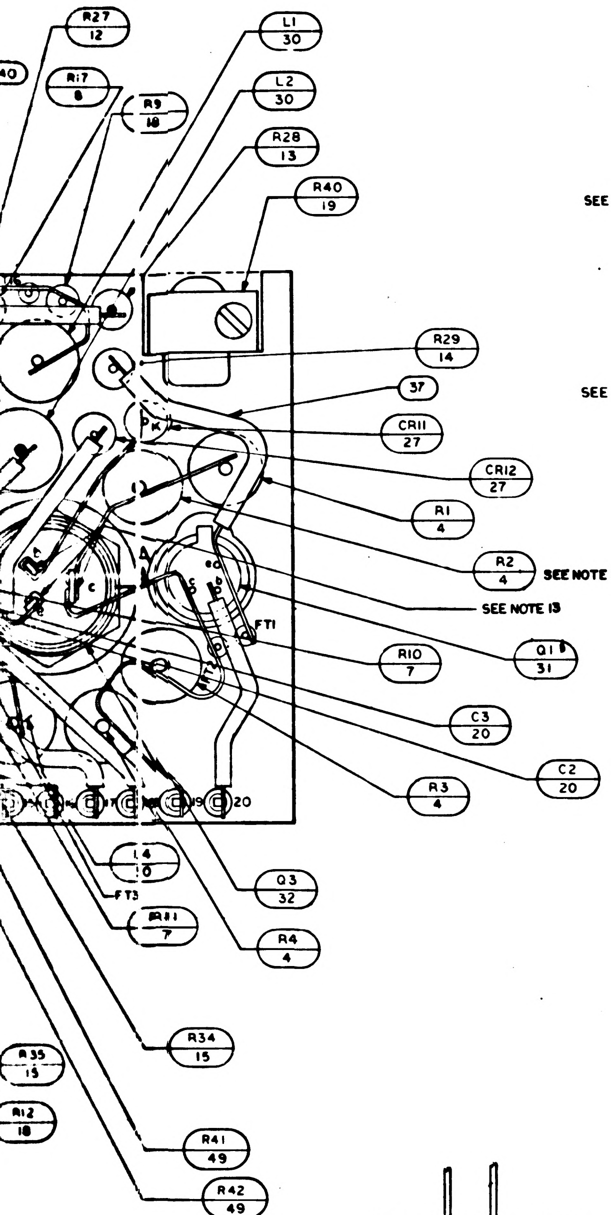
SCALE 5/1 WT SHEET 1 OF 1

1007416 REV G

F-3

3N

1007416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SEE NOTE 13
Q1 31
R10 7
C3 20
C2 20
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FT3
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R4 4
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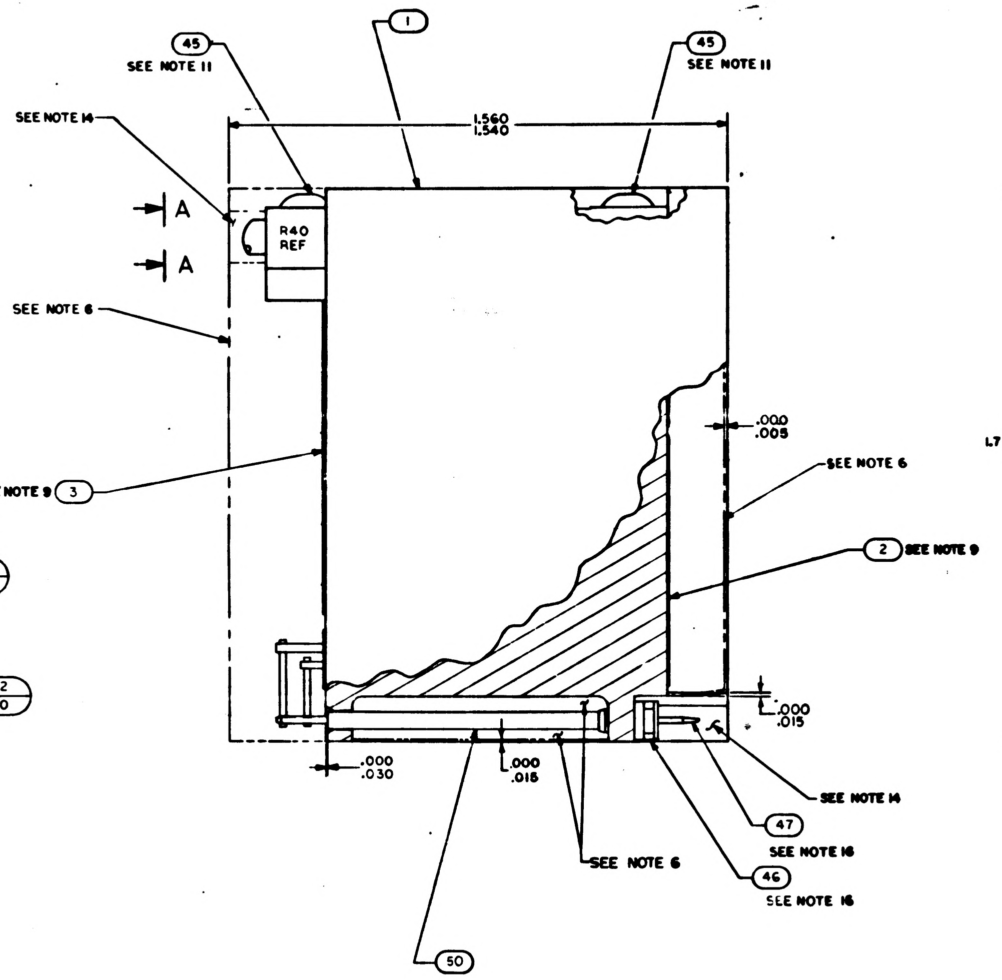
R42 49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SEE NOTE 14
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SEE NOTE 6
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SEE NOTE 16
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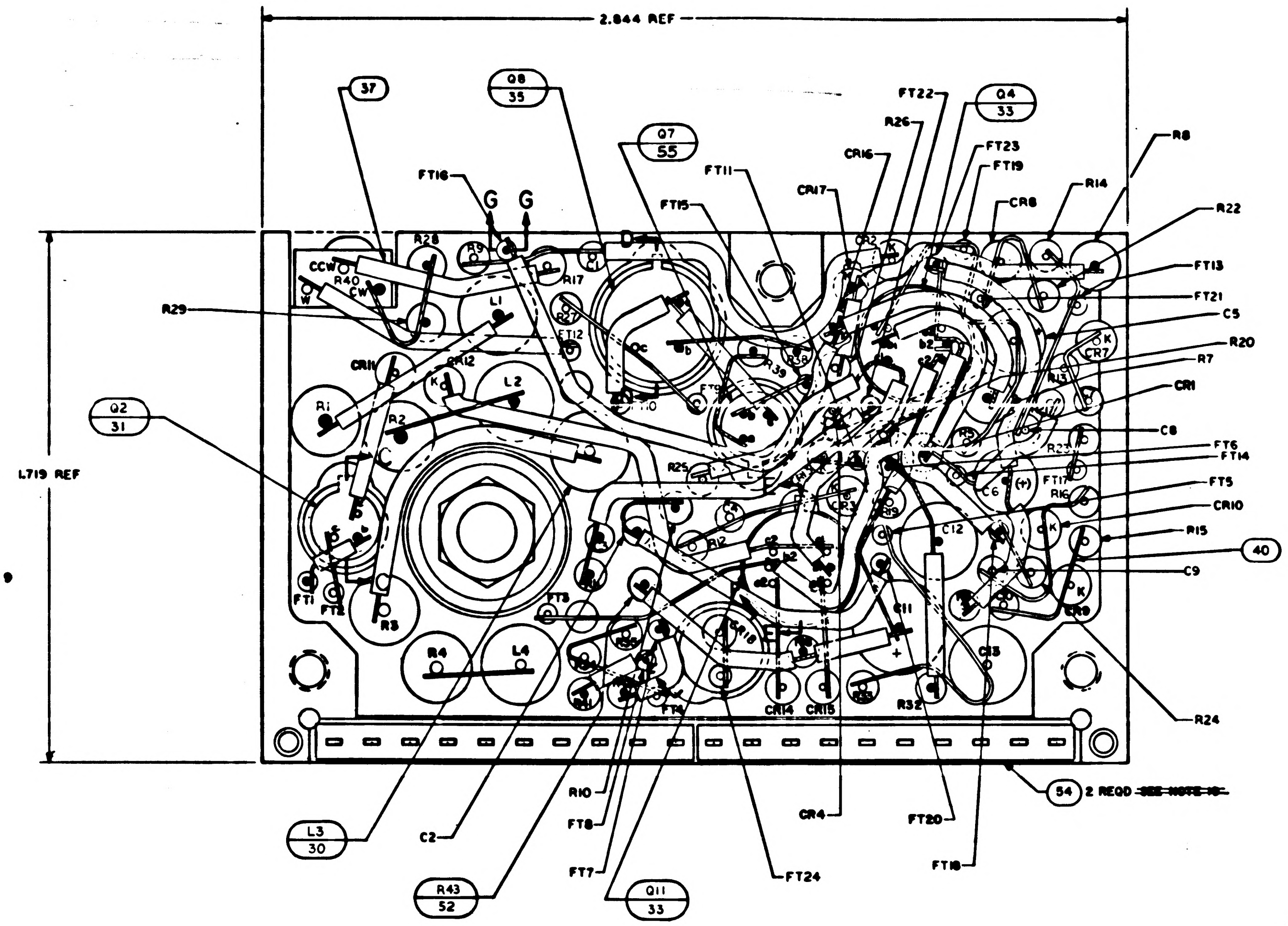
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FT23
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FT16
G G
FT15
D
CR8
R14
R22
R28
R9
CCW
R40
CW
W
R17
L1
FT12
R27
FT13
FT21
C5
R20
R7
CR1
R29
L719 REF
CR11
R12
L2
R1
R2
C
R25
Q2 31
C8
FT6
FT14
FT5
CR10
R15
40
C9
R24
FT1
FT2
R3
R4
L4
R16
C12
FT3
R11
C13
CR14
CR15
R32
FT4
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C2
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FT8
FT7
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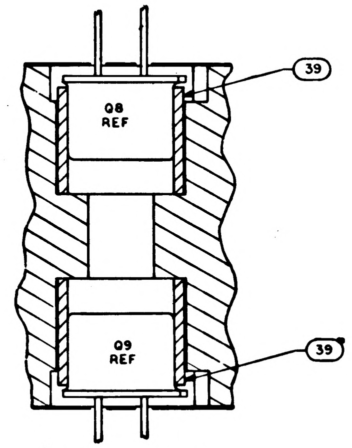
FT24
CR4
FT20
FT18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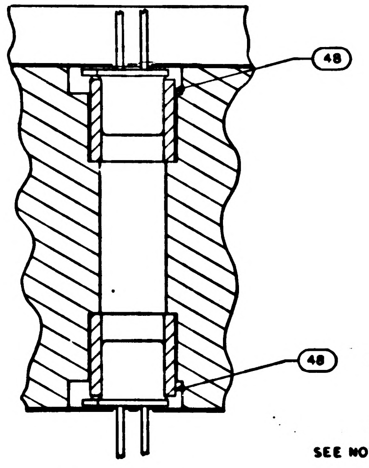
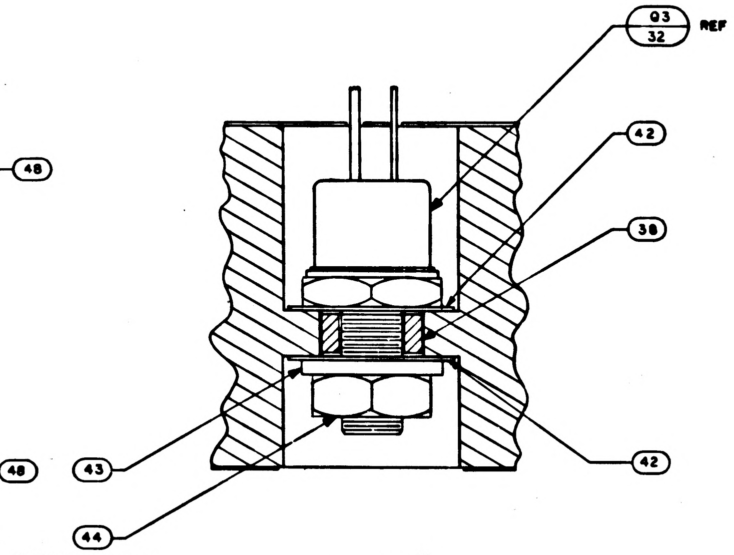
SECTION D-D



SECTION C-C
2 PLACES
TYPICAL INSTALLATION FOR
FIND NO. 31 AND 34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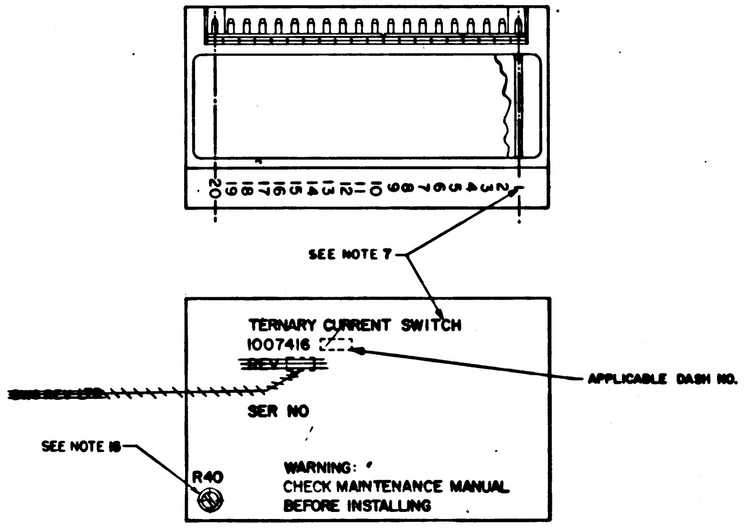
SEE NOTES 5 AND 12

SECTION A-A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SEE NOTE 7
TERNARY CURRENT SWITCH
1007416
~~REV~~
APPLICABLE DASH NO.
SER NO
SEE NOTE 18
R40
WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2/1

F2

1007574		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

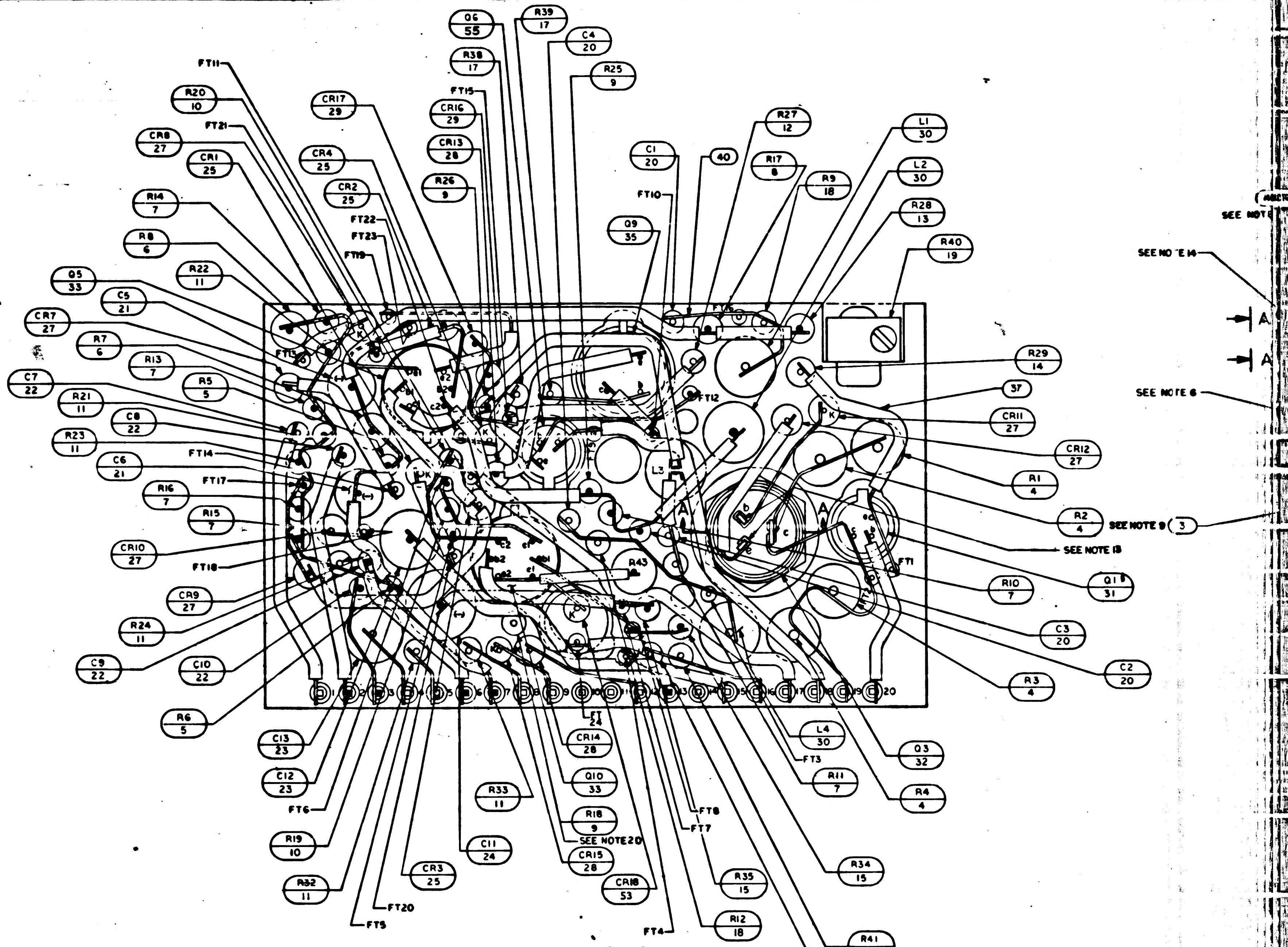
QUANTITY
UNLESS OTHERWISE
DIMENSIONS ARE IN
TOLERANCES ON
FRACTIONS DECI
± XX±
XXX±
DO NOT SCALE THIS
MATERIAL

~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE~~

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. APPLY SEALING COMPOUND, MIL-S-22473 GRADE A TO FIND NO. 44
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
8. STAKE FIND NO. 4 THRU FIND NO. 15, 17 THRU 25, 27 THRU 35, 38, 39, 40, 52, & 53 PER ND1002009 METHOD J.
9. ON FIND NO'S 2 AND 3
   - BROKEN PATHS INDICATE INSULATION SLEEVING
   - K INDICATES CATHODE SIDE OF DIODE
   - FT() INDICATES FEED THRU
   - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
   - C INDICATES COLLECTOR LEAD OF TRANSISTOR
   - B INDICATES BASE LEAD OF TRANSISTOR,
   - E INDICATES EMITTER LEAD OF TRANSISTOR
   - B() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   - B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   - E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
10. AR DENOTES AS REQUIRED
11. APPLY ZINC CHROMATE PRIMER MIL-P-8585 TO THREADS OF FIND NO. 45
12. MOUNTING TORQUE FOR FIND NO. 44, 10/15 INCH POUNDS
13. SOLDER PER ND 1002071
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD J.
16. INSTALL FIND NO. 46 AND FIND NO. 47 PER ND 1002136
17. PROCURE PER PS 1007016
18. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
19. ~~BOND FIND NO. 34 TO FIND NO 48 PER ND[illegible]~~
20. CUT LEAD OF FIND NO. 9 AT INSULATOR LEVEL
21. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002197 TYPE I.~~
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPLY ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002197 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.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FT22
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FT23
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FT16
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FT13
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C7 22
R5 5
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FT12
R21 11
C8 22
CR11 27
R23 11
CR12 27
FT14
C6 21
L3
R1 4
FT17
R16 7
A
R2 4
SEE NOTE 9 (3)
R15 7
SEE NOTE 13
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FT1
FT18
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C3 20
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C2 20
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FT 24
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Q3 32
FT3
C12 23
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FT6
R4 4
R18 9
FT8
SEE NOTE 20
FT7
R19 10
C11 24
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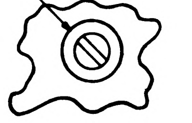
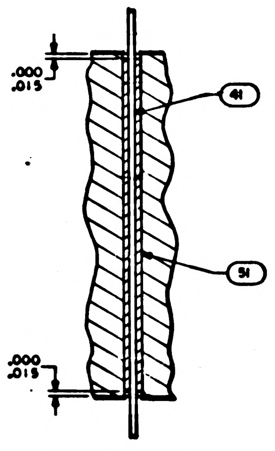
SEE NOTE 6



VIEW A-A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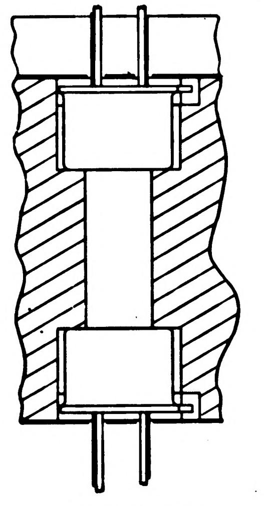
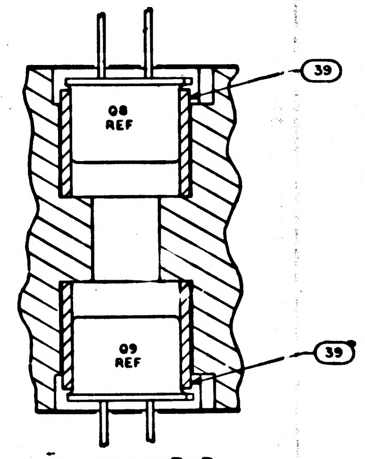
SECTION G-G



SECTION E-E
2 PLACES
TYPICAL INSTALLATION FOR FIND NO. 33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Q9 REF
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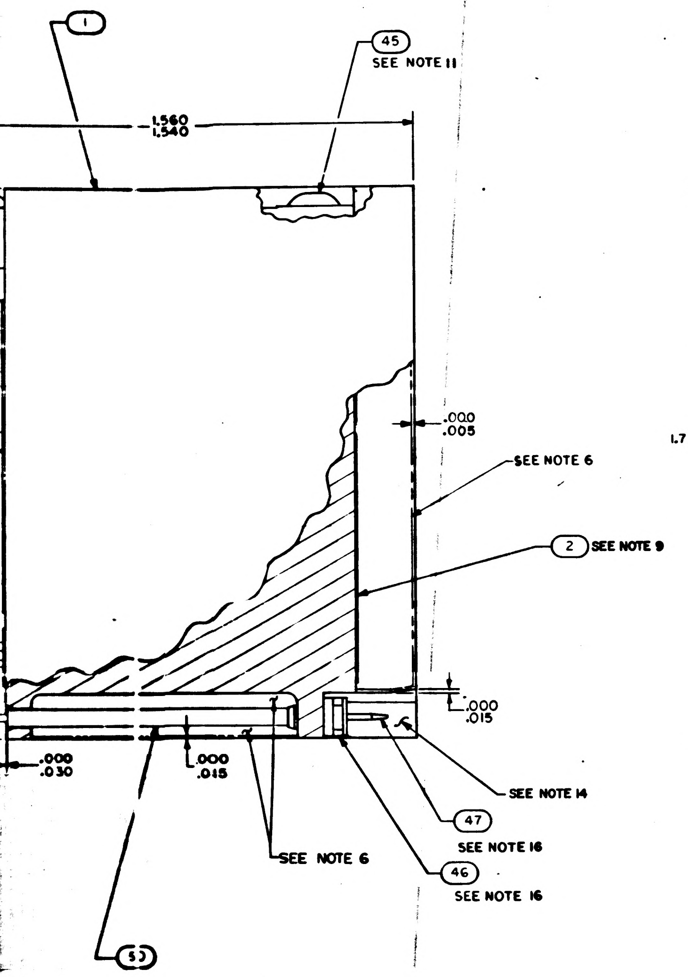
SECTION D-D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL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SEE NOTE 14
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SEE NOTE 16
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SEE NOTE 16
SEE NOTE 6
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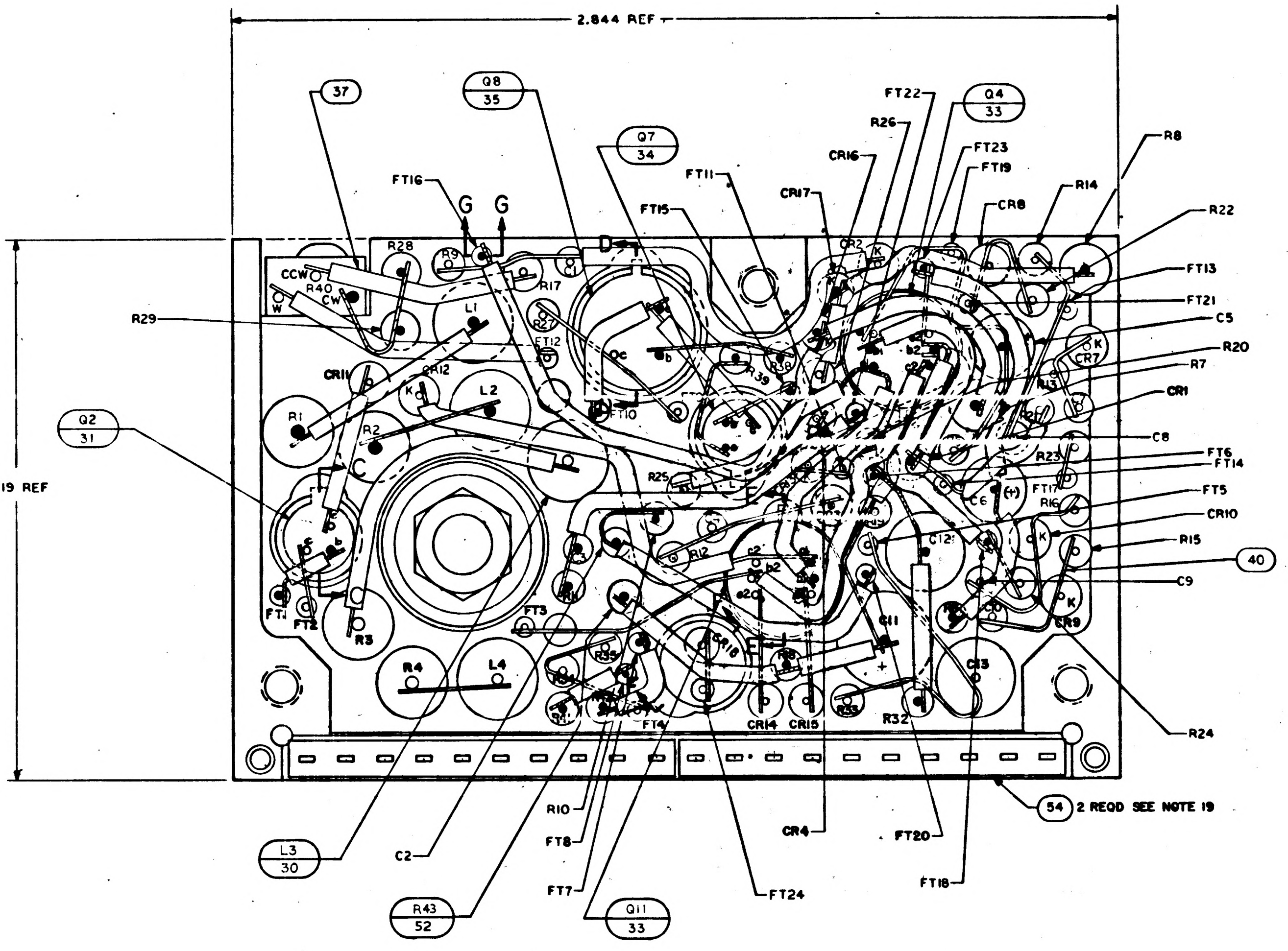
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Q7 34
FT16
G
G
FT11
FT15
CR16
CR17
FT22
R26
Q4 33
FT23
FT19
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R8
R22
R28
R9
CCW
R40
CW
W
R17
L1
R29
CR12
CR11
R1
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C5
R20
R7
CR1
C8
FT6
FT14
FT5
CR10
R15
40
C9
CR9
Q2 31
R25
R23
R16
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CR18
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R33
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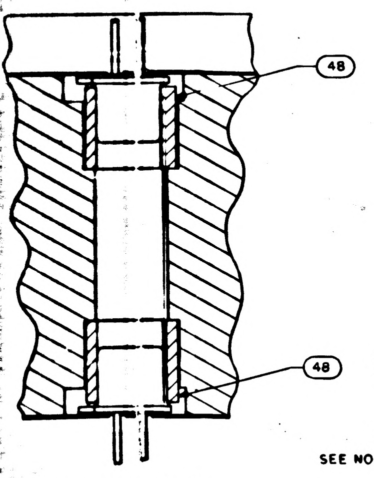
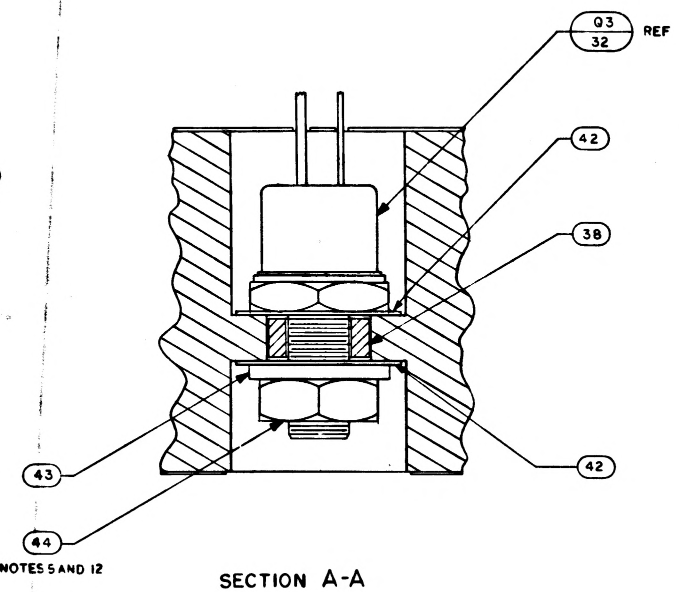
CR4
FT20
FT24
FT18



SECTION C-C
2 PLACES
TYPICAL INSTALLATION FOR
FIND NO. 31 AND 34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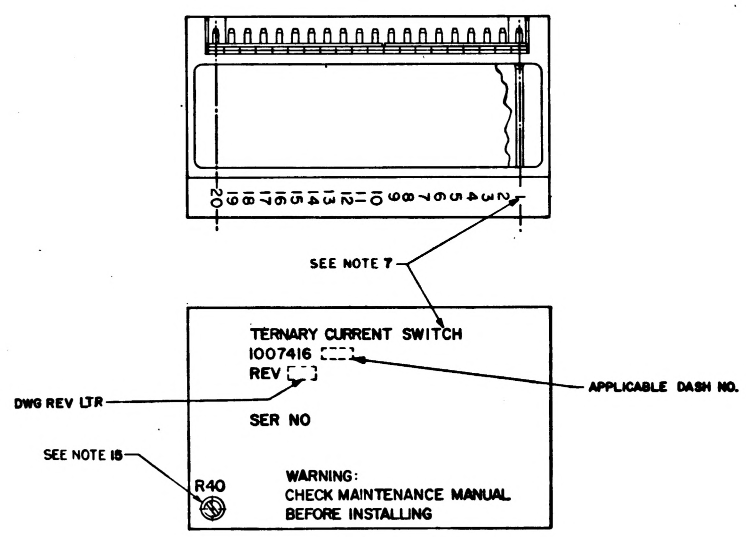
SEE NOTES 5 AND 12

SECTION A-A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TERNARY CURRENT SWITCH
1007416
REV
APPLICABLE DASH NO.
DWG REV LTR
SER NO
SEE NOTE 18
R40
WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			011			LIST OF MATERIALS	
			☒		1010016	SCHEMATIC DIAGRAM ELECTRICAL	REF
			2		1008540-10	GASKET, CONNECTOR MINIATURE	54
			1		1010372-6	DIODE	53
			1		1006750-40	RESISTOR	52
			AR		1006776-22	INSULATION SLEEVING	51
			AR		1006776-20	INSULATION SLEEVING	50
			2		1006750-53	RESISTOR, FIXED MF 7.5K 1/4W ± 2%	49
			4		1008025-1	INSULATOR, BUSHING	48
			20		1006782-4	CONTACT, WRAPOST MALE MINAT	47
			20		1006775	INSULATOR, WRAPOST MALE MINAT	46
			2		1000093-3	SCREW, BUTTON HEAD	45
			1		MS35650-104	NUT, PLAIN, HEX	44
			1		1008020-1	WASHER, FLAT	43
			2		1008024-1	WASHER, INSULATOR	42
			AR		1006787-2	WIRE, ELEC .020 DIA	41
			AR		1006757-1	WIRE, ELEC .010 X .020	40
			2		1008025-2	INSULATOR, BUSHING	39
			1		1008021-1	INSULATOR, BUSHING	38
			AR		1006776-21	INSULATION SLEEVING	37
							36
			2		1010600	TRANSISTOR	35
			2		1006752	TRANSISTOR	34
			4		1010376-4	TRANSISTOR	33
			1		1010269-1	TRANSISTOR SP322	32
			2		1010357-1	TRANSISTOR	31
			4		1010388-39	INDUCTOR .01HY 75MA ±5%	30
			2		1010384	DIODE	29
			3		1010394	DIODE	28
			6		1010385	DIODE	27
							26
			4		1010462-6	DIODE	25
			1		1010393-39	CAP, FIXED TANT, 6.8UF 50V ±10%	24
			2		1006777-33	CAP, FIXED CER, .022UF 100V ±10%	23
			4		1006777-20	CAP., FIXED CER, 470UUF 100V ±10%	22
			2		1006755-73	CAP, FIXED TANT, 2.2UF 35V ±20%	21
			4		1006777-13	CAP., FIXED CER, 100UUF 100V ±10%	20
			1		1010373-10	RESISTOR, VAR, 10K 1W ±5%	19
			2		1010369-87	RESISTOR	18
			2		1010369-148	RESISTOR, FIXED COMP, 20 1/4W ±2%	17
							16
			2		1006750-53	RESISTOR, FIXED MF, 7.5K 1/4W ±2%	15
			1		1010364-683	RESISTOR, FIXED MF, 178K 1/8W ±1%	14
			1		1010364-635	RESISTOR, FIXED MF, 100K 1/8W ±1%	13
			1		1006750-62	RESISTOR, FIXED MF, 18K 1/4W ±2%	12
			6		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
			2		1006750-56	RESISTOR, FIXED MF, 10 K 1/4W ±2%	10
			3		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	9
			1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±1%	8
			6		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ±2%	7
			2		1006760-56	RESISTOR, FIXED MF, 10K 1/2W ±2%	6
			2		1006750-18	RESISTOR, FIXED MF, 270 1/4W ±2%	5
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	4
			1		1008019-2	INSULATOR, TOP	3
			1		1008019-1	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —//— DECIMALS XX±.02 XXX±.005 ANGLES ± —//—
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497
DRAWN J. Kilinger DATE 30 SEP 64
CHECKED A. Ulrich 3 OCT 64
APPROVAL
APPROVAL 11/9/64
NASA APPROVAL 1-12-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

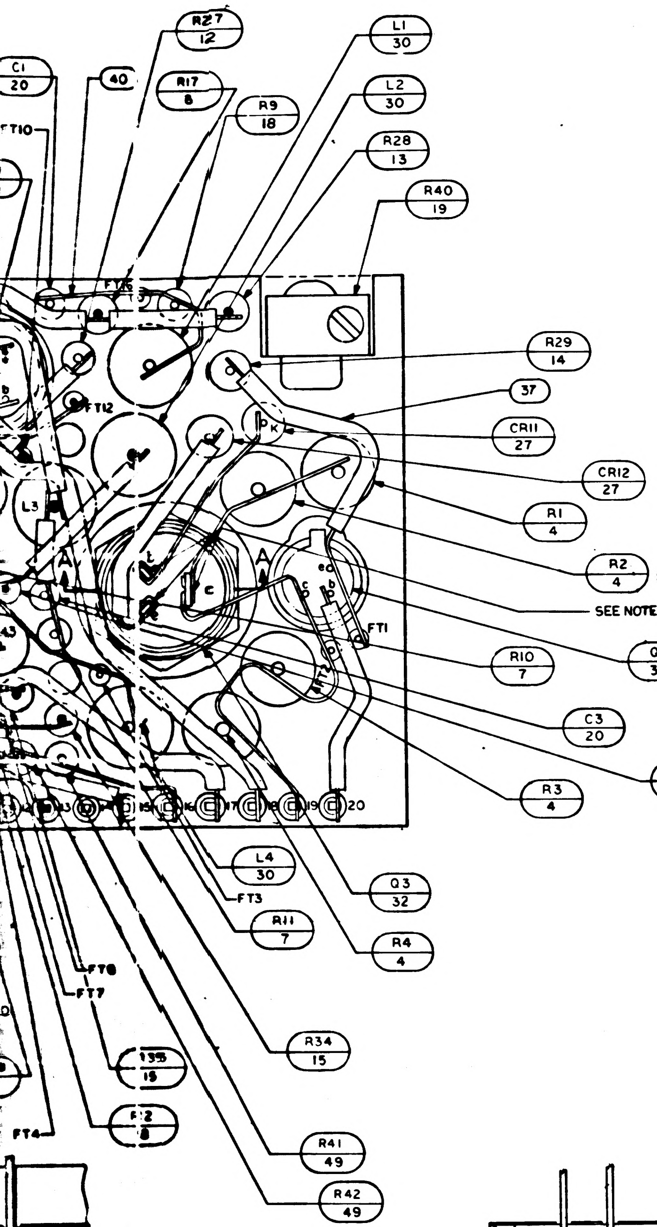
TERNARY CURRENT SWITCH, COMPUTER OUTPUT, ASSEMBLY

CODE IDENT NO. —— SIZE J NASA DRAWING NO. 1007416
SCALE 5/1 WT SHEET 1 OF 1

1007416

1007416

3+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R2
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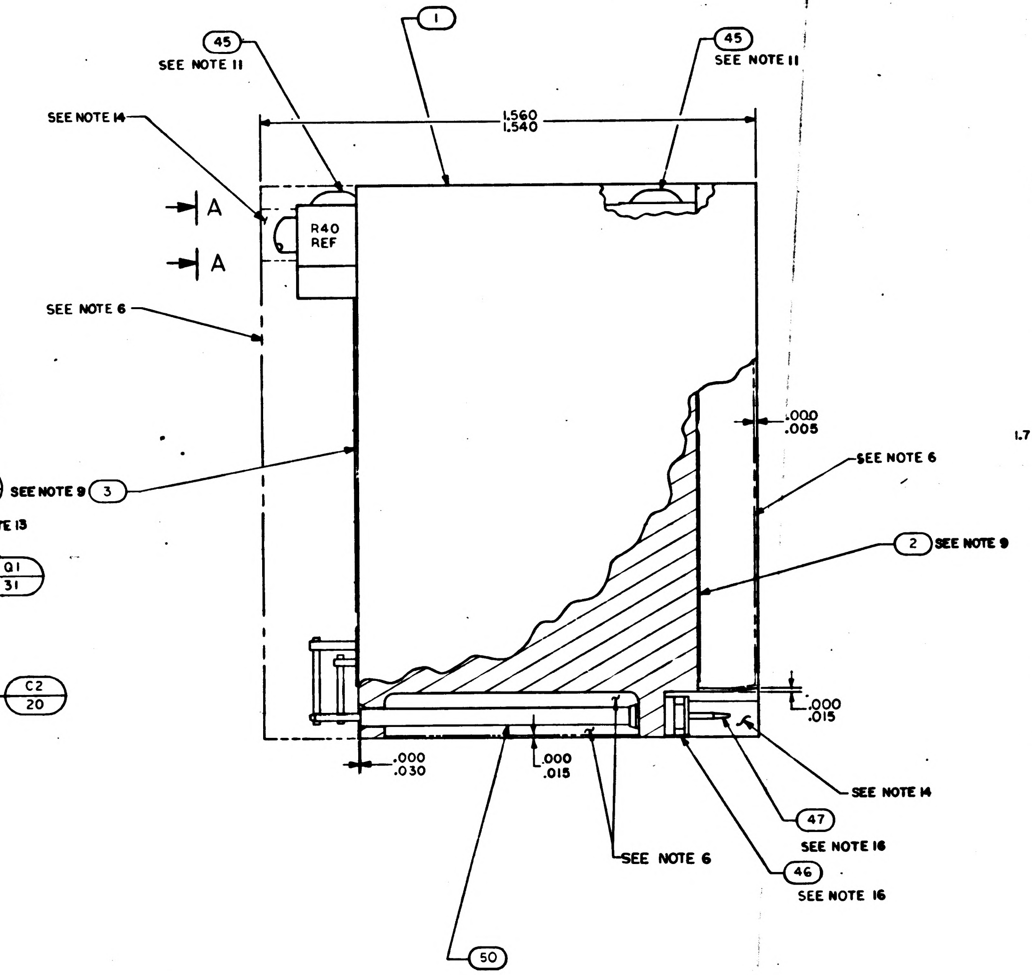
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SEE NOTE 6
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SEE NOTE 16
SEE NOTE 6
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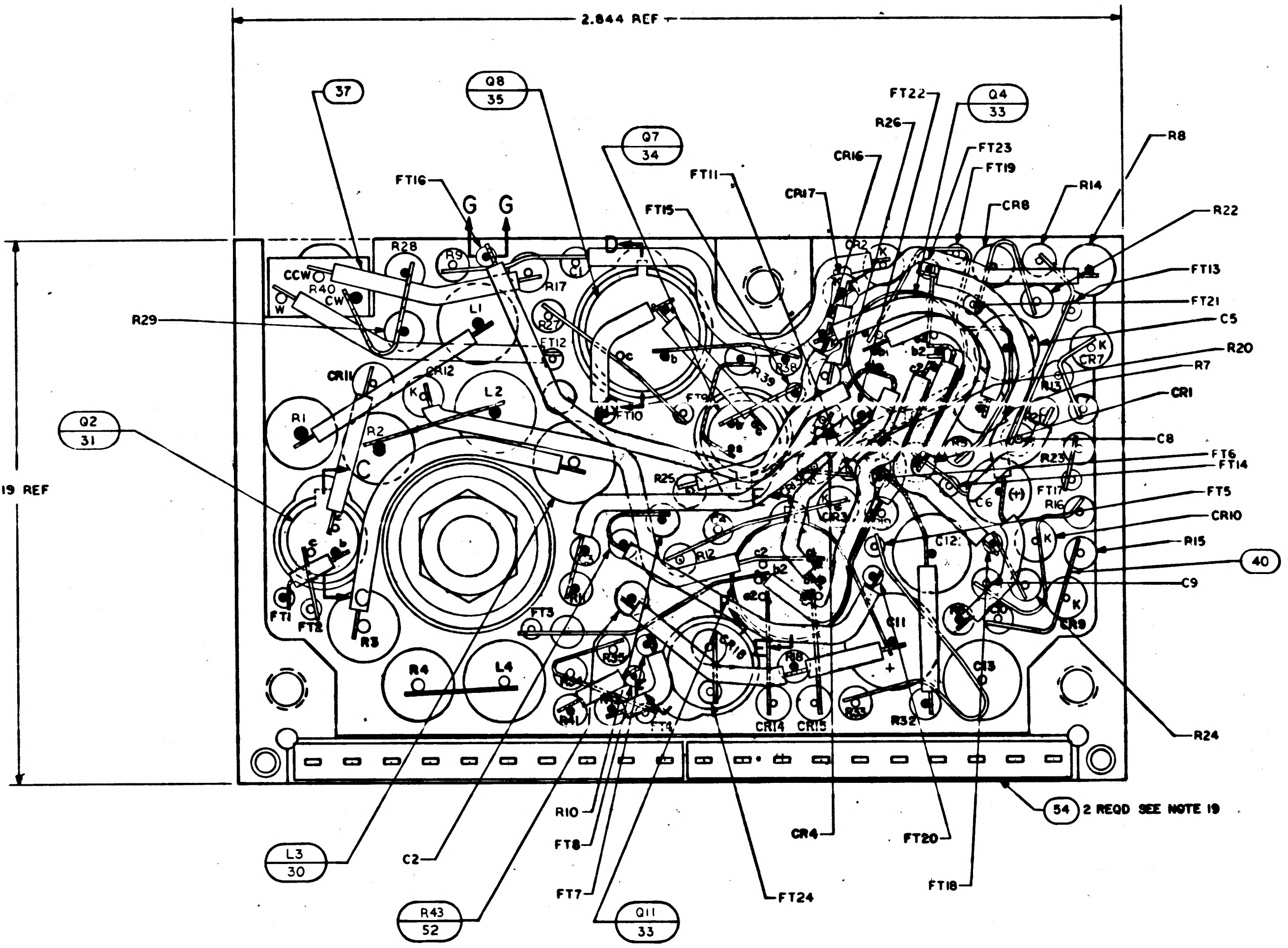
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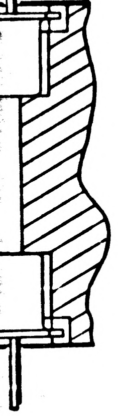
54
2 REQD SEE NOTE 19

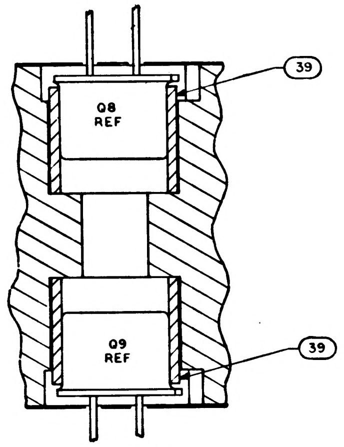


N E-E

CES

LLATION FOR

NO. 33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Q9
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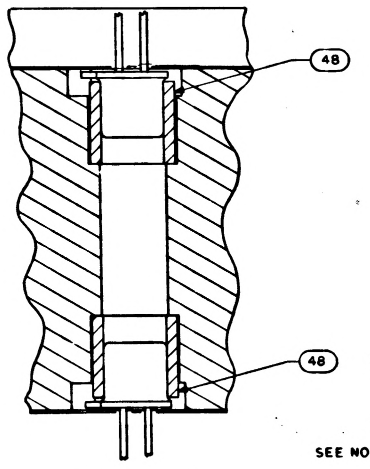
39

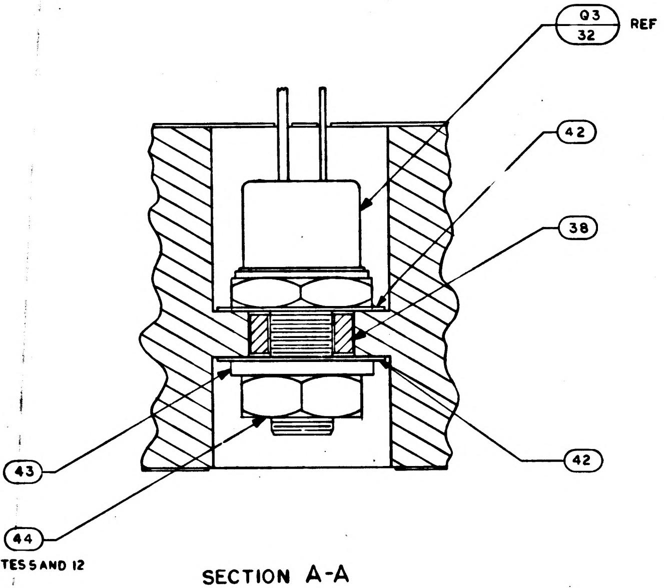
SECTION D-D



SECTION C-C

2 PLACES

TYPICAL INSTALLATION FOR FIND NO. 31 AND 34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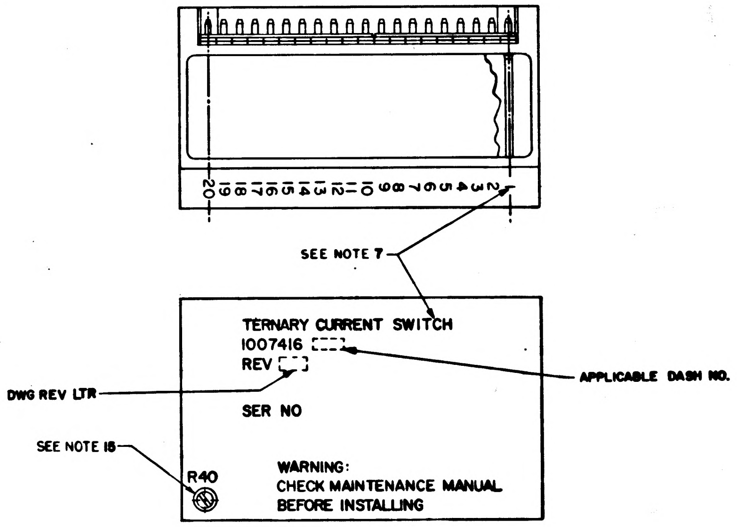
44
SEE NOTES 5 AND 12

SECTION A-A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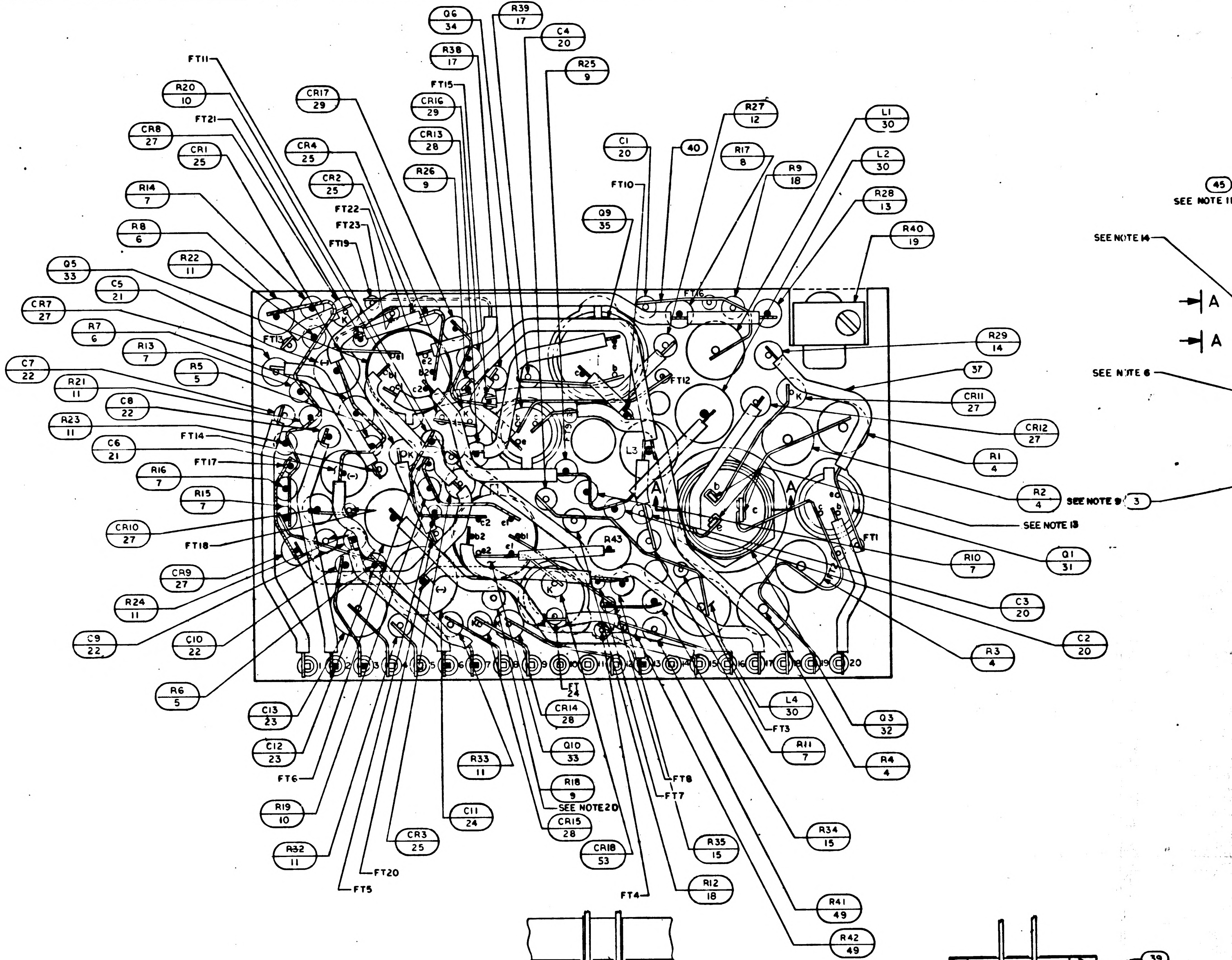
SEE NOTE 7
TERNARY CURRENT SWITCH
1007416
REV
APPLICABLE DASH NO.
DWG REV LTR
SER NO
SEE NOTE 18
R40
WARNING:
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW

SCALE 2/1

1007574		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APP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R38 17
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CR4 25
R27 12
L1 30
C1 20
40
R17 8
R26 9
L2 30
R9 18
CR2 25
FT10
R14 7
FT22
FT23
Q9 35
R28 13
45
SEE NOTE 1
R8 6
FT19
R40 19
SEE NOTE 14
R22 11
Q5 33
C5 21
CR7 27
FT16
R7 6
A
A
R29 14
FT13
R13 7
37
C7 22
R5 5
SEE NOTE 6
R21 11
FT12
CR11 27
C8 22
R23 11
CR12 27
FT14
C6 21
L3
R1 4
FT17
R16 7
R2 4
SEE NOTE 9
3
R15 7
SEE NOTE 13
CR10 27
R43
FT1
Q1 31
FT18
R10 7
CR9 27
C3 20
R24 11
C2 20
C9 22
C10 22
R3 4
R6 5
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L4 30
C13 23
CR14 28
FT3
Q3 32
C12 23
Q10 33
R11 7
R4 4
FT6
R33 11
R18 9
FT8
FT7
SEE NOTE 20
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FT4
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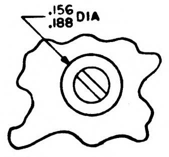
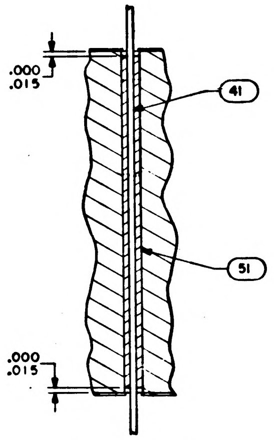
R42 49



VIEW A-A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41
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.000
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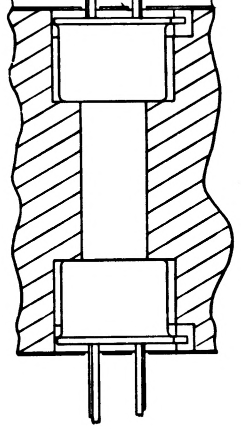
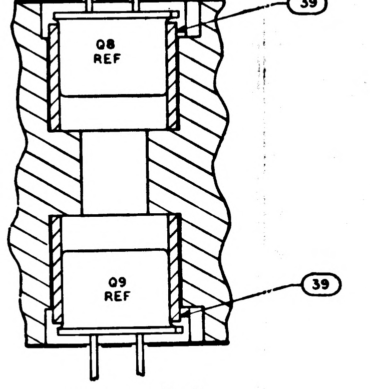
SECTION G-G



SECTION E-E
2 PLACES
TYPICAL INSTALLATION FOR
FIND NO. 33


39
Q8
REF
Q9
REF
39

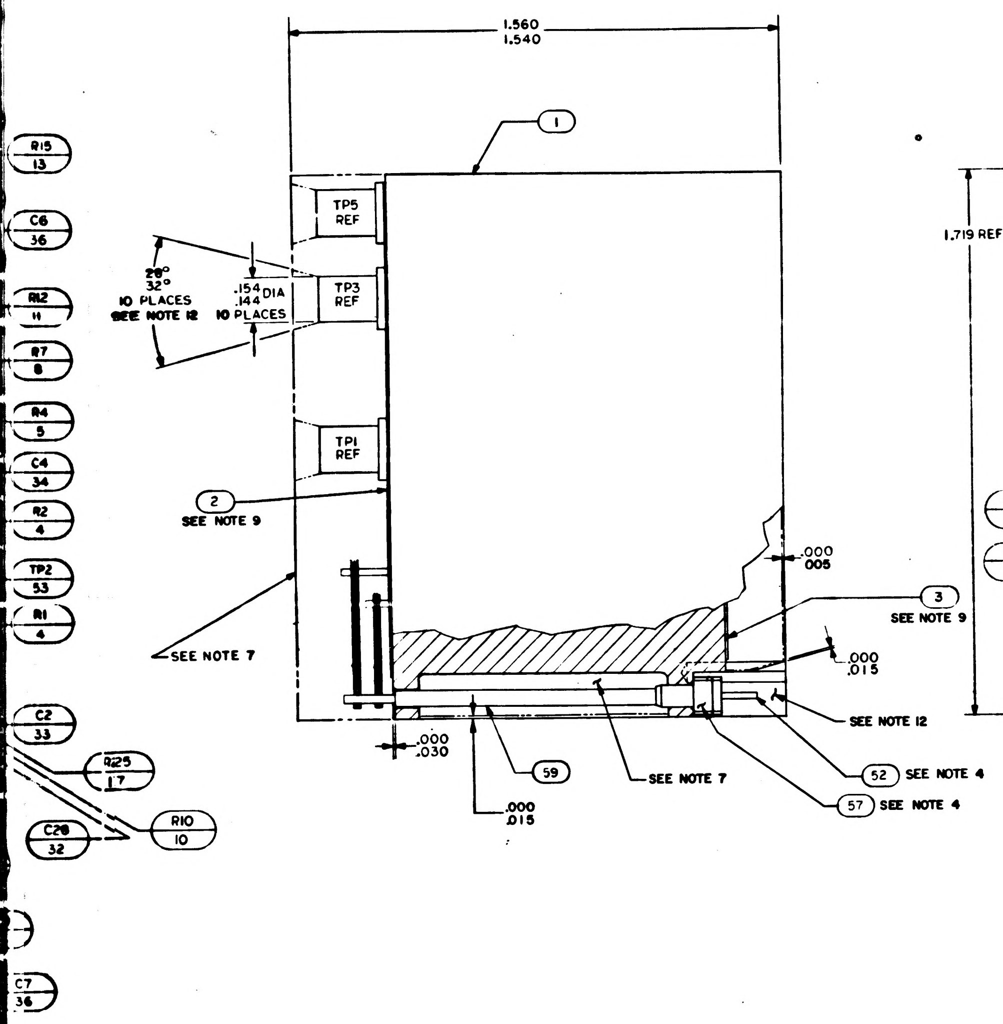
SECTION D-D

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. APPLY SEALING COMPOUND, MIL-S-22473 GRADE A TO FIND NO. 44
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
8. STAKE FIND NO. 4 THRU FIND NO.15,17 THRU 25,27 THRU 35,38,39,49,52, & 53 PER ND1002009 METHOD C
9. ON FIND NO'S 2 AND 3
    BROKEN PATHS INDICATE INSULATION SLEEVING
    K INDICATES CATHODE SIDE OF DIODE
    FT() INDICATES FEED THRU
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    C INDICATES COLLECTOR LEAD OF TRANSISTOR
    B INDICATES BASE LEAD OF TRANSISTOR,
    E INDICATES EMITTER LEAD OF TRANSISTOR
    B() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
10. AR DENOTES AS REQUIRED
11. APPLY ZINC CHROMATE PRIMER MIL-P-8585 TO THREADS OF FIND NO.45
12. MOUNTING TORQUE FOR FIND NO.44, 10/15 INCH POUNDS
13. SOLDER PER ND1002071
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
16. INSTALL FIND NO.46 AND FIND NO. 47 PER ND 1002136
17. PROCURE PER PS 1007016
18. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
19. BOND FIND NO. 54 TO FIND NO 46 PER ND1002237
20. CUT LEAD OF FIND NO. 9 AT INSULATOR LEVEL

1007416

SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17345		2 MAR 65	RS / EF



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1.540
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TP5 REF
TP3 REF
TP1 REF
28° 32°
10 PLACES
SEE NOTE 12
.154 .144 DIA
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C6 36
R12 11
R7 8
R4 5
C4 34
R2 4
TP2 53
R1 4
C2 33
R25 17
C26 32
R10 10
C7 36
2 SEE NOTE 9
SEE NOTE 7
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3 SEE NOTE 9
.000 .015
SEE NOTE 12
52 SEE NOTE 4
57 SEE NOTE 4
SEE NOTE 7
59
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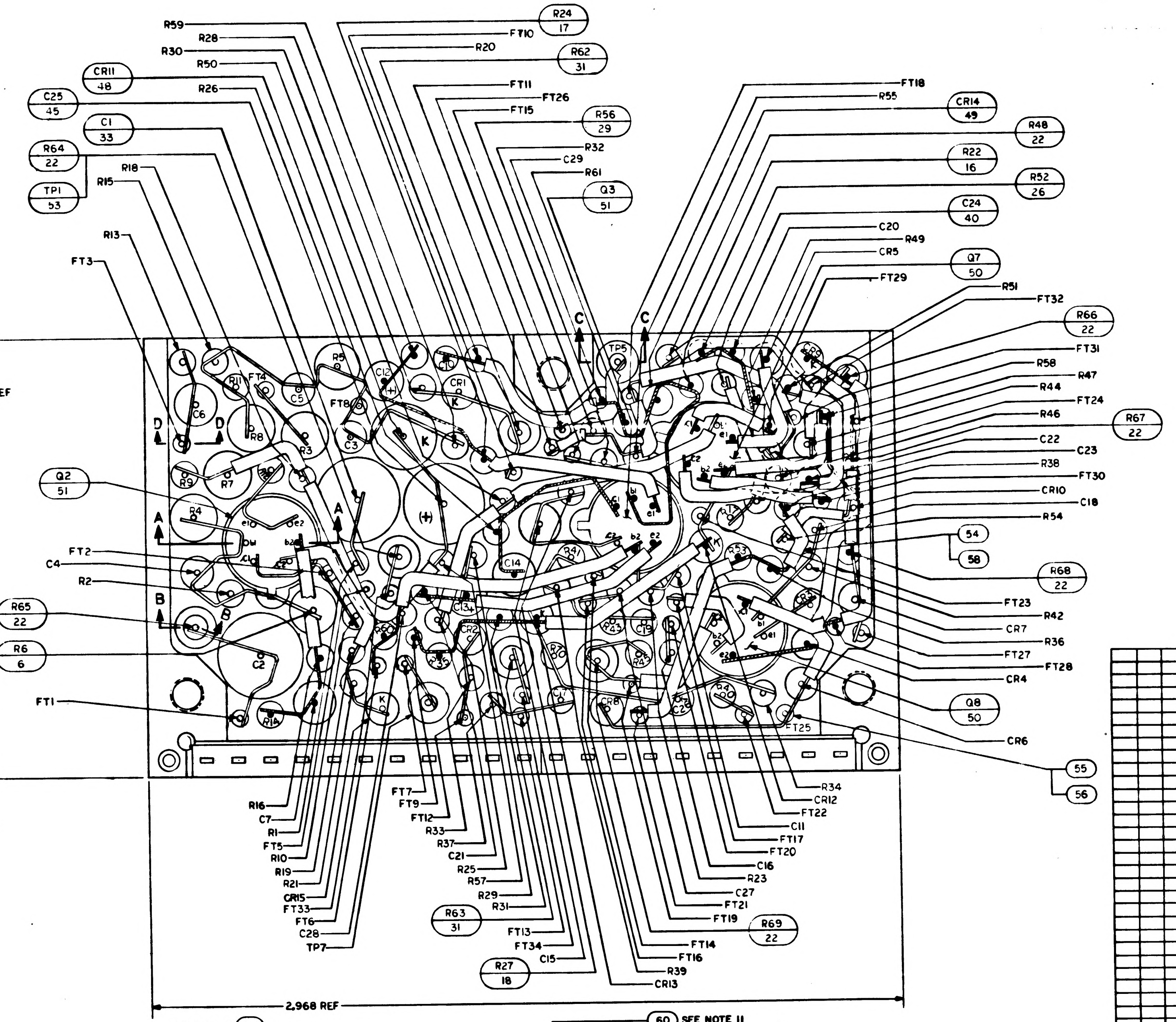
.000 .015



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R56 29
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R48 22
R22 16
R52 26
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R66 22
R67 22
54
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R68 22
Q8 50
55
56
CR11 48
C25 45
C1 33
R64 22
TP1 53
Q2 51
R65 22
R6 6
Q3 51
R63 31
R27 18
R69 22
R59
R28
R30
R50
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R13
FT3
FT10
R20
FT11
FT26
FT15
R32
C29
R61
FT18
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C20
R49
CR5
FT29
R51
FT32
FT31
R58
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FT24
R46
C22
C23
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CR10
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CR7
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T25
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FT13
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R29
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C7
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FT5
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C
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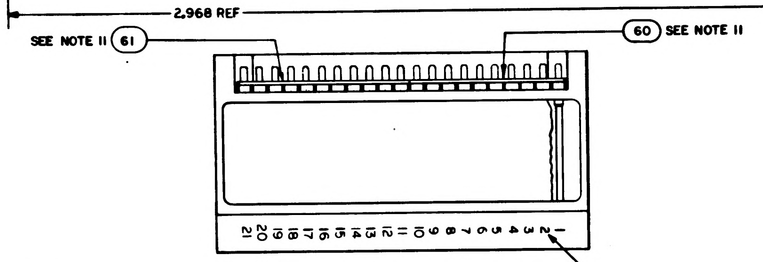
2.968 REF



SEE NOTE 11
61
60
SEE NOTE 11
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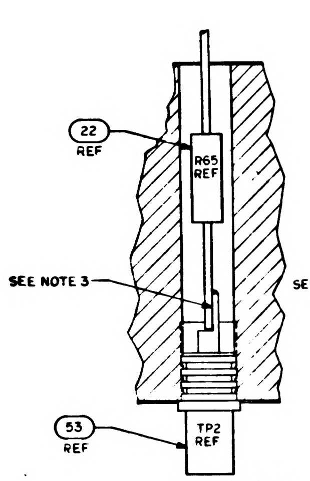
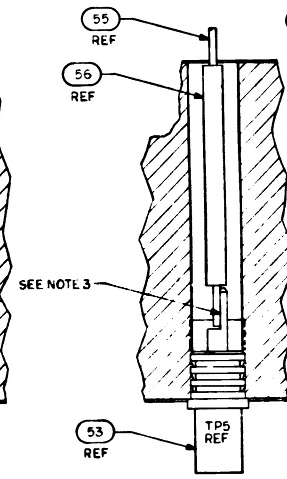


22 REF
R65 REF
SEE NOTE 3
53 REF
TP2 REF

SECTION B-B



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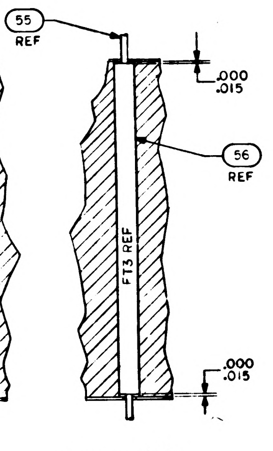
SEE NOTE 3
53 REF
TP5 REF

SECTION C-C



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56 REF
FT3 REF
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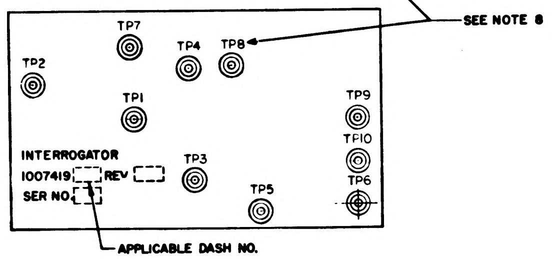
SECTION D-D

TP CHART	
TP	COMPONENT
1	R64
2	R65
3	R62
4	R63
5	FIND 55 & 56
6	R66
7	FIND 55 & 56
8	R69
9	R68
10	R67



SEE NOTE 8
TP2
TP7
TP4
TP8
TP1
TP9
TP10
TP3
TP5
TP6
INTERROGATOR
1007419-
REV
SER NO.
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

					PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			1		1008540-11	GASKET, CONNECTOR MINIATURE	61
			☒		1010013	SCHEMATIC	REF
			1		1008540-10	GASKET, CONNECTOR MINIATURE	60
			AR		1006776-20	INSULATION SLEEVING	59
			AR		1006776-21	INSULATION SLEEVING	58
			21		1006775	INSULATOR, WRAPOST-MALE, MINAT	57
			AR		1006776-22	INSULATION SLEEVING	56
			AR		1006757-8	WIRE ELEC .020 DIA	55
			AR		1006757-1	WIRE ELEC .010 ± .020	54
			10		1010292-2	TERMINAL FEED THRU INSULATED	53
			21		1006782-4	CONTACT, WRAPOST-MALE, MINAT	52
			5		1010376-1	TRANSISTOR	51
			3		1010395	TRANSISTOR	50
			14		1010385	DIODE	49
			1		1010286-9	DIODE	48
			1		1006777-19	CAPACITOR, CER	47
			1		1006755-79	CAPACITOR, TANT	46
			1		1006755-83	CAPACITOR, TANT	45
			2		1006777-8	CAPACITOR, CER	44
			1		1006777-11	CAPACITOR, CER	43
			1		1006777-15	CAPACITOR, CER	42
			2		1006777-17	CAPACITOR, CER	41
			3		1006777-24	CAPACITOR, CER	40
			2		1006755-69	CAPACITOR, TANT	39
			2		1006777-5	CAPACITOR, CER	38
							37
			4		1006777-31	CAPACITOR, CER	36
			1		1006777-28	CAPACITOR, CER	35
			2		1006777-27	CAPACITOR, CER	34
			2		1010264-23	CAPACITOR, MYLAR	33
			2		1006777-3	CAPACITOR, CER	32
			2		1006750-63	RESISTOR, FIXED FILM	31
			1		1006750-24	RESISTOR, FIXED FILM	30
			1		1006750-45	RESISTOR, FIXED FILM	29
			1		1006750-12	RESISTOR, FIXED FILM	28
			1		1006750-46	RESISTOR, FIXED FILM	27
			1		1006750-36	RESISTOR, FIXED FILM	26
			2		1006750-51	RESISTOR, FIXED FILM	25
			2		1006750-60	RESISTOR, FIXED FILM	24
			2		1006750-66	RESISTOR, FIXED FILM	23
			10		1006750-56	RESISTOR, FIXED FILM	22
			2		1006750-73	RESISTOR, FIXED FILM	21
			4		1006750-49	RESISTOR, FIXED FILM	20
			4		1006750-39	RESISTOR, FIXED FILM	19
			2		1006750-54	RESISTOR, FIXED FILM	18
			2		1006750-55	RESISTOR, FIXED FILM	17
			2		1006750-65	RESISTOR, FIXED FILM	16
			4		1006750-80	RESISTOR, FIXED FILM	15
			4		1006750-53	RESISTOR, FIXED FILM	14
			3		1006750-31	RESISTOR, FIXED FILM	13
			2		1006750-41	RESISTOR, FIXED FILM	12
			4		1006750-25	RESISTOR, FIXED FILM	11
			2		1006750-43	RESISTOR, FIXED FILM	10
			1		1010377-51	RESISTOR, FIXED WW	9
			1		1010377-106	RESISTOR, FIXED WW	8
			1		1006750-42	RESISTOR, FIXED FILM	7
			2		1010377-105	RESISTOR, FIXED WW	6
			2		1010377-49	RESISTOR, FIXED WW	5
			5		1006750-32	RESISTOR, FIXED FILM	4
			1		1008037-2	INSULATOR, BOTTOM	3
			1		1008037-1	INSULATOR, TOP	2
			1		1008036	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX±.02 XXX±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Fox DATE 5 OCT 64
CHECKED R. Ulrich 15 OCT 64
APPROVAL
APPROVAL 11-2-64
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERROGATOR
ASSEMBLY

CODE IDENT NO. | SIZE J | NASA DRAWING NO. 1007419
SCALE 5/1 | WT | SHEET 1 OF 1

1007419 A

2H

1007419

1007419 REV LTR A SH. 1

27 1007419

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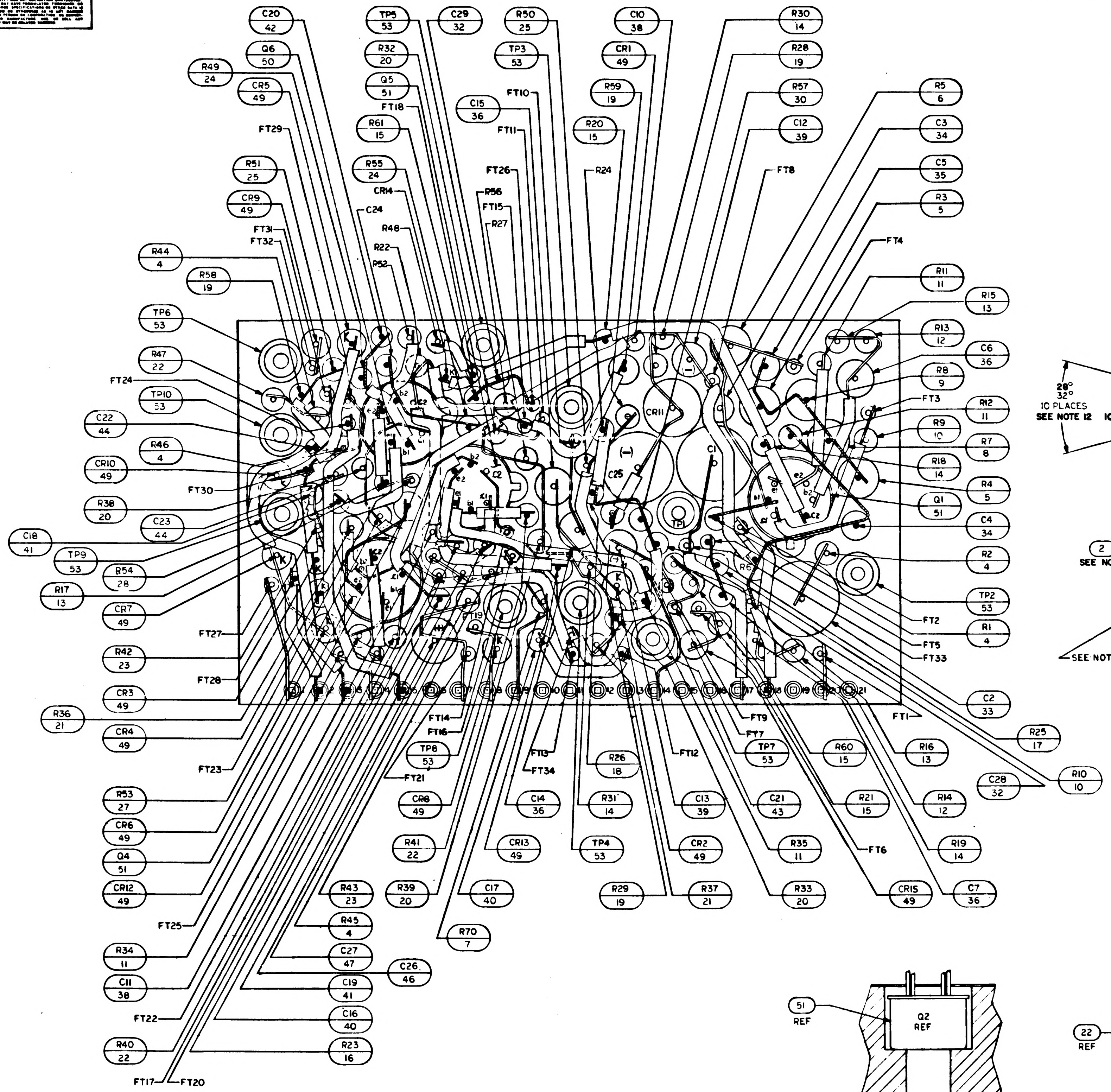
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R7 8
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R60 15
FT9
FT7
TP7 53
FT12
R26 18
FT13
FT34
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CR15 49
C7 36
R45 4
R70 7
C27 47
C26 46
C19 41
C16 40
R23 16
CR11
C1
C25
TP1
(-)
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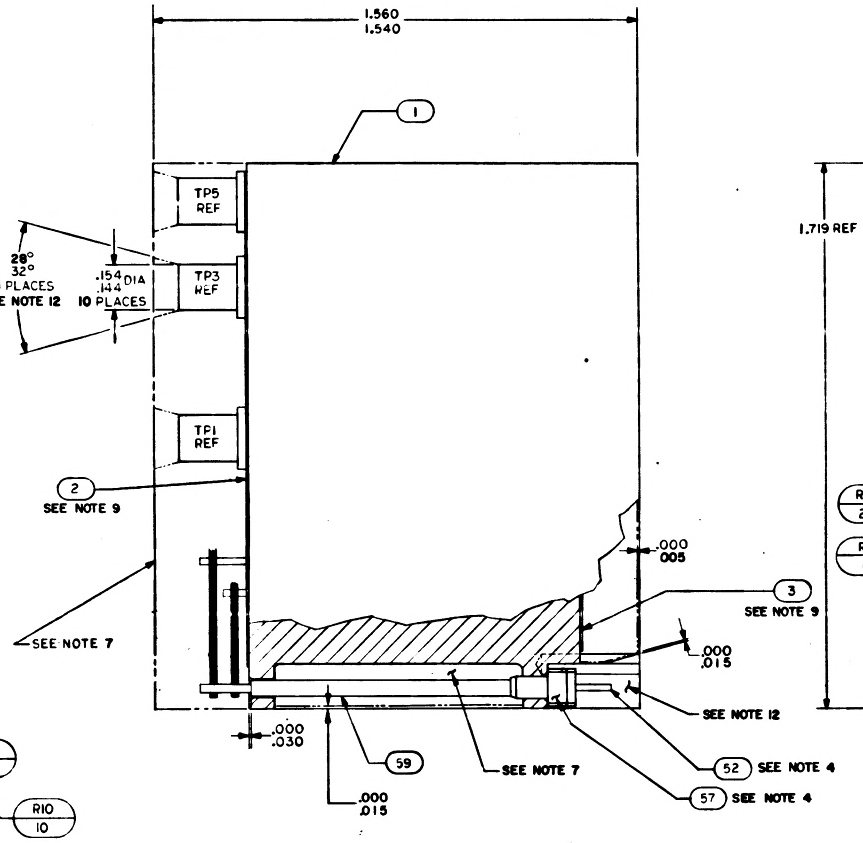
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TP3 REF
TP1 REF
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32°
10 PLACES
SEE NOTE 12
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.144
DIA
10 PLACES
2
SEE NOTE 9
SEE NOTE 7
.000
.005
3
SEE NOTE 9
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.015
SEE NOTE 12
52 SEE NOTE 4
57 SEE NOTE 4
SEE NOTE 7
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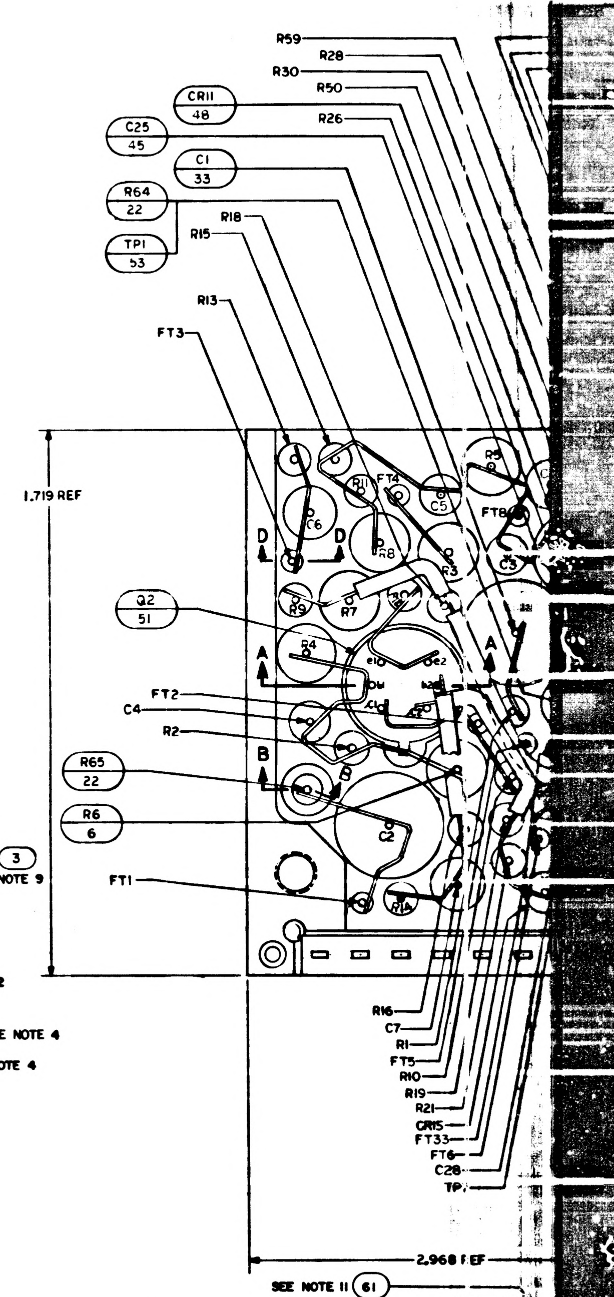
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R13
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D
D
Q2 51
A
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FT2
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R2
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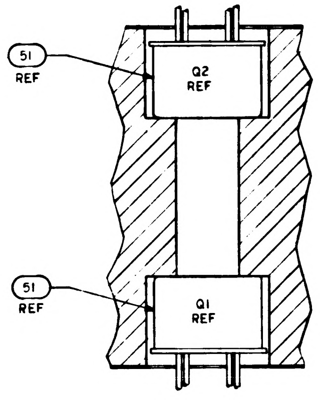
SEE NOTE 11
61


51 REF
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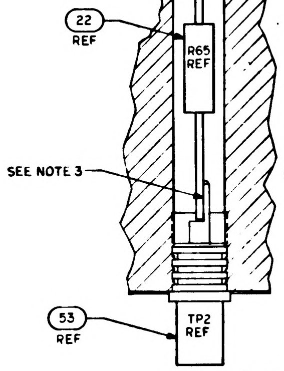
51 REF
Q1 REF

SECTION A-A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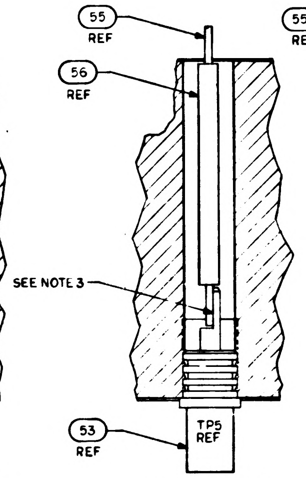
R65 REF
SEE NOTE 3
53 REF
TP2 REF

SECTION B-B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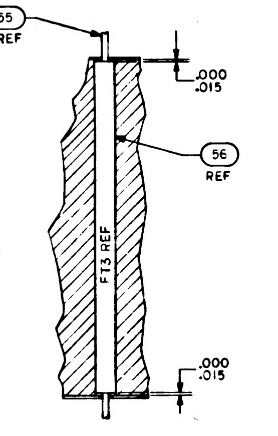
TP5 REF

SECTION C-C


55 REF
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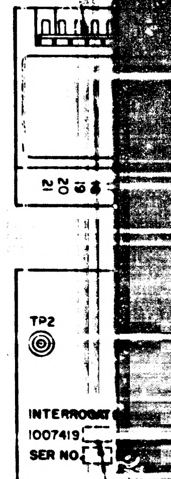
.015
56 REF
FT3 REF
.000
.015

SECTION D-D

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.53 PER ND1002009 METHOD C
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
4. MUST MEET REQUIREMENTS OF ND 1002136
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
6. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
7. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
10. PROCURE PER PS 1007019
11. BOND FIND NO. 60 AND FIND NO. 61 TO FIND NO. 57 PER ND 1002237.
12. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
13. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. AR DENOTES AS REQUIRED
15. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.

TP CHART	
TP	COMPONENT
1	R64
2	R65
3	R62
4	R63
5	FIND 55 & 56
6	R66
7	FIND 55 & 56
8	R69
9	R68
10	R67


21 20 19
TP2
INTERROGAT
1007419
SER NO.

1007419	REV. LTR A	SH. 1

171007419

SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
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B	—	REVISED PER TDRR 19472		1 ... 65	WJK

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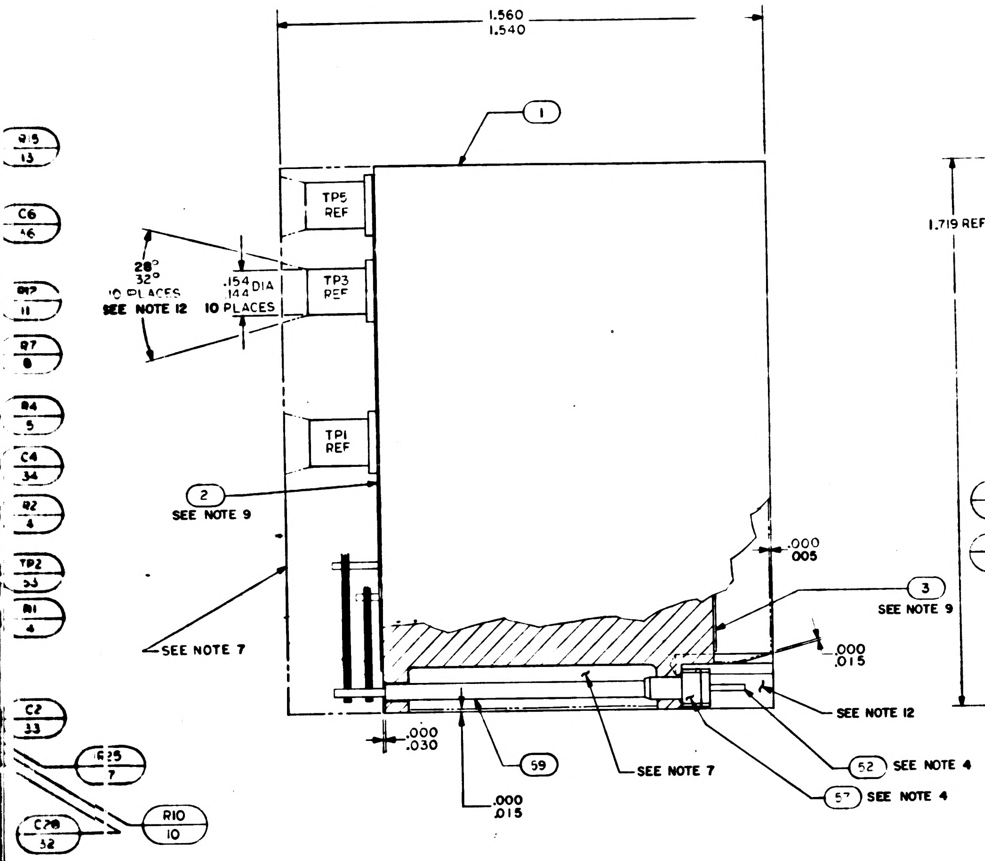

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1.540
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TP3 REF
TP1 REF
.154 DIA
.144
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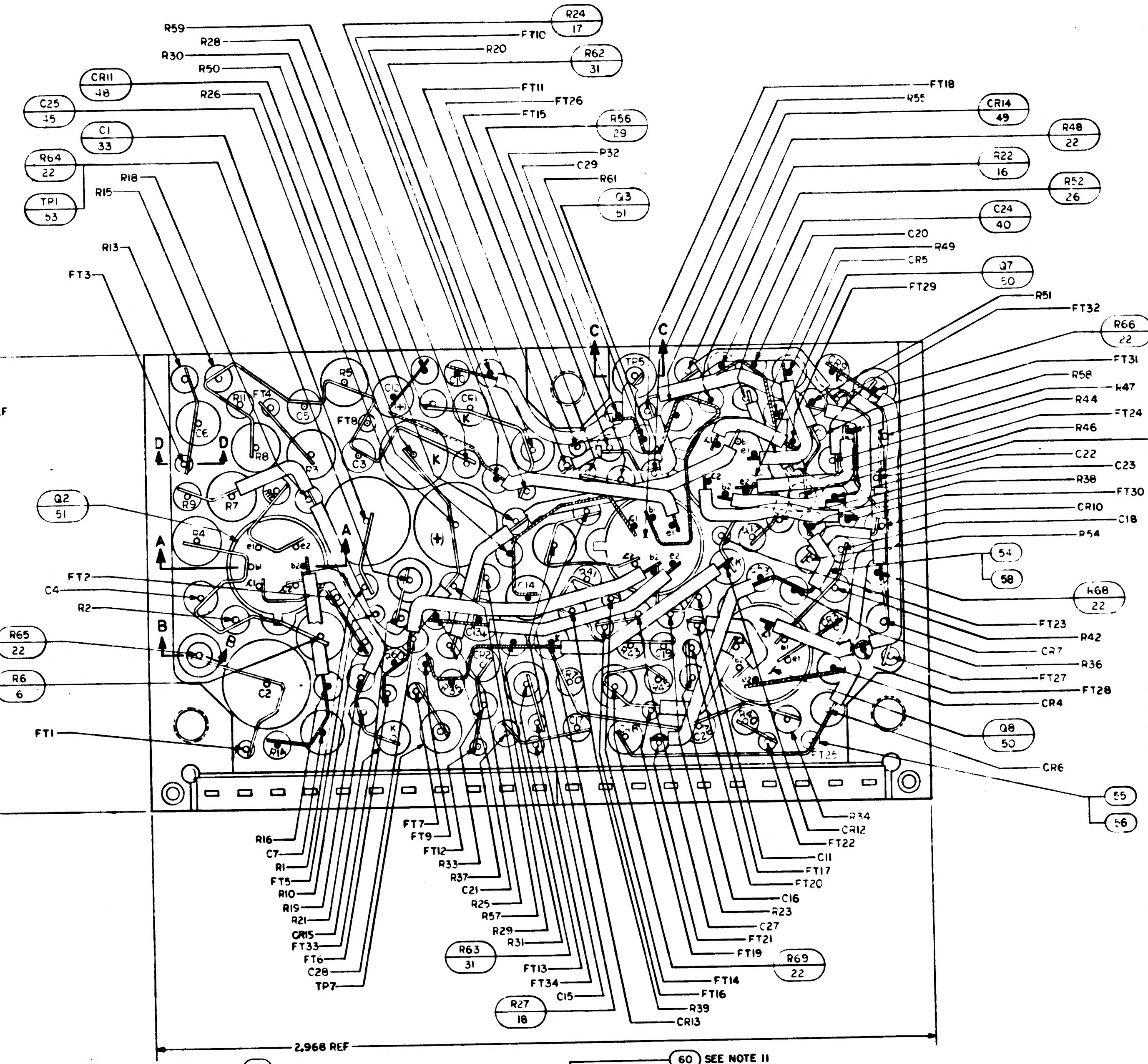
28°
32°
10 PLACES
SEE NOTE 12
1.719 REF
2
SEE NOTE 9
3
SEE NOTE 9
.000
.005
.000
.015
SEE NOTE 7
SEE NOTE 12
52 SEE NOTE 4
57 SEE NOTE 4
59
.000
.030
.000
.015
R5 13
C6 46
R17 11
R7 8
R4 5
C4 34
R2 4
TP2 53
R1 4
C2 33
R25 7
R10 10
C28 32



R59
R28
R30
R50
R26
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C25 45
C1 33
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TP1 53
R18
R15
R13
FT3
R24 17
FT10
R20
R62 31
FT11
FT26
FT15
R56 29
P32
C29
R61
Q3 51
FT18
R55
CR14 49
R48 22
R22 16
R52 26
C24 40
C20
R49
CR5
Q7 50
FT29
R51
FT32
R66 22
FT31
R58
R47
R44
FT24
R46
R67 22
C22
C23
R38
FT30
CR10
C18
R54
54
58
R68 22
FT23
R42
CR7
R36
FT27
FT28
CR4
Q8 50
CR6
55
56
Q2 51
C4
FT2
R2
R65 22
R6 6
FT1
A
B
C
D
K
R34
CR12
FT22
C11
FT17
FT20
C16
R23
C27
FT21
FT19
R69 22
FT14
FT16
R39
CR13
R16
C7
R1
FT5
R10
R19
R21
CR15
FT33
FT6
C28
TP7
FT7
FT9
FT12
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FT13
FT34
C15
R27 18
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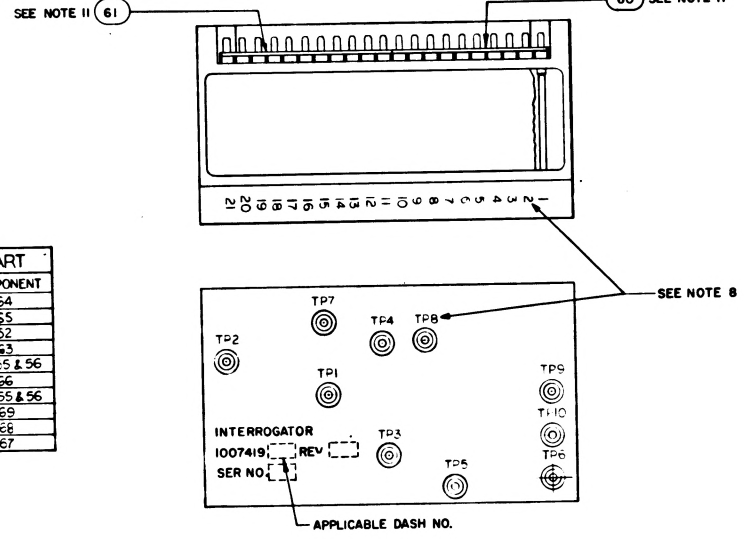

SEE NOTE 11
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SEE NOTE 11
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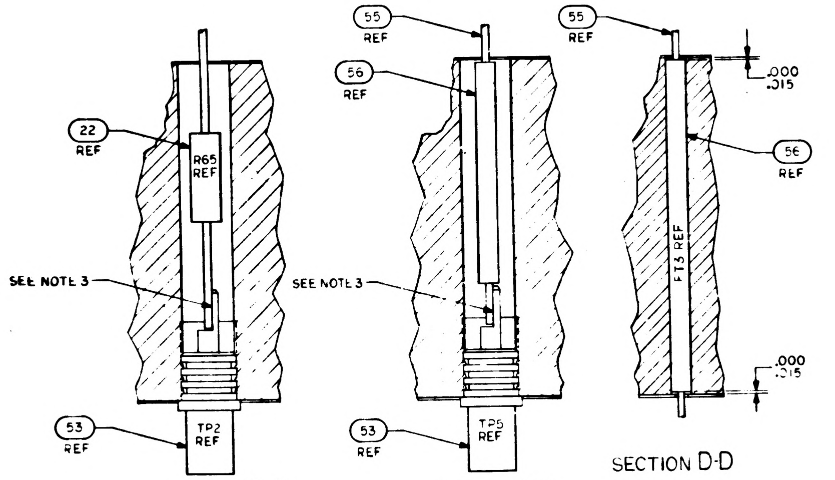
SEE NOTE 8
TP7
TP4
TP8
TP2
TP1
TP9
TP10
TP3
TP5
TP6
INTERROGATOR
1007419
REV
SER NO
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1



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22 REF
R65 REF
SEE NOTE 3
53 REF
TP2 REF
56 REF
SEE NOTE 3
53 REF
TP5 REF
55 REF
56 REF
FT3 REF
.000
.015
.000
.015

SECTION B-B SECTION C-C SECTION D-D

TP CHART	
TP	COMPONENT
1	R64
2	R65
3	R62
4	R63
5	FIND 55 & 56
6	R66
7	FIND 55 & 56
8	R69
9	R68
10	R67

TABLE I

BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
OF AREA .12 FROM EXTERNAL SURFACE. 80% OF AREA .25 EXTERNAL. HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.	N/A
ER FILLET AND VERTICAL ACE TO WITHIN .03 ± .03 OF NAL SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.	N/A
N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.

			1		1008540-11	GASKET, CONNECTOR MINIATURE	61
			☒		1010013	SCHEMATIC	REF
			1		1008540-10	GASKET, CONNECTOR MINIATURE	60
			AR		1006776-20	INSULATION SLEEVING	59
			AR		1006776-21	INSULATION SLEEVING	58
			21		1006775	INSULATOR, WRAPOST-MALE, MINAT	57
			AR		1006776-22	INSULATION SLEEVING	56
			AR		1006757-8	WIRE ELEC .020 DIA	55
			AR		1006757-1	WIRE ELEC .010 ± .020	54
			10		1010292-2	TERMINAL FEED THRU INSULATED	53
			21		1006782-4	CONTACT, WRAPOST-MALE, MINAT	52
			5		1010376-1	TRANSISTOR	51
			3		1010395	TRANSISTOR	50
			14		1010385	DIODE	49
			1		1010286-9	DIODE	48
			1		1006777-19	CAPACITOR, CER	47
			1		1006755-79	CAPACITOR, TANT	46
			1		1006755-83	CAPACITOR, TANT	45
			2		1006777-8	CAPACITOR, CER	44
			1		1006777-11	CAPACITOR, CER	43
			1		1006777-15	CAPACITOR, CER	42
			2		1006777-17	CAPACITOR, CER	41
			3		1006777-24	CAPACITOR, CER	40
			2		1006755-69	CAPACITOR, TANT	39
			2		1006777-5	CAPACITOR, CER	38
							37
			4		1006777-31	CAPACITOR, CER	36
			1		1006777-28	CAPACITOR, CER	35
			2		1006777-27	CAPACITOR, CER	34
			2		1010264-23	CAPACITOR, MYLAR	33
			2		1006777-3	CAPACITOR, CER	32
			2		1006750-63	RESISTOR, FIXED FILM	31
			1		1006750-24	RESISTOR, FIXED FILM	30
			1		1006750-45	RESISTOR, FIXED FILM	29
			1		1006750-12	RESISTOR, FIXED FILM	28
			1		1006750-46	RESISTOR, FIXED FILM	27
			1		1006750-36	RESISTOR, FIXED FILM	26
			2		1006750-51	RESISTOR, FIXED FILM	25
			2		1006750-60	RESISTOR, FIXED FILM	24
			2		1006750-66	RESISTOR, FIXED FILM	23
			10		1006750-56	RESISTOR, FIXED FILM	22
			2		1006750-73	RESISTOR, FIXED FILM	21
			4		1006750-49	RESISTOR, FIXED FILM	20
			4		1006750-39	RESISTOR, FIXED FILM	19
			2		1006750-54	RESISTOR, FIXED FILM	18
			2		1006750-55	RESISTOR, FIXED FILM	17
			2		1006750-65	RESISTOR, FIXED FILM	16
			4		1006750-80	RESISTOR, FIXED FILM	15
			4		1006750-53	RESISTOR, FIXED FILM	14
			3		1006750-31	RESISTOR, FIXED FILM	13
			2		1006750-41	RESISTOR, FIXED FILM	12
			4		1006750-25	RESISTOR, FIXED FILM	11
			2		1006750-43	RESISTOR, FIXED FILM	10
			1		1010377-51	RESISTOR, FIXED WW	9
			1		1010377-106	RESISTOR, FIXED WW	8
			1		1006750-42	RESISTOR, FIXED FILM	7
			2		1010377-105	RESISTOR, FIXED WW	6
			2		1010377-49	RESISTOR, FIXED WW	5
			5		1006750-32	RESISTOR, FIXED FILM	4
			1		1008037-2	INSULATOR, BOTTOM	3
			1		1008037-1	INSULATOR, TOP	2
			1		1008036	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF MATERIALS		

1007419 B

2H

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ± .02 XXX ± .005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Fore DATE 5 OCT 64
CHECKED A. Udovich 15 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERROGATOR
ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	1007419

SCALE 5/1 WT SHEET 1 OF 1

1007419	REV LTR B	SH. 1

2/1007419

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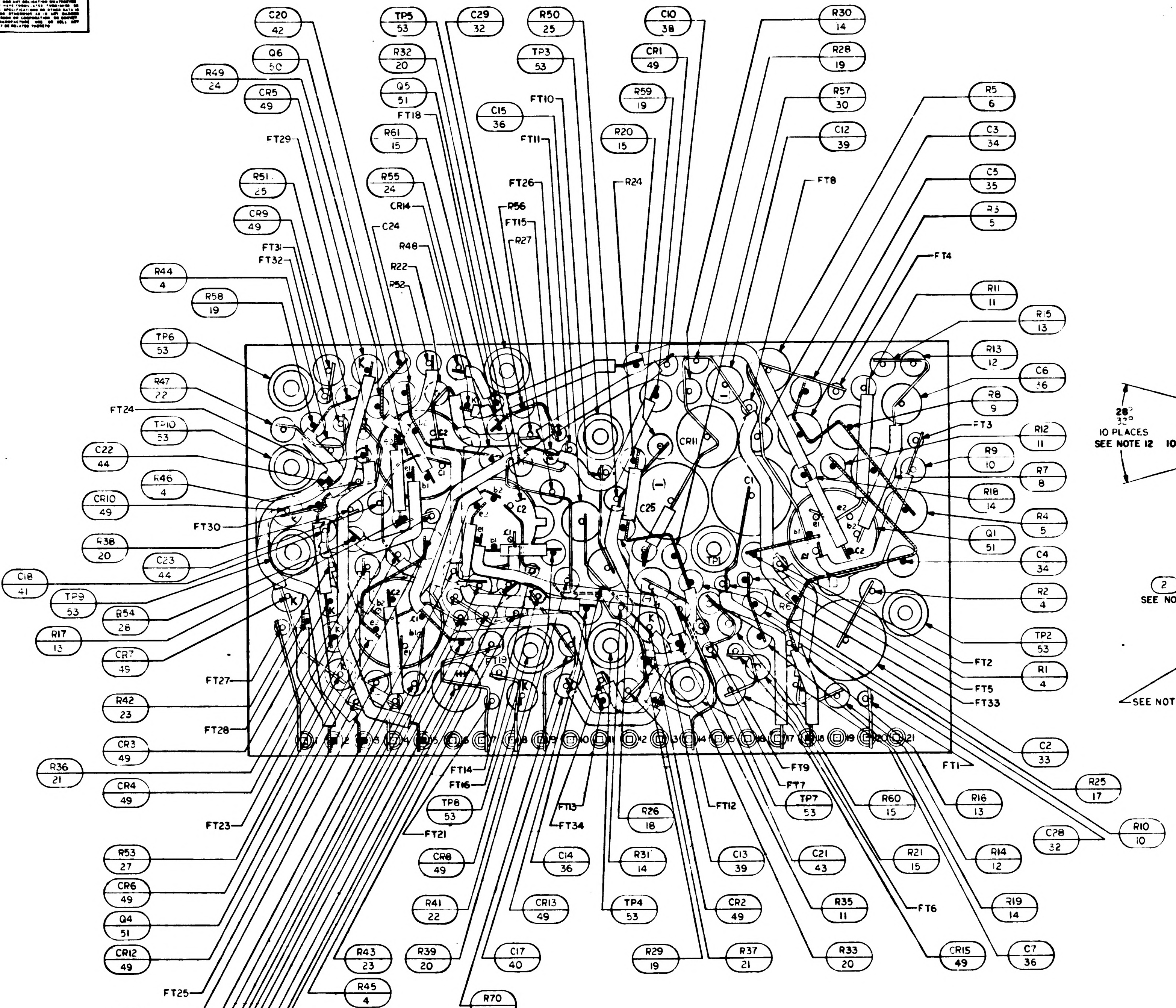
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FT29
R61 15
FT11
R20 15
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R51 25
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C5 35
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TP6 53
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C18 41
C4 34
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R2 4
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FT13
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FT12
TP7 53
R60 15
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FT21
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C7 36
FT25
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R70 7
R34 11
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FT17
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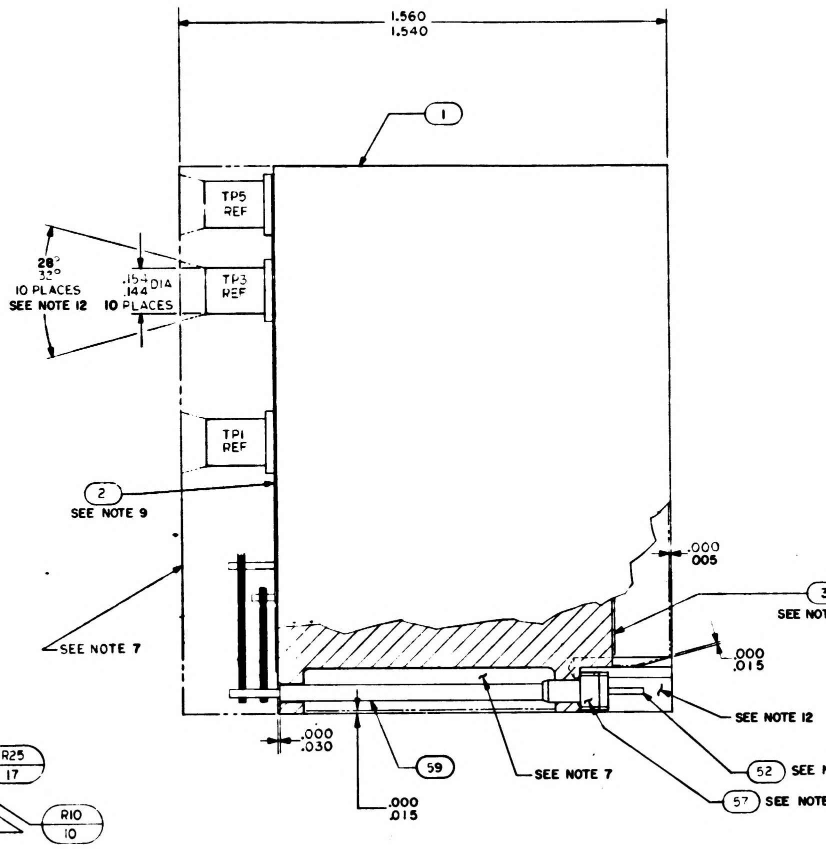
C1
C25
TP1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TP3 REF
TP1 REF
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32°
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SEE NOTE 12
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10 PLACES
2
SEE NOTE 9
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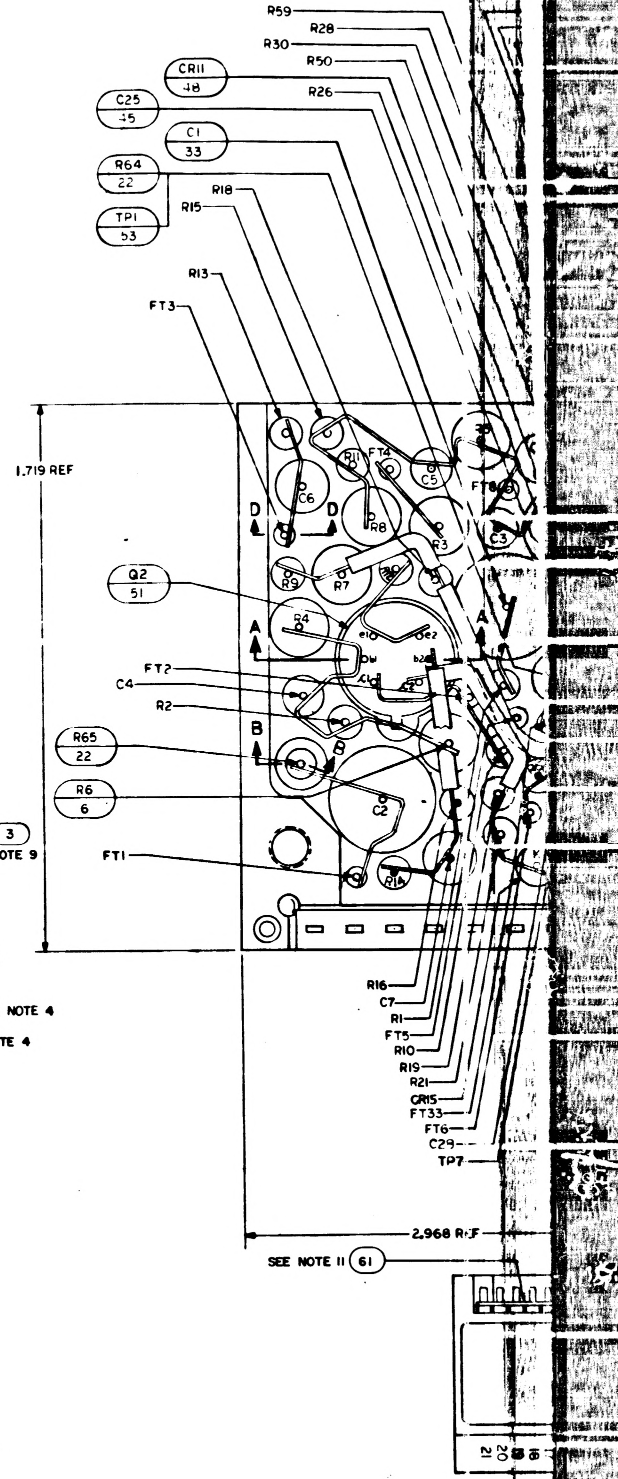
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FT2
C4
R2
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D
A
B
R16
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TP7
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SEE NOTE 11
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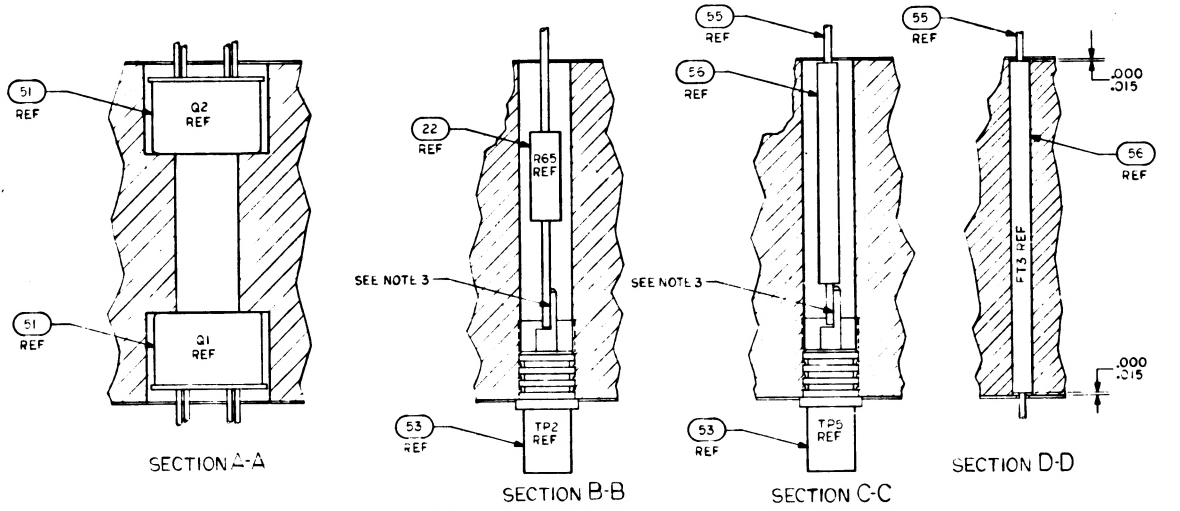
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56 REF
SEE NOTE 3
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TP5 REF
SECTION C-C
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.015
56 REF
FT3 REF
.000
.015
SECTION D-D

TP CHART	
TP	COMPONENT
1	R64
2	R65
3	R62
4	R63
5	FIND 55 & 56
6	R66
7	FIND 55 & 56
8	R69
9	R68
1C	R67

TP2

INTERROGAT

SER NO

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.53 PER ND1002009 METHOD C
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
4. MUST MEET REQUIREMENTS OF ND 1002136
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
6. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
7. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
10. PROCURE PER PS 1007019
11. BOND FIND NO. 60 AND FIND NO. 61 TO FIND NO. 57 PER ND1002237.
12. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
13. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. AR DENOTES AS REQUIRED
15. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
16. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISOPROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.

1007419	REV LTR	SH.
	B	1

SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
REVISIONS					
A		REVISED PER TDRR 17345		MAR 65	KS
B	—	REVISED PER TDRR 19472			
C		REVISED PER TDRR 19526		8 JUN 66	HCK

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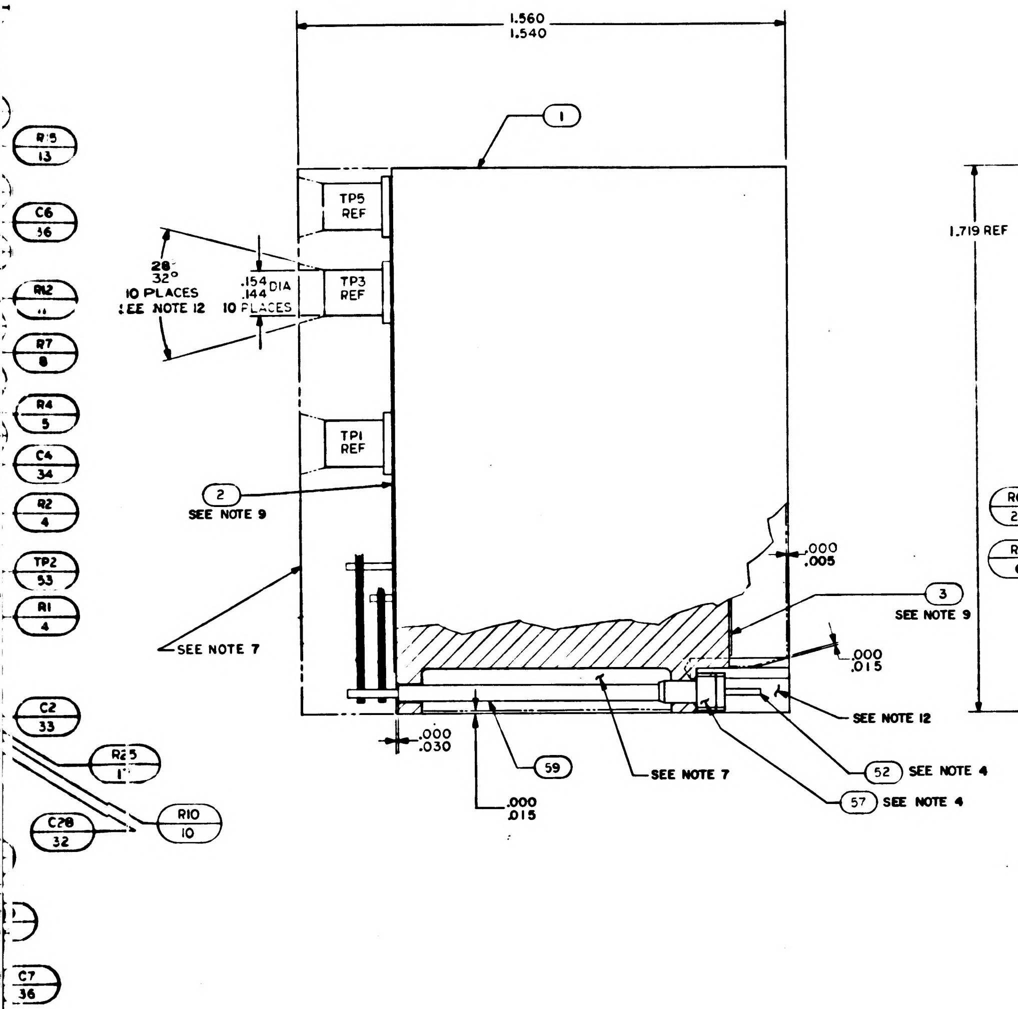

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1.540
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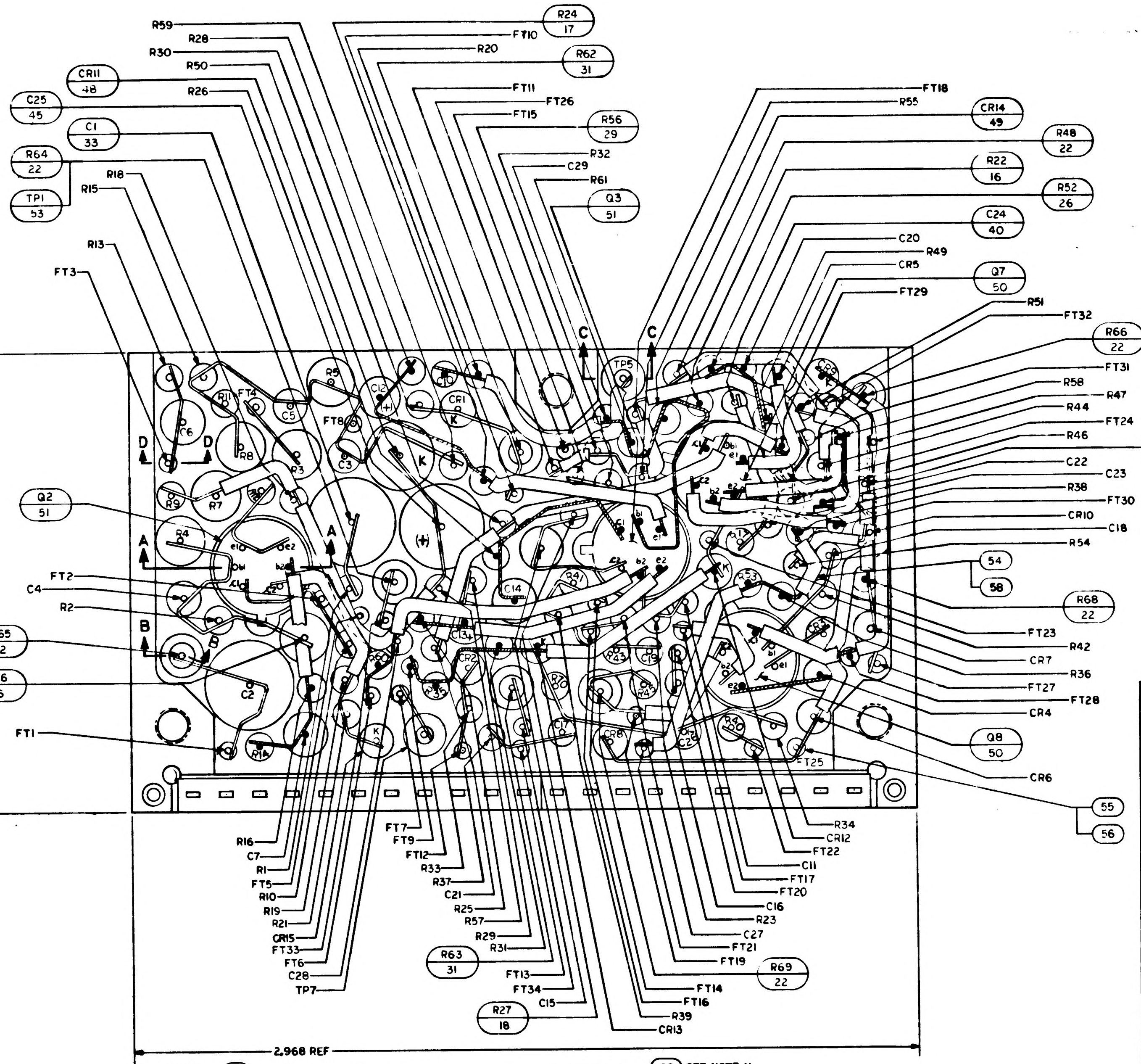
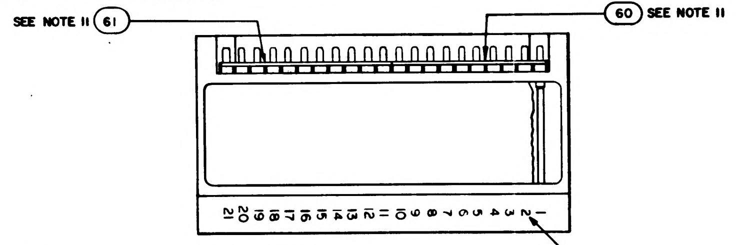
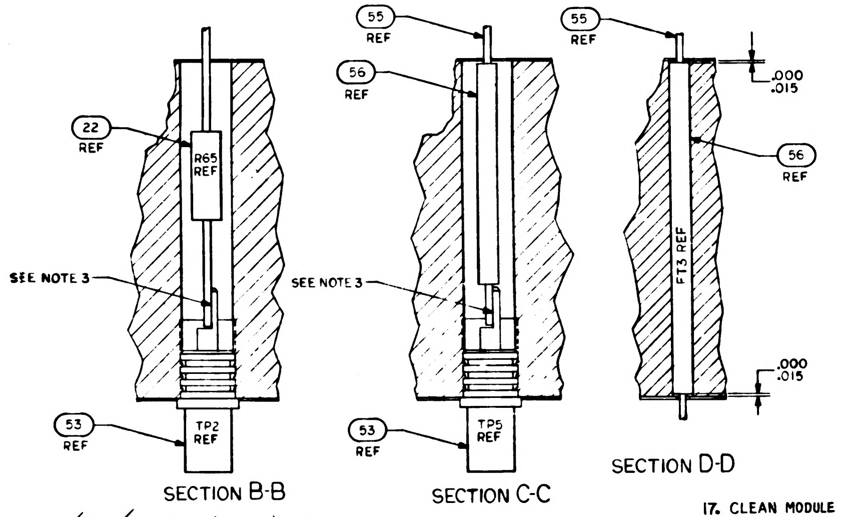
TP5 REF
TP3 REF
TP1 REF
28°
32°
10 PLACES
SEE NOTE 12
.154
.144 DIA
10 PLACES
2
SEE NOTE 9
SEE NOTE 7
3
SEE NOTE 9
.000
.005
.000
.015
SEE NOTE 12
.000
.030
59
SEE NOTE 7
.000
.015
52 SEE NOTE 4
57 SEE NOTE 4
R5 13
C6 36
R12
R7 8
R4 5
C4 34
R2 4
TP2 53
R1 4
C2 33
R25 1
C28 32
R10 10
C7 36



R24 17
R62 31
R56 29
Q3 51
CR14 49
R48 22
R22 16
R52 26
C24 40
Q7 50
R66 22
R67 22
54
58
R68 22
Q8 50
55
56
CR11 48
C25 45
C1 33
R64 22
TP1 53
Q2 51
R65 22
R6 6
R63 31
R27 18
R69 22
R59
R28
R30
R50
R26
R18
R15
R13
FT3
FT10
R20
FT11
FT26
FT15
R32
C29
R61
FT18
R55
C20
R49
CR5
FT29
R51
FT32
FT31
R58
R47
R44
FT24
R46
C22
C23
R38
FT30
CR10
C18
R54
FT23
R42
CR7
R36
FT27
FT28
CR4
CR6
R34
CR12
FT22
C11
FT17
FT20
C16
R23
C27
FT21
FT19
FT14
FT16
R39
CR13
C15
FT34
FT13
R29
R31
R57
R25
C21
R37
R33
FT12
FT9
FT7
R16
C7
R1
FT5
R10
R19
R21
CR15
FT33
FT6
C28
TP7
FT2
C4
R2
FT1
1.719 REF
2.968 REF
A
B
C
D
K



SEE NOTE 11 61
60 SEE NOTE 11
21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 8



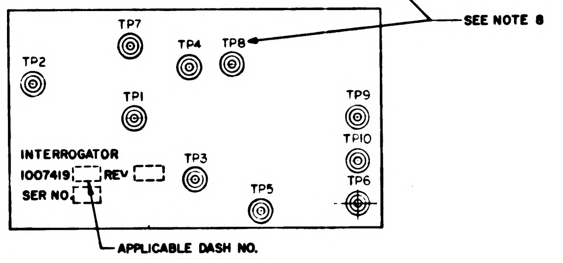
55 REF
56 REF
55 REF
22 REF
R65 REF
SEE NOTE 3
SEE NOTE 3
56 REF
FT3 REF
.000
.015
.000
.015
53 REF
TP2 REF
53 REF
TP5 REF

SECTION B-B

SECTION C-C

SECTION D-D

TP CHART	
TP	COMPONENT
1	R64
2	R65
3	R62
4	R63
5	FIND 55 & 56
6	R66
7	FIND 55 & 56
8	R69
9	R68
10	R67



TP7
TP4
TP8
TP2
TP1
TP9
TP10
TP3
TP5
TP6
INTERROGATOR
1007419 REV
SER NO
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

TABLE 1

[illegible] ~~TER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
[illegible] ~~FROM EXTERNAL 80% OF AREA .25 HEATSINK SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.~~	~~N/A~~
[illegible] ~~VERTICAL .03 ± .03 OF~~ [illegible]	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.~~	~~N/A~~
[illegible]	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.~~

17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			1		1008540-11	GASKET, CONNECTOR MINIATURE	61
			⊠		1010013	SCHEMATIC	REF
			1		1008540-10	GASKET, CONNECTOR MINIATURE	60
			AR		1006776-20	INSULATION SLEEVING	59
			AR		1006776-21	INSULATION SLEEVING	58
			21		1006775	INSULATOR, WRAPOST-MALE, MINAT	57
			AR		1006776-22	INSULATION SLEEVING	56
			AR		1006757-8	WIRE ELEC .020 DIA	55
			AR		1006757-1	WIRE ELEC .010 ± .020	54
			10		1010292-2	TERMINAL FEED THRU INSULATED	53
			21		1006782-4	CONTACT, WRAPOST-MALE, MINAT	52
			5		1010376-1	TRANSISTOR	51
			3		1010395	TRANSISTOR	50
			14		1010385	DIODE	49
			1		1010830-9	DIODE	48
			1		1006777-19	CAPACITOR, CER	47
			1		1006755-79	CAPACITOR, TANT	46
			1		1006755-83	CAPACITOR, TANT	45
			2		1006777-8	CAPACITOR, CER	44
			1		1006777-11	CAPACITOR, CER	43
			1		1006777-15	CAPACITOR, CER	42
			2		1006777-17	CAPACITOR, CER	41
			3		1006777-24	CAPACITOR, CER	40
			2		1006755-69	CAPACITOR, TANT	39
			2		1006777-5	CAPACITOR, CER	38
							37
			4		1006777-31	CAPACITOR, CER	36
			1		1006777-28	CAPACITOR, CER	35
			2		1006777-27	CAPACITOR, CER	34
			2		1010264-23	CAPACITOR, MYLAR	33
			2		1006777-3	CAPACITOR, CER	32
			2		1006750-63	RESISTOR, FIXED FILM	31
			1		1006750-24	RESISTOR, FIXED FILM	30
			1		1006750-45	RESISTOR, FIXED FILM	29
			1		1006750-12	RESISTOR, FIXED FILM	28
			1		1006750-46	RESISTOR, FIXED FILM	27
			1		1006750-36	RESISTOR, FIXED FILM	26
			2		1006750-51	RESISTOR, FIXED FILM	25
			2		1006750-60	RESISTOR, FIXED FILM	24
			2		1006750-66	RESISTOR, FIXED FILM	23
			10		1006750-56	RESISTOR, FIXED FILM	22
			2		1006750-73	RESISTOR, FIXED FILM	21
			4		1006750-49	RESISTOR, FIXED FILM	20
			4		1006750-39	RESISTOR, FIXED FILM	19
			2		1006750-54	RESISTOR, FIXED FILM	18
			2		1006750-55	RESISTOR, FIXED FILM	17
			2		1006750-65	RESISTOR, FIXED FILM	16
			4		1006750-80	RESISTOR, FIXED FILM	15
			4		1006750-53	RESISTOR, FIXED FILM	14
			3		1006750-31	RESISTOR, FIXED FILM	13
			2		1006750-41	RESISTOR, FIXED FILM	12
			4		1006750-25	RESISTOR, FIXED FILM	11
			2		1006750-43	RESISTOR, FIXED FILM	10
			1		1010377-51	RESISTOR, FIXED WW	9
			1		1010377-106	RESISTOR, FIXED WW	8
			1		1006750-42	RESISTOR, FIXED FILM	7
			2		1010377-105	RESISTOR, FIXED WW	6
			2		1010377-49	RESISTOR, FIXED WW	5
			5		1006750-32	RESISTOR, FIXED FILM	4
			1		1008037-2	INSULATOR, BOTTOM	3
			1		1008037-1	INSULATOR, TOP	2
			1		1008036	HEATSINK	1
QUANTITY REQUIRED					LIST OF MATERIALS		

1007419 C

2H

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX±.02 XXX±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Foro DATE 5 OCT 64
CHECKED R. Ulmrich 15 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERROGATOR
ASSEMBLY

CODE IDENT NO. 80230 | SIZE J | NASA DRAWING NO. 1007419
SCALE 5/1 | WT | SHEET 1 OF 1

1007419	REV. LTR C	SH. 1

2/1007419

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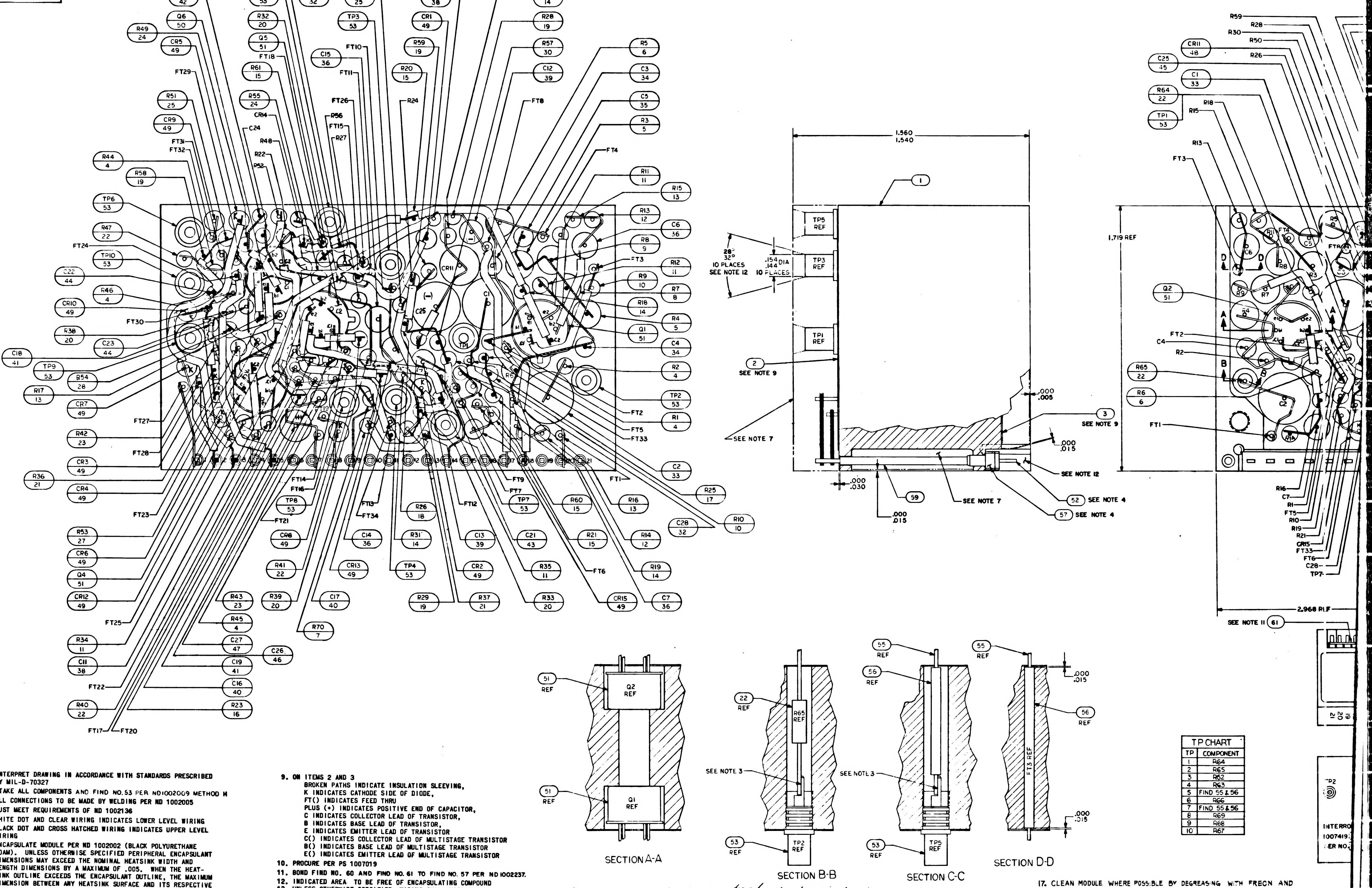
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Q6 50
R49 24
CR5 49
TP5 53
R32 20
Q5 51
FT18
R61 15
R55 24
CR14
C24
R48
R22
R52
C29 32
C15 36
R50 25
TP3 53
FT10
FT11
FT26
R56
FT15
R27
C10 38
CR1 49
R59 19
R20 15
R24
R30 14
R28 19
R57 30
C12 39
FT8
R5 6
C3 34
C5 35
R3 5
FT4
FT29
R51 25
CR9 49
FT31
FT32
R44 4
R58 19
TP6 53
R47 22
FT24
TP10 53
C22 44
R46 4
CR10 49
FT30
R38 20
C23 44
C18 41
TP9 53
R54 28
R17 13
CR7 49
FT27
R42 23
FT28
CR3 49
R36 21
CR4 49
FT23
R11 11
R15 13
R13 12
C6 36
R8 9
FT3
R12 11
R9 10
R7 8
R18 14
R4 5
Q1 51
C4 34
R2 4
TP2 53
FT2
R1 4
FT5
FT33
C2 33
FT1
R25 17
C28 32
R10 10
FT14
FT16
TP8 53
FT21
FT13
FT34
R26 18
FT12
TP7 53
FT9
FT7
R60 15
R16 13
CR8 49
C14 36
R31 14
C13 39
C21 43
R21 15
R14 12
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CR2 49
R35 11
R19 14
R53 27
CR6 49
Q4 51
CR12 49
R43 23
R39 20
C17 40
R29 19
R37 21
R33 20
CR15 49
C7 36
FT25
R45 4
R70 7
R34 11
C27 47
C26 46
C11 38
C19 41
FT22
C16 40
R40 22
R23 16
FT17
FT20
1.560
1.540
1
TP5 REF
TP3 REF
TP1 REF
28°
32°
10 PLACES
SEE NOTE 12
.154
.144 DIA
10 PLACES
1.719 REF
2
SEE NOTE 9
.000
.005
3
SEE NOTE 9
SEE NOTE 7
.000
.015
SEE NOTE 12
.000
.030
59
SEE NOTE 7
52 SEE NOTE 4
57 SEE NOTE 4
.000
.015
R59
R28
R30
R50
R26
CR11 48
C25 45
C1 33
R64 22
TP1 53
R18
R15
R13
FT3
Q2 51
C4
FT2
R2
R65 22
R6 6
FT1
R16
C7
R1
FT5
R10
R19
R21
CR15
FT33
FT6
C28
TP7
2.968 REF
SEE NOTE 11 61
21 20 19
TP2
INTERRO
1007419
ER NO.
51 REF
Q2 REF
Q1 REF
51 REF
SECTION A-A
22 REF
R65 REF
SEE NOTE 3
53 REF
TP2 REF
SECTION B-B
55 REF
56 REF
SEE NOTE 3
53 REF
TP5 REF
SECTION C-C
55 REF
.000
.015
FT3 REF
56 REF
.000
.015
SECTION D-D

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.53 PER ND1002009 METHOD H
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
4. MUST MEET REQUIREMENTS OF ND 1002136
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
6. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
7. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
10. PROCURE PER PS 1007019
11. BOND FIND NO. 60 AND FIND NO. 61 TO FIND NO. 57 PER ND1002237.
12. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
13. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. AR DENOTES AS REQUIRED
15. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
16. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729 & CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

~~TABLE 1~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.~~

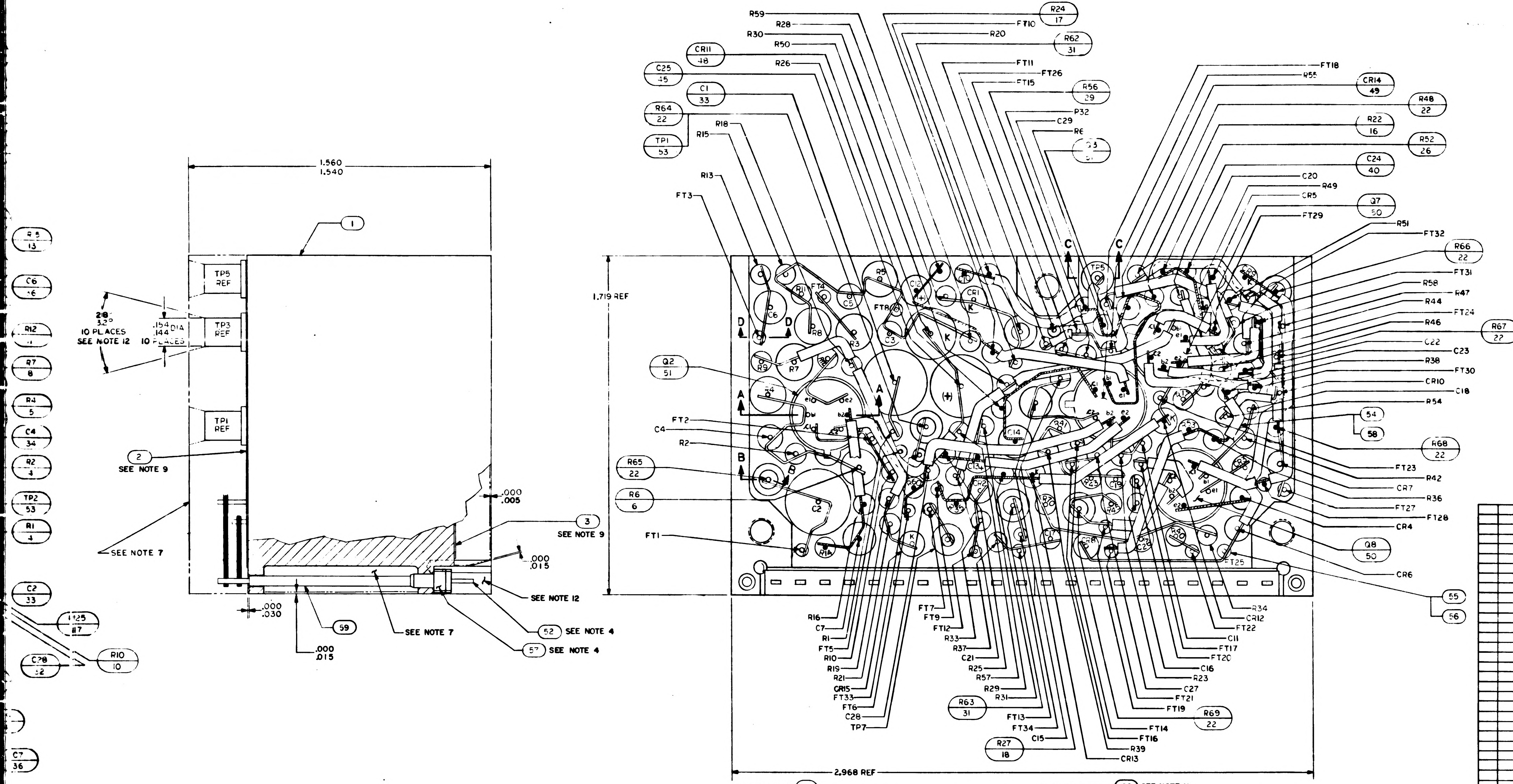
TP CHART

TP	COMPONENT
1	R64
2	R65
3	R62
4	R63
5	FIND 55 & 56
6	R66
7	FIND 55 & 56
8	R69
9	R68
10	R67

	REV LTR	SH.
1007419	C	1

1/1007419

SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		RE.ISED PER TDRR 13-5			
B	—	RE.ISED PER TDRR 19472			
C		REVISED PER TDRR 19526			
D		REVISED PER TDRR 20143		5	



1.560
1.540
1
TP5 REF
TP3 REF
TP1 REF
28°
32°
10 PLACES
SEE NOTE 12
.154
.144 DIA
10 PLACES
2
SEE NOTE 9
3
SEE NOTE 9
SEE NOTE 7
.000
.005
.000
.015
SEE NOTE 12
52 SEE NOTE 4
57 SEE NOTE 4
59
.000
.030
.000
.015
1.719 REF
2.968 REF
R59
R28
R30
R50
R26
R20
R24 17
R62 31
FT10
FT11
FT26
FT15
R56 29
P32
C29
R6
FT18
R55
CR14 49
R48 22
R22 16
R52 26
C24 40
C20
R49
CR5
FT29
Q7 50
R51
FT32
R66 22
FT31
R58
R47
R44
FT24
R46
R67 22
C22
C23
R38
FT30
CR10
C18
R54
54
58
R68 22
FT23
R42
CR7
R36
FT27
FT28
CR4
Q8 50
CR6
55
56
R34
CR12
FT22
C11
FT17
FT20
C16
R23
C27
FT21
FT19
R69 22
FT14
FT16
R39
CR13
CR11 48
C25 45
C1 33
R64 22
TP1 53
R18
R15
R13
FT3
Q2 51
FT2
C4
R2
R65 22
R6 6
FT1
R16
C7
R1
FT5
R10
R19
R21
CR15
FT33
FT6
C28
TP7
FT7
FT9
FT12
R33
R37
C21
R25
R57
R29
R31
R63 31
FT13
FT34
C15
R27 18
R5 13
C6 6
R12 4
R7 8
R4 5
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R1 4
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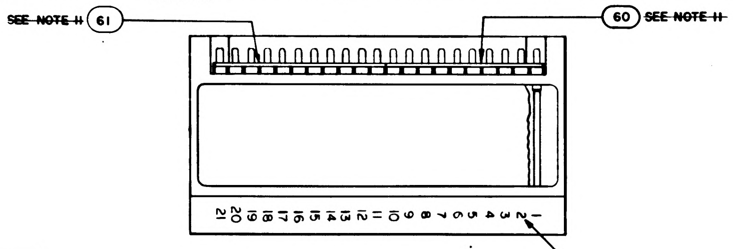
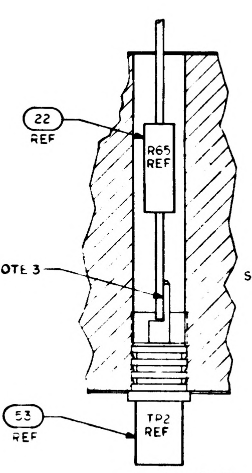
C7 36
A
B
C
D

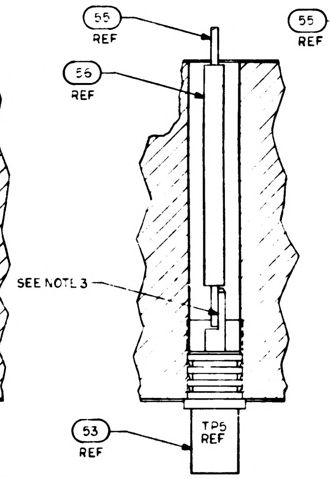


SEE NOTE 11 61
60 SEE NOTE 11
21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1



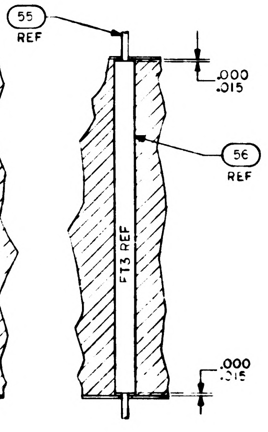
22 REF
R65 REF
SEE NOTE 3
53 REF
TP2 REF

SECTION B-B



55 REF
56 REF
SEE NOTE 3
53 REF
TP5 REF

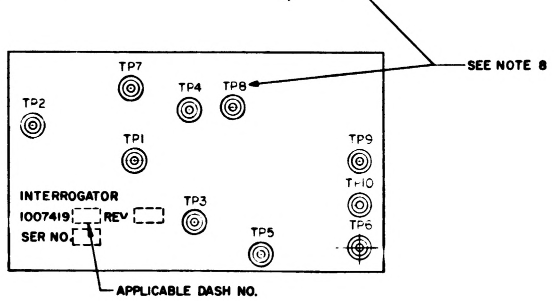
SECTION C-C



55 REF
.000
.015
56 REF
FT3 REF
.000
.015

SECTION D-D

TP	COMPONENT
1	R64
2	R65
3	R62
4	R63
5	FIND 55 & 56
6	R66
7	FIND 55 & 56
8	R69
9	R68
10	R67



SEE NOTE 8
TP7
TP4
TP8
TP2
TP1
TP9
TP10
TP3
TP6
TP5
INTERROGATOR
1007419 REV
SER NO.
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

TABLE 1

~~ BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~ OF AREA .25 FROM EXTERNAL ATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.~~	~~N/A~~
~~ FILLET AND VERTICAL ACE TO WITHIN .03 ± .03 OF ERNAL SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.~~	~~N/A~~
~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.~~

17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			011		LIST OF MATERIALS		
			1		1008540-11	GASKET, CONNECTOR MINIATURE	61
					1010013	SCHEMATIC	REF
			1		1008540-10	GASKET, CONNECTOR MINIATURE	60
			AR		1006776-20	INSULATION SLEEVING	59
			AR		1006776-21	INSULATION SLEEVING	58
			21		1006775	INSULATOR, WRAPOST-MALE, MINAT	57
			AR		1006776-22	INSULATION SLEEVING	56
			AR		1006757-8	WIRE ELEC .020 DIA	55
			AR		1006757-1	WIRE ELEC .010 ± .020	54
			10		1010292-2	TERMINAL FEED THRU INSULATED	53
			21		1006782-4	CONTACT, WRAPOST-MALE, MINAT	52
			5		1010376-1	TRANSISTOR	51
			3		1010395	TRANSISTOR	50
			14		1010385	DIODE	49
			1		1010830-9	DIODE	48
			1		1006777-19	CAPACITOR, CER	47
			1		1006755-79	CAPACITOR, TANT	46
			1		1006755-83	CAPACITOR, TANT	45
			2		1006777-8	CAPACITOR, CER	44
			1		1006777-11	CAPACITOR, CER	43
			1		1006777-15	CAPACITOR, CER	42
			2		1006777-17	CAPACITOR, CER	41
			3		1006777-24	CAPACITOR, CER	40
			2		1006755-69	CAPACITOR, TANT	39
			2		1006777-5	CAPACITOR, CER	38
							37
			4		1006777-31	CAPACITOR, CER	36
			1		1006777-28	CAPACITOR, CER	35
			2		1006777-27	CAPACITOR, CER	34
			2		1010264-23	CAPACITOR, MYLAR	33
			2		1006777-3	CAPACITOR, CER	32
			2		1006750-63	RESISTOR, FIXED FILM	31
			1		1006750-24	RESISTOR, FIXED FILM	30
			1		1006750-45	RESISTOR, FIXED FILM	29
			1		1006750-12	RESISTOR, FIXED FILM	28
			1		1006750-46	RESISTOR, FIXED FILM	27
			1		1006750-36	RESISTOR, FIXED FILM	26
			2		1006750-51	RESISTOR, FIXED FILM	25
			2		1006750-60	RESISTOR, FIXED FILM	24
			2		1006750-66	RESISTOR, FIXED FILM	23
			10		1006750-56	RESISTOR, FIXED FILM	22
			2		1006750-73	RESISTOR, FIXED FILM	21
			4		1006750-49	RESISTOR, FIXED FILM	20
			4		1006750-39	RESISTOR, FIXED FILM	19
			2		1006750-54	RESISTOR, FIXED FILM	18
			2		1006750-55	RESISTOR, FIXED FILM	17
			2		1006750-65	RESISTOR, FIXED FILM	16
			4		1006750-80	RESISTOR, FIXED FILM	15
			4		1006750-53	RESISTOR, FIXED FILM	14
			3		1006750-31	RESISTOR, FIXED FILM	13
			2		1006750-41	RESISTOR, FIXED FILM	12
			4		1006750-25	RESISTOR, FIXED FILM	11
			2		1006750-43	RESISTOR, FIXED FILM	10
			1		1010377-51	RESISTOR, FIXED WW	9
			1		1010377-106	RESISTOR, FIXED WW	8
			1		1006750-42	RESISTOR, FIXED FILM	7
			2		1010377-105	RESISTOR, FIXED WW	6
			2		1010377-49	RESISTOR, FIXED WW	5
			5		1006750-32	RESISTOR, FIXED FILM	4
			1		1008037-2	INSULATOR, BOTTOM	3
			1		1008037-1	INSULATOR, TOP	2
			1		1008036	HEATSINK	1

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX±.02 XXX±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Fora DATE 5 OCT 64
CHECKED A. Udovich 15 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERROGATOR
ASSEMBLY

CODE IDENT NO. 80230 | SIZE J | NASA DRAWING NO. 1007419
SCALE 5/1 | WT | SHEET 1 OF 1

1007419 D

1007419 | REV. LTR D | SH. 1

2H

2/1007419

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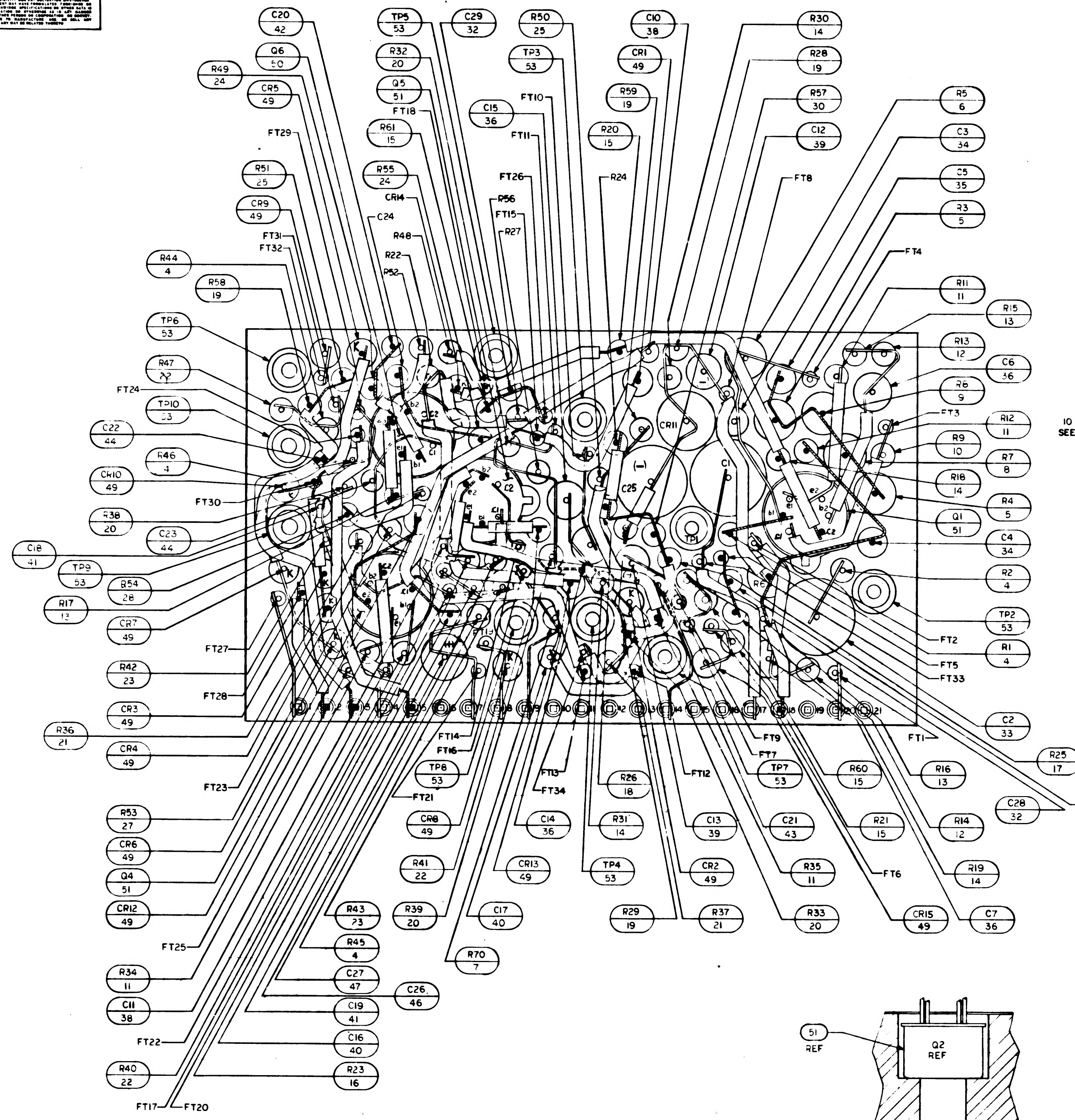
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R50 25
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FT10
R59 19
R57 30
CR5 49
FT18
C15 36
R20 15
C12 39
R5 6
FT29
R61 15
FT11
C3 34
R51 25
R55 24
FT26
R24
FT8
C5 35
CR9 49
CR14
R56
FT15
R27
R3 5
FT31
FT32
C24
R48
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R22
R52
FT4
R58 19
R11 11
R15 13
TP6 53
R13 12
R47 32
C6 36
FT24
R8 9
TP10 53
FT3
R12 11
C22 44
R9 10
R46 4
R7 8
CR10 49
R18 14
FT30
R4 5
R38 20
Q1 51
C23 44
C4 34
C18 41
R2 4
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R54 28
R17 12
TP2 53
CR7 49
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R1 4
FT27
FT5
R42 23
FT33
FT28
CR3 49
C2 33
R36 21
FT1
CR4 49
R25 17
FT14
FT16
FT9
FT7
TP8 53
TP7 53
R60 15
R16 13
FT23
FT13
FT12
R10 10
FT21
FT34
R26 18
C28 32
CR8 49
C14 36
R31 14
C13 39
C21 43
R21 15
R14 12
R53 27
CR6 49
R41 22
CR13 49
TP4 53
CR2 49
R35 11
FT6
R19 14
Q4 51
CR12 49
R43 23
R39 20
C17 40
R29 19
R37 21
R33 20
CR15 49
C7 36
FT25
R45 4
R70 7
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C27 47
C26 46
C11 38
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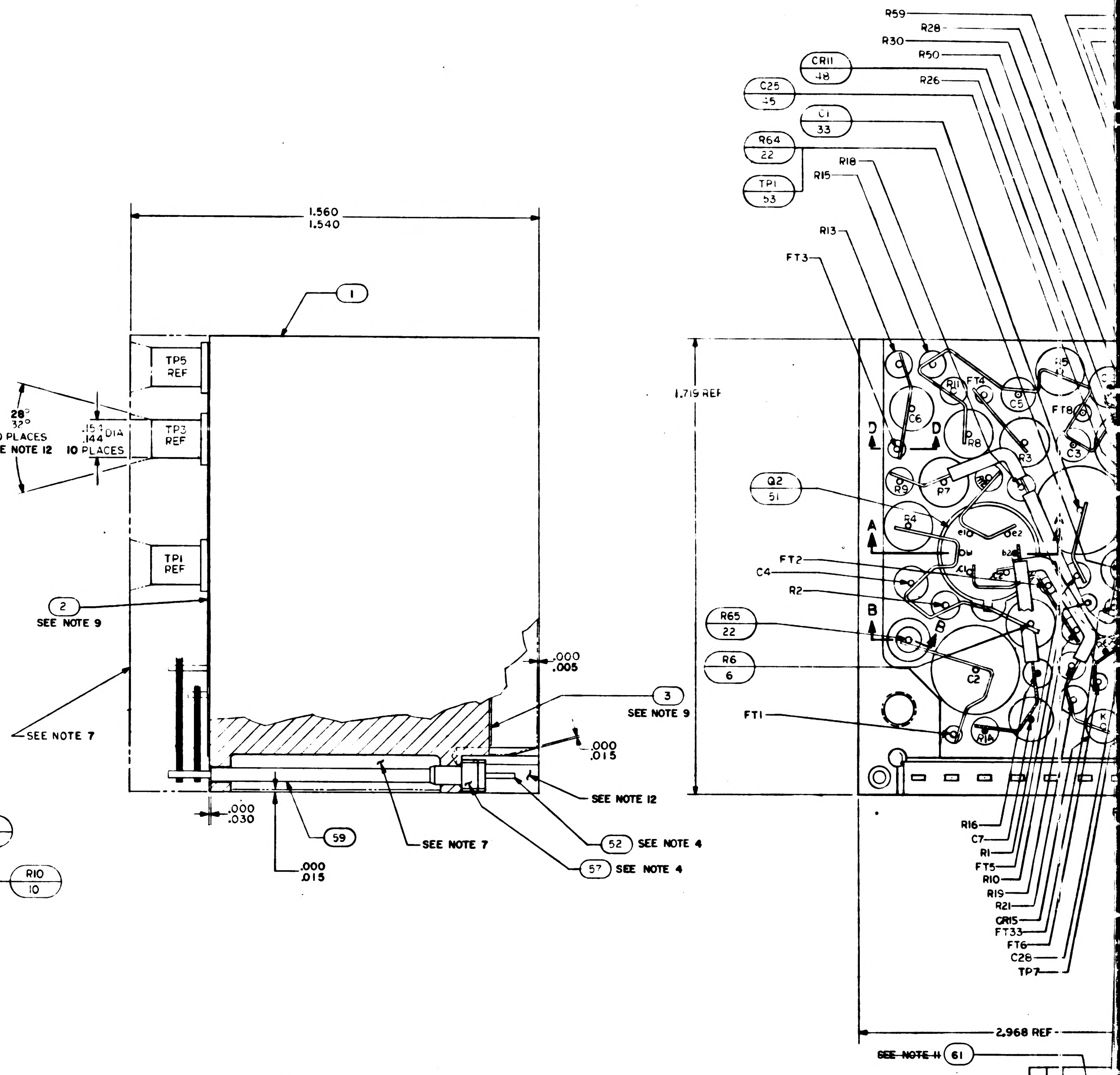
FT22
C16 40
R40 22
R23 16
FT17
FT20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1.540
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TP5 REF
TP3 REF
TP1 REF
28°
32°
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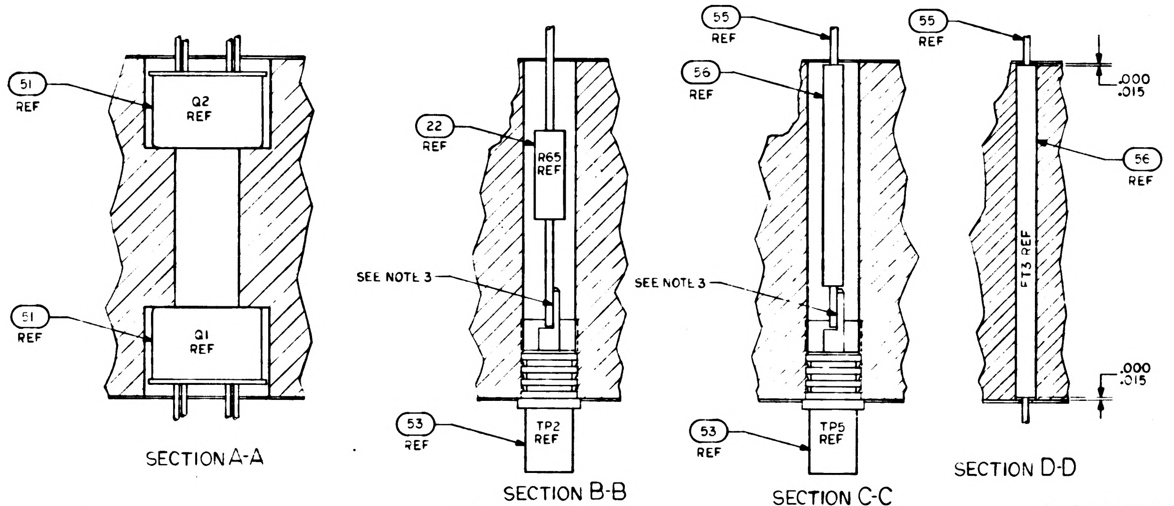
SEE NOTE 12
.154
.144 DIA
10 PLACES
2
SEE NOTE 9
SEE NOTE 7
.000
.005
3
SEE NOTE 9
.000
.015
SEE NOTE 12
.000
.030
59
.000
.015
SEE NOTE 7
52 SEE NOTE 4
57 SEE NOTE 4
1.719 REF
R59
R28
R30
R50
CR11 48
R26
C25 45
C1 33
R64 22
R18
TP1 53
R15
R13
FT3
Q2 51
FT2
C4
R2
R65 22
R6 6
FT1
R16
C7
R1
FT5
R10
R19
R21
CR15
FT33
FT6
C28
TP7
A
B
D
2.968 REF
~~SEE NOTE 11~~ 61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Q2 REF
51 REF
Q1 REF
SECTION A-A
22 REF
R65 REF
SEE NOTE 3
53 REF
TP2 REF
SECTION B-B
55 REF
56 REF
SEE NOTE 3
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TP5 REF
SECTION C-C
55 REF
.000
.015
FT3 REF
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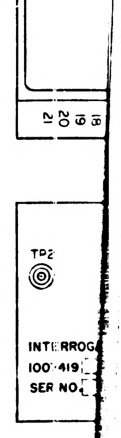
.015
SECTION D-D


21
20
19
18
TP2
INTERROG
1007419
SER NO.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO. 53 PER ND1002069 METHOD H
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
4. MUST MEET REQUIREMENTS OF ND 1002136
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
6. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
7. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
10. PROCURE PER PS 1007019
11. ~~BOND FIND NO. 60 AND FIND NO. 61 TO FIND NO. 57 PER ND1002237.~~
12. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
13. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. AR DENOTES AS REQUIRED
15. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
16. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER [illegible]. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

~~TABLE I~~

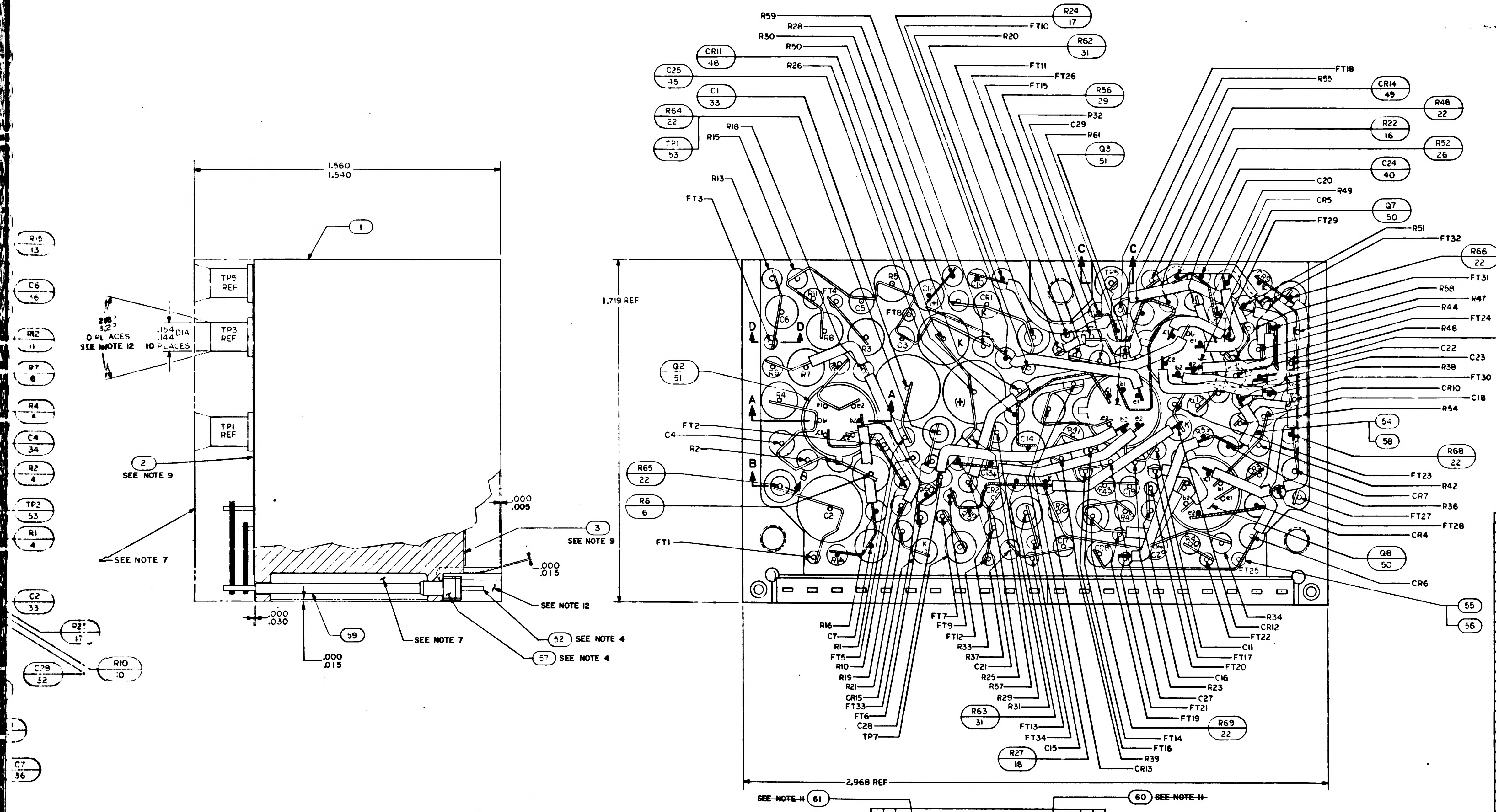
~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.~~

TP CHART

TP	COMPONENT
1	R64
2	R65
3	R62
4	R63
5	FIND 55 & 56
6	R66
7	FIND 55 & 56
8	R69
9	R68
10	R67

1007419	REV. LTR D	SH. 1

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17345			
B	—	REVISED PER TDRR 19472			
C		REVISED PER TDRR 19526			
D		REVISED PER TDRR 20143		9 JUN 65	
E		REVISED PER TDRR 24387		6 DEC 65	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1.540
1.719 REF
2.968 REF
TP5 REF
TP3 REF
TP1 REF
.154 DIA
.144
10 PLACES
0 PLACES SEE NOTE 12
SEE NOTE 9
SEE NOTE 7
SEE NOTE 12
SEE NOTE 4
.000
.005
.000
.015
.000
.030
SEE NOTE 11
A
B
C
D
Q2 51
R65 22
R6 6
R24 17
R62 31
R56 29
Q3 51
CR11 48
C25 45
C1 33
R64 22
TP1 53
CR14 49
R48 22
R22 16
R52 26
C24 40
Q7 50
R66 22
R67 22
R68 22
Q8 50
R63 31
R69 22
R27 18
FT1
FT2
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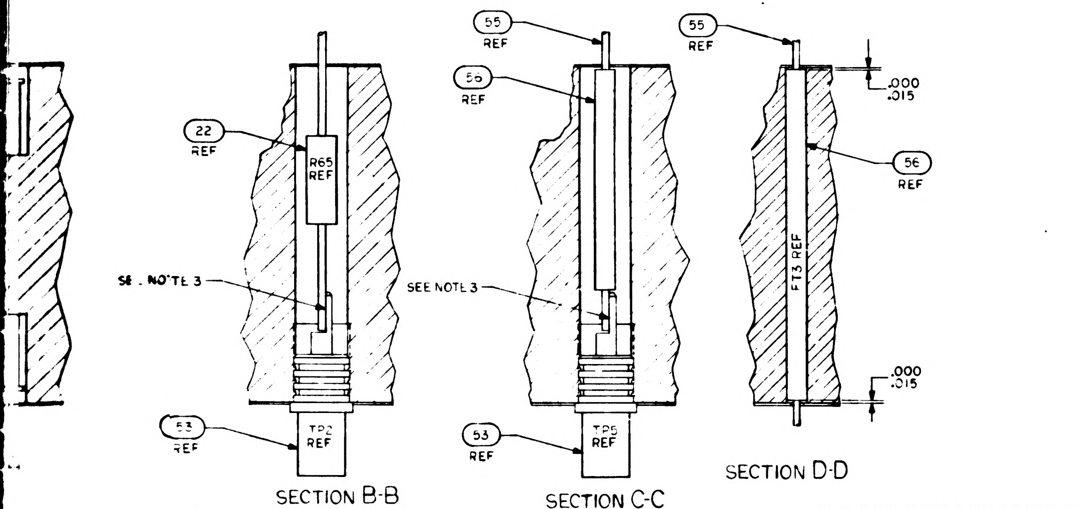
CR15
FT33
FT6
C28
TP7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R65 REF
SEE NOTE 3
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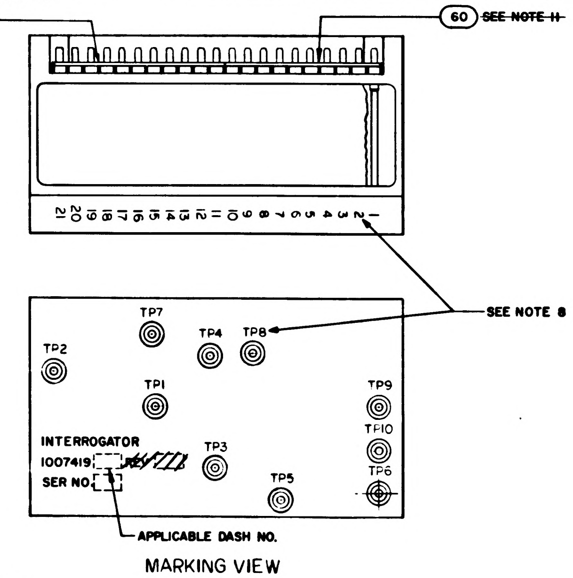
TP2 REF
55 REF
59 REF
TP5 REF
56 REF
FT13 REF
.000
.015

SECTION B-B

SECTION C-C

SECTION D-D

TP CHART	
TP	COMPONENT
1	R64
2	R65
3	R62
4	R63
5	FIND 55 & 56
6	R66
7	FIND 55 & 56
8	R69
9	R68
10	R67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TP2
TP4
TP8
TP1
TP9
TP10
TP3
TP5
TP6
INTERROGATOR
1007419
SER NO.
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279 USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

TABLE 1

D BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 90% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.	N/A
INNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.	N/A
N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			011			LIST OF MATERIALS	
			1		1008540-11	GASKET, CONNECTOR MINIATURE	61
			☒		1010013	SCHEMATIC	REF
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			AR		1006776-21	INSULATION SLEEVING	58
			21		1006775	INSULATOR, WRAPOST-MALE, MINAT	57
			AR		1006776-22	INSULATION SLEEVING	56
			AR		1006757-8	WIRE ELEC .020 DIA	55
			AR		1006757-1	WIRE ELEC .010 ± .020	54
			10		1010292-2	TERMINAL FEED THRU INSULATED	53
			21		1006782-4	CONTACT, WRAPOST-MALE, MINAT	52
			5		1010376-1	TRANSISTOR	51
			3		1010395	TRANSISTOR	50
			14		1010385	DIODE	49
			1		1010830-9	DIODE	48
			1		1006777-19	CAPACITOR, CER	47
			1		1006755-79	CAPACITOR, TANT	46
			1		1006755-83	CAPACITOR, TANT	45
			2		1006777-8	CAPACITOR, CER	44
			1		1006777-11	CAPACITOR, CER	43
			1		1006777-15	CAPACITOR, CER	42
			2		1006777-17	CAPACITOR, CER	41
			3		1006777-24	CAPACITOR, CER	40
			2		1006755-69	CAPACITOR, TANT	39
			2		1006777-5	CAPACITOR, CER	38
							37
			4		1006777-31	CAPACITOR, CER	36
			1		1006777-28	CAPACITOR, CER	35
			2		1006777-27	CAPACITOR, CER	34
			2		1010264-23	CAPACITOR, MYLAR	33
			2		1006777-3	CAPACITOR, CER	32
			2		1006750-63	RESISTOR, FIXED FILM	31
			1		1006750-24	RESISTOR, FIXED FILM	30
			1		1006750-45	RESISTOR, FIXED FILM	29
			1		1006750-12	RESISTOR, FIXED FILM	28
			1		1006750-46	RESISTOR, FIXED FILM	27
			1		1006750-36	RESISTOR, FIXED FILM	26
			2		1006750-51	RESISTOR, FIXED FILM	25
			2		1006750-60	RESISTOR, FIXED FILM	24
			2		1006750-66	RESISTOR, FIXED FILM	23
			10		1006750-56	RESISTOR, FIXED FILM	22
			2		1006750-73	RESISTOR, FIXED FILM	21
			4		1006750-49	RESISTOR, FIXED FILM	20
			4		1006750-39	RESISTOR, FIXED FILM	19
			2		1006750-54	RESISTOR, FIXED FILM	18
			2		1006750-55	RESISTOR, FIXED FILM	17
			2		1006750-65	RESISTOR, FIXED FILM	16
			4		1006750-80	RESISTOR, FIXED FILM	15
			4		1006750-53	RESISTOR, FIXED FILM	14
			3		1006750-31	RESISTOR, FIXED FILM	13
			2		1006750-41	RESISTOR, FIXED FILM	12
			4		1006750-25	RESISTOR, FIXED FILM	11
			2		1006750-43	RESISTOR, FIXED FILM	10
			1		1010377-51	RESISTOR, FIXED WW	9
			1		1010377-106	RESISTOR, FIXED WW	8
			1		1006750-42	RESISTOR, FIXED FILM	7
			2		1010377-105	RESISTOR, FIXED WW	6
			2		1010377-49	RESISTOR, FIXED WW	5
			5		1006750-32	RESISTOR, FIXED FILM	4
			1		1008037-2	INSULATOR, BOTTOM	3
			1		1008037-1	INSULATOR, TOP	2
			1		1008036	HEATSINK	1

1007419 E

2H

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX±.02 XXX±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497
DRAWN Fore DATE 5 OCT 64
CHECKED A. Usovich 15 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERROGATOR
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007419
SCALE 5/1
WT
SHEET 1 OF 1

1007419	REV. LTR E	SH. 1

271007419

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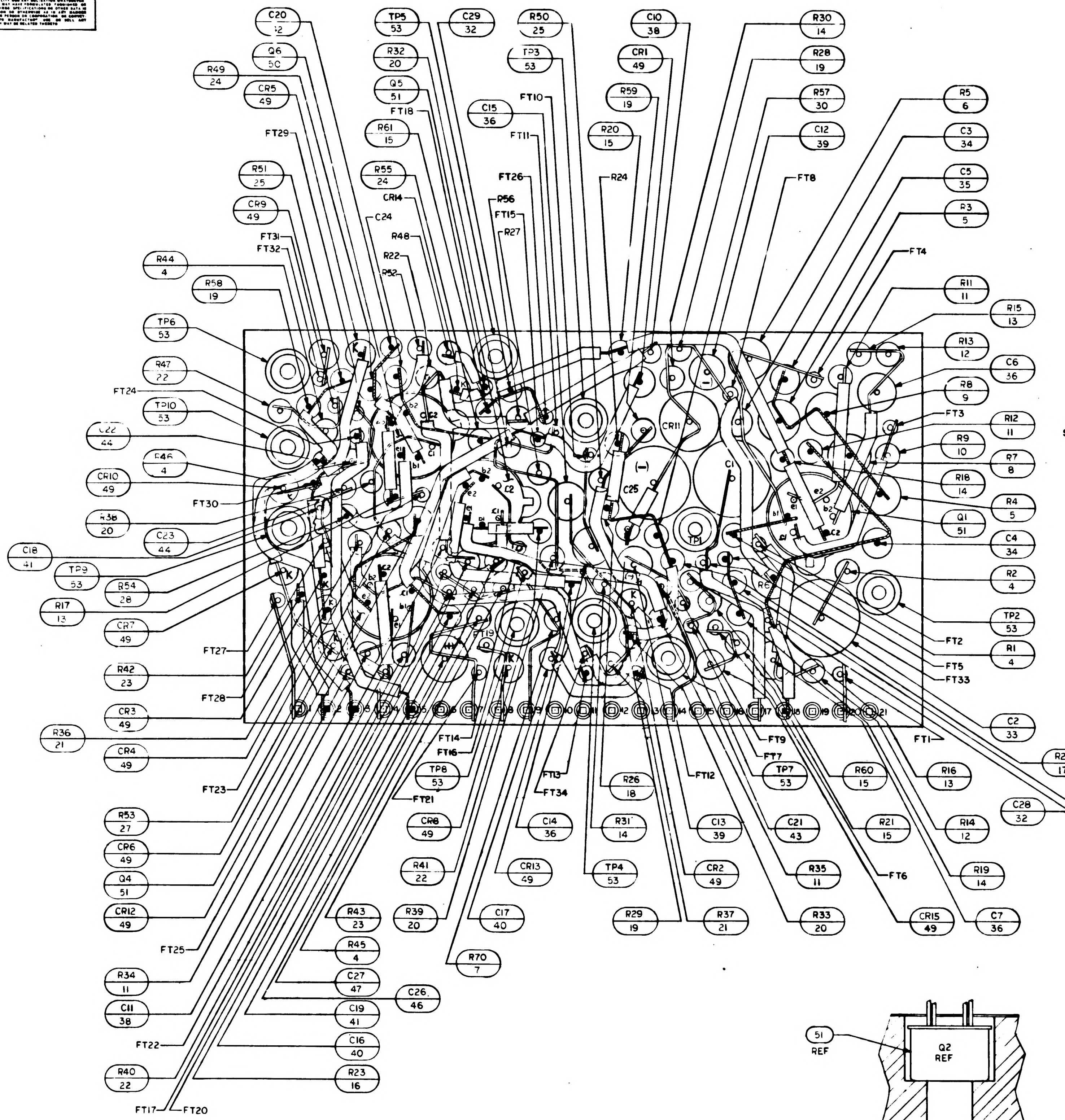

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Q6 50
R49 24
CR5 49
FT29
R51 25
CR9 49
FT31
FT32
R44 4
R58 19
TP6 53
R47 22
FT24
TP10 53
C22 44
R46 4
CR10 49
FT30
R38 20
C23 44
C18 41
TP9 53
R54 28
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CR7 49
FT27
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FT28
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R36 21
CR4 49
FT23
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CR6 49
Q4 51
CR12 49
FT25
R34 11
C11 38
FT22
R40 22
FT17
FT20
TP5 53
R32 20
Q5 51
FT18
R61 15
R55 24
CR14
C24
R48
R22
R52
C29 32
C15 36
FT10
FT11
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R20 15
R24
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C3 34
C5 35
R3 5
FT4
R11 11
R15 13
R13 12
C6 36
R8 9
FT3
R12 11
R9 10
R7 8
R18 14
R4 5
Q1 51
C4 34
R2 4
TP2 53
FT2
R1 4
FT5
FT33
C2 33
FT1
R25 17
R10 10
C28 32
R16 13
R60 15
TP7 53
FT7
FT9
R14 12
R19 14
C7 36
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R21 15
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C21 43
C13 39
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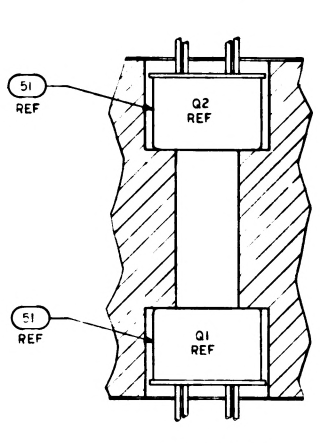
TP4 53
C14 36
CR13 49
FT13
FT34
TP8 53
FT14
FT16
FT21
CR8 49
R41 22
R39 20
C17 40
R70 7
R43 23
R45 4
C27 47
C26 46
C19 41
C16 40
R23 16
CR11
C25
C1
(−)

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO 53 PER ND1002009 METHOD J.
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
4. MUST MEET REQUIREMENTS OF ND 1002136
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
6. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
7. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
10. PROCURE PER PS 1007019
11. ~~BOND FIND NO. 60 AND FIND NO. 61 TO FIND NO. 57 PER ND1002237.~~
12. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
13. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. AR DENOTES AS REQUIRED
15. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
16. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~

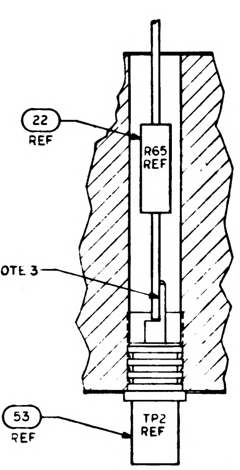
~~TABLE 1~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.~~



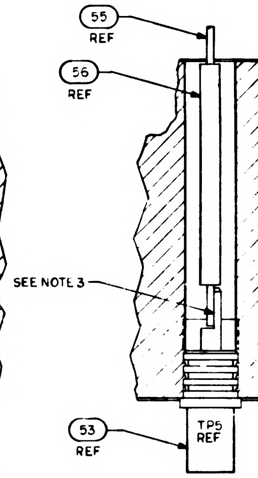
51 REF
Q2 REF
51 REF
Q1 REF

SECTION A-A



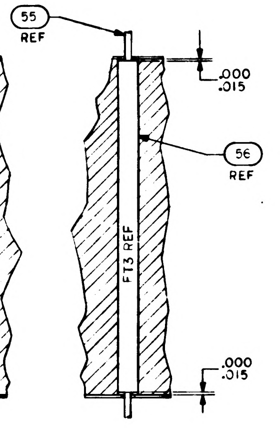
22 REF
R65 REF
SEE NOTE 3
53 REF
TP2 REF

SECTION B-B



55 REF
56 REF
SEE NOTE 3
53 REF
TP5 REF

SECTION C-C



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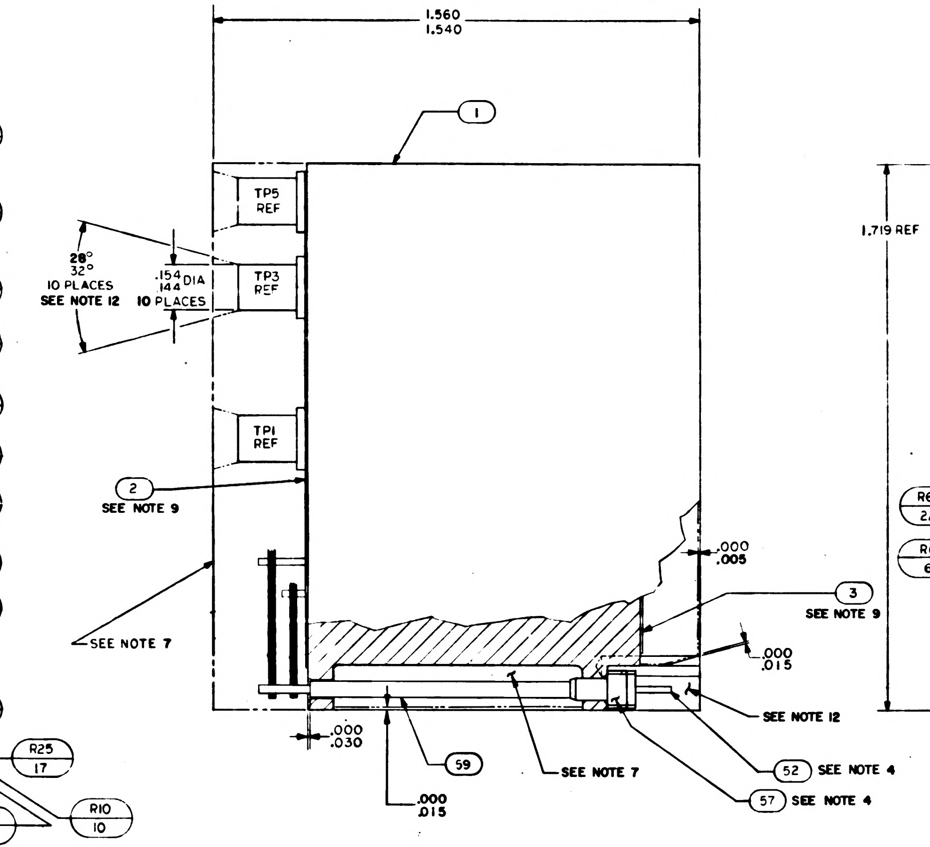
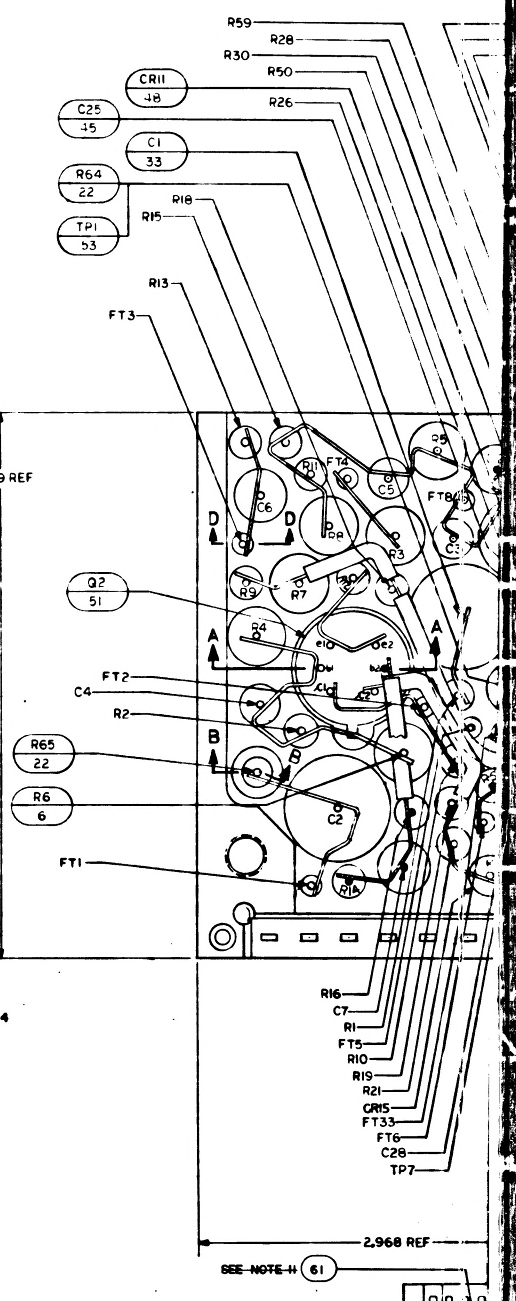
.000 .015
56 REF
FT3 REF
.000 .015

SECTION D-D



1.560 1.540
1
TP5 REF
TP3 REF
TP1 REF
28° 32° 10 PLACES SEE NOTE 12
.154 .144 DIA 10 PLACES
2 SEE NOTE 9
SEE NOTE 7
1.719 REF
.000 .005
3 SEE NOTE 9
.000 .015
SEE NOTE 12
52 SEE NOTE 4
57 SEE NOTE 4
SEE NOTE 7
59
.000 .030
.000 .015



R59
R28
R30
R50
R26
CR11 48
C25 45
C1 33
R64 22
TP1 53
R15
R18
R13
FT3
D
D
Q2 51
A
A
FT2
C4
R2
B
B
R65 22
R6 6
FT1
R16
C7
R1
FT5
R10
R19
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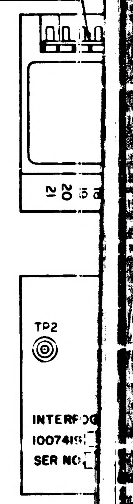
CR15
FT33
FT6
C28
TP7
2.968 REF
~~SEE NOTE 11~~ 61



21
20
TP2
INTERROG
1007419
SER NO

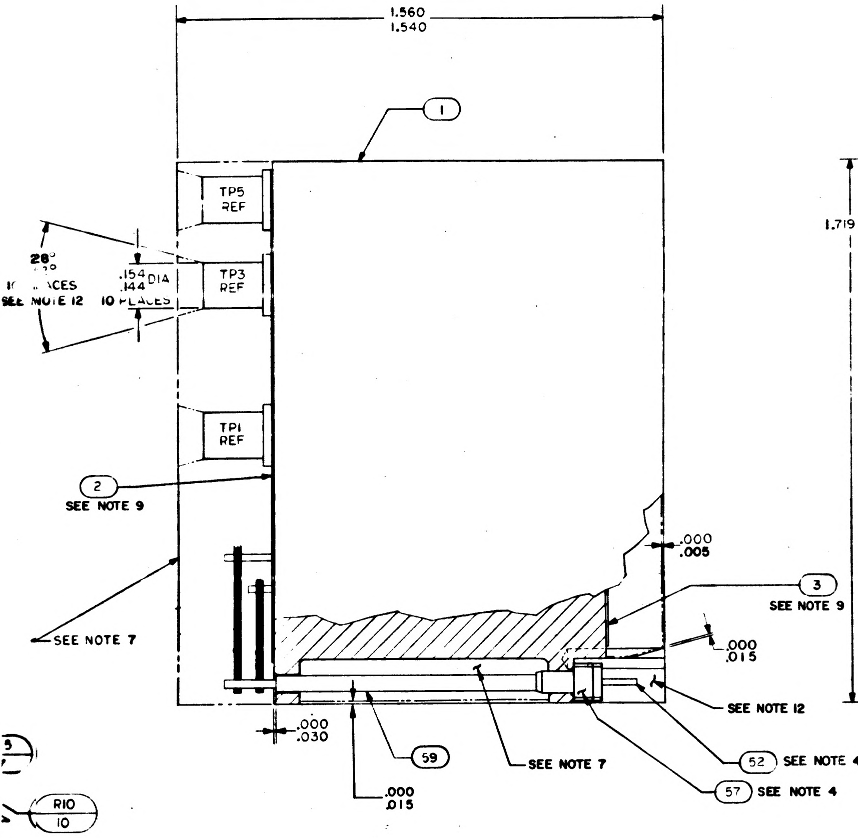
TP CHART	
TP	COMPONENT
1	R64
2	R65
3	R62
4	R63
5	FIND 55 & 56
6	R66
7	FIND 55 & 56
8	R69
9	R68
10	R67

17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279 USING 010992 PRIMER AND 008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

1007419	REV LTR	SH.
	E	1

171007419

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17345		2 [illegible] 65	
B	—	REVISED PER TDRR 19472			
C		REVISED PER TDRR 19526		8 JUN 65	
D		REVISED PER TDRR 20143		19 JUN 65	
E		REVISED PER TDRR 24387		6 DEC 65	
F		REVISED PER TDRR 26375		25 FEB 66	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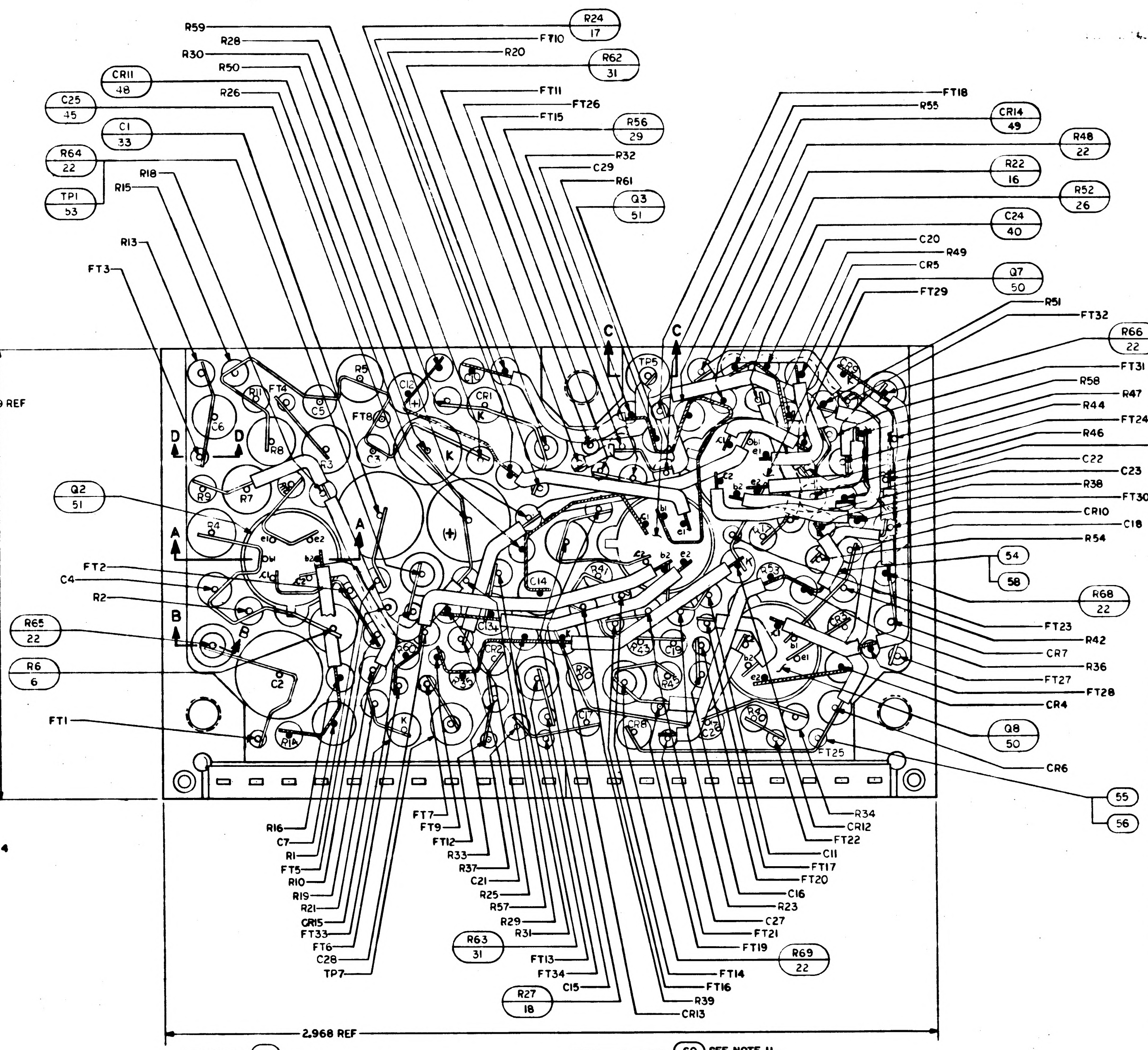
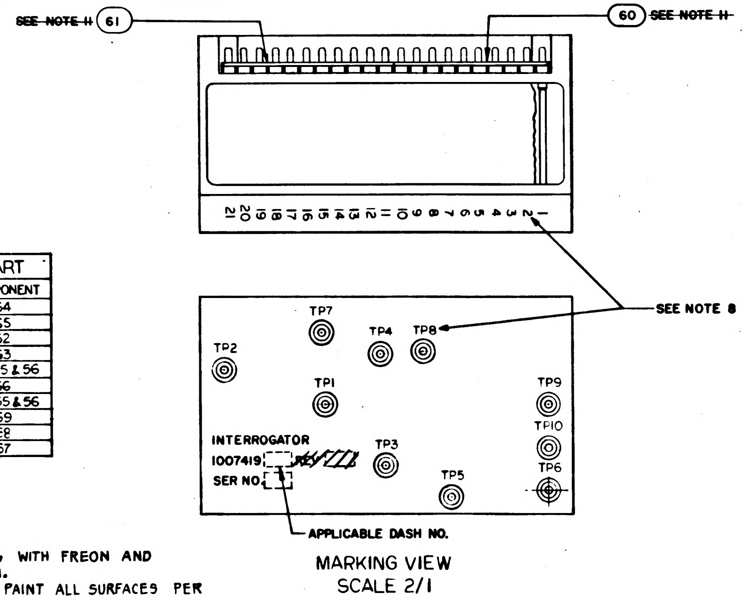
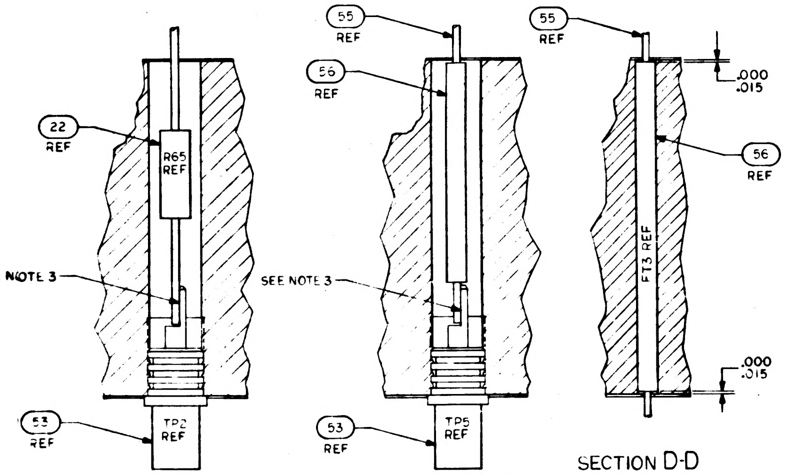
1.540
1
TP5 REF
TP3 REF
TP1 REF
28°
10 PLACES SEE NOTE 12
.154 DIA
.144 10 PLACES
2
SEE NOTE 9
SEE NOTE 7
3
SEE NOTE 9
.000
.005
.000
.015
SEE NOTE 12
.000
.030
59
SEE NOTE 7
52 SEE NOTE 4
57 SEE NOTE 4
.000
.015
R5
17
R10
10


R59
R28
R30
R50
R26
CR11 48
C25 45
C1 33
R64 22
TP1 53
R18
R15
R13
FT3
R24 17
FT10
R20
R62 31
FT11
FT26
FT15
R56 29
C29
R32
R61
Q3 51
FT18
R55
CR14 49
R48 22
R22 16
R52 26
C24 40
C20
R49
CR5
Q7 50
FT29
R51
FT32
R66 22
FT31
R58
R47
R44
FT24
R46
R67 22
C22
C23
R38
FT30
CR10
C18
R54
54
58
R68 22
FT23
R42
CR7
R36
FT27
FT28
CR4
Q8 50
CR6
55
56
Q2 51
FT2
C4
R2
R65 22
R6 6
FT1
1.719 REF
C
D
A
B
R16
C7
R1
FT5
R10
R19
R21
CR15
FT33
FT6
C28
TP7
FT7
FT9
FT12
R33
R37
C21
R25
R57
R29
R31
R63 31
FT13
FT34
C15
R27 18
R34
CR12
FT22
C11
FT17
FT20
C16
R23
C27
FT21
FT19
R69 22
FT14
FT16
R39
CR13
FT25
2.968 REF


SEE NOTE 11 61
60 SEE NOTE 11
21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 8
TP7
TP4
TP8
TP2
TP1
TP9
TP10
TP3
TP5
TP6
INTERROGATOR
1007419
REV
SER NO.
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

TP CHART	
TP	COMPONENT
1	R64
2	R65
3	R62
4	R63
5	FIND 55 & 56
6	R66
7	FIND 55 & 56
8	R69
9	R68
10	R67


55 REF
56 REF
22 REF
R65 REF
SEE NOTE 3
TP2 REF
53 REF
56 REF
SEE NOTE 3
TP5 REF
53 REF
55 REF
.000
.015
56 REF
FT3 REF
.000
.015

SECTION B-B

SECTION C-C

SECTION D-D

~~TABLE 1~~

~~[illegible] WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~[illegible] FROM EXTERNAL [illegible] 90% OF AREA .25 [illegible] HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~[illegible] VERTICAL [illegible] .03 ± .03 OF [illegible]~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.~~

17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279 USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
19. MOISTUREPROOF PER ND1002292 AS REQUIRED BY FIND NO. 62 USING INSULATING TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD1008867 AFTER PAINTING AND STENCILING.

		AR	–		SEE NOTE 19	MOISTUREPROOFING	62
		1	1		1008540-11	GASKET, CONNECTOR MINIATURE	61
					1010013	SCHEMATIC	REF
		1	1		1008540-10	GASKET, CONNECTOR MINIATURE	60
		AR	AR		1006776-20	INSULATION SLEEVING	59
		AR	AR		1006776-21	INSULATION SLEEVING	58
		21	21		1006775	INSULATOR, WRAPOST-MALE, MINAT	57
		AR	AR		1006776-22	INSULATION SLEEVING	56
		AR	AR		1006757-8	WIRE ELEC .020 DIA	55
		AR	AR		1006757-1	WIRE ELEC .010 ± .020	54
		10	10		1010292-2	TERMINAL FEED THRU INSULATED	53
		21	21		1006782-4	CONTACT, WRAPOST-MALE, MINAT	52
		5	5		1010376-1	TRANSISTOR	51
		3	3		1010395	TRANSISTOR	50
		14	14		1010385	DIODE	49
		1	1		1010830-9	DIODE	48
		1	1		1006777-19	CAPACITOR, CER	47
		1	1		1006755-79	CAPACITOR, TANT	46
		1	1		1006755-83	CAPACITOR, TANT	45
		2	2		1006777-8	CAPACITOR, CER	44
		1	1		1006777-11	CAPACITOR, CER	43
		1	1		1006777-15	CAPACITOR, CER	42
		2	2		1006777-17	CAPACITOR, CER	41
		3	3		1006777-24	CAPACITOR, CER	40
		2	2		1006755-69	CAPACITOR, TANT	39
		2	2		1006777-5	CAPACITOR, CER	38
							37
		4	4		1006777-31	CAPACITOR, CER	36
		1	1		1006777-28	CAPACITOR, CER	35
		2	2		1006777-27	CAPACITOR, CER	34
		2	2		1010264-23	CAPACITOR, MYLAR	33
		2	2		1006777-3	CAPACITOR, CER	32
		2	2		1006750-63	RESISTOR, FIXED FILM	31
		1	1		1006750-24	RESISTOR, FIXED FILM	30
		1	1		1006750-45	RESISTOR, FIXED FILM	29
		1	1		1006750-12	RESISTOR, FIXED FILM	28
		1	1		1006750-46	RESISTOR, FIXED FILM	27
		1	1		1006750-36	RESISTOR, FIXED FILM	26
		1	2		1006750-51	RESISTOR, FIXED FILM	25
		2	2		1006750-60	RESISTOR, FIXED FILM	24
		2	2		1006750-66	RESISTOR, FIXED FILM	23
		10	10		1006750-56	RESISTOR, FIXED FILM	22
		2	2		1006750-73	RESISTOR, FIXED FILM	21
		4	4		1006750-49	RESISTOR, FIXED FILM	20
		4	4		1006750-39	RESISTOR, FIXED FILM	19
		2	2		1006750-54	RESISTOR, FIXED FILM	18
		2	2		1006750-55	RESISTOR, FIXED FILM	17
		2	2		1006750-65	RESISTOR, FIXED FILM	16
		4	4		1006750-80	RESISTOR, FIXED FILM	15
		4	4		1006750-53	RESISTOR, FIXED FILM	14
		3	3		1006750-31	RESISTOR, FIXED FILM	13
		2	2		1006750-41	RESISTOR, FIXED FILM	12
		4	4		1006750-25	RESISTOR, FIXED FILM	11
		2	2		1006750-43	RESISTOR, FIXED FILM	10
		1	1		1010377-51	RESISTOR, FIXED WW	9
		1	1		1010377-106	RESISTOR, FIXED WW	8
		1	1		1006750-42	RESISTOR, FIXED FILM	7
		2	2		1010377-105	RESISTOR, FIXED WW	6
		2	2		1010377-49	RESISTOR, FIXED WW	5
		5	5		1006750-32	RESISTOR, FIXED FILM	4
		1	1		1008037-2	INSULATOR, BOTTOM	3
		1	1		1008037-1	INSULATOR, TOP	2
		1	1		1008036	HEATSINK	1
		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

1007419 F

1007574		
1007573		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ± .02 XXX ± .005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Foro DATE 5 OCT 64
CHECKED A. Udovich 15 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERROGATOR ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007419
SCALE 5/1
WT
SHEET 1 OF 1

1007419 REV LTR F SH. 1

2/1007419

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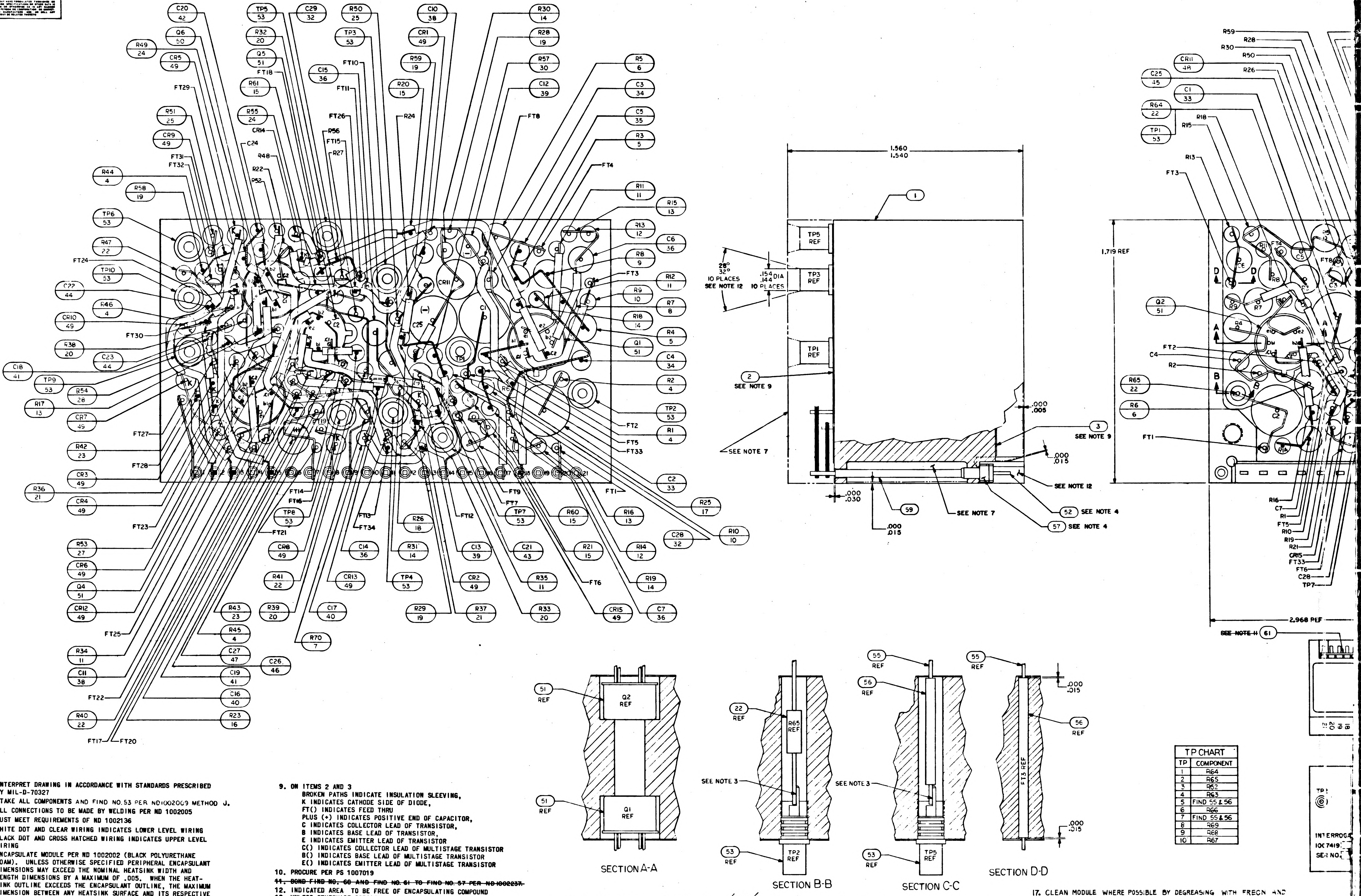
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C29 32
R50 25
C10 38
R30 14
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R32 20
TP3 53
CR1 49
R28 19
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Q5 51
CR5 49
FT18
FT10
R57 30
C15 36
R59 19
R5 6
FT29
R61 15
FT11
R20 15
C12 39
C3 34
R51 25
R55 24
FT26
R24
FT8
C5 35
CR14
R56
FT15
R3 5
CR9 49
C24
R27
FT31
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FT32
R22
FT4
R44 4
R52
R58 19
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TP6 53
R15 13
R13 12
R47 22
C6 36
FT24
R8 9
TP10 53
FT3
C22 44
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R9 10
R46 4
R7 8
CR10 49
R18 14
FT30
R4 5
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C23 44
Q1 51
C18 41
C4 34
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R2 4
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FT7
FT1
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CR13 49
TP4 53
CR2 49
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FT6
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CR12 49
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C17 40
R29 19
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R33 20
CR15 49
C7 36
FT25
R45 4
R70 7
R34 11
C27 47
C26 46
C11 38
C19 41
FT22
C16 40
R40 22
R23 16
FT17
FT20
1.560
1.540
1
TP5 REF
TP3 REF
TP1 REF
28°
32°
10 PLACES
SEE NOTE 12
.154 DIA
.144
10 PLACES
1.719 REF
2
SEE NOTE 9
.000
.005
3
SEE NOTE 9
SEE NOTE 7
.000
.015
SEE NOTE 12
52 SEE NOTE 4
57 SEE NOTE 4
SEE NOTE 7
59
.000
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.015
R59
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R30
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CR11 48
C25 45
C1 33
R64 22
TP1 53
R18
R15
R13
FT3
Q2 51
C4
FT2
R2
R65 22
R6 6
FT1
D
A
B
R16
C7
R1
FT5
R10
R19
R21
CR15
FT33
FT6
C28
TP7
2.968 REF
~~SEE NOTE 11~~ 61
51 REF
Q2 REF
Q1 REF
SECTION A-A
22 REF
R65 REF
SEE NOTE 3
53 REF
TP2 REF
SECTION B-B
55 REF
56 REF
SEE NOTE 3
53 REF
TP5 REF
SECTION C-C
55 REF
.000
.015
56 REF
FT3 REF
.000
.015
SECTION D-D
TP2
INTERROGA
10C7419
SER NO.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.53 PER ND1002009 METHOD J.
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
4. MUST MEET REQUIREMENTS OF ND 1002136
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
6. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
7. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
10. PROCURE PER PS 1007019
~~11. BOND FIND NO. 60 AND FIND NO. 61 TO FIND NO. 57 PER ND1002237.~~
12. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
13. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. AR DENOTES AS REQUIRED
~~15. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
~~16. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~

~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE.~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.~~

17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279 USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
19. MOISTUREPROOF PER ND1002292 AS REQUIRED BY FIND NO. 62 USING INSULATING TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD1008867 AFTER PAINTING AND STENCILING.

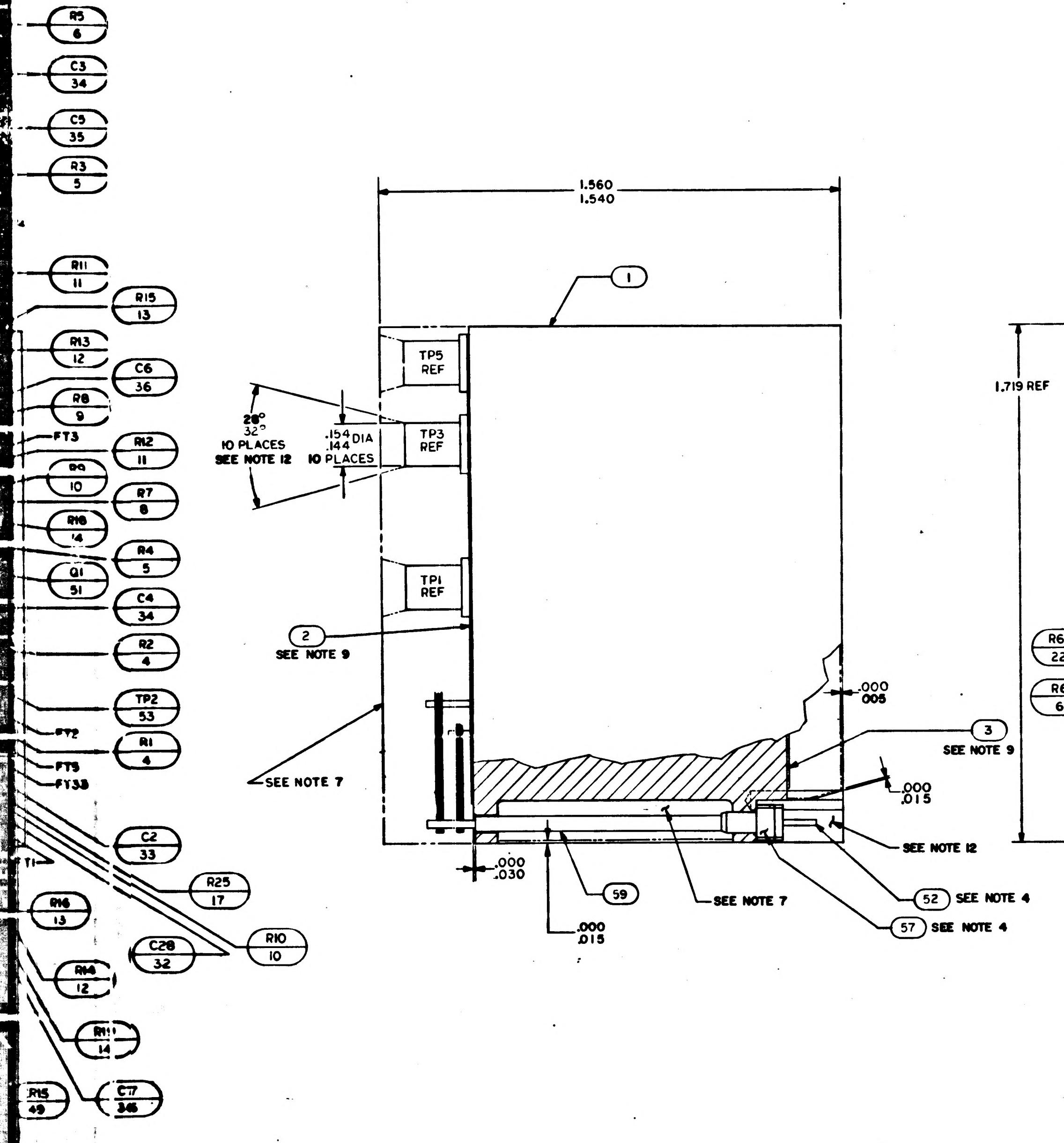
TP CHART

TP	COMPONENT
1	R64
2	R65
3	R62
4	R63
5	FIND 55 & 56
6	R66
7	FIND 55 & 56
8	R69
9	R68
10	R67

1007419	REV. LTR F	SH. 1

1/1007419

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD



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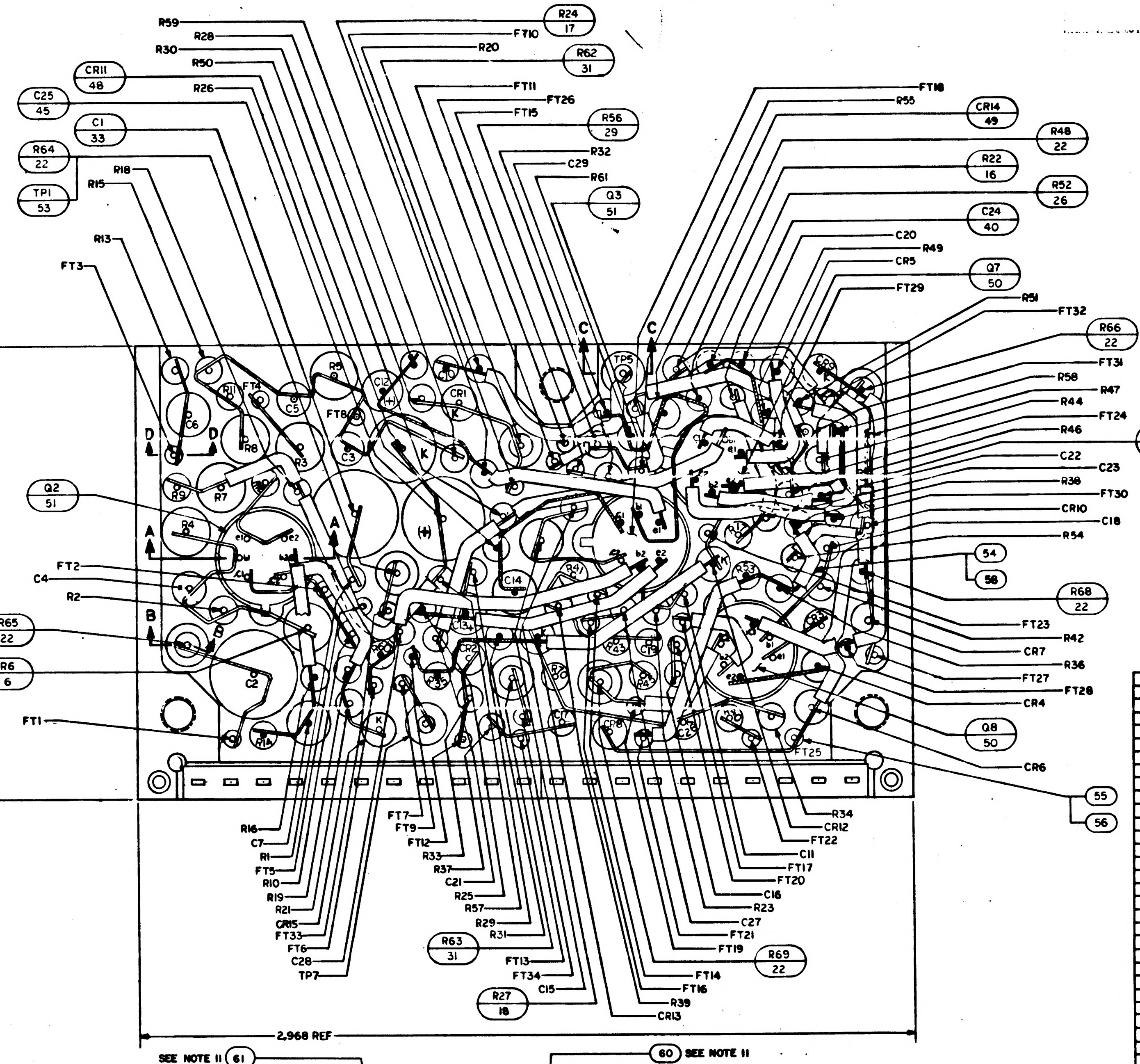
C3 34
C5 35
R3 5
R11 11
R15 13
R13 12
C6 36
R8 9
FT3
R12 11
R9 10
R7 8
R16 14
R4 5
Q1 51
C4 34
R2 4
TP2 53
FT2
R1 4
FT5
FT33
C2 33
R25 17
R16 13
C28 32
R10 10
R14 12
R11 14
R15 49
C7 36
1.560
1.540
1
TP5 REF
TP3 REF
TP1 REF
28°
32°
10 PLACES
SEE NOTE 12
.154 DIA
.144
10 PLACES
2
SEE NOTE 9
SEE NOTE 7
.000
.005
3
SEE NOTE 9
.000
.015
SEE NOTE 12
.000
.030
59
.000
.015
SEE NOTE 7
52 SEE NOTE 4
57 SEE NOTE 4



R59
R28
R30
R50
R26
CR11 48
C25 45
C1 33
R64 22
TP1 53
R15
R18
R13
FT3
R24 17
FT10
R20
R62 31
FT11
FT26
FT15
R56 29
R32
C29
R61
Q3 51
FT18
R55
CR14 49
R48 22
R22 16
R52 26
C24 40
C20
R49
CR5
Q7 50
FT29
R51
FT32
R66 22
FT31
R58
R47
R44
R46
FT24
R67 22
C22
C23
R38
FT30
CR10
C18
R54
54
58
R68 22
FT23
R42
CR7
R36
FT27
FT28
CR4
Q8 50
CR6
55
56
1.719 REF
Q2 51
FT2
C4
R2
R65 22
R6 6
FT1
A
B
C
D
R16
C7
R1
FT5
R10
R19
R21
CR15
FT33
FT6
C28
TP7
FT7
FT9
FT12
R33
R37
C21
R25
R57
R29
R31
R63 31
FT13
FT34
C15
R27 18
R34
CR12
FT22
C11
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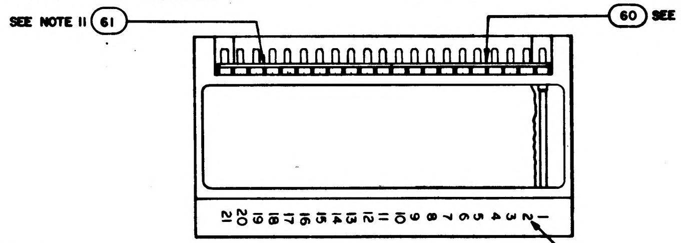
FT16
R39
CR13
2.968 REF



SEE NOTE 11 61
60 SEE NOTE 11
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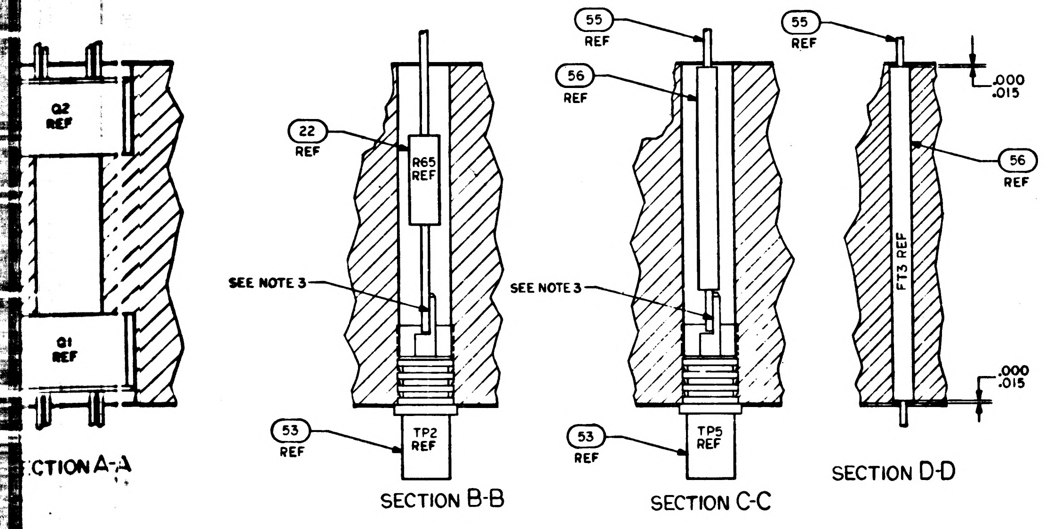
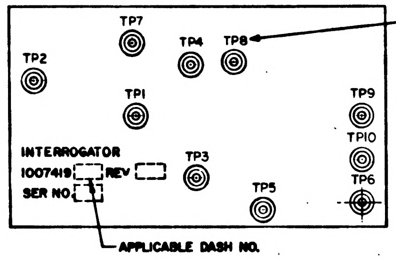


Q2 REF
Q1 REF
SECTION A-A
22 REF
R65 REF
SEE NOTE 3
53 REF
TP2 REF
SECTION B-B
55 REF
56 REF
SEE NOTE 3
53 REF
TP5 REF
SECTION C-C
55 REF
.000
.015
56 REF
FT3 REF
.000
.015
SECTION D-D

TP CHART	
TP	COMPONENT
1	R64
2	R65
3	R62
4	R63
5	FIND 55 & 56
6	R66
7	FIND 55 & 56
8	R69
9	R68
10	R67



TP7
TP4
TP8
TP2
TP1
TP9
TP10
TP6
TP3
TP5
INTERROGATOR
1007419
REV
SER NO.
APPLICABLE DASH NO.
SEE NOTE 8

MARKING VIEW
SCALE 2/1

			QTY	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			1		1008540-11	GASKET, CONNECTOR MINIATURE	6
					1010013	SCHEMATIC	REF
			1		1008540-10	GASKET, CONNECTOR MINIATURE	40
			AR		1006776-20	INSULATION SLEEVING	39
			AR		1006776-21	INSULATION SLEEVING	53
			21		1006775	INSULATOR, WRAPOST-MALE, MINAT	57
			AR		1006776-22	INSULATION SLEEVING	56
			AR		1006757-8	WIRE ELEC .020 DIA	55
			AR		1006757-1	WIRE ELEC .010 ± .020	54
			10		1010292-2	TERMINAL FEED THRU INSULATED	53
			21		1006782-4	CONTACT, WRAPOST-MALE, MINAT	52
			5		1010376-1	TRANSISTOR	51
			3		1010395	TRANSISTOR	50
			14		1010385	DIODE	49
			1		1010286-9	DIODE	48
			1		1006777-19	CAPACITOR, CER	47
			1		1006755-79	CAPACITOR, TANT	46
			1		1006755-83	CAPACITOR, TANT	45
			2		1006777-8	CAPACITOR, CER	44
			1		1006777-11	CAPACITOR, CER	43
			1		1006777-15	CAPACITOR, CER	42
			2		1006777-17	CAPACITOR, CER	41
			3		1006777-24	CAPACITOR, CER	40
			2		1006755-69	CAPACITOR, TANT	39
			2		1006777-5	CAPACITOR, CER	38
							37
			4		1006777-31	CAPACITOR, CER	36
			1		1006777-28	CAPACITOR, CER	35
			2		1006777-27	CAPACITOR, CER	34
			2		1010264-23	CAPACITOR, MYLAR	33
			2		1006777-3	CAPACITOR, CER	32
			2		1006750-63	RESISTOR, FIXED FILM	31
			1		1006750-24	RESISTOR, FIXED FILM	30
			1		1006750-45	RESISTOR, FIXED FILM	29
			1		1006750-12	RESISTOR, FIXED FILM	28
			1		1006750-46	RESISTOR, FIXED FILM	27
			1		1006750-36	RESISTOR, FIXED FILM	26
			2		1006750-51	RESISTOR, FIXED FILM	25
			2		1006750-60	RESISTOR, FIXED FILM	24
			2		1006750-66	RESISTOR, FIXED FILM	23
			10		1006750-56	RESISTOR, FIXED FILM	22
			2		1006750-73	RESISTOR, FIXED FILM	21
			4		1006750-49	RESISTOR, FIXED FILM	20
			4		1006750-39	RESISTOR, FIXED FILM	19
			2		1006750-54	RESISTOR, FIXED FILM	18
			2		1006750-55	RESISTOR, FIXED FILM	17
			2		1006750-65	RESISTOR, FIXED FILM	16
			4		1006750-80	RESISTOR, FIXED FILM	15
			4		1006750-53	RESISTOR, FIXED FILM	14
			3		1006750-31	RESISTOR, FIXED FILM	13
			2		1006750-41	RESISTOR, FIXED FILM	12
			4		1006750-25	RESISTOR, FIXED FILM	11
			2		1006750-43	RESISTOR, FIXED FILM	10
			1		1010377-51	RESISTOR, FIXED WW	9
			1		1010377-106	RESISTOR, FIXED WW	8
			1		1006750-42	RESISTOR, FIXED FILM	7
			2		1010377-105	RESISTOR, FIXED WW	6
			2		1010377-49	RESISTOR, FIXED WW	5
			5		1006750-32	RESISTOR, FIXED FILM	4
			1		1008037-2	INSULATOR, BOTTOM	3
			1		1008037-1	INSULATOR, TOP	2
			1		1008036	HEATSINK	1
QUANTITY REQUIRED			OH	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
					LIST OF MATERIALS		

1007419

2

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX±.02 XXX±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497
DRAWN Fuhr DATE 5 OCT 64
CHECKED A. Udovich 15 OCT 64
APPROVAL
APPROVAL 11-2-64
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

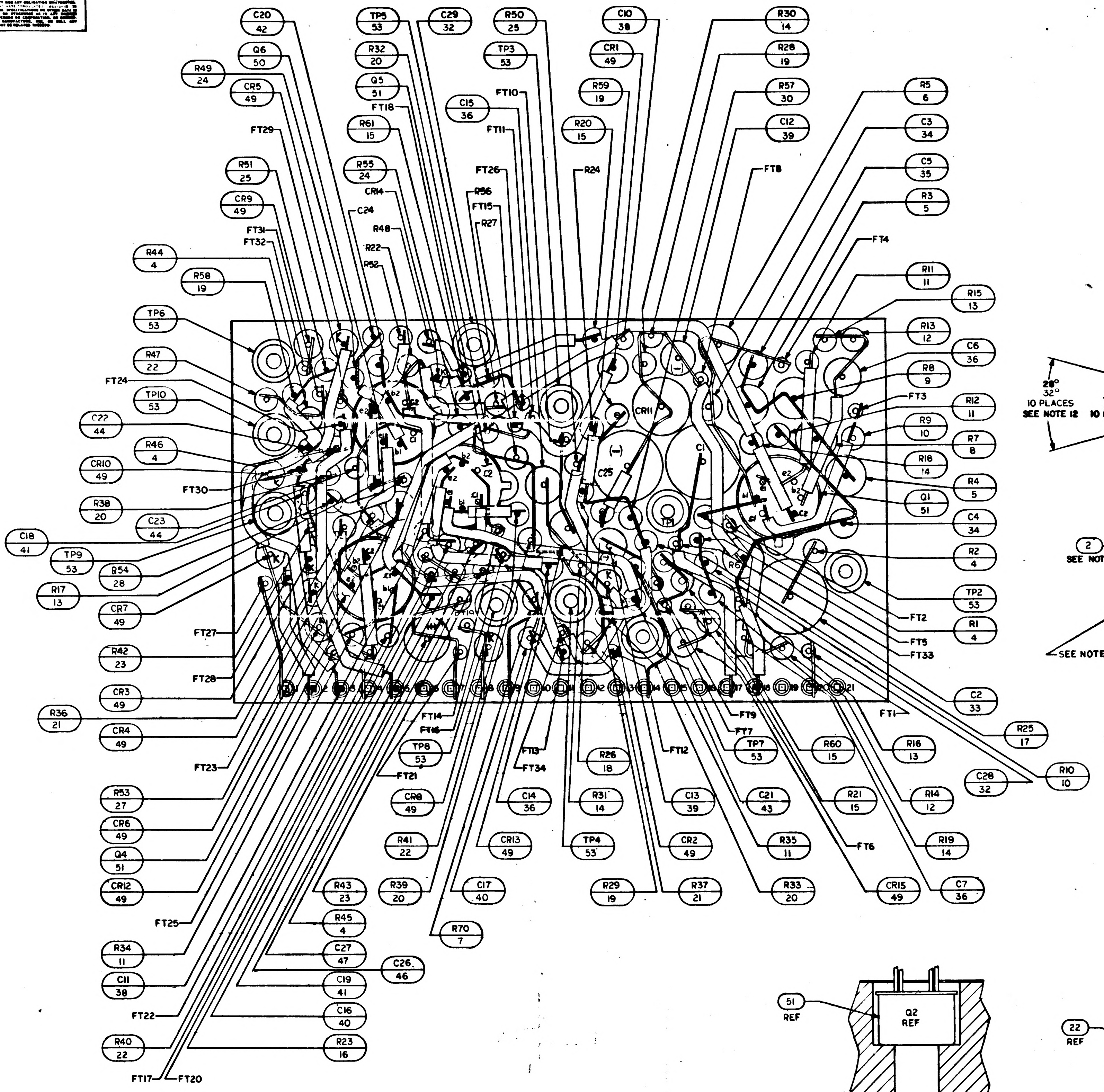
INTERROGATOR ASSEMBLY

CODE IDENT NO. SIZE J NASA DRAWING NO. 1007419
SCALE 5/1 WT SHEET 1 OF 1

1007419

E-2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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FT10
R59 19
R57 30
R61 15
FT11
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FT29
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FT26
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FT6
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C7 36
FT25
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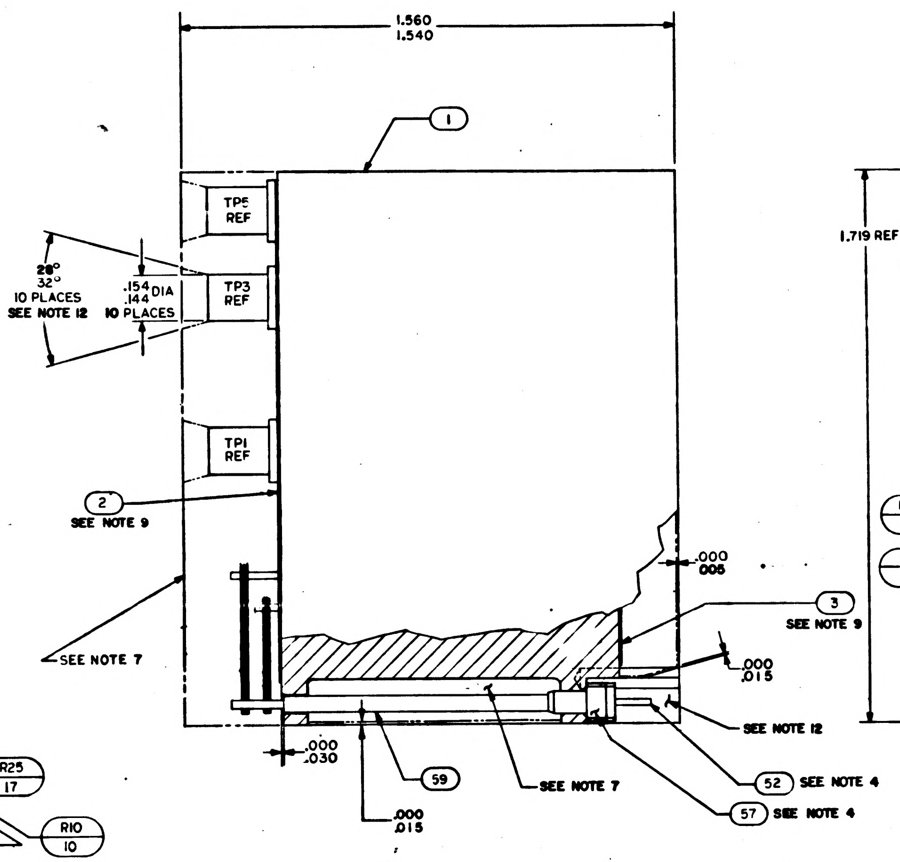
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TP5 REF
TP3 REF
TP1 REF
28°
32°
10 PLACES
SEE NOTE 12
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10 PLACES
2
SEE NOTE 9
SEE NOTE 7
.000
.005
3
SEE NOTE 9
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SEE NOTE 12
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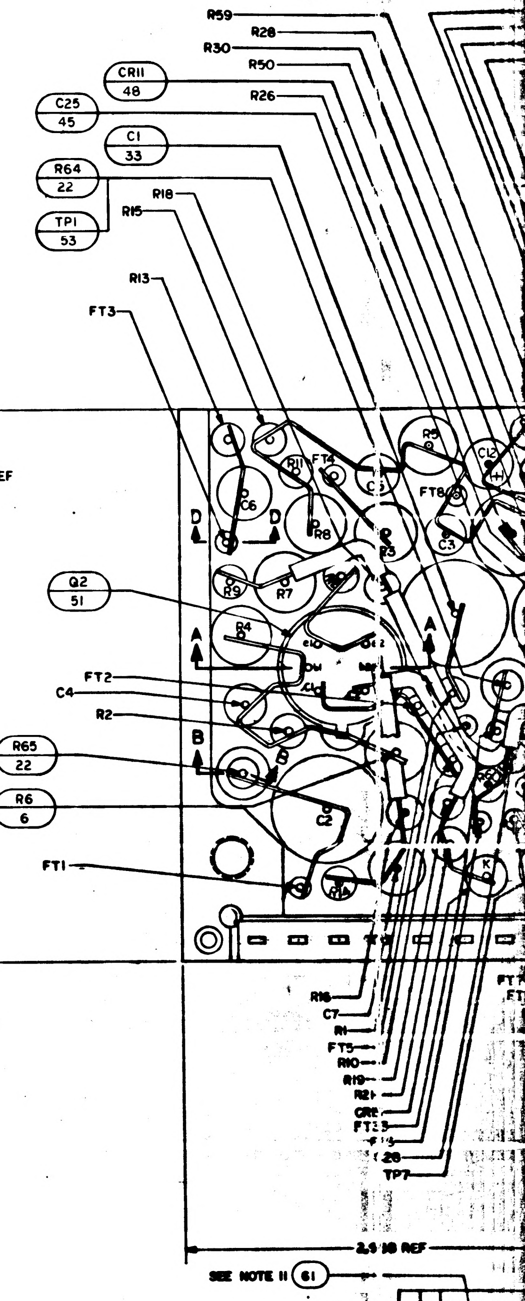
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R28
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R26
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C25 45
C1 33
R64 22
R18
R15
TP1 53
R13
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Q2 51
FT2
C4
R2
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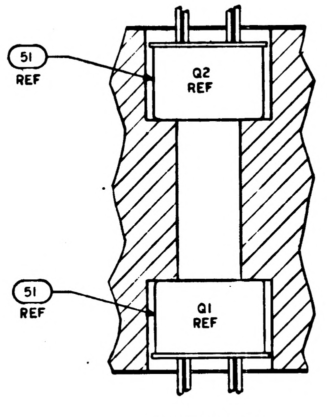
FT1
R16
C7
R1
FT5
R10
R19
R21
TP7
SEE NOTE 11
61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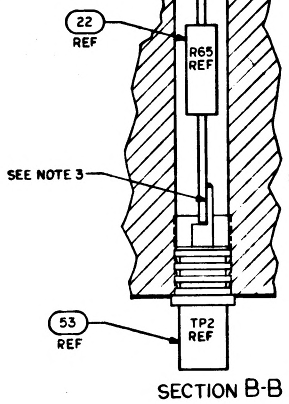
Q2 REF
51 REF
Q1 REF

SECTION A-A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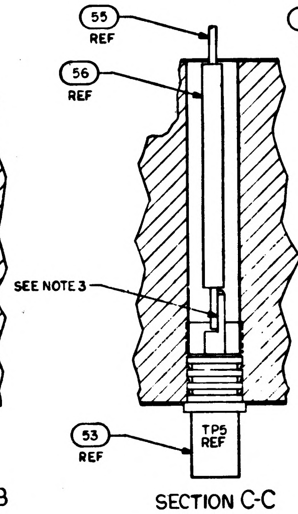
SEE NOTE 3
53 REF
TP2 REF

SECTION B-B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SEE NOTE 3
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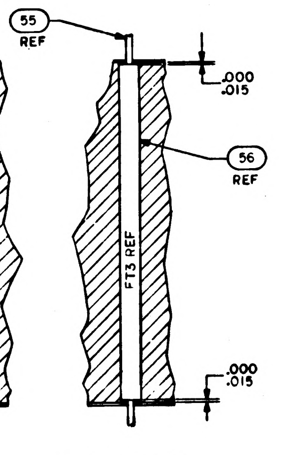
TP5 REF

SECTION C-C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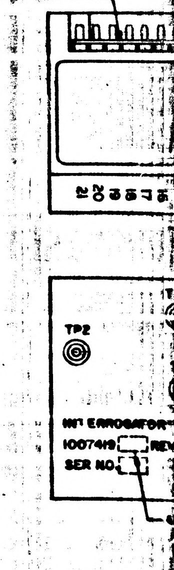
56 REF
FT3 REF
.000
.015

SECTION D-D

TP CHART	
TP	COMPONENT
1	R64
2	R65
3	R62
4	R63
5	FIND 55 & 56
6	R66
7	FIND 55 & 56
8	R69
9	R68
10	R67


TP2
1007419
SER NO.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.53 PER ND1002009 METHOD C
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
4. MUST MEET REQUIREMENTS OF ND 1002136
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
6. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
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8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
10. PROCURE PER PS 1007019
11. BOND FIND NO. 60 AND FIND NO. 61 TO FIND NO. 57 PER ND 1002237.
12. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
13. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. AR DENOTES AS REQUIRED

1007419

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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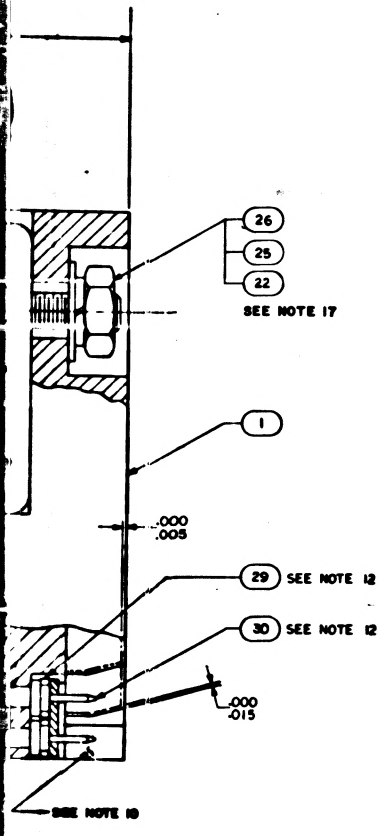
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SEE NOTE 17
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.005
29 SEE NOTE 12
30 SEE NOTE 12
.000
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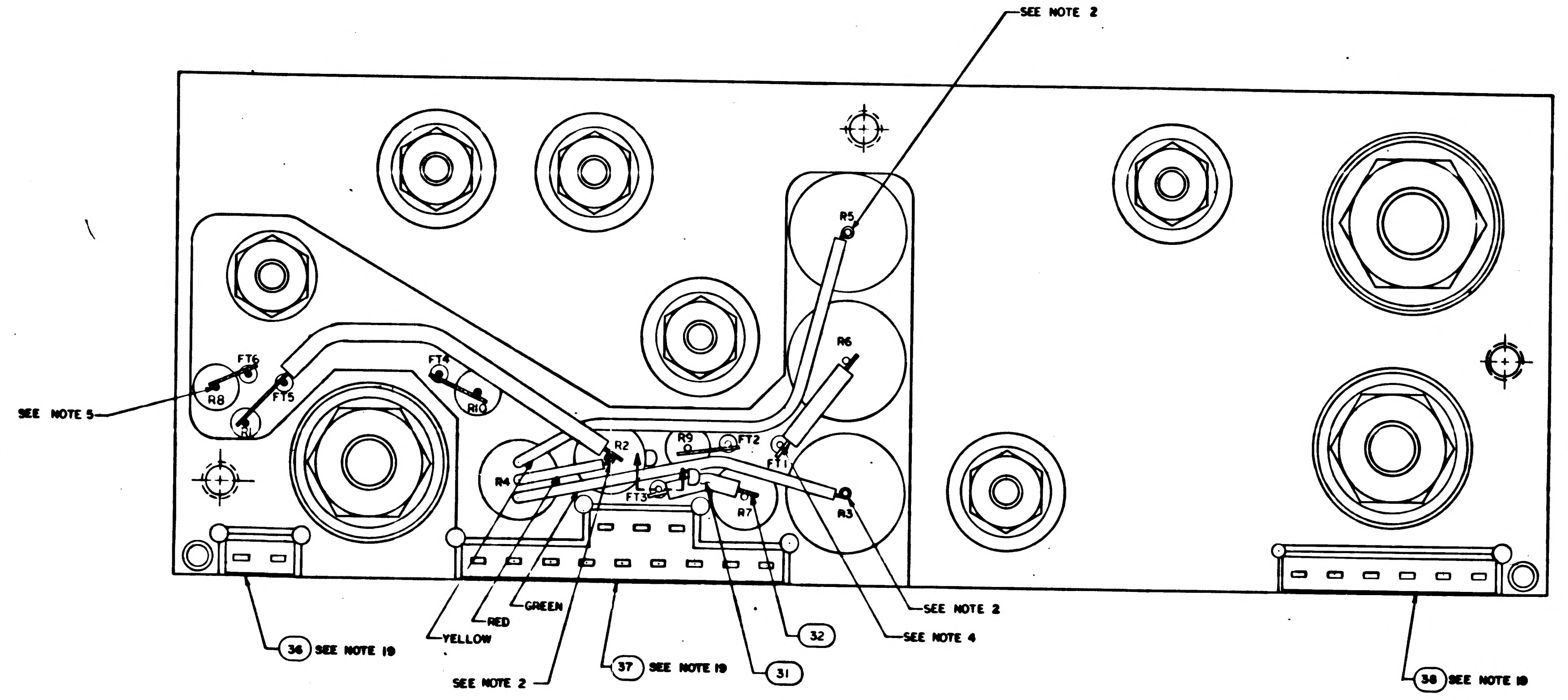
SEE NOTE 10


SEE NOTE 2
R5
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R3
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FT6
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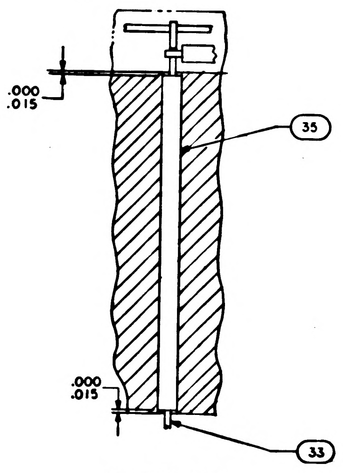
SEE NOTE 4
SEE NOTE 2
38 SEE NOTE 19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SECTION D-D

R8			
PART NO	VALUE	PART NO	VALUE
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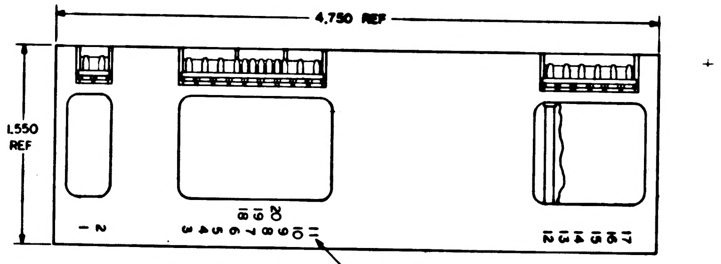
-98	511	-128	1050
-99	523	-129	1070
-100	536	-130	1100
-101	549	-131	1130
-102	562	-132	1150
-103	576	-133	1180
-104	590	-134	1210
-105	604	-135	1240
-106	619	-136	1270
-107	634	-137	1300
-108	649	-138	1330
-109	665	-139	1370
-110	681	-140	1400
-111	698	-141	1430
-112	715	-142	1470
-113	732	-143	1500
-114	750	-144	1540
-115	768	-145	1580
-116	787	-146	1620
-117	806	-147	1650
-118	825	148	1690
-119	845	-149	1740
-120	866	-150	1780
-121	887	-151	1820
-122	909	-152	1870
-123	931	-153	1910
-124	953	-154	1960
-125	976	-155	2000
-126	1000		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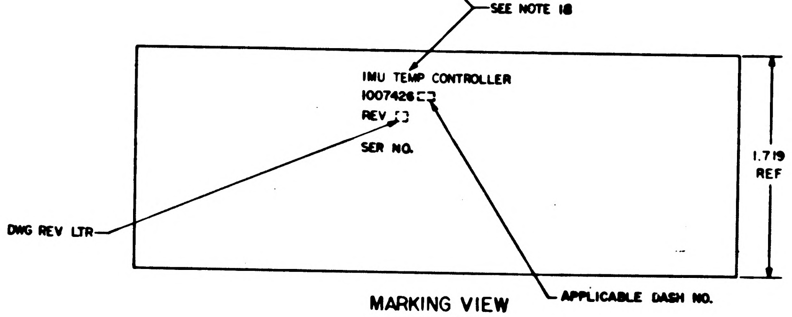
SEE NOTE 18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1007426
REV
SER NO.
1.719 REF
DWG REV LTR
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED ON	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
1		39	1010359-25	CAPACITOR
1		38	1008540-6	GASKET, CONNECTOR-MINIATURE
X		REF	1010058	SCHEMATIC
1		37	1008548	GASKET, CONNECTOR-MINIATURE
1		36	1008540-2	GASKET, CONNECTOR-MINIATURE
AR		35	1006776-22	INSULATION, SLEEVING
AR		34	1006776-20	INSULATION, SLEEVING
AR		33	1006757-8	WIRE, ELEC
AR		32	1006757-1	WIRE, ELEC
AR		31	1006776-21	INSULATION, SLEEVING
20		30	1006782-5	CONTACT, WRAPOST MALE-MINIATURE
20		29	1006775	INSULATOR, WRAPOST MALE-MINIATURE
1		28	MS20341-416B	NUT
2		27	MS20341-10B	NUT
6		26	MS20341-4A	NUT
6		25	MS35338-78	WASHER, LOCK
1		24	1008071-5	WASHER, FLAT
2		23	1008071-4	WASHER, FLAT
6		22	1008070-5	WASHER, FLAT
1		21	1008024-4	WASHER, INSULATOR
1		20	1008024-3	WASHER, INSULATOR
1		19	1008024-2	WASHER, INSULATOR
1		18	1008024-1	WASHER, INSULATOR
1		17	1008021-2	BUSHING, INSULATOR
1		16	1008021-1	BUSHING, INSULATOR
1		15	1000287	AMPL MA25A-1
1		14	1000286	AMPL MA20A-1
1		13	1000285	AMPL PA36A-1
1		12	1010273-1	TRANSISTOR
1		11	1010331-009	DIODE
1		10	1010322-001	DIODE
2		9	SEE NOTE 13	RESISTOR
1		8	1006750-56	RESISTOR
1		7	1010453-1	RESISTOR
1		6	1010399-16	RESISTOR
1		5	1010312-36	RESISTOR
1		4	1010449-2	RESISTOR
2		3	1010449-1	RESISTOR
2		2	1010364-368	RESISTOR
1		1	1007070	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497
DRAWN S. Agne DATE 17 SEP 64
CHECKED [illegible] 23 SEP 64
APPROVAL [illegible]
APPROVAL [illegible] 10-2-64
NASA APPROVAL [illegible] 10-14-64
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

IMU TEMP CONTROLLER ASSEMBLY

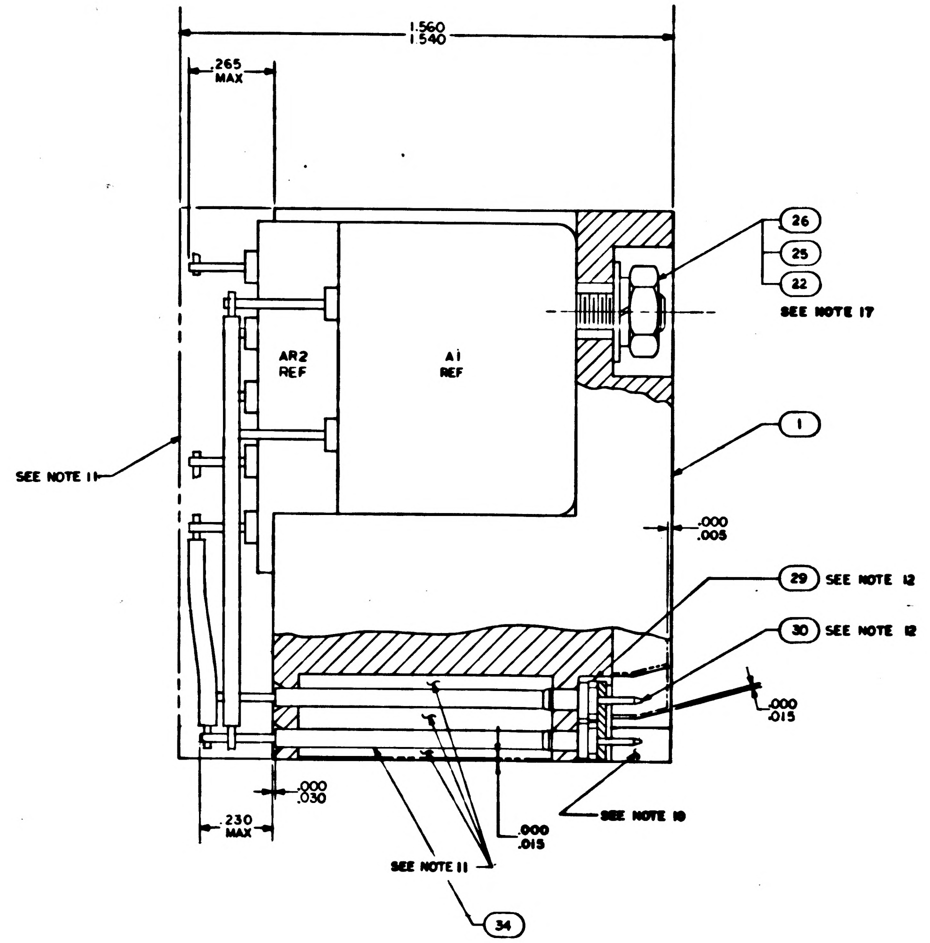
CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007426
SCALE 5/1
WT
SHEET 1 OF 1

1007426 A

1007426

(34)

37/1007426



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SEE NOTE 17
AR2
REF
A1
REF
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MAX
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SEE NOTE 10
SEE NOTE 11
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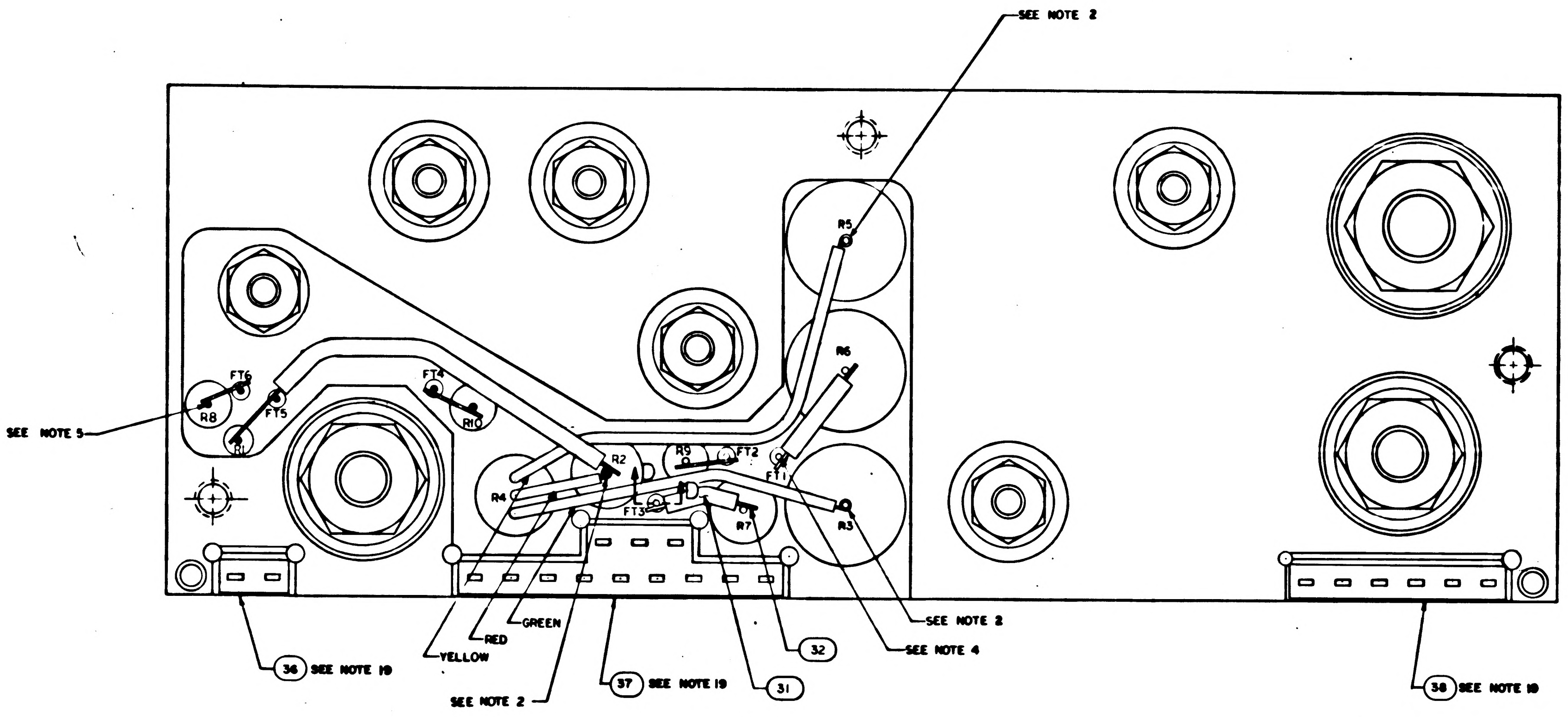

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FT4
R10
SEE NOTE 5
R2
R9
FT2
FT1
R4
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R7
R3
SEE NOTE 2
SEE NOTE 4
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RED
YELLOW
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SEE NOTE 2
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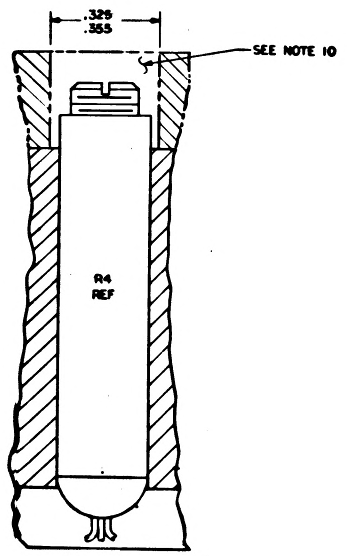
38 SEE NOTE 19



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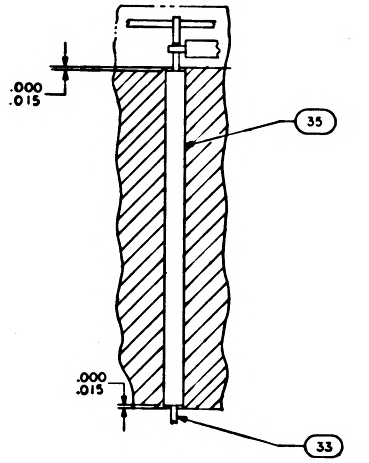
SEE NOTE 10
R4
REF

SECTION C-C



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SECTION D-D

R8			
PART NO	VALUE	PART NO	VALUE
1010311-97	499	1010311-127	1020
-98	511	-128	1050
-99	523	-129	1070
-100	536	-130	1100
-101	549	-131	1130
-102	562	-132	1150
-103	576	-133	1180
-104	590	-134	1210
-105	604	-135	1240
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-110	681	-140	1400
-111	698	-141	1430
-112	715	-142	1470
-113	732	-143	1500
-114	750	-144	1540
-115	768	-145	1580
-116	787	-146	1620
-117	806	-147	1650
-118	825	148	1690
-119	845	-149	1740
-120	866	-150	1780
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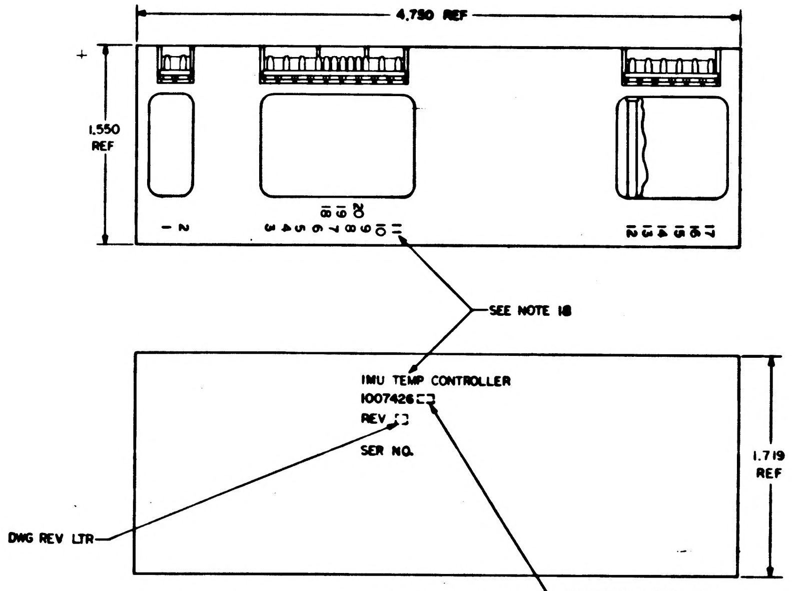
-124	953	-154	1960
-125	976	-155	2000
-126	1000		



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REF
SEE NOTE 18
IMU TEMP CONTROLLER
1007426
REV
SER NO.
DWG REV LTR
1.719
REF
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

1007577

NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± XX ±.02
XXX ±.005
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH.

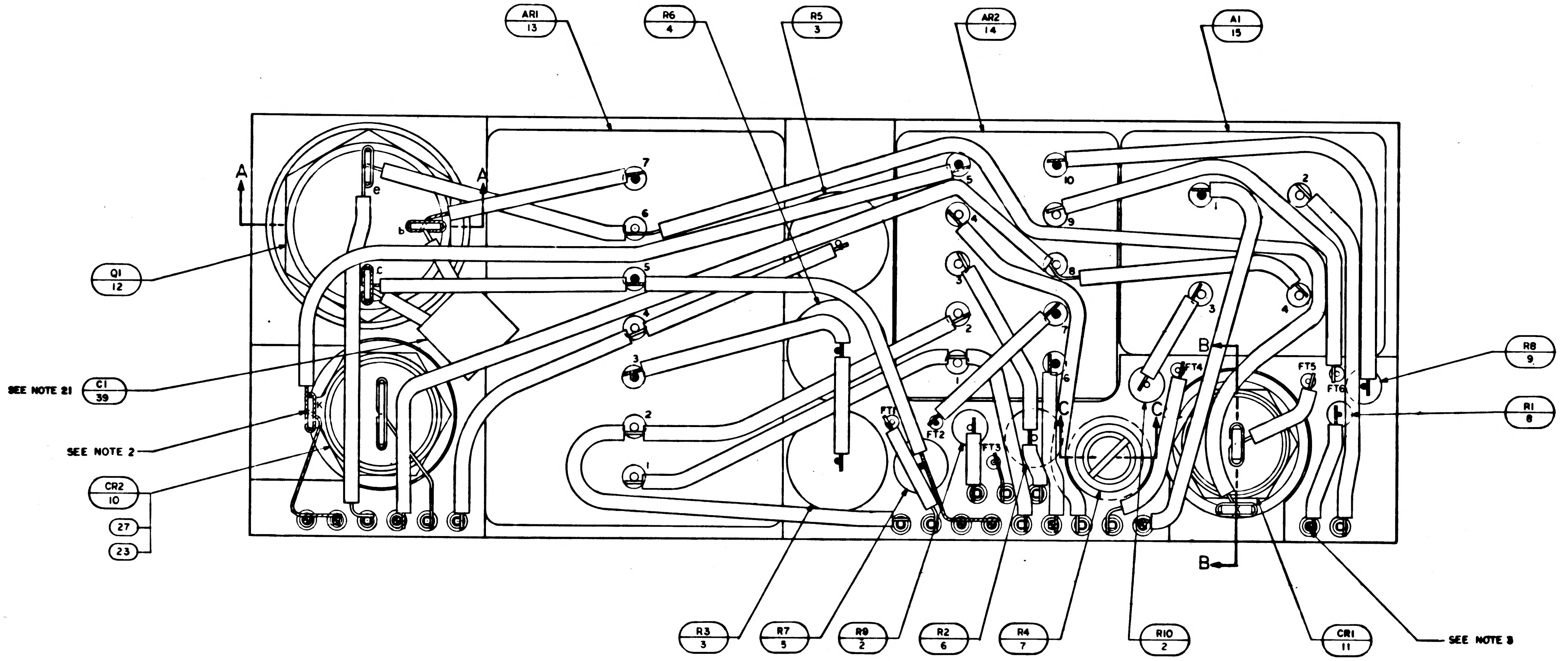
QUANTITY REQUIRED
EFFECTIVITY
ITEM NO.

DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

1007426 A

2Z1007426

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


AR1
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SEE NOTE 21
C1
39
SEE NOTE 2
CR2
10
27
23
FT1
FT2
FT3
FT4
FT5
FT6
B
B
C
C
R8
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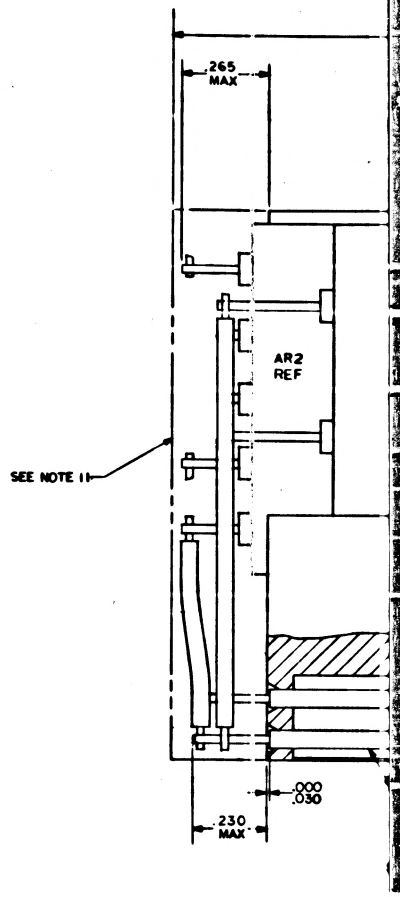
SEE NOTE 8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SEE NOTE 11
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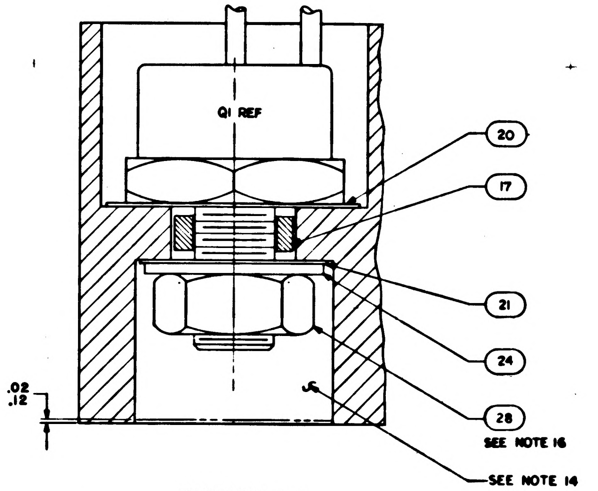
MAX

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL SOLDERING CONNECTIONS TO BE MADE PER ND 1002071.
3. CHECKED DOT INDICATES INTERMEDIATE LEVEL WIRING.
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. K INDICATES CATHODE SIDE OF DIODE.
7. WELD PER ND 1002005 EXCEPT WHERE NOTED.
8. STAKE FIND NO. 2 THRU FIND NO. 9 AND ALL FEEDTHRUS PER ND 1002009. METHOD C
9. AR DENOTES AS REQUIRED.
10. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND.
11. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED. PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
12. ASSEMBLE FIND NO. 29 AND FIND NO. 30 PER ND 1002136.
13. R8 TO BE SELECTED AS ASSEMBLY, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER RANGE OF VALUES (OHMS) SHOWN ON CHART.
14. FILL PER ND 1002117.
15. MOUNTING TORQUE FOR FIND NO. 10 AND FIND NO. 11 10-12 INCH POUNDS.
16. MOUNTING TORQUE FOR FIND NO. 12 30-34 INCH POUNDS.
17. MOUNTING TORQUE FOR FIND NO.S 13, 14, AND 15 4-1/2-5-1/2 INCH POUNDS.
18. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.

19. BOND FIND NO. 36, 37 AND 38 TO FIND NO. 29 PER ND 1002237.
20. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
21. BOND ITEM 39 TO ITEM 1 PER ND 1002187 USING EPOXY RESIN 1010661 AND ADHESIVE ACTIVATOR 1010679.
22. PROCURE PER PS 1007056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SEE NOTE 16
SEE NOTE 14
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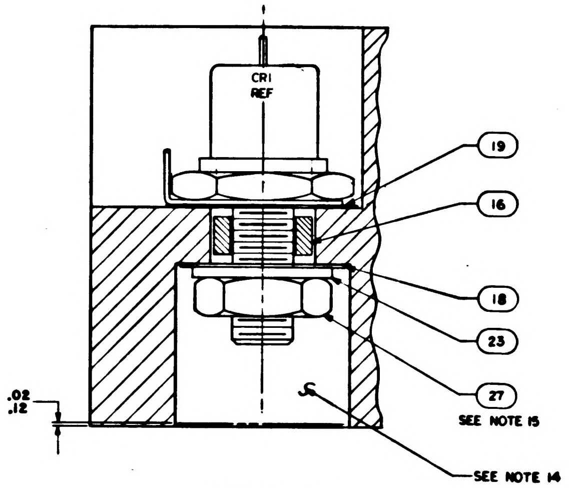
SECTION A-A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SEE NOTE 15
SEE NOTE 14
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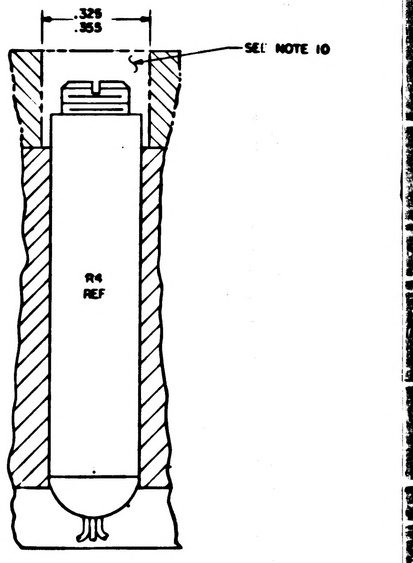
SECTION B-B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SEE NOTE 10
R4
REF

SECTION C-C

SYM	DESCRIPTION	DATE	APPROVAL
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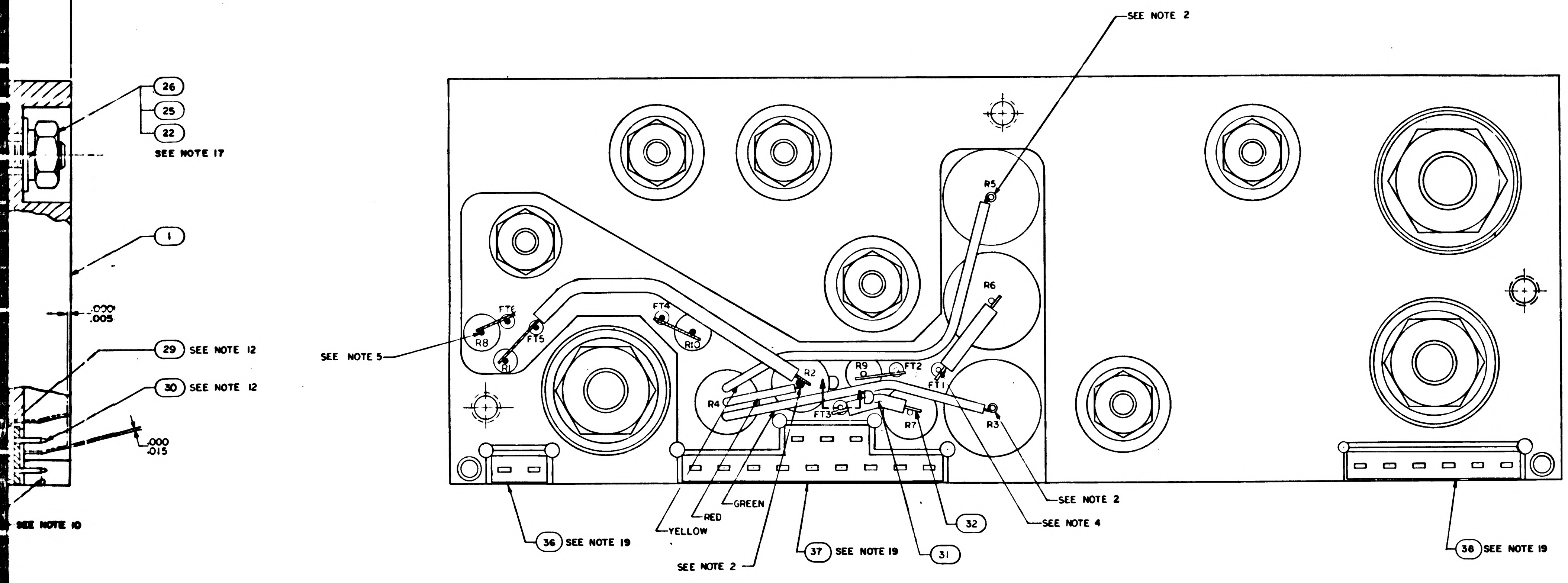
B	REVISED PER TDRR 18536	26 APR 65	GN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SEE NOTE 10
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R8
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FT4
R13
R4
R2
R9
FT2
FT1
FT3
R7
R3
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R6
SEE NOTE 2
SEE NOTE 4
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GREEN
YELLOW
32
31
36 SEE NOTE 19
37 SEE NOTE 19
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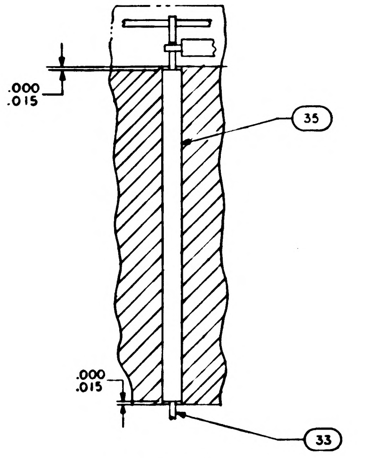
SEE NOTE 2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SECTION D-D

R8			
PART NO	VALUE	PART NO	VALUE
1010311-97	499	1010311-127	1020
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-99	523	-129	1070
-100	536	-130	1100
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-110	681	-140	1400
-111	698	-141	1430
-112	715	-142	1470
-113	732	-143	1500
-114	750	-144	1540
-115	768	-145	1580
-116	787	-146	1620
-117	806	-147	1650
-118	825	148	1690
-119	845	-149	1740
-120	866	-150	1780
-121	887	-151	1820
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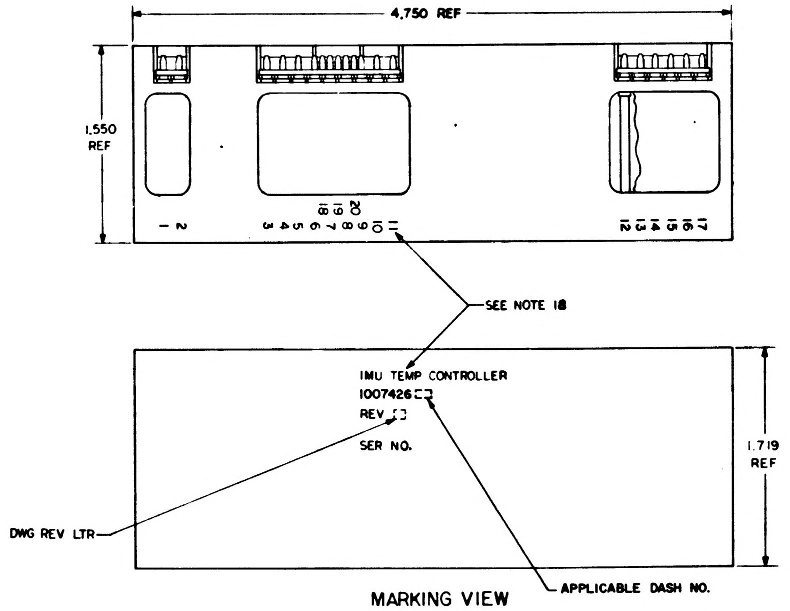
-123	931	-153	1910
-124	953	-154	1960
-125	976	-155	2000
-126	1000		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18 19 20
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SEE NOTE 18
IMU TEMP CONTROLLER
1007426-□
REV □
SER NO.
1.719 REF
DWG REV LTR
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			1		39	1010359-25	CAPACITOR
			1		38	1008540-6	GASKET, CONNECTOR-MINIATURE
			X		REF	1010058	SCHEMATIC
			1		37	1008548	GASKET, CONNECTOR-MINIATURE
			1		36	1008540-2	GASKET, CONNECTOR-MINIATURE
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			20		29	1006775	INSULATOR, WRAPOST MALE-MINIATURE
			1		28	MS20341-416B	NUT
			2		27	MS20341-10B	NUT
			6		26	MS20341-4A	NUT
			6		25	MS35338-78	WASHER, LOCK
			1		24	1008071-5	WASHER, FLAT
			2		23	1008071-4	WASHER, FLAT
			6		22	1008070-5	WASHER, FLAT
			1		21	1008024-4	WASHER INSULATOR
			1		20	1008024-3	WASHER, INSULATOR
			1		19	1008024-2	WASHER, INSULATOR
			1		18	1008024-1	WASHER, INSULATOR
			1		17	1008021-2	BUSHING, INSULATOR
			1		16	1008021-1	BUSHING, INSULATOR
			1		15	1000287	AMPL MA25A-1
			1		14	1000286	AMPL MA20A-1
			1		13	1000285	AMPL PA36A-1
			1		12	1010273-1	TRANSISTOR
			1		11	1010331-009	DIODE
			1		10	1010322-001	DIODE
			1		9	SEE NOTE 13	RESISTOR
			1		8	1006750-56	RESISTOR
			1		7	1010453-1	RESISTOR
			1		6	1010399-16	RESISTOR
			1		5	1010312-36	RESISTOR
			1		4	1010449-2	RESISTOR
			2		3	1010449-1	RESISTOR
			2		2	1010364-368	RESISTOR
			1		1	1007070	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH.

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN S. Agne DATE 17SEP64
CHECKED A. Udanch 23 SEP 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

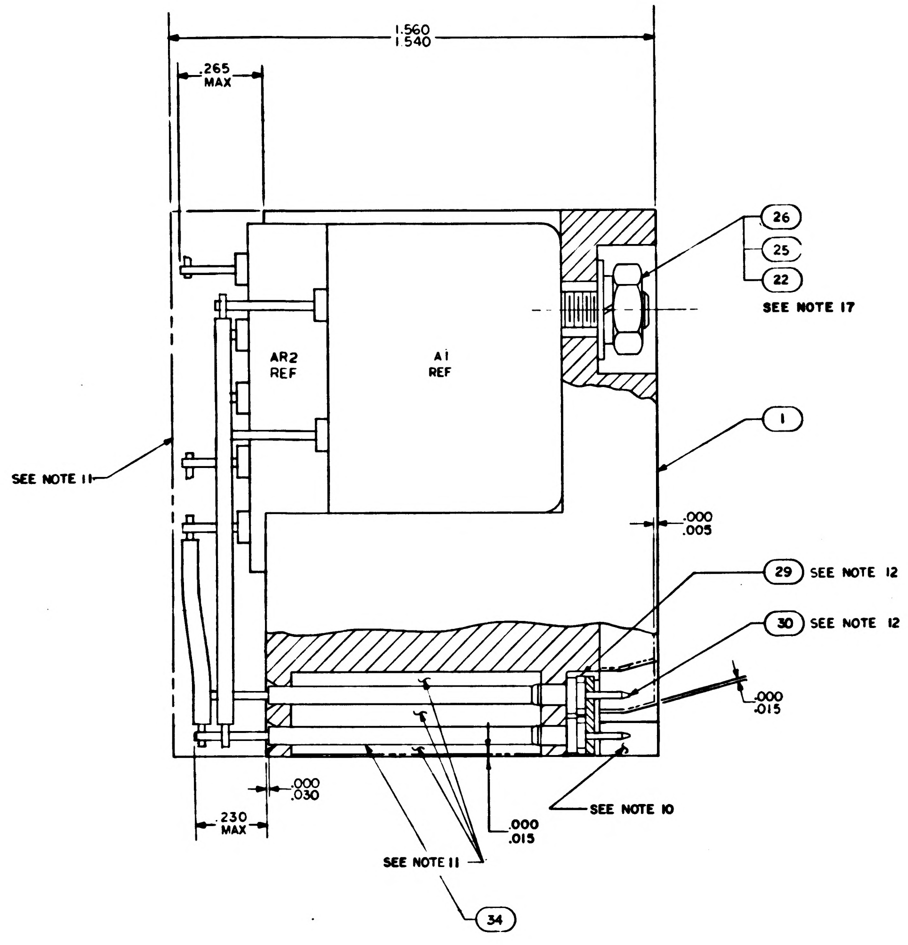
IMU TEMP CONTROLLER
ASSEMBLY

CODE IDENT NO. SIZE J NASA DRAWING NO 1007426
SCALE 5/1 WT SHEET 1 OF 1

1007426 B

1007426 A

3/1007426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SEE NOTE 11
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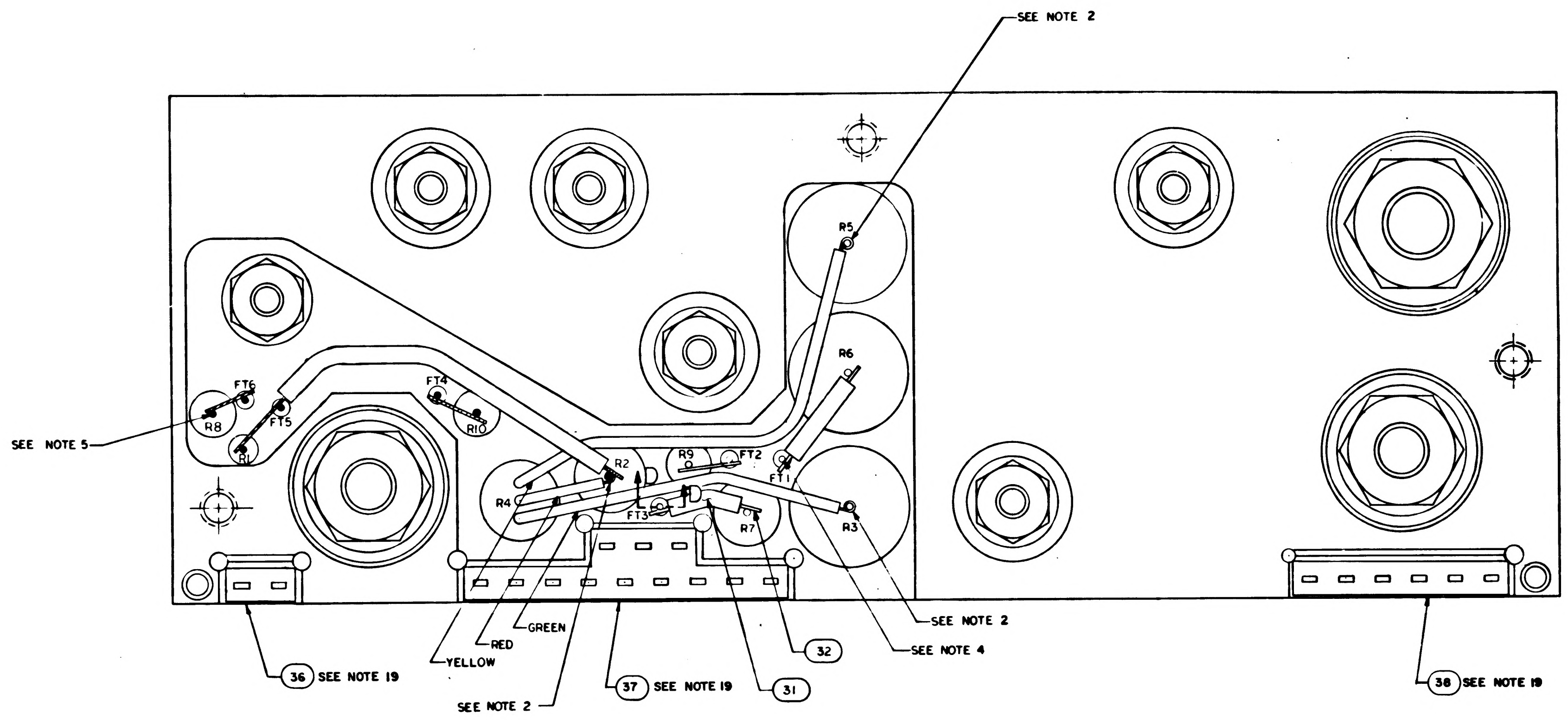
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R1
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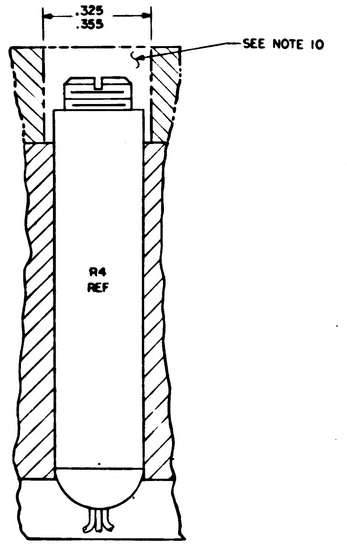
FT3
R7
R3
SEE NOTE 2
SEE NOTE 4
GREEN
RED
YELLOW
36 SEE NOTE 19
SEE NOTE 2
37 SEE NOTE 19
31
32
38 SEE NOTE 19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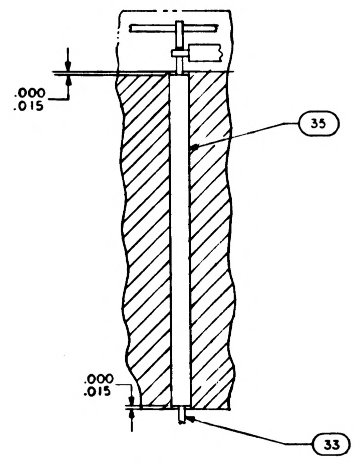
SEE NOTE 10
R4
REF

SECTION C-C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SECTION D-D

R8			
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-99	523	-129	1070
-100	536	-130	1100
-101	549	-131	1130
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-103	576	-133	1180
-104	590	-134	1210
-105	604	-135	1240
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-115	768	-145	1580
-116	787	-146	1620
-117	806	-147	1650
-118	825	148	1690
-119	845	-149	1740
-120	866	-150	1780
-121	887	-151	1820
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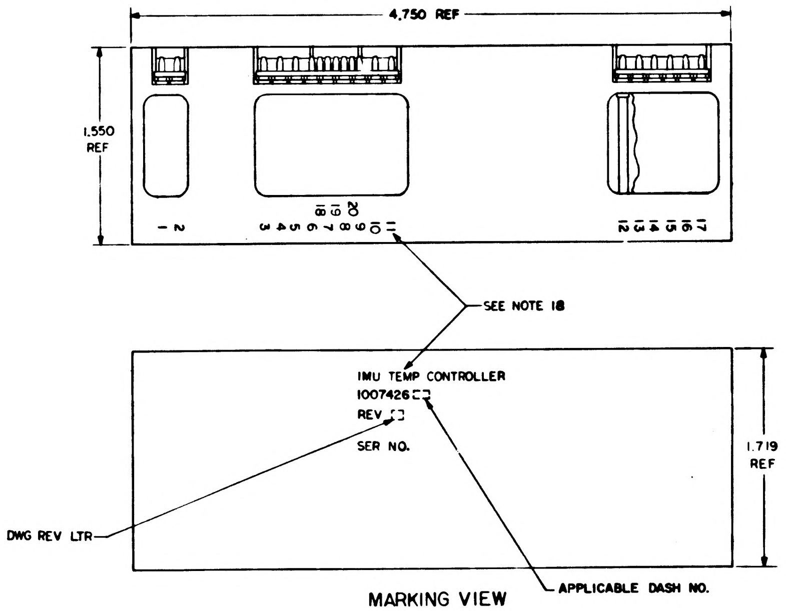
-123	931	-153	1910
-124	953	-154	1960
-125	976	-155	2000
-126	1000		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12 13 14 15 16 17
SEE NOTE 18
IMU TEMP CONTROLLER
1007426□□
REV □
SER NO.
1.719
REF
DWG REV LTR
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

1007577		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

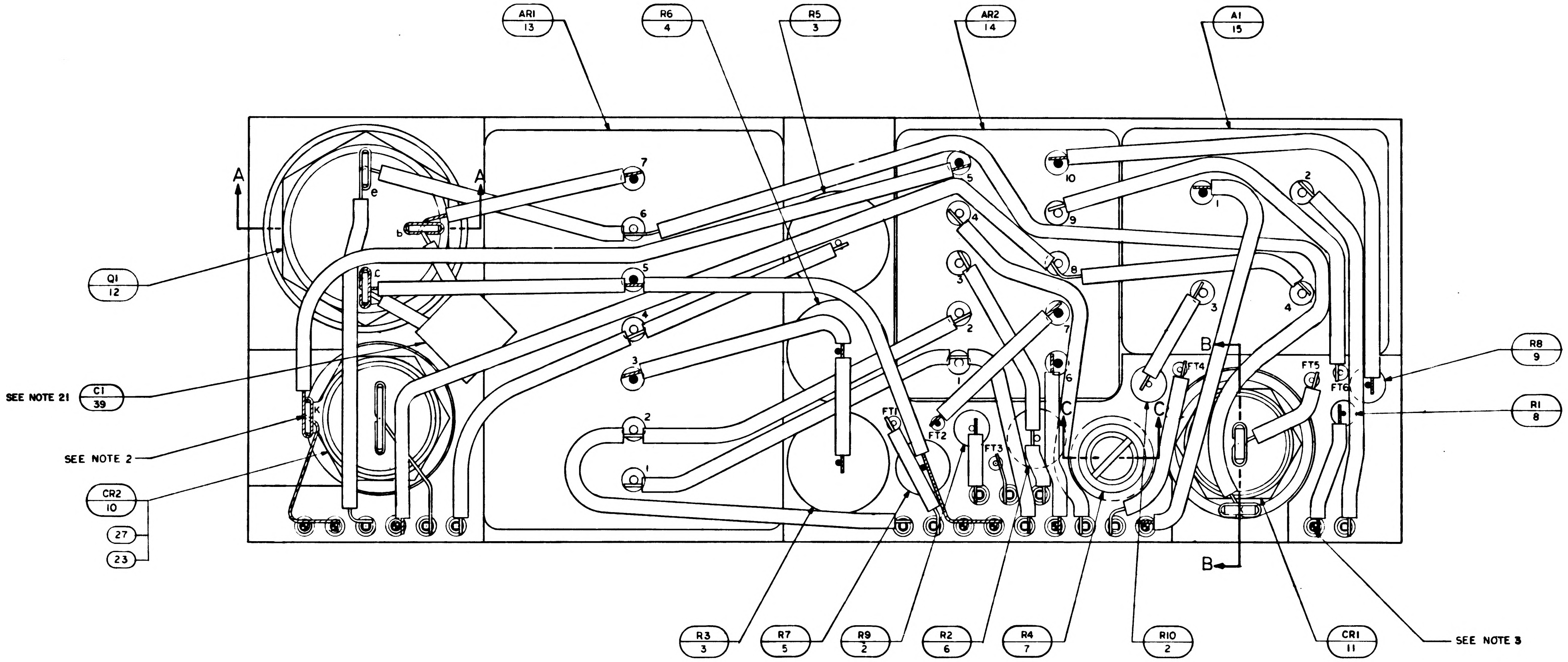
QUANTITY REQUIRED

EFFECTIVITY

1007426 A

2/1007426

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO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A
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SEE NOTE 21
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39
SEE NOTE 2
CR2
10
27
23
e
b
c
7
6
5
4
3
2
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10
9
8
FT1
FT2
FT3
FT4
FT5
FT6
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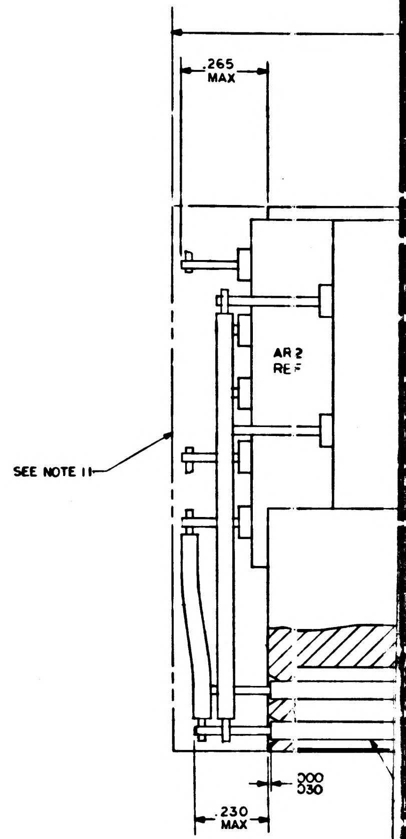
SEE NOTE 3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SEE NOTE 11
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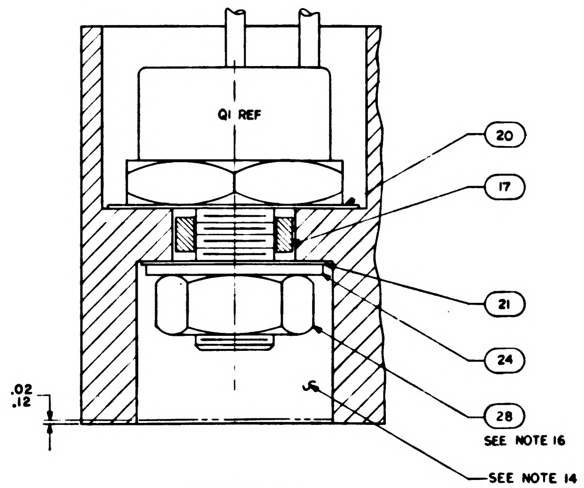
MAX

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL SOLDERING CONNECTIONS TO BE MADE PER ND 1002071.
3. CHECKED DOT INDICATES INTERMEDIATE LEVEL WIRING.
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. K INDICATES CATHODE SIDE OF DIODE.
7. WELD PER ND 1002005 EXCEPT WHERE NOTED.
8. STAKE FIND NO. 2 THRU FIND NO. 9 AND ALL FEEDTHRUS PER ND 1002009. METHOD C
9. AR DENOTES AS REQUIRED.
10. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND.
11. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED. PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
12. ASSEMBLE FIND NO. 29 AND FIND NO. 30 PER ND 1002136.
13. R8 ~~TO BE SELECTED AS ASSEMBLY~~, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER RANGE OF VALUES (OHMS) SHOWN ON CHART.
14. FILL PER ND 1002117.
15. MOUNTING TORQUE FOR FIND NO. 10 AND FIND NO. 11 10-12 INCH POUNDS.
16. MOUNTING TORQUE FOR FIND NO. 12 30-34 INCH POUNDS.
17. MOUNTING TORQUE FOR FIND NO.S 13, 14, AND 15 4-1/2-5-1/2 INCH POUNDS.
18. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.

19. BOND FIND NO. 36, 37 AND 38 TO FIND NO. 29 PER ND 1002237.
20. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
21. BOND ITEM 39 TO ITEM 1 PER ND 1002187 USING EPOXY RESIN 1010661 AND ADHESIVE ACTIVATOR 1010679.
22. PROCURE PER PS 1007056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SEE NOTE 14
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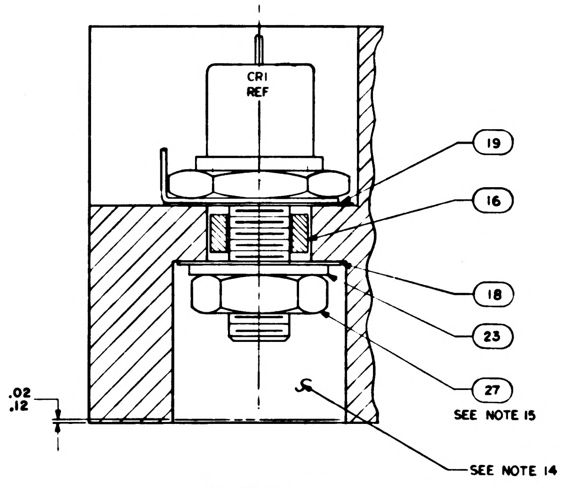
SECTION A-A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SEE NOTE 14
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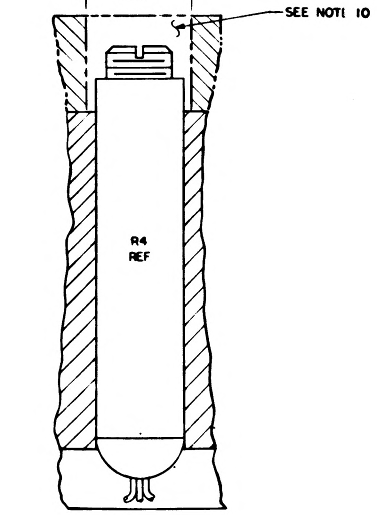
SECTION B-B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SEE NOTE 10
R4
REF

SECTION C-C

SYM	DESCRIPTION	DATE	APPROVAL
REVISIONS			
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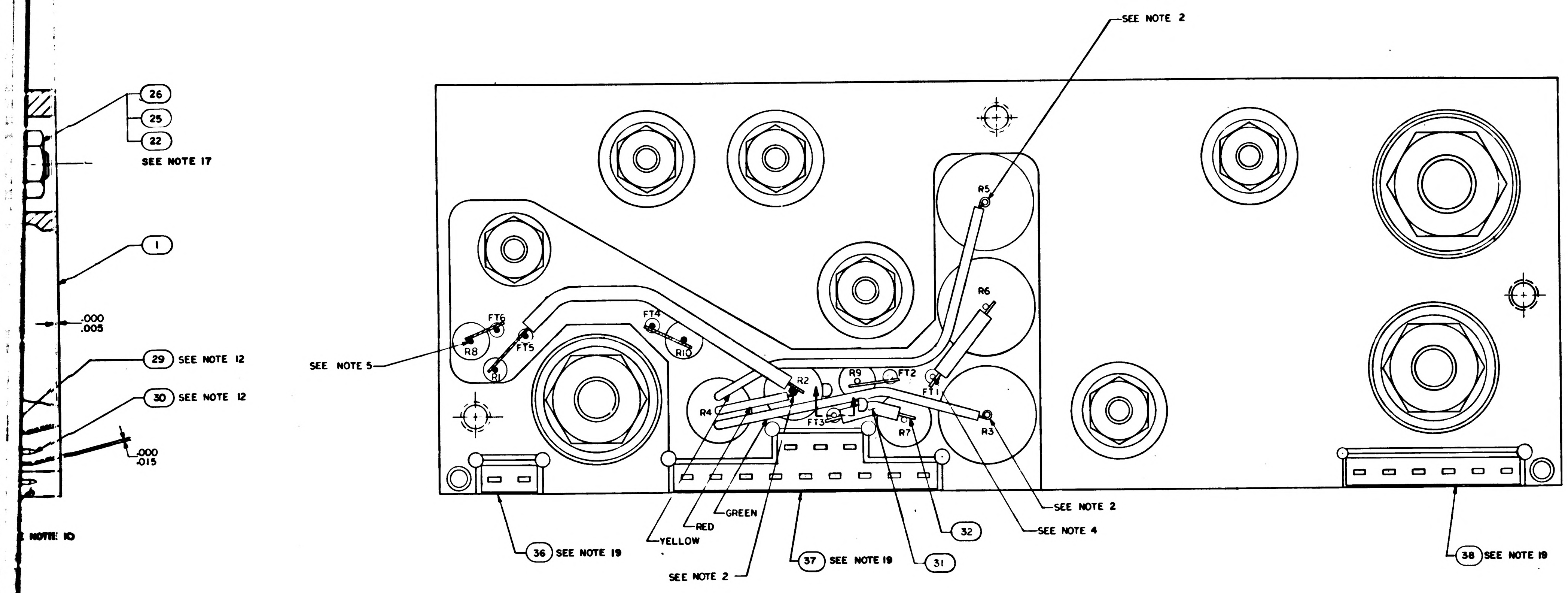
B	REVISED PER TDRR 18536	26 APR 65	GN PJ
C	REVISED PER TDRR 9527	2 JUN 65	JGL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SEE NOTE 5
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R6
FT6
FT5
R8
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R9
FT2
FT1
R2
R4
FT3
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RED
YELLOW
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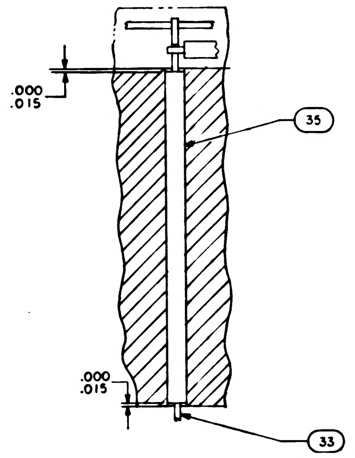
SEE NOTE 2
SEE NOTE 4
38 SEE NOTE 19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.015
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SECTION D-D

R8			
PART NO	VALUE	PART NO	VALUE
1010311-97	499	1010311-127	1020
-98	511	-128	1050
-99	523	-129	1070
-100	536	-130	1100
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-103	576	-133	1180
-104	590	-134	1210
-105	604	-135	1240
-106	619	-136	1270
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-109	665	-139	1370
-110	681	-140	1400
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-112	715	-142	1470
-113	732	-143	1500
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-117	806	-147	1650
-118	825	148	1690
-119	845	-149	1740
-120	866	-150	1780
-121	887	-151	1820
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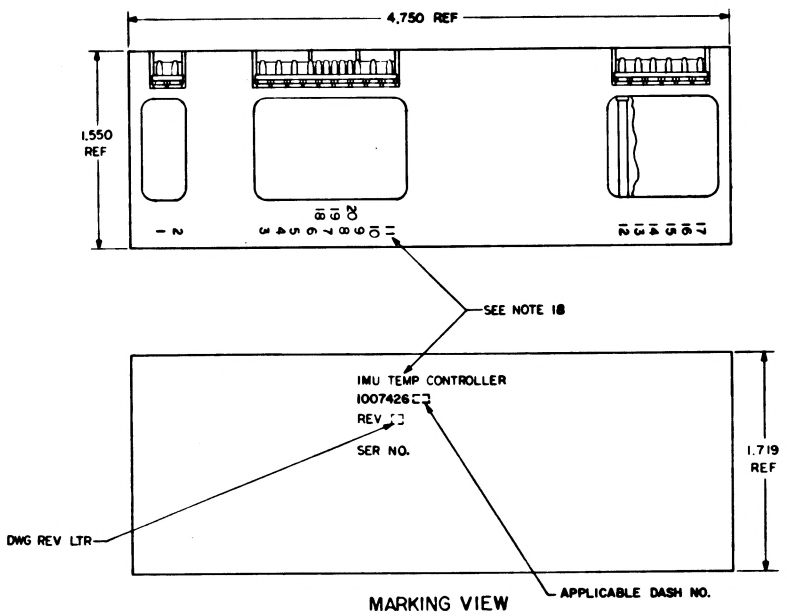
-123	931	-153	1910
-124	953	-154	1960
-125	976	-155	2000
-126	1000		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12 13 14 15 16 17
SEE NOTE 18
IMU TEMP CONTROLLER
1007426☐☐
REV ☐
SER NO.
1.719 REF
DWG REV LTR
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			1		39	1010359-25	CAPACITOR
			1		38	1008540-6	GASKET, CONNECTOR-MINIATURE
			X		REF	1010058	SCHEMATIC
			1		37	1008548	GASKET, CONNECTOR-MINIATURE
			1		36	1008540-2	GASKET, CONNECTOR-MINIATURE
			AR		35	1006776-22	INSULATION, SLEEVING
			AR		34	1006776-20	INSULATION, SLEEVING
			AR		33	1006757-8	WIRE, ELEC
			AR		32	1006757-1	WIRE, ELEC
			AR		31	1006776-21	INSULATION, SLEEVING
			20		30	1006782-5	CONTACT, WRAPOST MALE-MINIATURE
			20		29	1006775	INSULATOR, WRAPOST MALE-MINIATURE
			1		28	MS20341-416B	NUT
			2		27	MS20341-10B	NUT
			6		26	MS20341-4A	NUT
			6		25	MS35338-78	WASHER, LOCK
			1		24	1008071-5	WASHER, FLAT
			2		23	1008071-4	WASHER, FLAT
			6		22	1008070-5	WASHER, FLAT
			1		21	1008024-4	WASHER, INSULATOR
			1		20	1008024-3	WASHER, INSULATOR
			1		19	1008024-2	WASHER, INSULATOR
			1		18	1008024-1	WASHER, INSULATOR
			1		17	1008021-2	BUSHING, INSULATOR
			1		16	1008021-1	BUSHING, INSULATOR
			1		15	1000287	AMPL MA25A-1
			1		14	1000286	AMPL MA20A-1
			1		13	1000285	AMPL PA36A-1
			1		12	1010273-1	TRANSISTOR
			1		11	1010331-009	DIODE
			1		10	1010322-001	DIODE
			1		9	SEE NOTE 13	RESISTOR
			1		8	1006750-56	RESISTOR
			1		7	1010453-1	RESISTOR
			1		6	1010399-16	RESISTOR
			1		5	1010312-36	RESISTOR
			1		4	1010835-2	RESISTOR
			2		3	1010835-1	RESISTOR
			2		2	1010364-368	RESISTOR
			1		1	1007070	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH.

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497
DRAWN S. Ogne DATE 17SEP64
CHECKED A. Udonach 23 SEP 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

IMU TEMP CONTROLLER ASSEMBLY

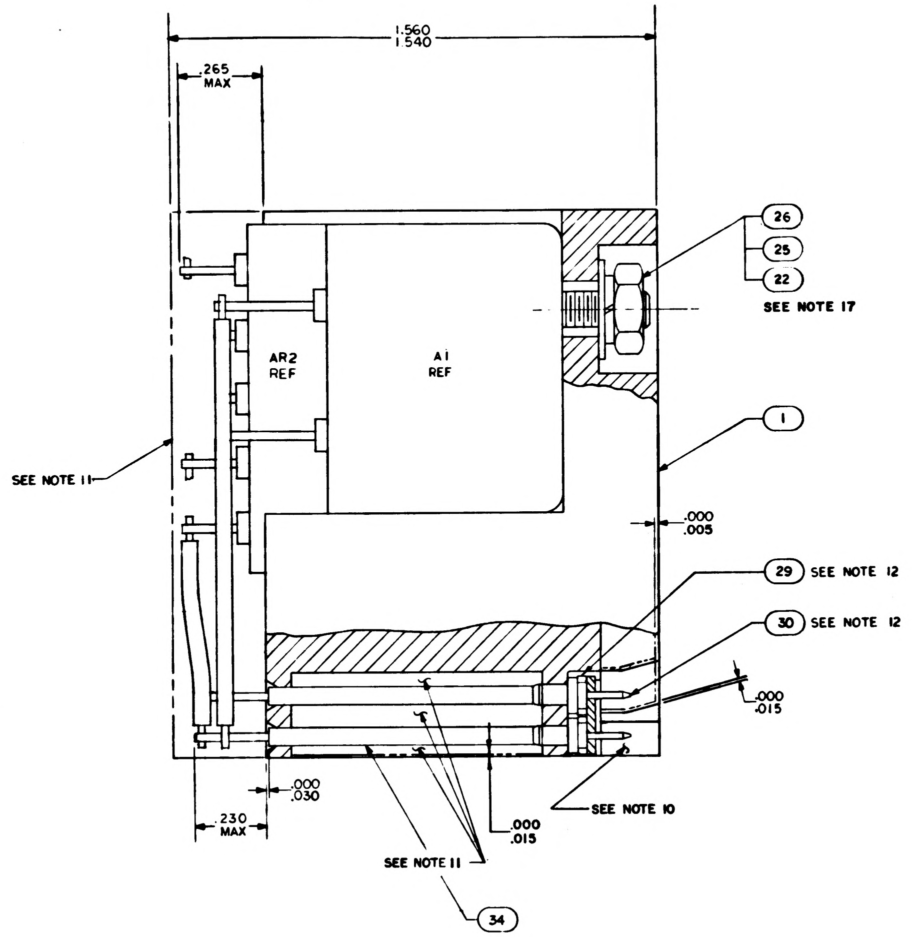
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007426
SCALE 5/1
WT
SHEET 1 OF 1

1007426 C

(34)

007426

3/1007426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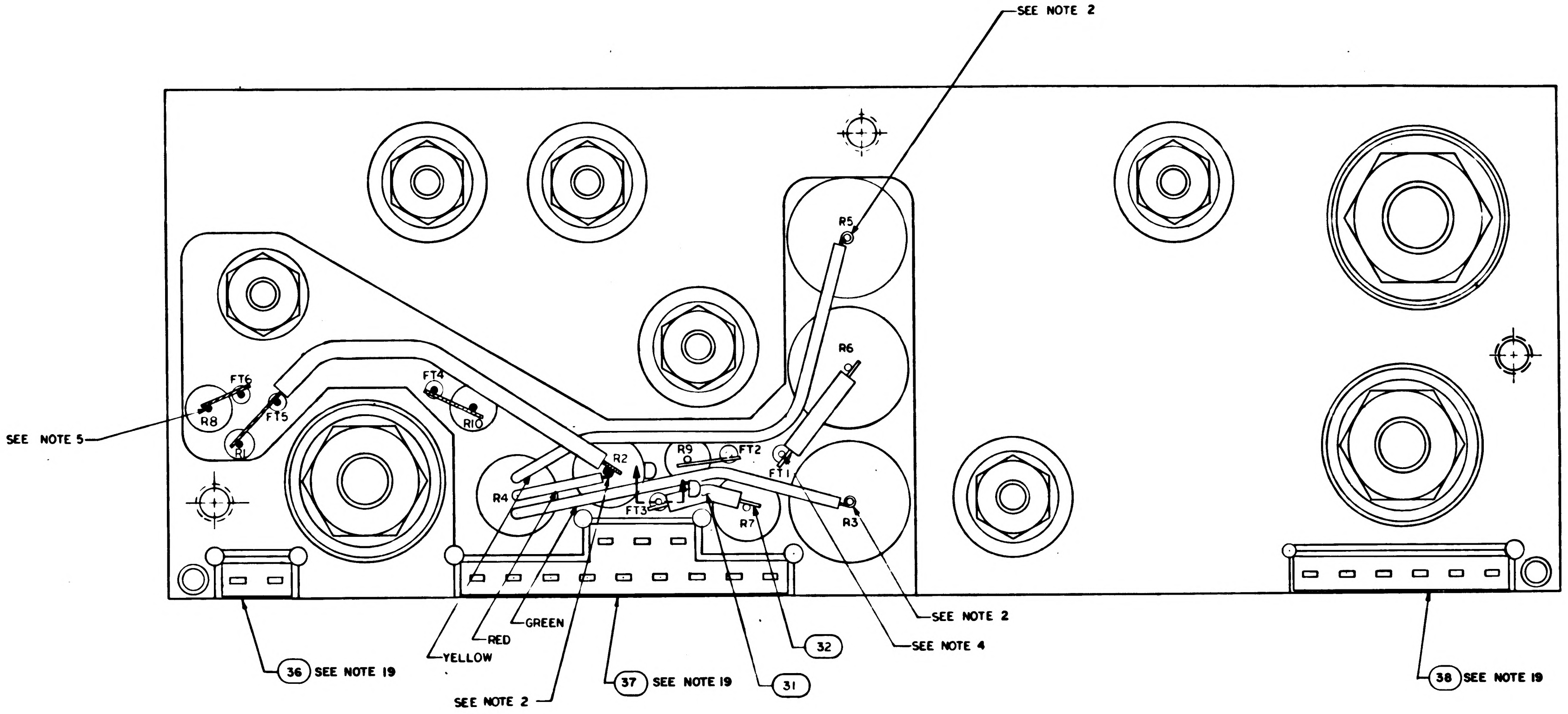
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SEE NOTE 2
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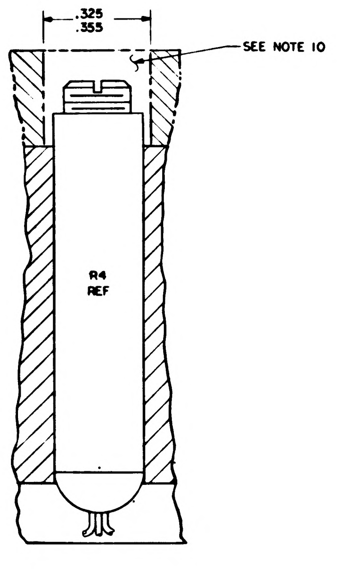
38 SEE NOTE 19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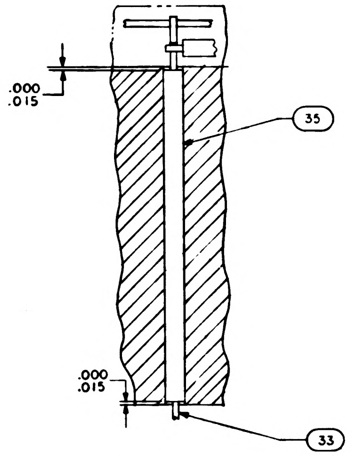
REF

SECTION C-C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SECTION D-D

R8			
PART NO	VALUE	PART NO	VALUE
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-98	511	-128	1050
-99	523	-129	1070
-100	536	-130	1100
-101	549	-131	1130
-102	562	-132	1150
-103	576	-133	1180
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-111	698	-141	1430
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-113	732	-143	1500
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-119	845	-149	1740
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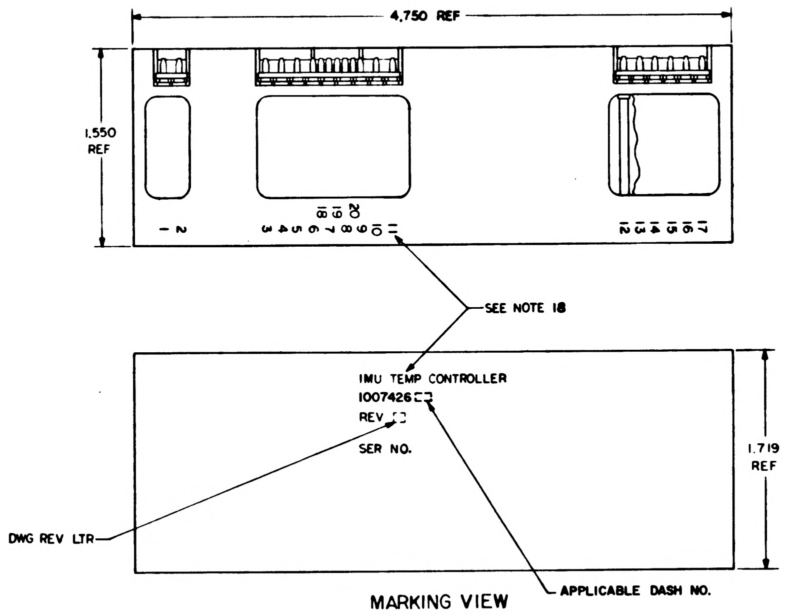
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SEE NOTE 18
IMU TEMP CONTROLLER
1007426□□
REV □□
SER NO.
1.719
REF
DWG REV LTR
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED				EFFEC-TIVITY	ITEM NO.
			011		
			1		39
			1		38
			X		REF
			1		37
			1		36
			AR		35
			AR		34
			AR		33
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			AR		31
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			20		29
			1		28
			2		27
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			2		3
			2		2
			1		1

1007577		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
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FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

HEAT TREATMENT

FINAL FINISH.

DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL

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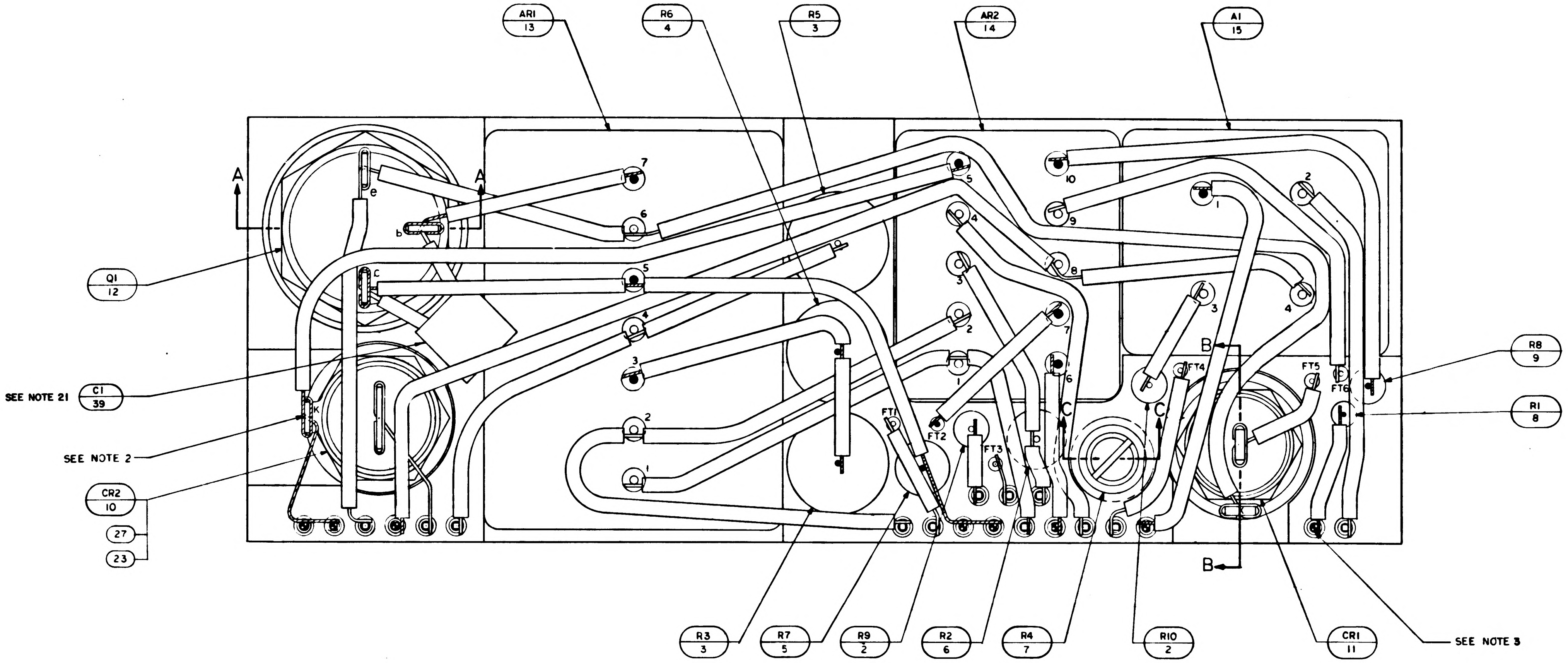
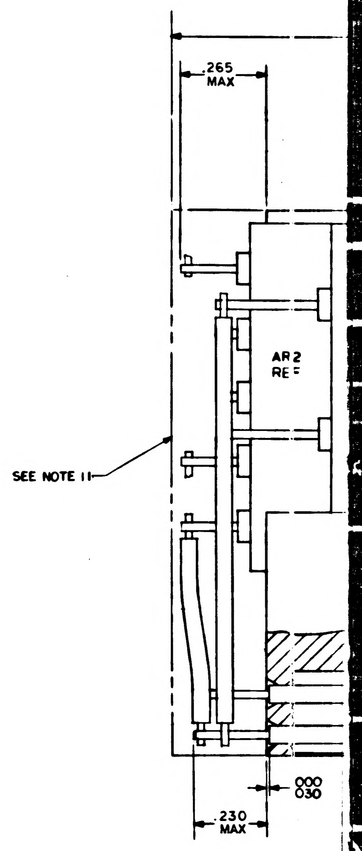
C





B

A

NOTES:

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5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
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9. AR DENOTES AS REQUIRED.
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12. ASSEMBLE FIND NO. 29 AND FIND NO. 30 PER ND 1002136.
13. R8 ~~TO BE SELECTED AS ASSEMBLY~~, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER RANGE OF VALUES (OHMS) SHOWN ON CHART.
14. FILL PER ND 1002117.
15. MOUNTING TORQUE FOR FIND NO. 10 AND FIND NO. 11 10-12 INCH POUNDS.
16. MOUNTING TORQUE FOR FIND NO. 12 30-34 INCH POUNDS.
17. MOUNTING TORQUE FOR FIND NO.S 13, 14, AND 15 4-1/2-5-1/2 INCH POUNDS.
18. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.

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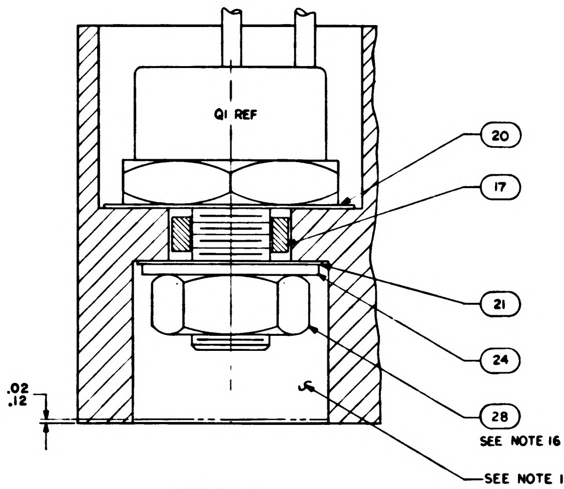
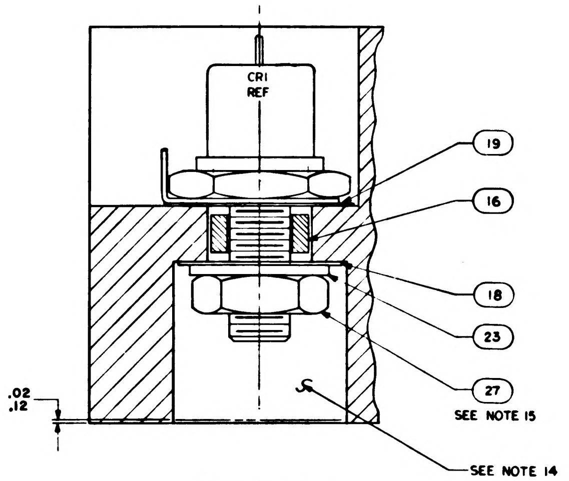
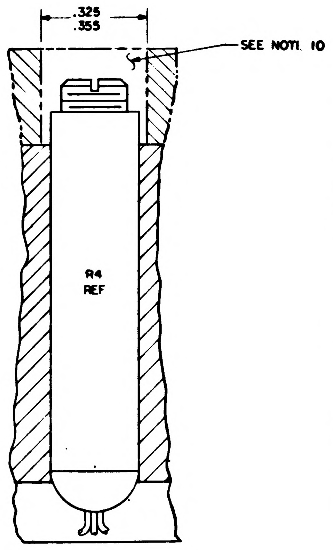
21. BOND ITEM 39 TO ITEM 1 PER ND 1002187 USING EPOXY RESIN 1010661 AND ADHESIVE ACTIVATOR 1010679.
22. PROCURE PER PS 1007056
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.



SECTION A-A



SECTION B-B



SECTION C-C

SYM	DESCRIPTION	DATE	APPROVAL
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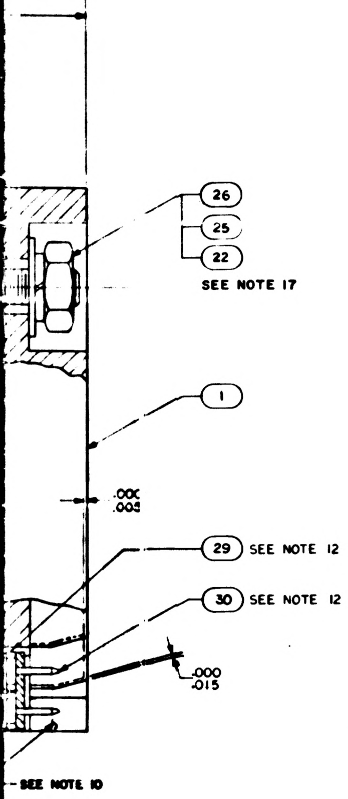
B	REVISED PER TDRR 18536	26 APR 65	P7
C	REVISED PER TDRR 9527	2 JUN 65	
D	REVISED PER TDRR 20043	2 JUN 65	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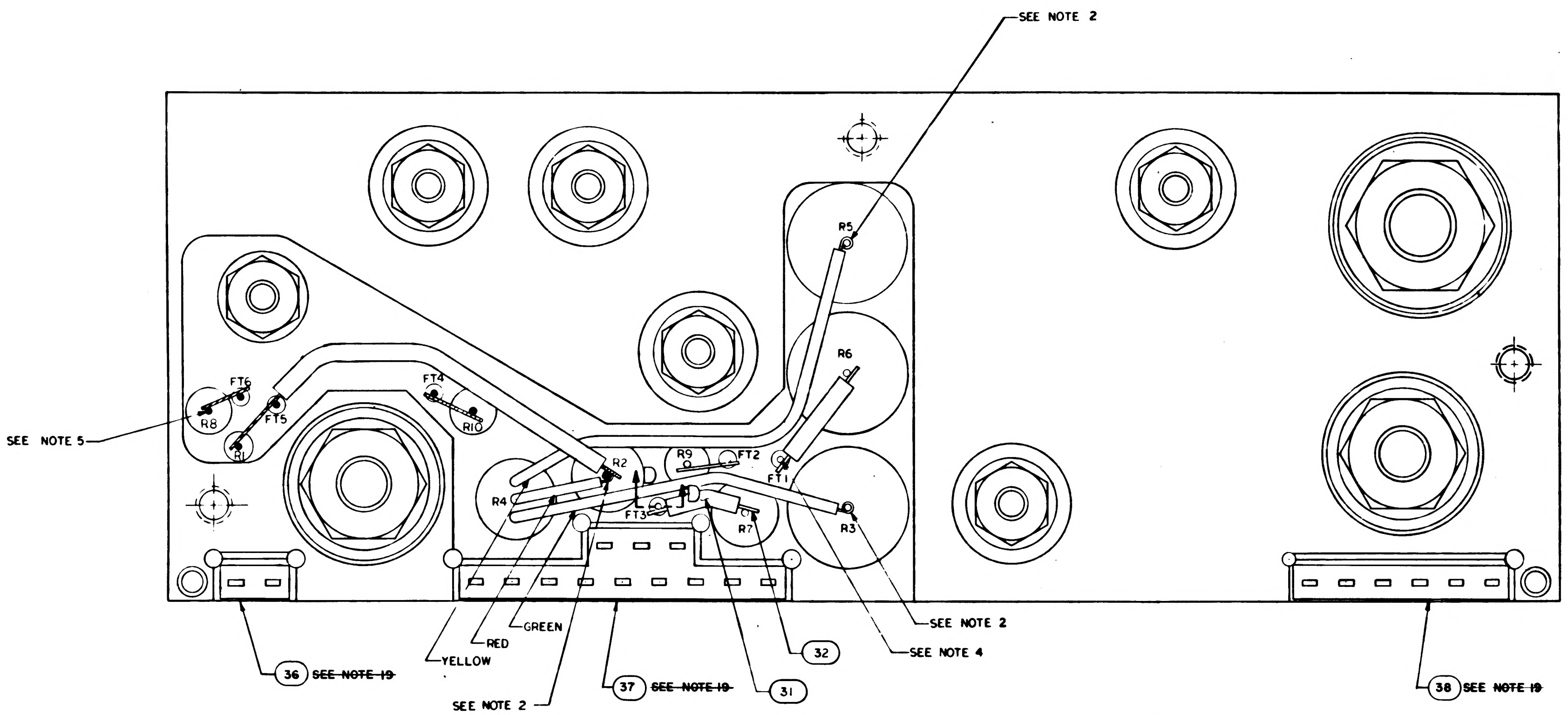
SEE NOTE 10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SEE NOTE 5
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FT3
R7
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RED
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SEE NOTE 2
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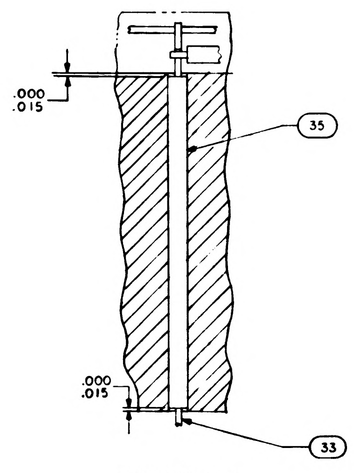
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SECTION D-D

R8			
PART NO	VALUE	PART NO	VALUE
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-98	511	-128	1050
-99	523	-129	1070
-100	536	-130	1100
-101	549	-131	1130
-102	562	-132	1150
-103	576	-133	1180
-104	590	-134	1210
-105	604	-135	1240
-106	619	-136	1270
-107	634	-137	1300
-108	649	-138	1330
-109	665	-139	1370
-110	681	-140	1400
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-112	715	-142	1470
-113	732	-143	1500
-114	750	-144	1540
-115	768	-145	1580
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-117	806	-147	1650
-118	825	148	1690
-119	845	-149	1740
-120	866	-150	1780
-121	887	-151	1820
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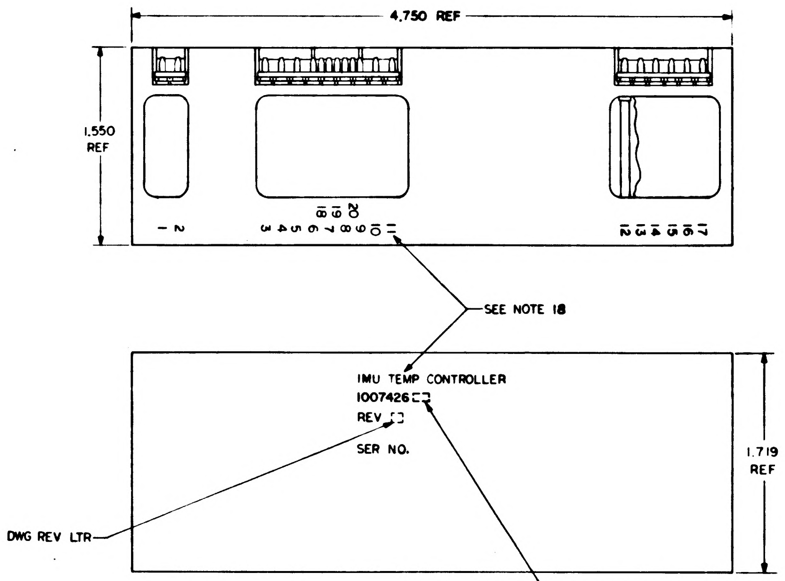
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SEE NOTE 18
IMU TEMP CONTROLLER
1007426
REV
SER NO.
DWG REV LTR
1.719 REF
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			1		39	1010359-25	CAPACITOR
			1		38	1008540-6	GASKET, CONNECTOR-MINIATURE
			X		REF	1010058	SCHEMATIC
			1		37	1008548	GASKET, CONNECTOR-MINIATURE
			1		36	1008540-2	GASKET, CONNECTOR-MINIATURE
			AR		35	1006776-22	INSULATION, SLEEVING
			AR		34	1006776-20	INSULATION, SLEEVING
			AR		33	1006757-8	WIRE, ELEC
			AR		32	1006757-1	WIRE, ELEC
			AR		31	1006776-21	INSULATION, SLEEVING
			20		30	1006782-5	CONTACT, WRAPOST MALE-MINIATURE
			20		29	1006775	INSULATOR, WRAPOST MALE-MINIATURE
			1		28	MS20341-416B	NUT
			2		27	MS20341-10B	NUT
			6		26	MS20341-4A	NUT
			6		25	MS35338-78	WASHER, LOCK
			1		24	1008071-5	WASHER, FLAT
			2		23	1008071-4	WASHER, FLAT
			6		22	1008070-5	WASHER, FLAT
			1		21	1008024-4	WASHER, INSULATOR
			1		20	1008024-3	WASHER, INSULATOR
			1		19	1008024-2	WASHER, INSULATOR
			1		18	1008024-1	WASHER, INSULATOR
			1		17	1008021-2	BUSHING, INSULATOR
			1		16	1008021-1	BUSHING, INSULATOR
			1		15	1000287	AMPL MA25A-1
			1		14	1000286	AMPL MA20A-1
			1		13	1000285	AMPL PA36A-1
			1		12	1010273-1	TRANSISTOR
			1		11	1010331-009	DIODE
			1		10	1010322-001	DIODE
			1		9	SEE NOTE 13	RESISTOR
			1		8	1006750-56	RESISTOR
			1		7	1010453-1	RESISTOR
			1		6	1010399-16	RESISTOR
			1		5	1010312-36	RESISTOR
			1		4	1010835-2	RESISTOR
			2		3	1010835-1	RESISTOR
			2		2	1010364-368	RESISTOR
			1		1	1007070	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN S. Ogne DATE 17SEP64
CHECKED C. Udonch 23 SEP 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

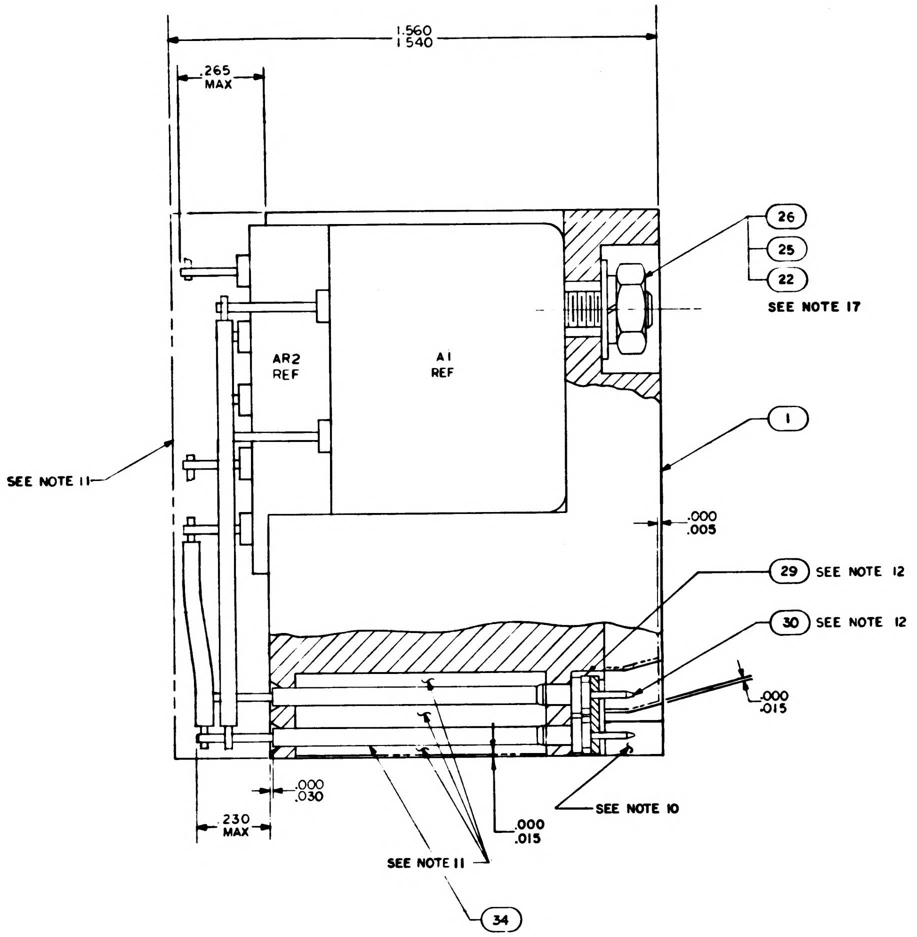
IMU TEMP CONTROLLER ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007426
SCALE 5/1
WT
SHEET 1 OF 1

1007426 D

007426

3/1007426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SEE NOTE 11
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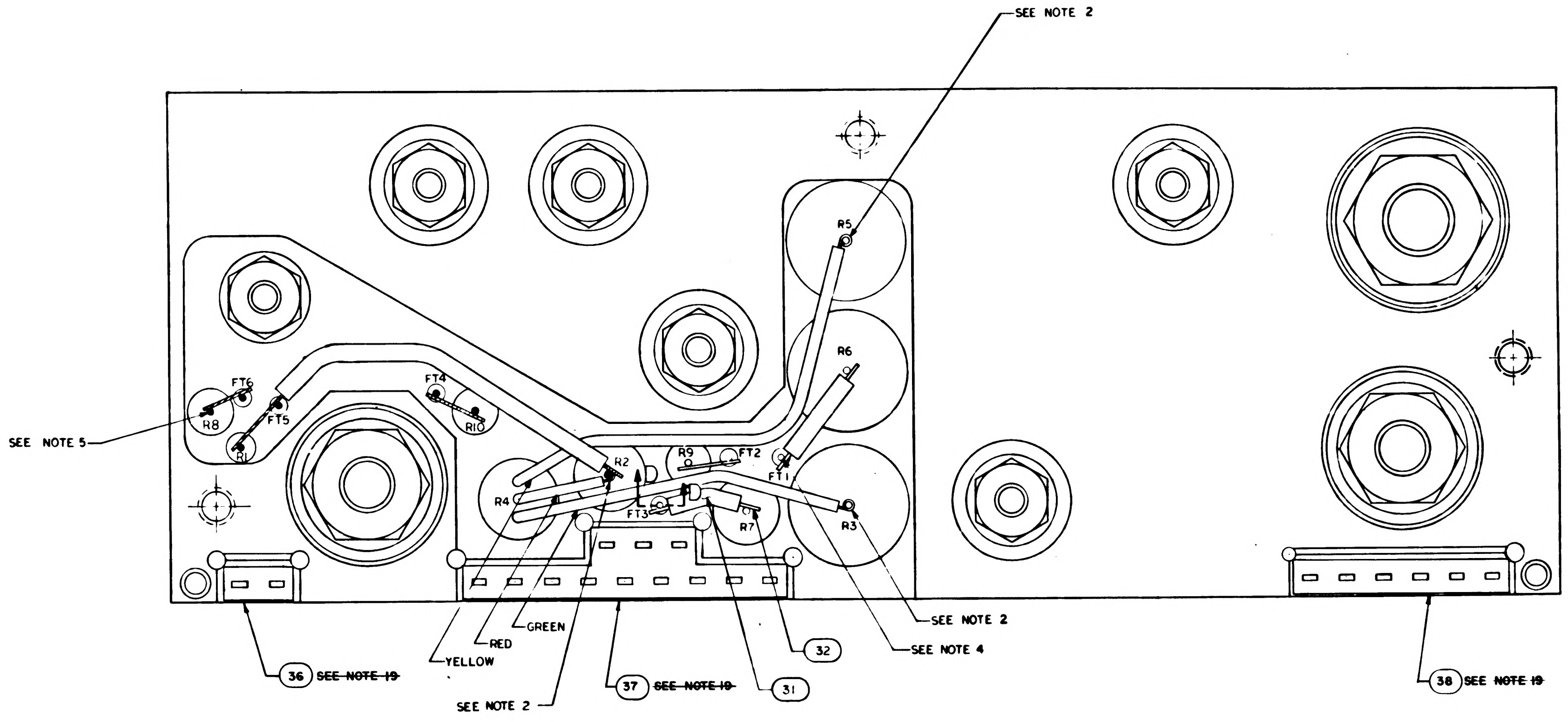
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SEE NOTE 5
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FT3
R7
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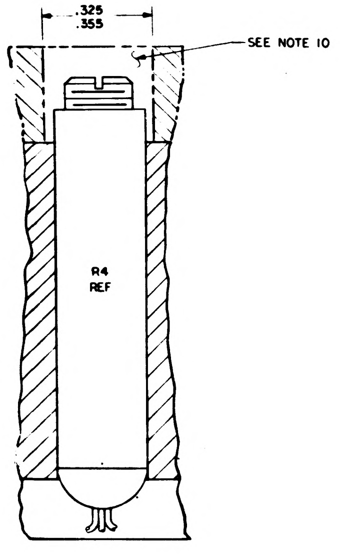
SEE NOTE 2
38 SEE ~~NOTE 19~~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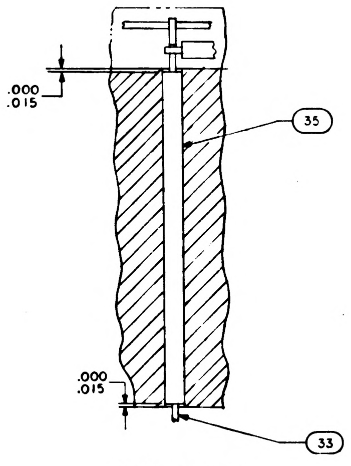
REF

SECTION C-C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SECTION D-D

R8			
PART NO	VALUE	PART NO	VALUE
1010311-97	499	1010311-127	1020
-98	511	-128	1050
-99	523	-129	1070
-100	536	-130	1100
-101	549	-131	1130
-102	562	-132	1150
-103	576	-133	1180
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-109	665	-139	1370
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-118	825	148	1690
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-121	887	-151	1820
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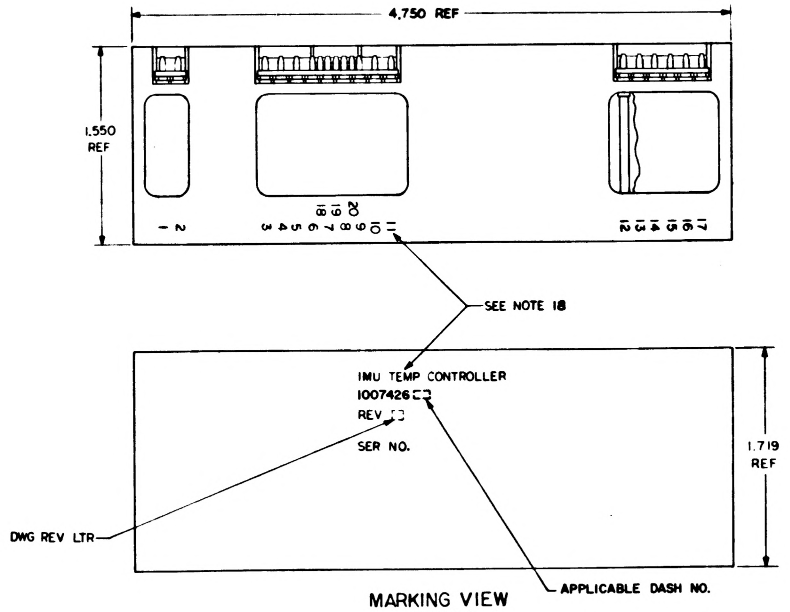
-124	953	-154	1960
-125	976	-155	2000
-126	1000		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SEE NOTE 18
IMU TEMP CONTROLLER
1007426☐☐
REV ☐
SER NO.
1.719
REF
DWG REV LTR
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED					
			011	EFFECTIVITY	ITEM NO.
			1		39
			1		38
			X		REF
			1		37
			1		36
			AR		35
			AR		34
			AR		33
			AR		32
			AR		31
			20		30
			20		29
			1		28
			2		27
			6		26
			6		25
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			6		22
			1		21
			1		20
			1		19
			1		18
			1		17
			1		16
			1		15
			1		14
			1		13
			1		12
			1		11
			1		10
					9
			1		8
			1		7
			1		6
			1		5
			1		4
			2		3
			2		2
			1		1

APPLICATION		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		

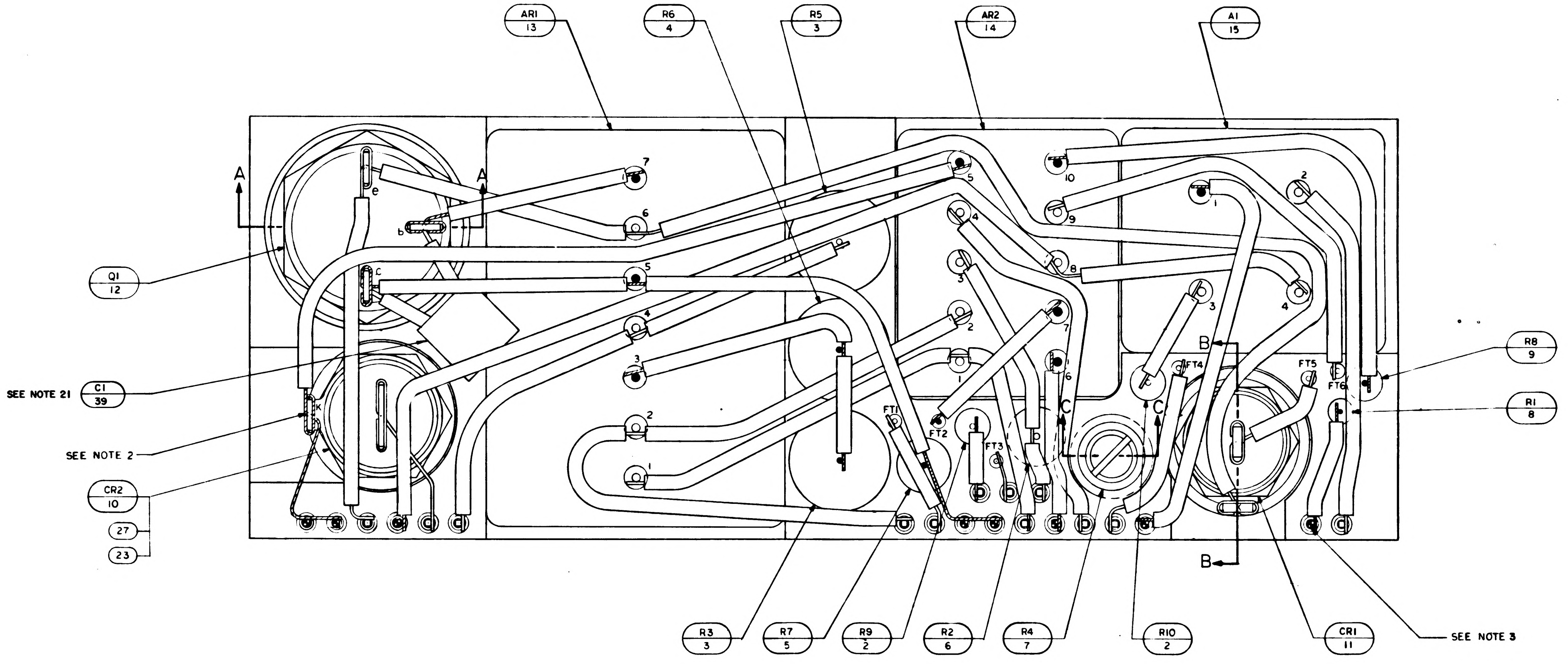
THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

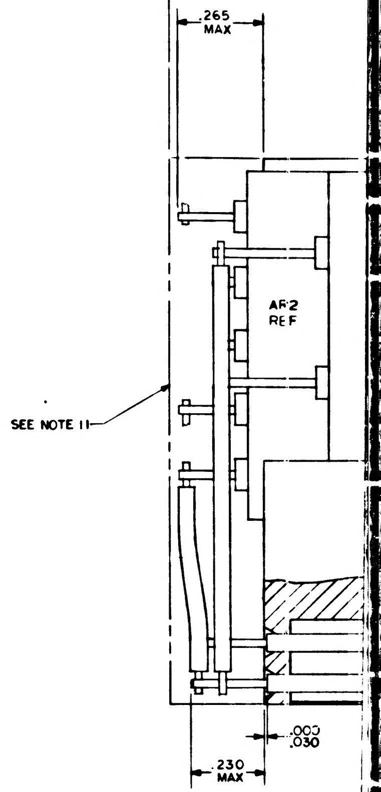
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH.

1007426 REV D SH 1

2/1007426

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



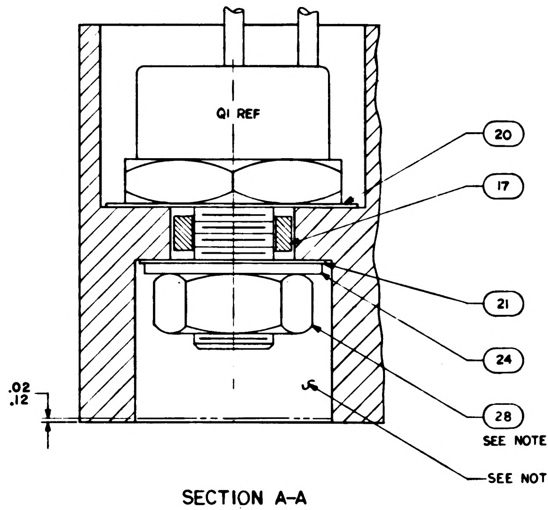


NOTES:

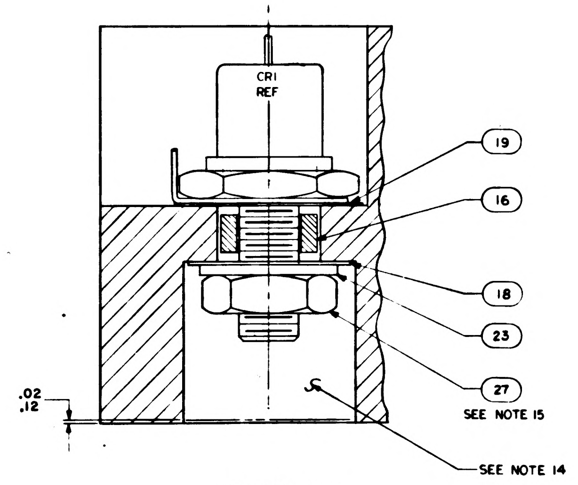
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL SOLDERING CONNECTIONS TO BE MADE PER ND 1002071.
3. CHECKED DOT INDICATES INTERMEDIATE LEVEL WIRING.
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. K INDICATES CATHODE SIDE OF DIODE.
7. WELD PER ND 1002005 EXCEPT WHERE NOTED.
8. STAKE FIND NO. 2 THRU FIND NO. 9 AND ALL FEEDTHRUS PER ND 1002009. METHOD H.
9. AR DENOTES AS REQUIRED.
10. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND.
11. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED. PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
12. ASSEMBLE FIND NO. 29 AND FIND NO. 30 PER ND 1002136.
13. R8 ~~TO BE SELECTED AS ASSEMBLY~~, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER RANGE OF VALUES (OHMS) SHOWN ON CHART.
14. FILL PER ND 1002117.
15. MOUNTING TORQUE FOR FIND NO. 10 AND FIND NO. 11 10-12 INCH POUNDS.
16. MOUNTING TORQUE FOR FIND NO. 12 30-34 INCH POUNDS.
17. MOUNTING TORQUE FOR FIND NO.S 13, 14, AND 15 4-1/2-5-1/2 INCH POUNDS.
18. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.

~~19. BOND FIND NO. 36, 37 AND 38 TO FIND NO. 20 PER ND 1002237.~~

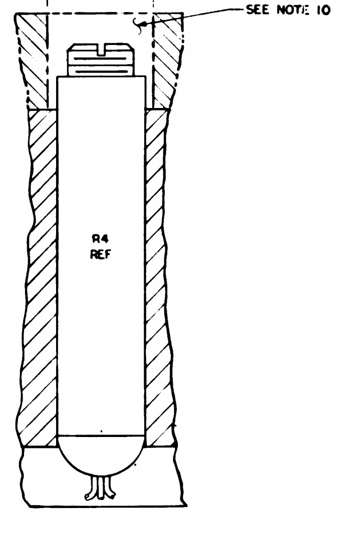
20. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
21. BOND ITEM 39 TO ITEM 1 PER ND 1002187 USING EPOXY RESIN 1010661 AND ADHERSIVE ACTIVATOR 1010679.
22. PROCURE PER PS 1007056
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.



SECTION A-A



SECTION B-B



SECTION C-C

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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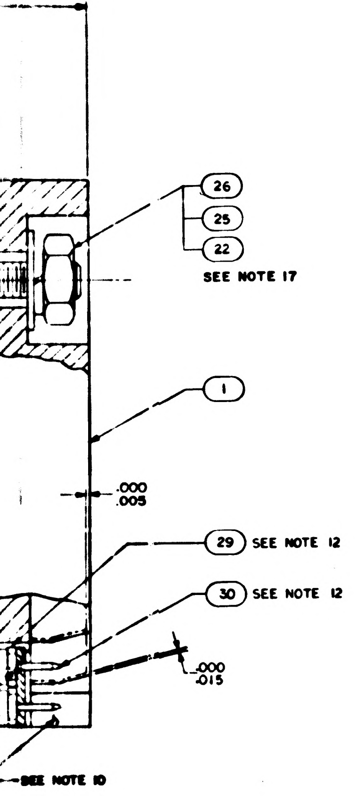
B	REVISED PER TDRR 18536	APR 65	
C	REVISED PER TDRR 19527	2 JUN 65	
D	REVISED PER TDRR 20143	19 JUN 65	
E	REVISED PER TDRR 23328	23 65	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SEE NOTE 17
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29 SEE NOTE 12
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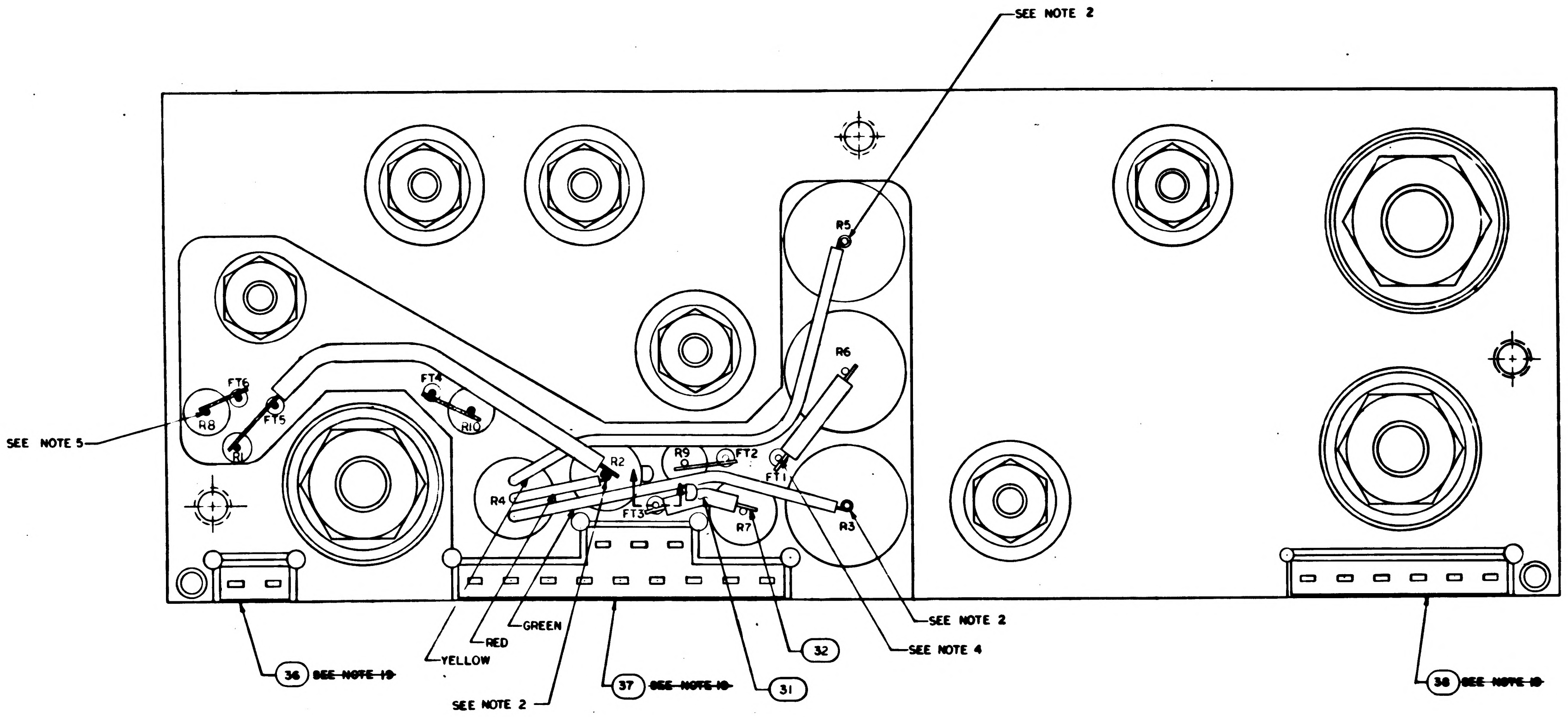
SEE NOTE 10


SEE NOTE 2
R5
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FT4
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R2
R9
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R4
FT3
R7
R3
SEE NOTE 5
GREEN
RED
YELLOW
SEE NOTE 2
SEE NOTE 2
SEE NOTE 4
32
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36 ~~SEE NOTE 19~~
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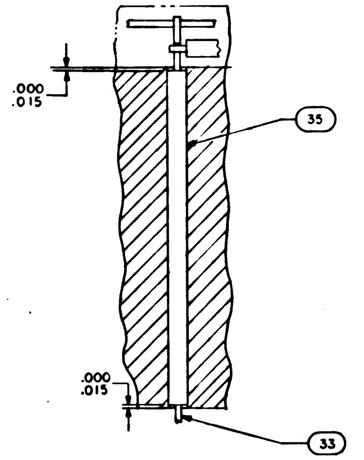
38 ~~SEE NOTE 18~~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SECTION D-D

R8			
PART NO	VALUE	PART NO	VALUE
1010311-97	499	1010311-127	1020
-98	511	-128	1050
-99	523	-129	1070
-100	536	-130	1100
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-103	576	-133	1180
-104	590	-134	1210
-105	604	-135	1240
-106	619	-136	1270
-107	634	-137	1300
-108	649	-138	1330
-109	665	-139	1370
-110	681	-140	1400
-111	698	-141	1430
-112	715	-142	1470
-113	732	-143	1500
-114	750	-144	1540
-115	768	-145	1580
-116	787	-146	1620
-117	806	-147	1650
-118	825	148	1690
-119	845	-149	1740
-120	866	-150	1780
-121	887	-151	1820
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-124	953	-154	1960
-125	976	-155	2000
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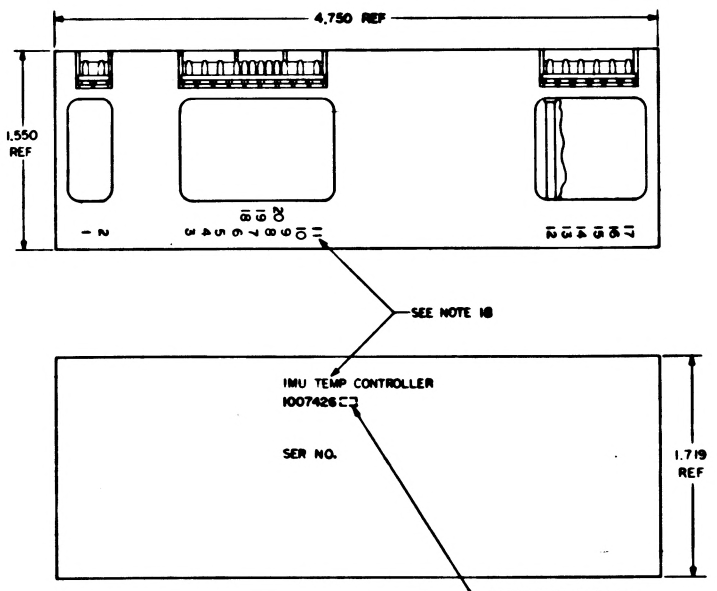
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3 4 5 6 7 8 9 10 11
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12 13 14 15 16 17
SEE NOTE 18
IMU TEMP CONTROLLER
1007426
SER NO.
1.719 REF
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

			QUANTITY REQUIRED ON	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			1		39	1010359-25	CAPACITOR
			1		38	1008540-6	GASKET, CONNECTOR-MINIATURE
			X		REF	1010058	SCHEMATIC
			1		37	1008548	GASKET, CONNECTOR-MINIATURE
			1		36	1008540-2	GASKET, CONNECTOR-MINIATURE
			AR		35	1006776-22	INSULATION, SLEEVING
			AR		34	1006776-20	INSULATION, SLEEVING
			AR		33	1006757-8	WIRE, ELEC
			AR		32	1006757-1	WIRE, ELEC
			AR		31	1006776-21	INSULATION, SLEEVING
			20		30	1006782-5	CONTACT, WRAPOST MALE-MINIATURE
			20		29	1006775	INSULATOR, WRAPOST MALE-MINIATURE
			1		28	MS20341-416B	NUT
			2		27	MS20341-10B	NUT
			6		26	MS20341-4A	NUT
			6		25	MS35338-78	WASHER, LOCK
			1		24	1008071-5	WASHER, FLAT
			2		23	1008071-4	WASHER, FLAT
			6		22	1008070-5	WASHER, FLAT
			1		21	1008024-4	WASHER, INSULATOR
			1		20	1008024-3	WASHER, INSULATOR
			1		19	1008024-2	WASHER, INSULATOR
			1		18	1008024-1	WASHER, INSULATOR
			1		17	1008021-2	BUSHING, INSULATOR
			1		16	1008021-1	BUSHING, INSULATOR
			1		15	1000287	AMPL MA25A-1
			1		14	1000286	AMPL MA20A-1
			1		13	1000285	AMPL PA36A-1
			1		12	1010273-1	TRANSISTOR
			1		11	1010331-009	DIODE
			1		10	1010322-001	DIODE
			1		9	SEE NOTE 13	RESISTOR
			1		8	1006750-56	RESISTOR
			1		7	1010453-1	RESISTOR
			1		6	1010399-16	RESISTOR
			1		5	1010312-36	RESISTOR
			1		4	1010835-2	RESISTOR
			2		3	1010835-1	RESISTOR
			2		2	1010364-368	RESISTOR
			1		1	1007070	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH,

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497
DRAWN S. Agne DATE 11/30/64
CHECKED 23 SEP 64
APPROVAL
APPROVAL 9-2-64
NASA APPROVAL 10-14-64
MIT APPROVAL

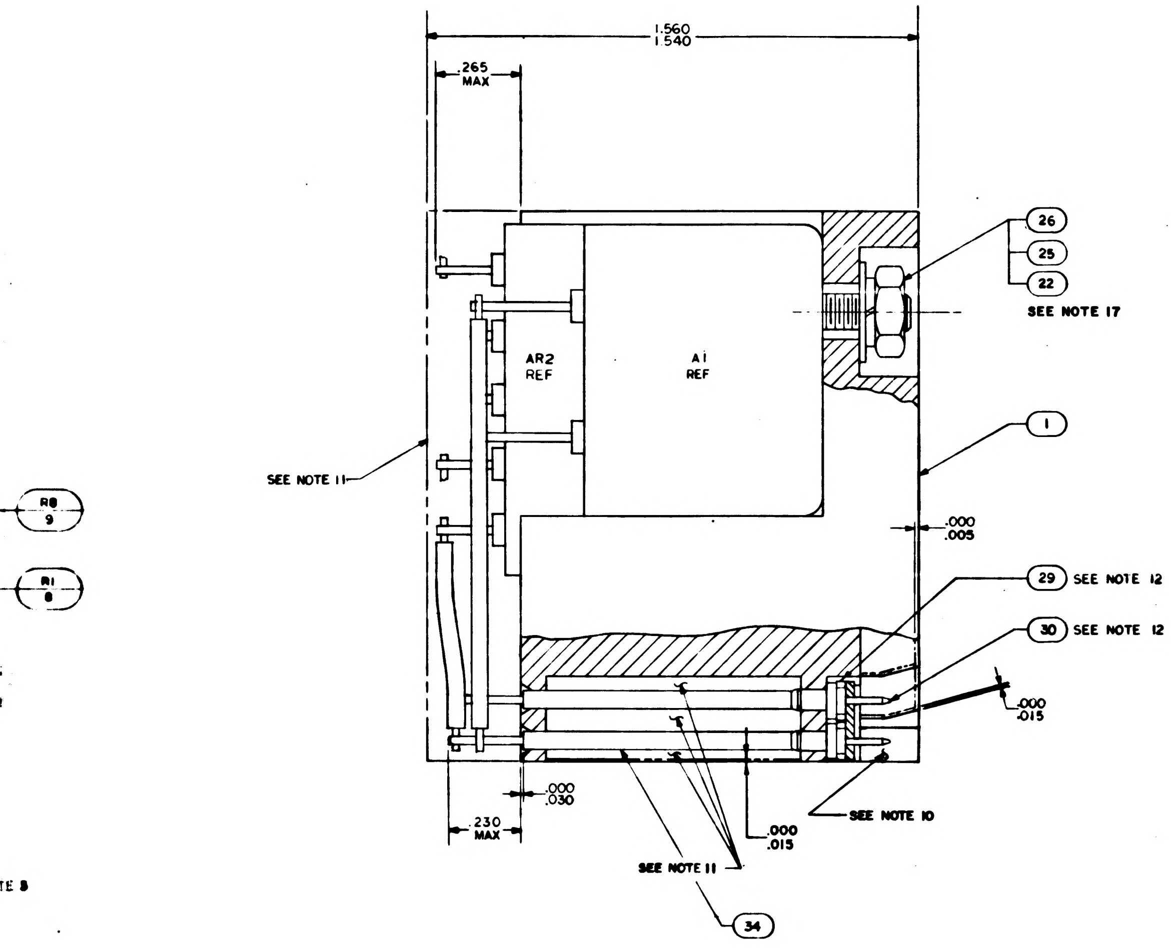
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

IMU TEMP CONTROLLER ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007426
SCALE 5/1
WT
SHEET 1 OF 1

1007426 E

3/1007426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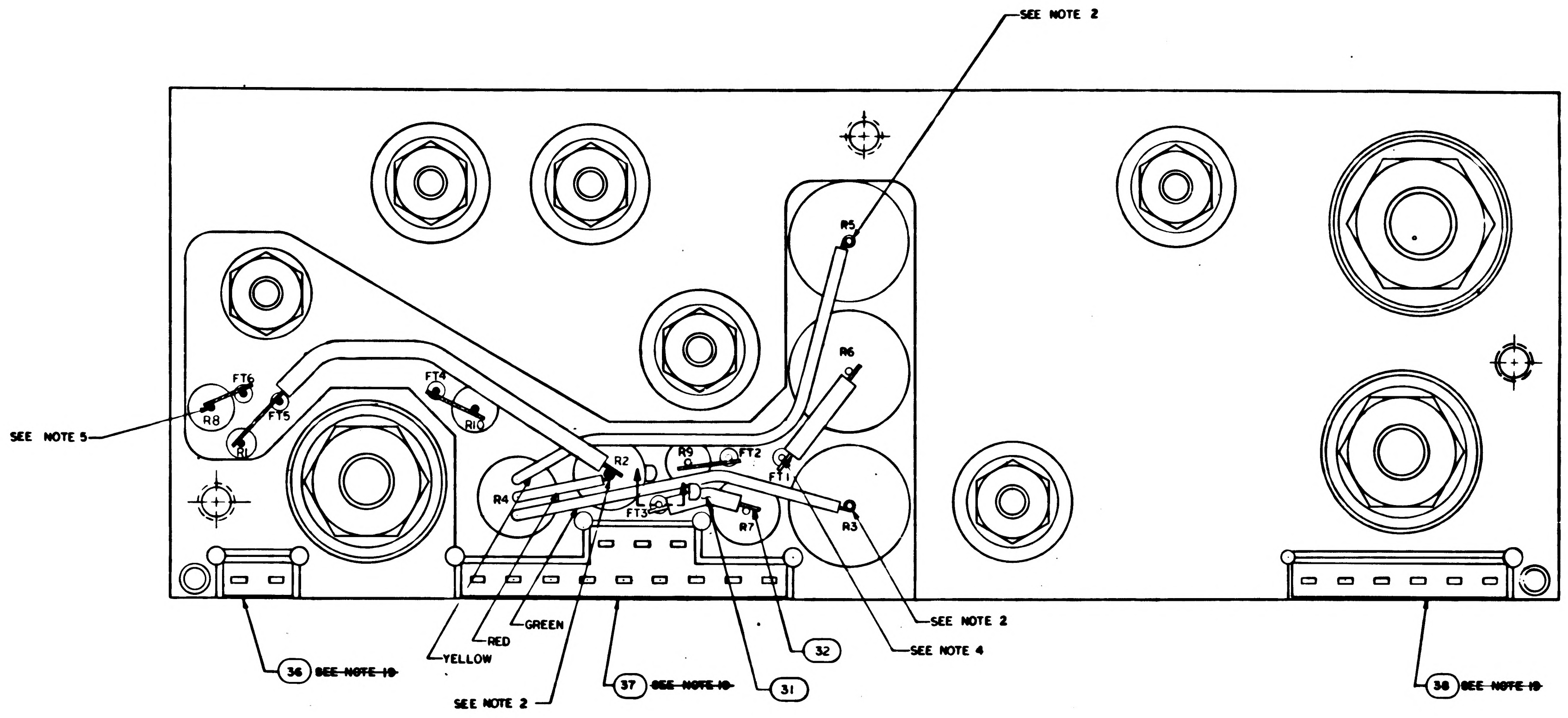
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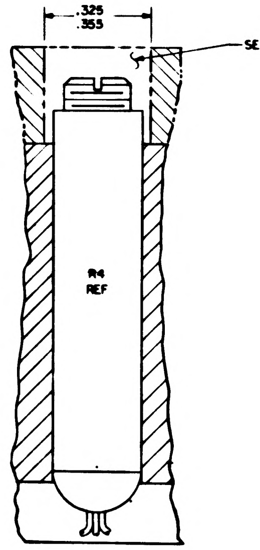
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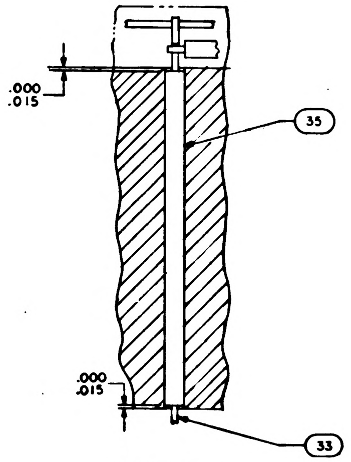
SECTION C-C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SECTION D-D

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-99	523	-129	1070
-100	536	-130	1100
-101	549	-131	1130
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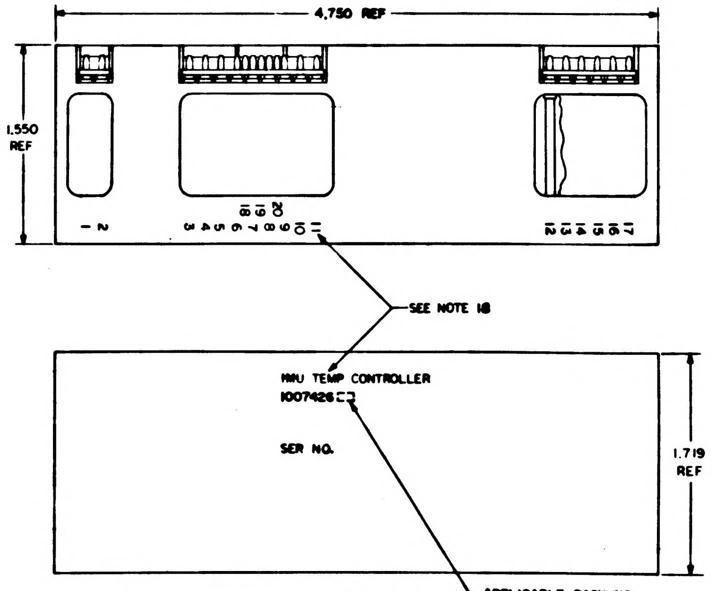
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SEE NOTE 18
MMU TEMP CONTROLLER
1007426
SER NO.
1.719
REF
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

1007577		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

QUANTITY REQUIRE

UNLESS OTHERWISE SPECIFIE
DIMENSIONS ARE IN INCHES
TOLERANCE ON
FRACTIONS ± DECIMALS
XX ±.02
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DO NOT SCALE THIS DRAWI
MATERIAL
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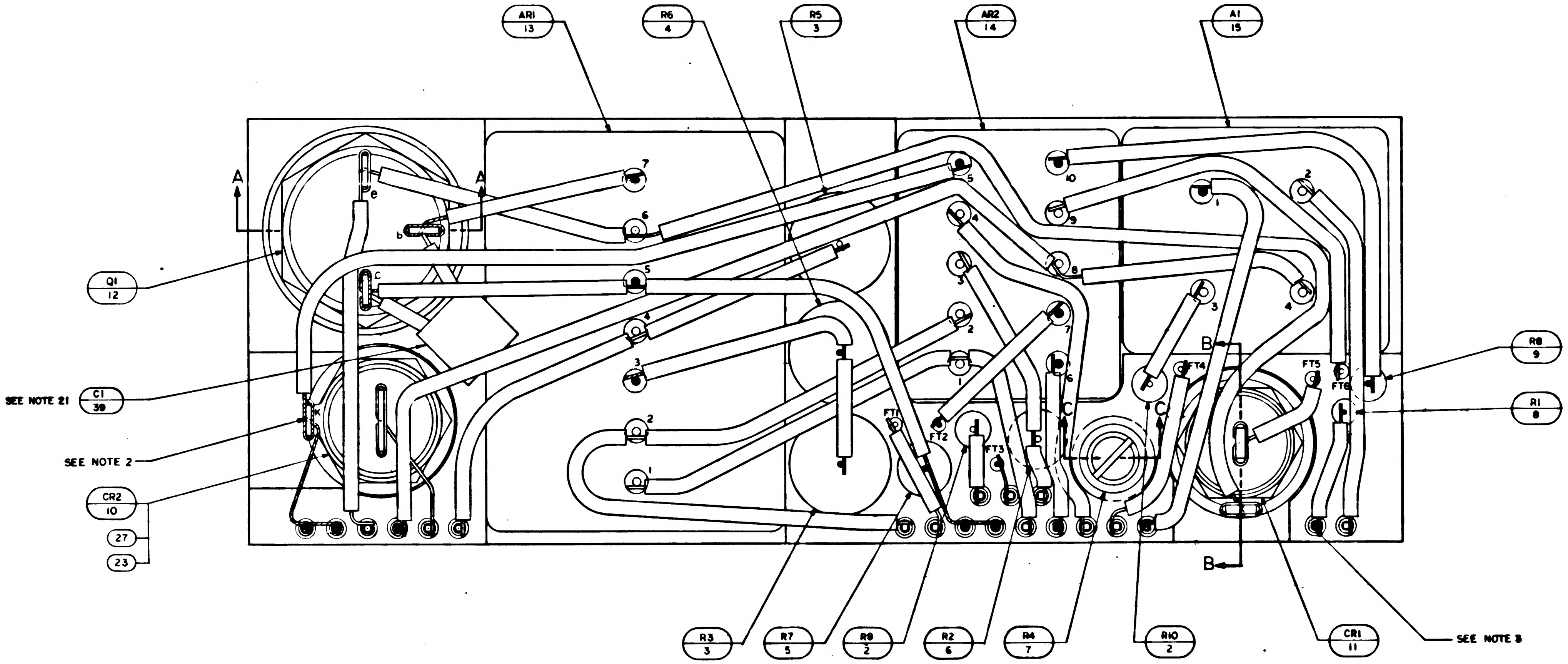
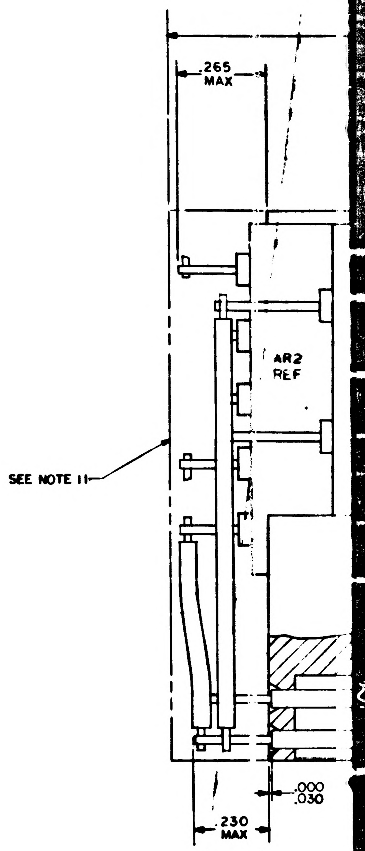
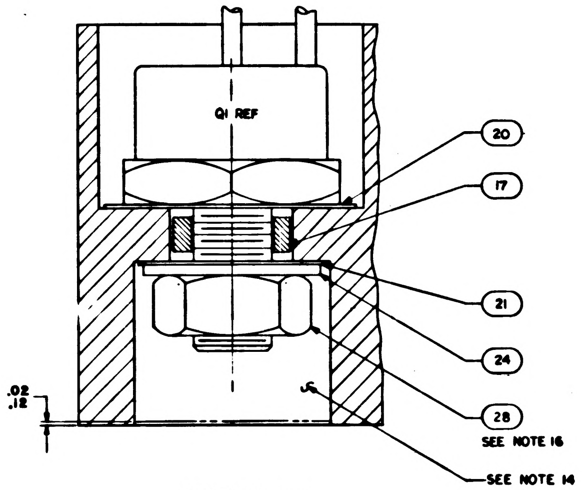
27/1007426

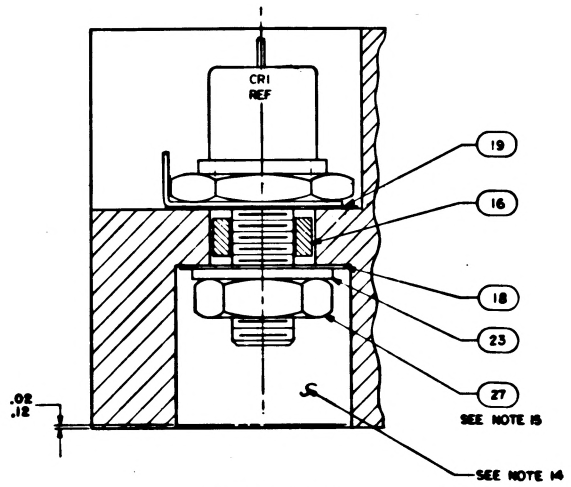
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.







SECTION A-A



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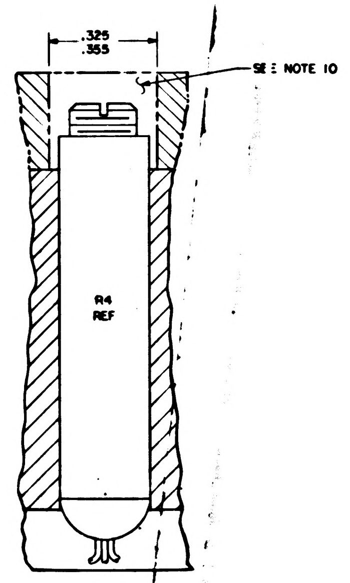


SECTION C-C

NOTES:

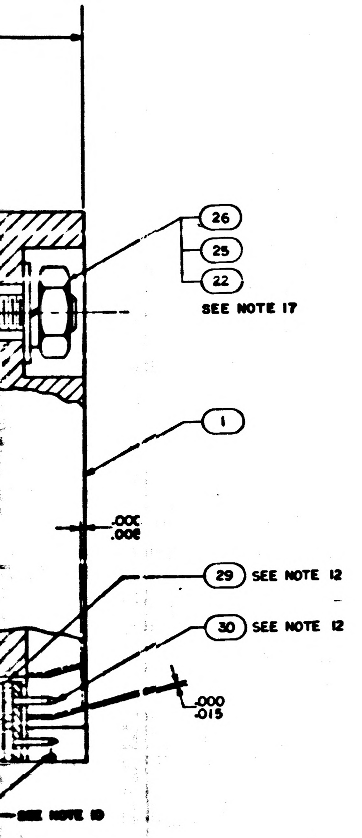
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL SOLDERING CONNECTIONS TO BE MADE PER ND 1002071.
3. CHECKED DOT INDICATES INTERMEDIATE LEVEL WIRING.
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. K INDICATES CATHODE SIDE OF DIODE.
7. WELD PER ND 1002005 EXCEPT WHERE NOTED.
8. STAKE FIND NO. 2 THRU FIND NO. 9 AND ALL FEEDTHRUS PER ND 1002009. METHOD J.
9. AR DENOTES AS REQUIRED.
10. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND.
11. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED. PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
12. ASSEMBLE FIND NO. 29 AND FIND NO. 30 PER ND 1002136.
13. R8 ~~TO BE SELECTED AS ASSEMBLY~~, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER RANGE OF VALUES (OHMS) SHOWN ON CHART.
14. FILL PER ND 1002117.
15. MOUNTING TORQUE FOR FIND NO. 10 AND FIND NO. 11 10-12 INCH POUNDS.
16. MOUNTING TORQUE FOR FIND NO. 12 30-34 INCH POUNDS.
17. MOUNTING TORQUE FOR FIND NO.S 13, 14, AND 15 4-1/2-5-1/2 INCH POUNDS.
18. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.

~~19. BOND FIND NO. 36, 37 AND 38 TO FIND NO. 20 PER ND 1002237.~~

20. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
21. BOND ITEM 39 TO ITEM 1 PER ND 1002187 USING EPOXY RESIN 1010661 AND ADHESIVE ACTIVATOR 1010679.
22. PROCURE PER PS 1007056
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002278, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR.PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED

D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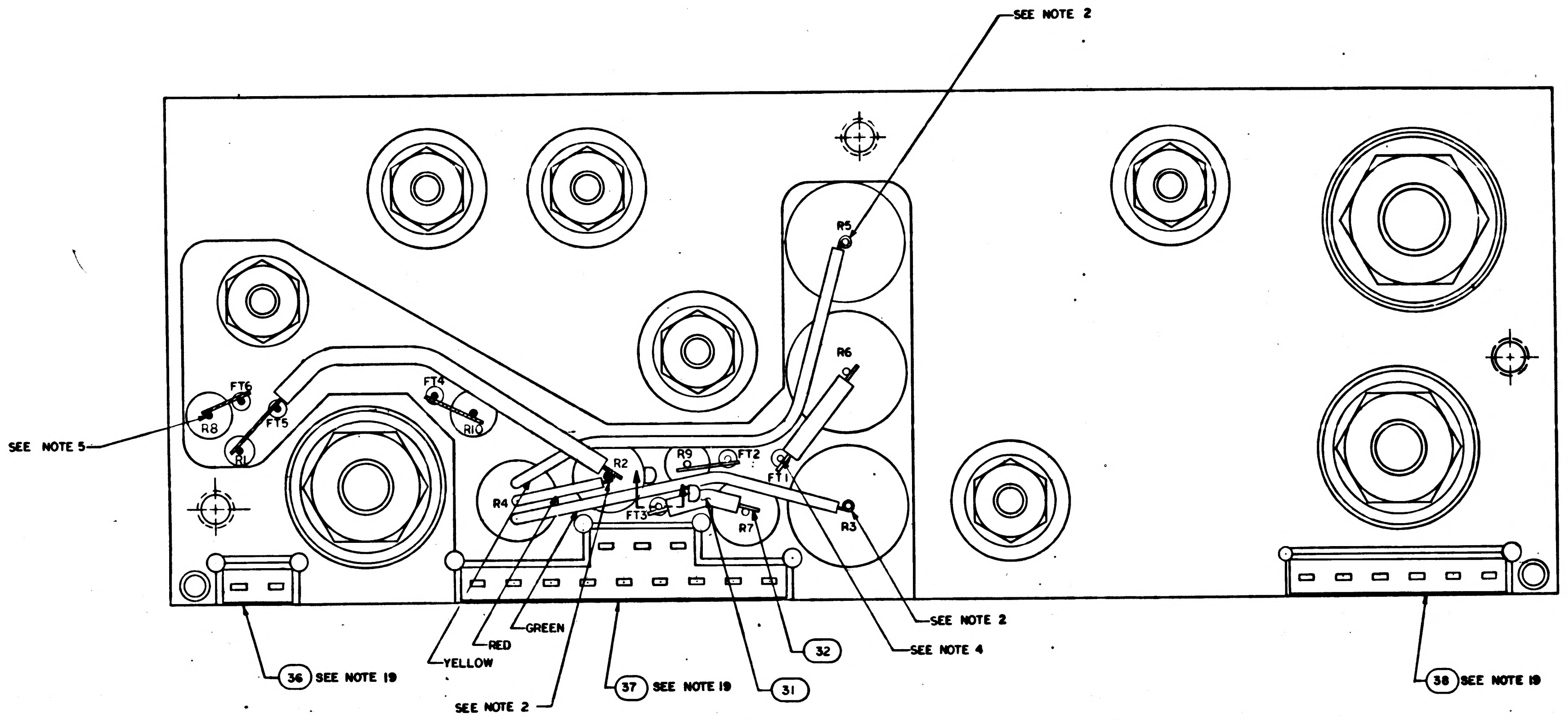
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SEE NOTE 2
SEE NOTE 4
SEE NOTE 2
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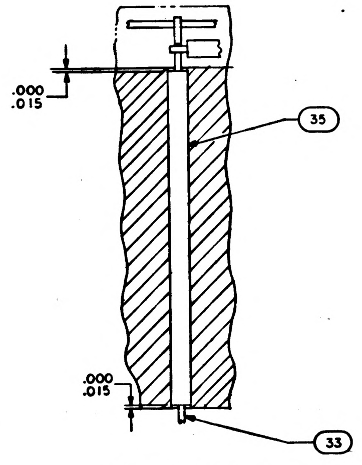
C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SECTION D-D

R8			
PART NO	VALUE	PART NO	VALUE
1010311-97	499	1010311-127	1020
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-99	523	-129	1070
-100	536	-130	1100
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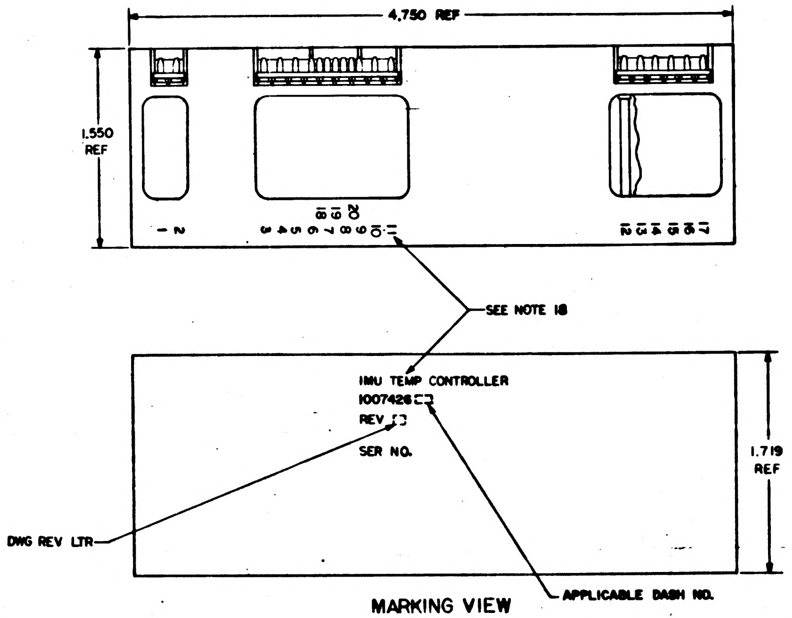
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SEE NOTE 18
IMU TEMP CONTROLLER
1007426
REV
SER NO.
1.719 REF
DWG REV LTR
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

B

QUANTITY REQUIRED							LIST OF PARTS AND MATERIALS
			011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			1		39	1010359-25	CAPACITOR
			1		38	1008540-6	GASKET, CONNECTOR-MINIATURE
			X		REF	1010058	SCHEMATIC
			1		37	1008548	GASKET, CONNECTOR-MINIATURE
			1		36	1008540-2	GASKET, CONNECTOR-MINIATURE
			AR		35	1006776-22	INSULATION, SLEEVING
			AR		34	1006776-20	INSULATION, SLEEVING
			AR		33	1006757-8	WIRE, ELEC
			AR		32	1006757-1	WIRE, ELEC
			AR		31	1006776-21	INSULATION, SLEEVING
			20		30	1006782-5	CONTACT, WRAPOST MALE-MINIATURE
			20		29	1006775	INSULATOR, WRAPOST MALE-MINIATURE
			1		28	MS20341-416B	NUT
			2		27	MS20341-10B	NUT
			6		26	MS20341-4A	NUT
			6		25	MS35338-78	WASHER, LOCK
			1		24	1008071-5	WASHER, FLAT
			2		23	1008071-4	WASHER, FLAT
			6		22	1008070-5	WASHER, FLAT
			1		21	1008024-4	WASHER, INSULATOR
			1		20	1008024-3	WASHER, INSULATOR
			1		19	1008024-2	WASHER, INSULATOR
			1		18	1008024-1	WASHER, INSULATOR
			1		17	1008021-2	BUSHING, INSULATOR
			1		16	1008021-1	BUSHING, INSULATOR
			1		15	1000287	AMPL MA25A-1
			1		14	1000286	AMPL MA20A-1
			1		13	1000285	AMPL PA36A-1
			1		12	1010273-1	TRANSISTOR
			1		11	1010331-009	DIODE
			1		10	1010322-001	DIODE
			2		9	SEE NOTE 13	RESISTOR
			1		8	1006750-56	RESISTOR
			1		7	1010453-1	RESISTOR
			1		6	1010399 16	RESISTOR
			1		5	1010312-36	RESISTOR
			1		4	1010449-2	RESISTOR
			2		3	1010449-1	RESISTOR
			2		2	1010364-368	RESISTOR
			1		1	1007070	HEATSINK

A

(34)

1007577		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497
DRAWN S. Ayne DATE 11 SEP 64
CHECKED [illegible] 23 SEP 64
APPROVAL [illegible]
APPROVAL [illegible] 10-2-64
NASA APPROVAL W. J. [illegible] 10-14-64
MIT APPROVAL [illegible] 10/14/64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

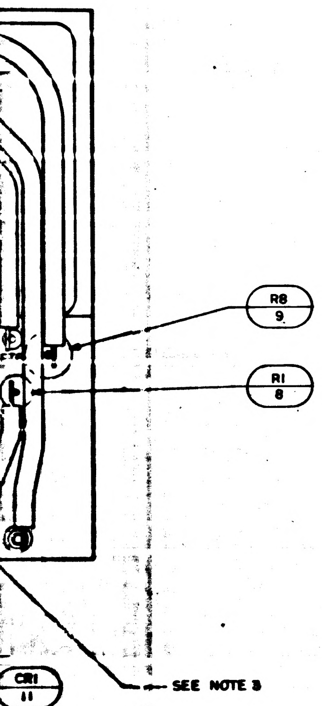
IMU TEMP CONTROLLER
ASSEMBLY

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007426
SCALE 5/1
WT
SHEET 1 OF 1

1007426

MASTER

F3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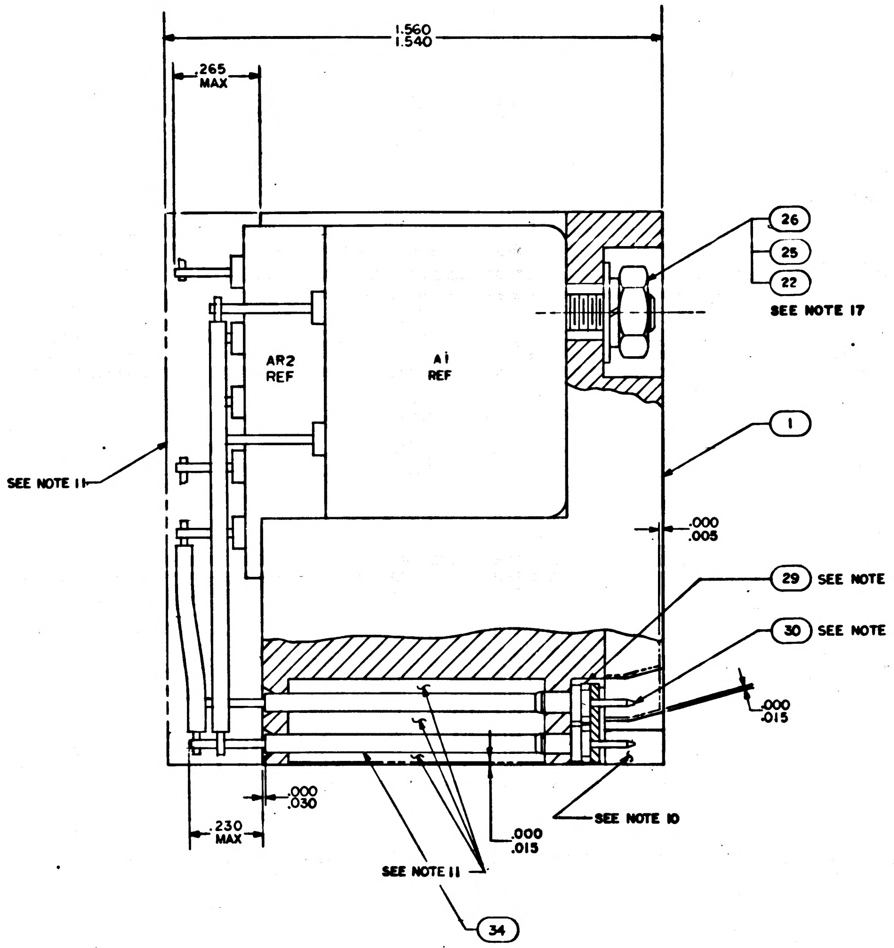
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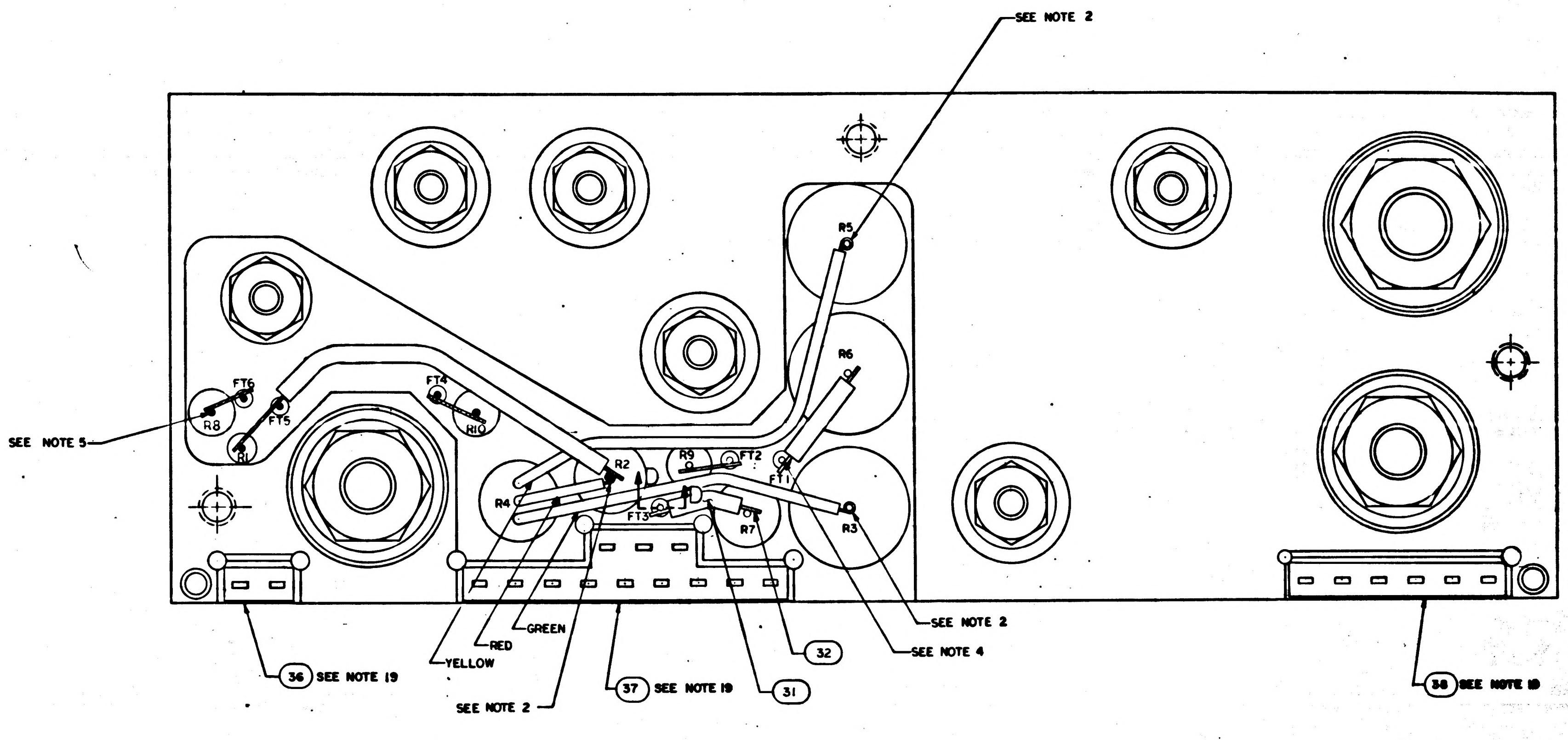
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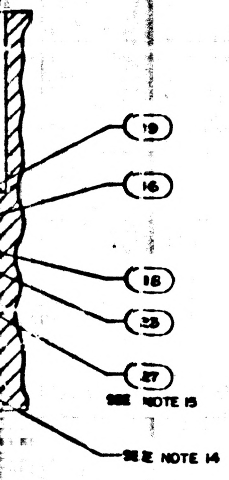
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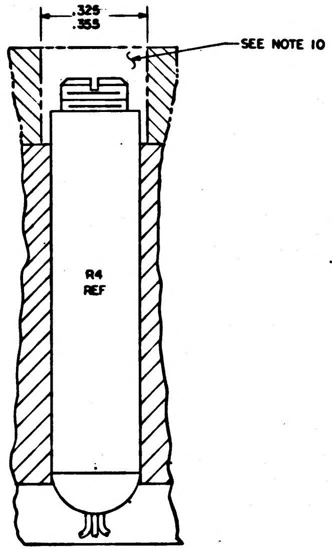
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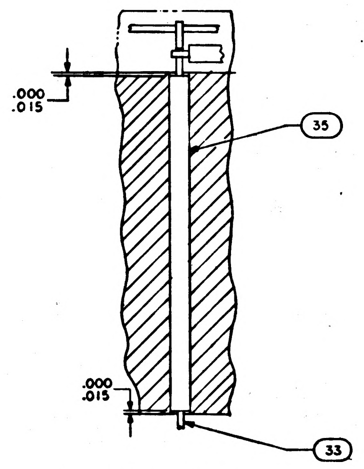
SECTION C-C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SECTION D-D

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-99	523	-129	1070
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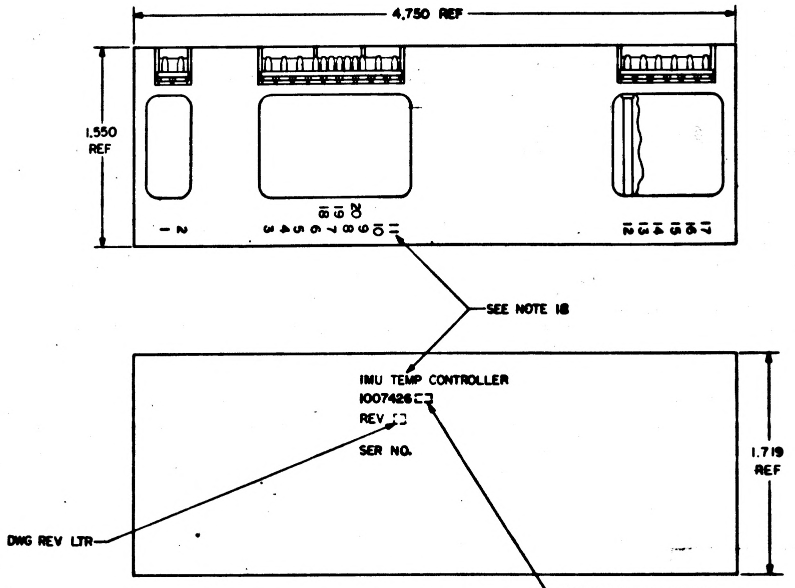
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SEE NOTE 18
IMU TEMP CONTROLLER
1007426
REV
SER NO.
DWG REV LTR
1.719
REF
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

1007577		
NEXT ASSY	USED ON	APPLIC
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THE ASSEMBLY P T NUMBER IS THE
NUMBER AND THE DASH NUMBER THA

MASTER

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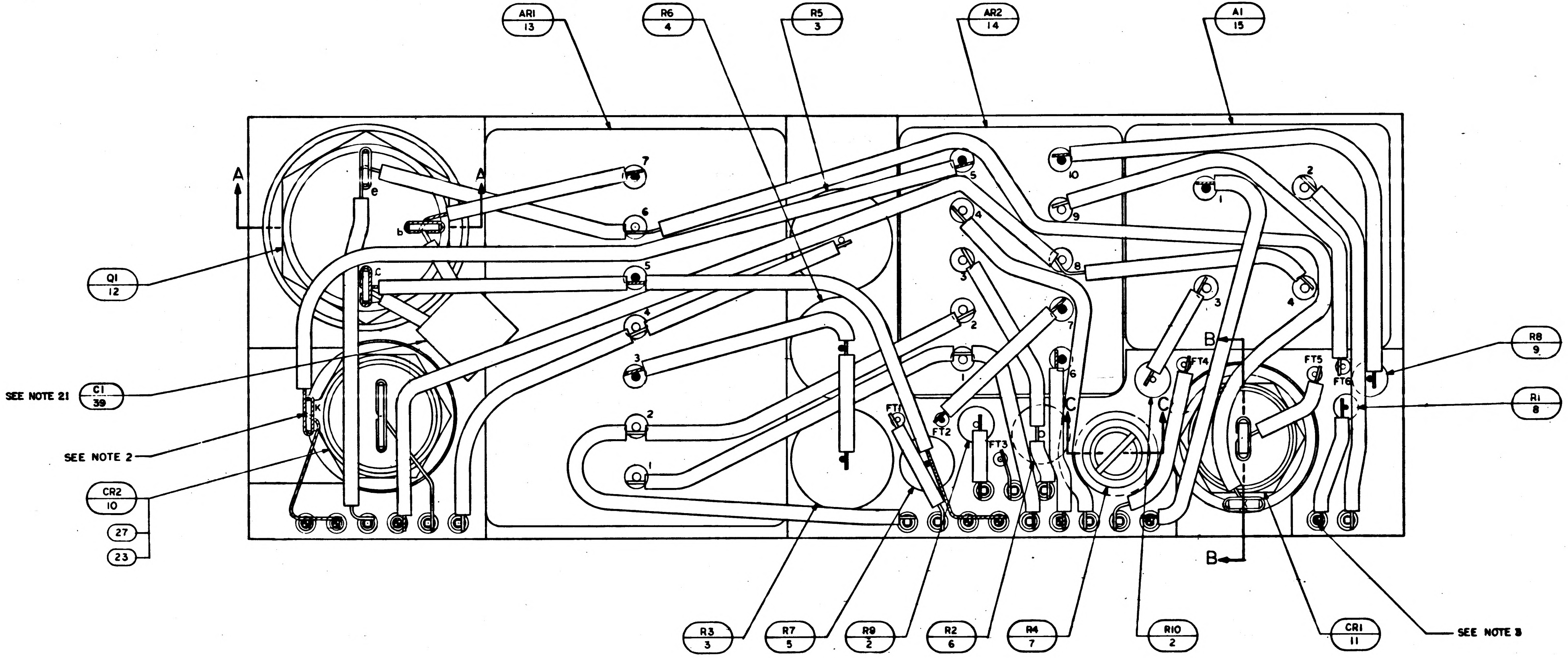
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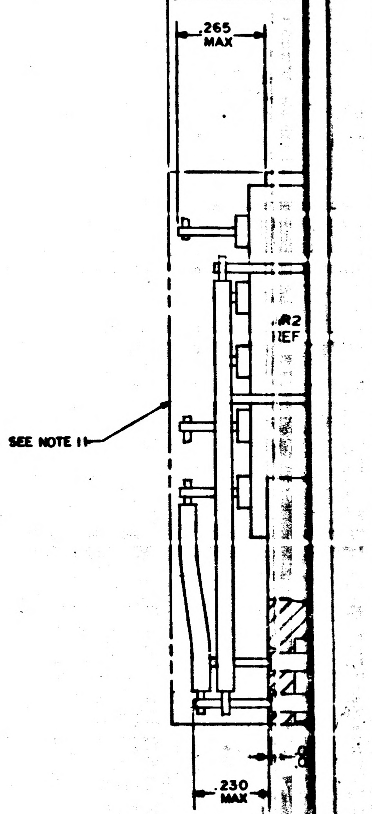
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SEE NOTE 11
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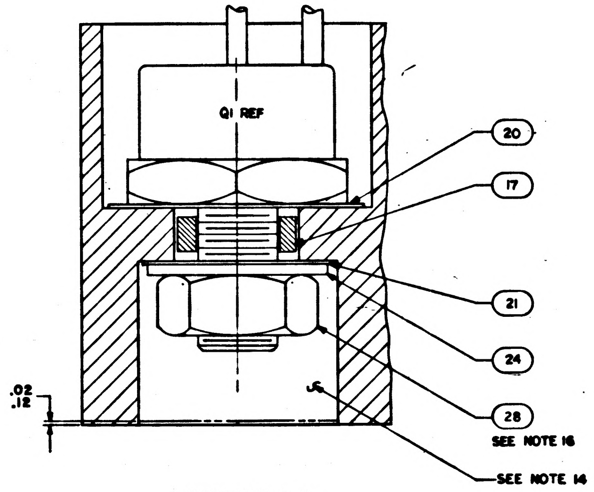
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL SOLDERING CONNECTIONS TO BE MADE PER ND 1002071.
3. CHECKED DOT INDICATES INTERMEDIATE LEVEL WIRING.
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. K INDICATES CATHODE SIDE OF DIODE.
7. WELD PER ND 1002005 EXCEPT WHERE NOTED.
8. STAKE FIND NO. 2 THRU FIND NO. 9 AND ALL FEEDTHRUS PER ND 1002009. METHOD C
9. AR DENOTES AS REQUIRED.
10. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND.
11. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED. PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
12. ASSEMBLE FIND NO. 29 AND FIND NO. 30 PER ND 1002136.
13. R8 TO BE SELECTED AS ASSEMBLY, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER RANGE OF VALUES (OHMS) SHOWN ON CHART.
14. FILL PER ND 1002117.
15. MOUNTING TORQUE FOR FIND NO. 10 AND FIND NO. 11 12-15 INCH POUNDS.
16. MOUNTING TORQUE FOR FIND NO. 12 30-34 INCH POUNDS.
17. MOUNTING TORQUE FOR FIND NO.S 13, 14, AND 15 4-1/2-5-1/2 INCH POUNDS.
18. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.100 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.

19. BOND FIND NO. 36, 37 AND 38 TO FIND NO. 29 PER ND 1002237.
20. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
21. BOND ITEM 39 TO ITEM 1 PER ND 1002187 USING EPOXY RESIN 1010661 AND ADHESIVE ACTIVATOR 1010679.
22. PROCURE PER PS 1007056


Q1 REF
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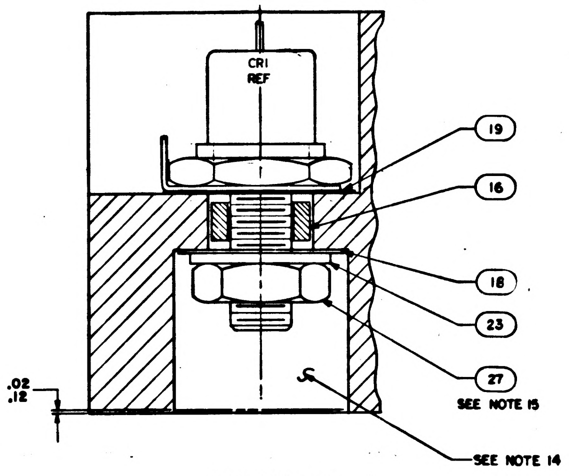
SEE NOTE 16
SEE NOTE 14
.02
.12

SECTION A-A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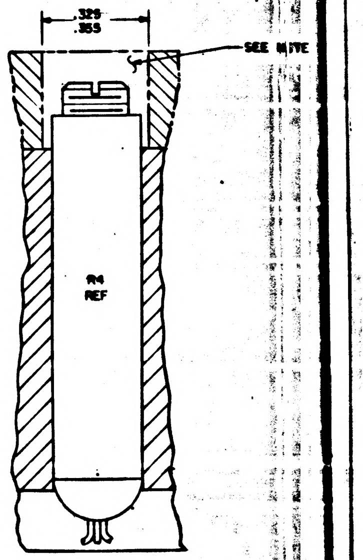
SEE NOTE 15
SEE NOTE 14
.02
.12

SECTION B-B


.329
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SEE NOTE
R4
REF

SECTION C-C

REVISIONS			
SYM	DESCRIPTION	DATE	APPR
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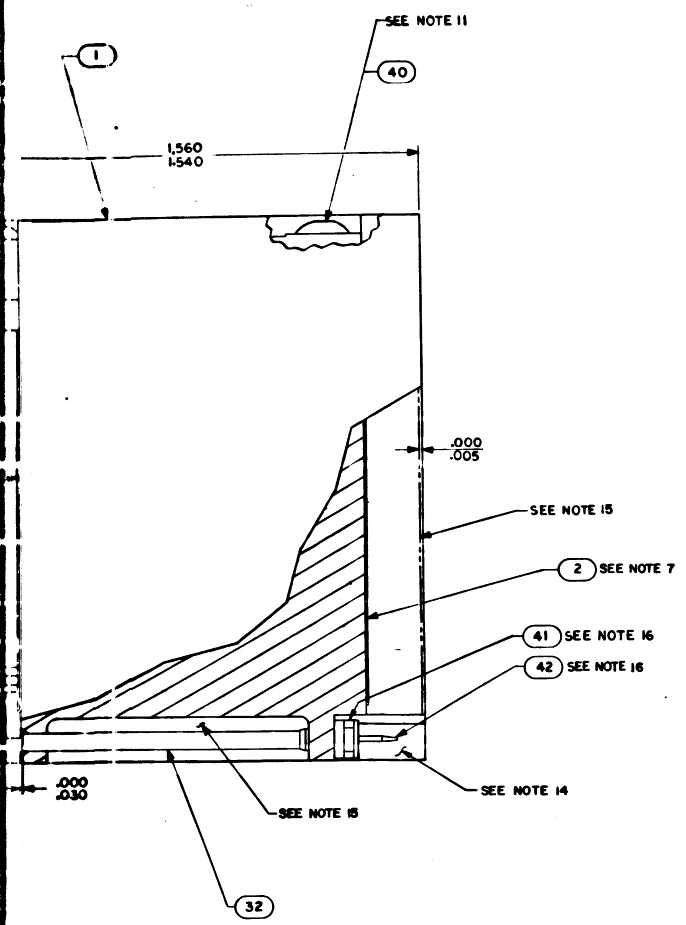
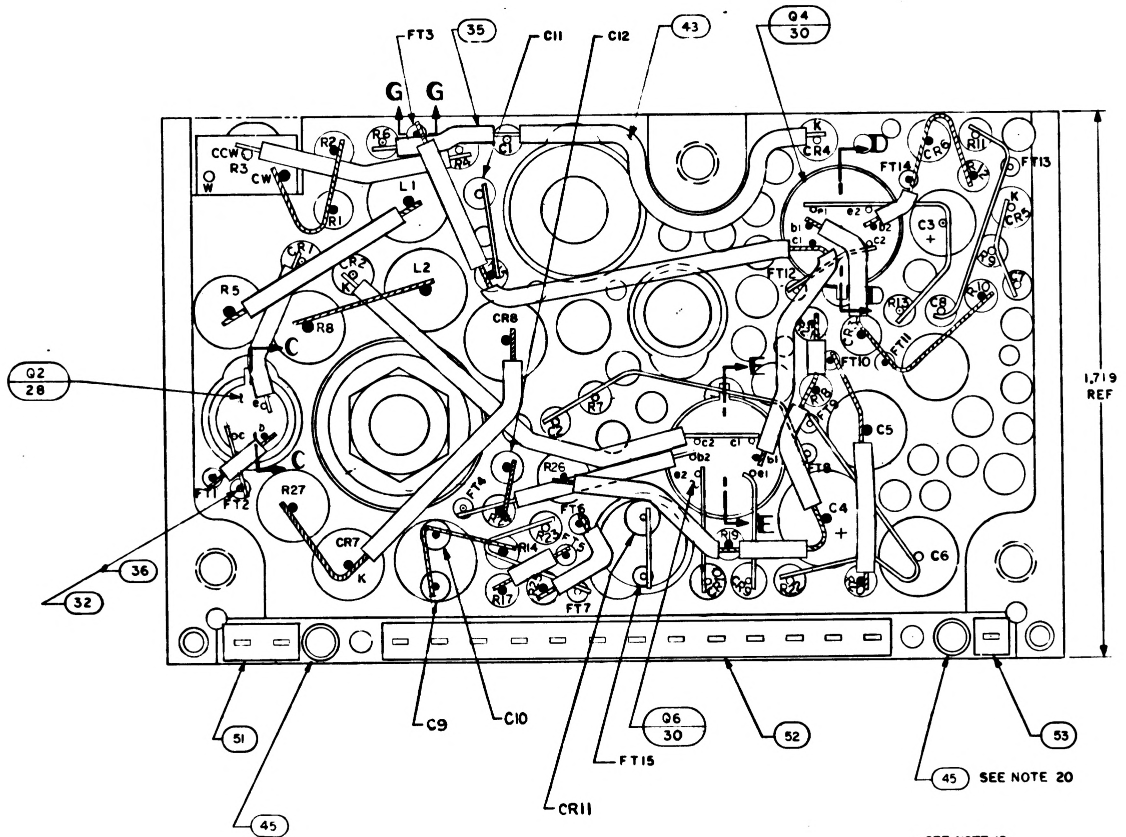


(1)
SEE NOTE 11
(40)
1.560
1.540
.000
.005
SEE NOTE 15
(2) SEE NOTE 7
(41) SEE NOTE 16
(42) SEE NOTE 16
SEE NOTE 14
.000
.030
SEE NOTE 15
(32)



FT3
(35)
C11
C12
(43)
Q4 / 30
G
G
Q2 / 28
1.719 REF
(36)
(32)
(51)
(45)
C9
C10
Q6 / 30
FT15
CR11
(52)
(45) SEE NOTE 20
(53)
R3
CCW
CW
W
R2
R6
C1
L1
R1
CR1
R2
L2
R5
R8
C
CR8
C
FT1
FT2
R27
CR7
K
R26
FT4
FT6
FT7
R14
R17
CR4
FT14
R11
CR9
FT13
C3
CR2
R12
R13
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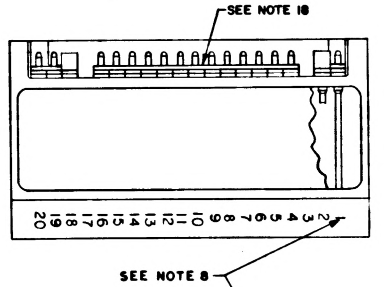
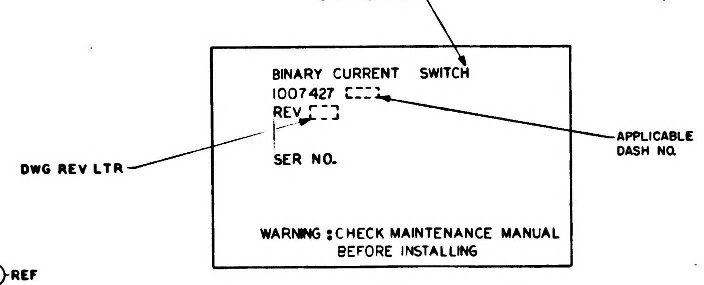
FT11
FT10
E
E
C5
C4
C6
FT8

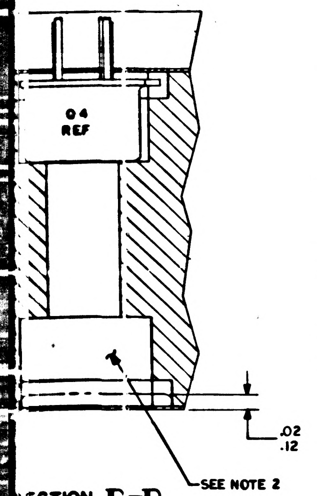


SEE NOTE 18
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 8



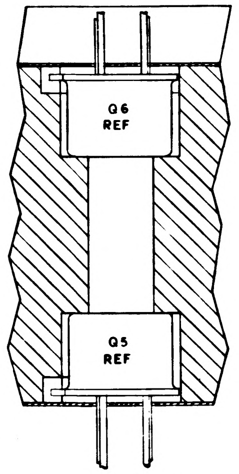
BINARY CURRENT SWITCH
1007427
REV
SER NO.
WARNING : CHECK MAINTENANCE MANUAL BEFORE INSTALLING
APPLICABLE DASH NO.
DWG REV LTR

MARKING VIEW
SCALE 2/1



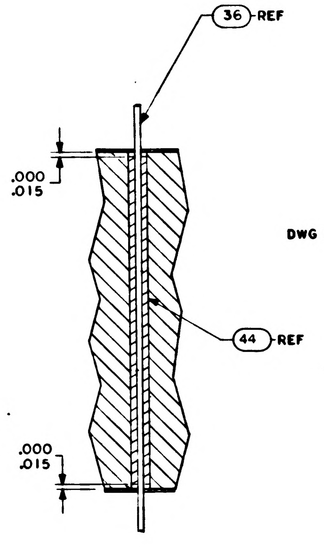
Q4 REF
.02
.12
SEE NOTE 2

SECTION D-D



Q6 REF
Q5 REF

SECTION E-E



(36) REF
.000
.015
(44) REF
.000
.015

SECTION G-G

			1		1008540-1	GASKET, CONNECTOR MINIATURE	53
			1		1008540-13	GASKET, CONNECTOR MINIATURE	52
			1		1008540-2	GASKET, CONNECTOR MINIATURE	51
			2		1006777-1	CAPACITOR 10 UUF 100V 10%	50
			X		1010043	SCHEMATIC	REF
			2		1006777-16	CAPACITOR	49
			1		1006750-40	RESISTOR	48
			1		1010372-6	DIODE	47
							46
			2		1008256	POLARIZING PIN	45
			AR		1006776 - 22	INSULATION SLEEVING	44
			AR		1006776 - 21	INSULATION SLEEVING	43
			16		1006782 — 4	CONTACT, WRAPOST MALE MINAT	42
			16		1006775	INSULATOR, WRAPOST MALE MINAT	41
			2		1000093 — 3	SCREW, BOTTON HEAD	40
			1		MS 35650 — 104	NUT, PLAIN, HEX	39
			1		1008020—1	WASHER, FLAT	38
			2		1008024—1	WASHER, INSULATOR	37
			AR		1006757—8	WIRE, ELEC, .020 DIA	36
			AR		1006757—1	WIRE, ELEC, .010 X .020	35
			2		1008025—1	INSULATOR BUSHING	34
			1		1008021—1	INSULATOR, BUSHING	33
			AR		1006776—20	INSULATION SLEEVING	32
							31
			3		1010376 — 4	TRANSISTOR	30
			1		1010269 — 1	TRANSISTOR	29
			2		1010357-1	TRANSISTOR	28
			2		1010388 — 39	INDUCTOR, 0.01 HY 75 MA 5%	27
			3		1010394	DIODE	26
			1		1010286 -20	DIODE	25
			2		1010462 - 6	DIODE	24
			4		1010385	DIODE	23
			2		1006777—24	CAP., FIXED CER, 0.001 UF, 100V ±10%	22
			2		1006777—33	CAP., FIXED CER, .022UF, 100V ±10%	21
			1		1010393 —039	CAP., FIXED TANT, 6.8 UF, 50V ±10%	20
			1		1006755 —73	CAP., FIXED TANT, 2.2 UF, 35V ±10%	19
			2		1006777 —13	CAP., FIXED CER, 100UUF, 100V ±10%	18
			1		1006750 —15	RESISTOR, FIXED MF, 200Ω, 1/4W ±2%	17
			2		1006750— 56	RESISTOR, FIXED MF, 10 K, 1/4W ±2%	16
							15
			2		1010369 - 87	RESISTOR, FIXED MF, 180K 1/8W 5%	14
			1		1006750-78	RESISTOR, FIXED MF, 82 K 1/4W ± 2%	13
			4		1006750 —53	RESISTOR, FIXED MF, 7.5K, 1/4W ±2%	12
			1		1006750 —1	RESISTOR, FIXED MF, 51 Ω, 1/4W ±2%	11
			4		1006750 —67	RESISTOR, FIXED MF, 30K, 1/4W ± 2%	10
			4		1006750 —81	RESISTOR, FIXED MF, 110 K, 1/4W ±2%	9
			2		1010389 —80	RESISTOR, FIXED WW, 10K, 3 W ±1%	8
			1		1010364 —557	RESISTOR, FIXED MF, 39.2K 1/8W ±1%	7
			1		1010373 —10	RESISTOR, VAR, 10K, 1W ± 5%	6
			1		1010364—635	RESISTOR, FIXED MF, 100K, 1/8W ±1%	5
			1		1010364—683	RESISTOR, FIXED MF, 178K 1/8W ±1%	4
			1		1008055—1	INSULATOR, TOP	3
			1		1008055-2	INSULATOR, BOTTOM	2
			1		1007035	HEATSINK	1
QUANTITY REQUIRED			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
					LIST OF MATERIALS		

1007574		
1007573		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN J. Klimgar DATE 26 SEP 64
CHECKED A. Udovich 30 SEP 64
APPROVAL
APPROVAL 11/9/64
NASA APPROVAL 11-2-64
MIT APPROVAL 12/4/64

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

BINARY CURRENT SWITCH
COMPUTER OUTPUT
ASSEMBLY

CODE IDENT NO. | SIZE J | NASA DRAWING NO. 1007427
SCALE 5/1 | WT | SHEET 1 OF 1

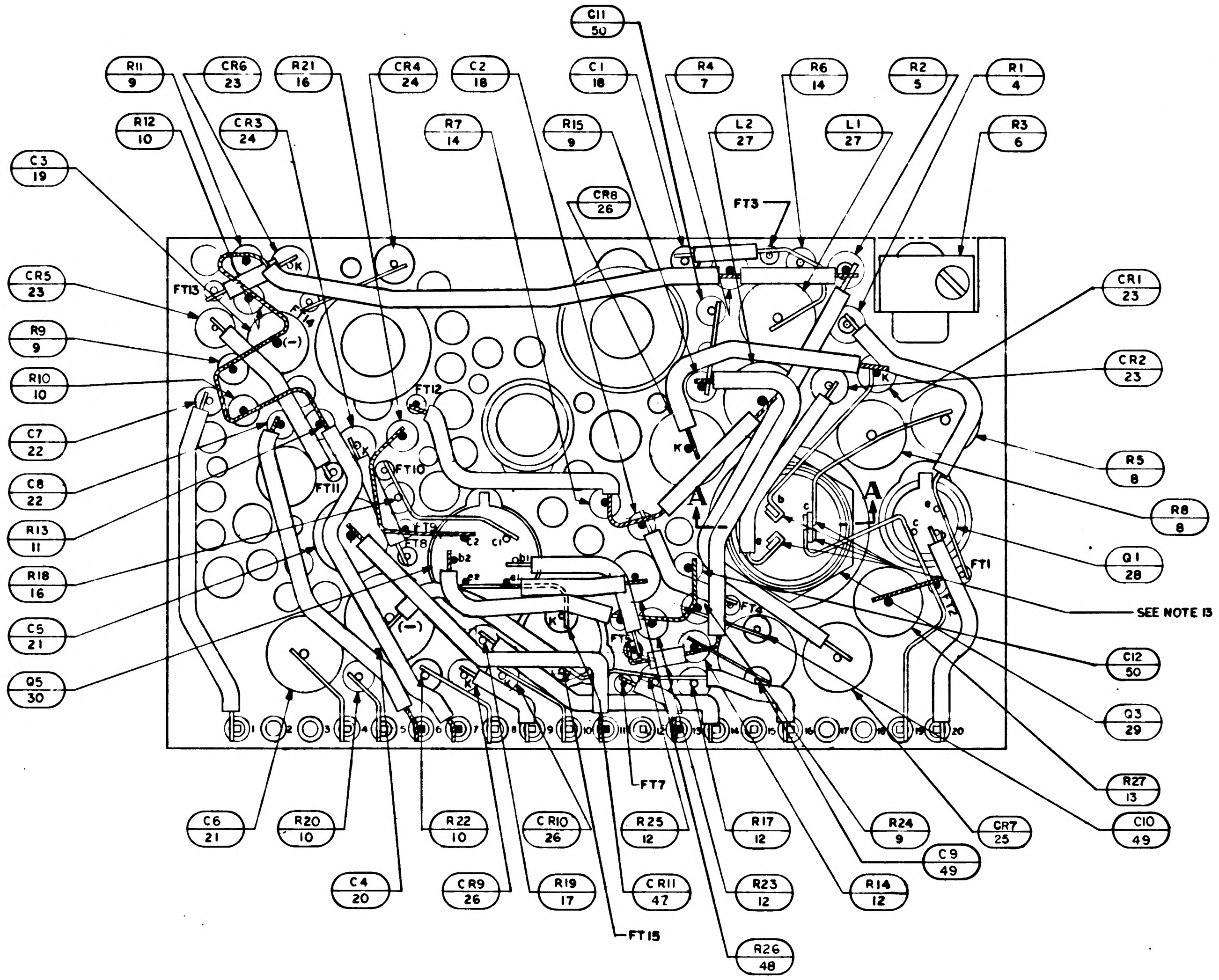
1007427 REV A

27/1007427

(3H)

TRAT001

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO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CR6 23
R21 16
CR4 24
C2 18
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R2 5
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CR3 24
R7 14
R15 9
L2 27
L1 27
R3 6
C3 19
CR8 26
FT3
CR5 23
FT13
R9 9
R10 10
C7 22
C8 22
R13 11
R18 16
C5 21
Q5 30
FT12
FT10
FT11
FT9
FT8
FT4
FT1
K
A
A
CR1 23
CR2 23
R5 8
R8 8
Q1 28
SEE NOTE 13
C12 50
Q3 29
R27 13
C10 49
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
FT7
C6 21
R20 10
R22 10
CR10 26
R25 12
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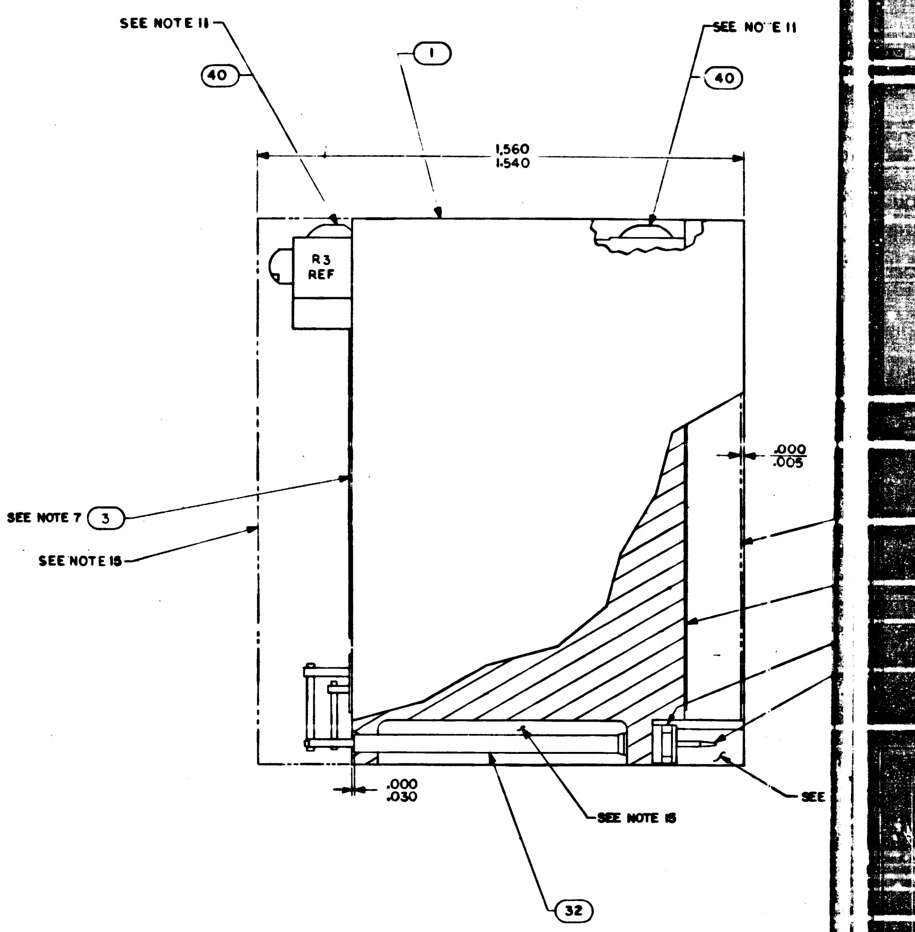
FT15
R26 48


SEE NOTE 11
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SEE NOTE 11
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1.540
R3 REF
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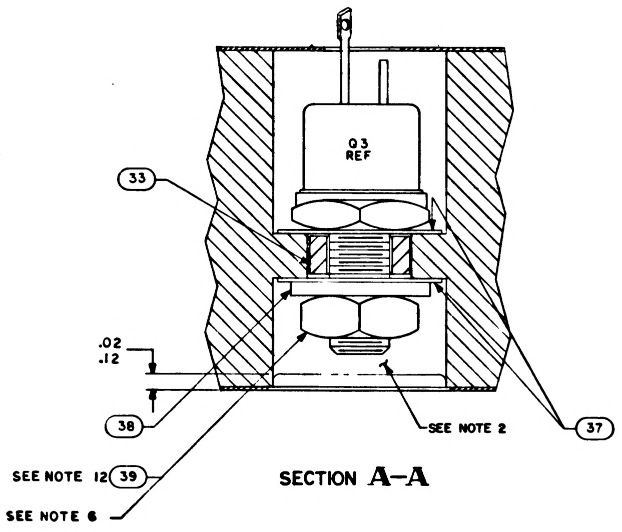
.005
SEE NOTE 7
3
SEE NOTE 15
.000
.030
SEE NOTE 15
SEE
32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SEE NOTE 2
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SEE NOTE 12
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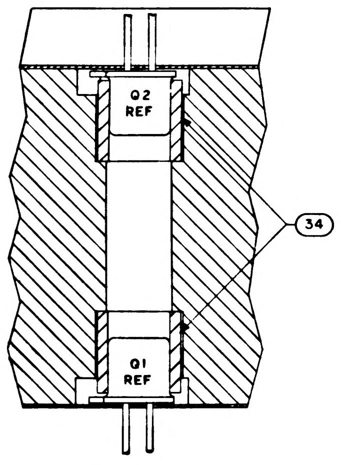
SEE NOTE 6

SECTION **A–A**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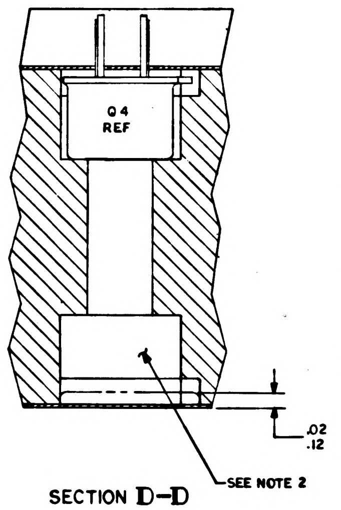
Q1 REF

SECTION **C–C**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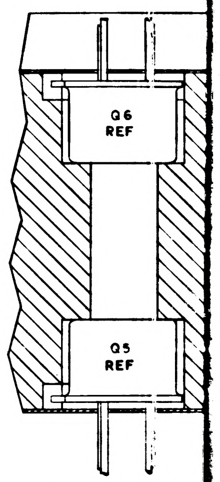
.02
.12
SEE NOTE 2

SECTION **D–D**

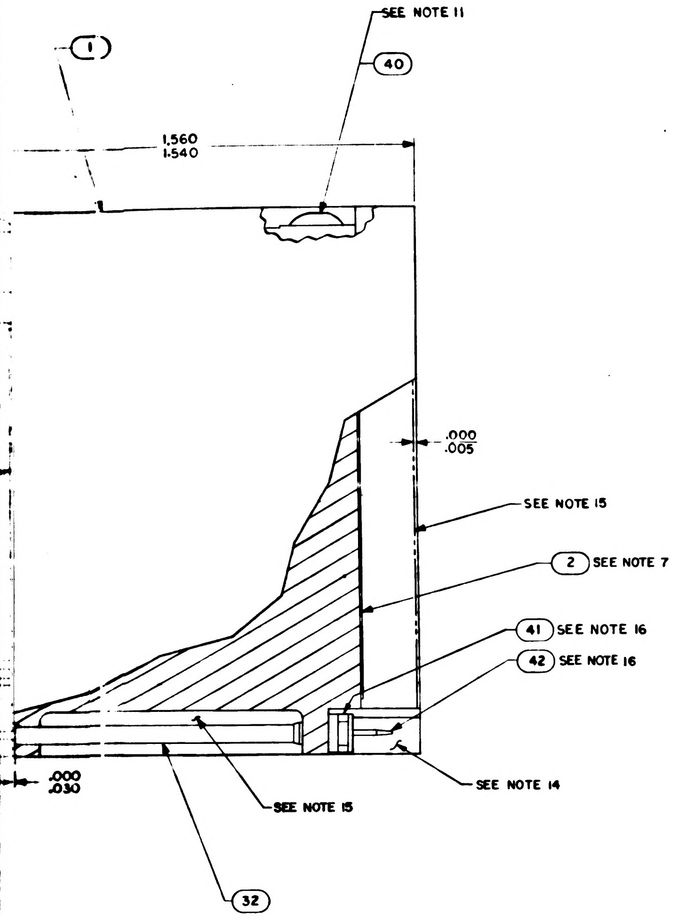

Q6 REF
Q5 REF

SECTION **E–E**

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITHE STANDARDS PRESCRIBED BY MIL-D-70327.
2. FILL PER ND 1002117
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. APPLY SEALING COMPOUND MIL-S-22473 GRADE A TO FIND NO. 39.
7. ON FIND NUMBERS 2 AND 3 ;
   BROKEN PATHS INDICATE INSULATION SLEEVING.
   K INDICATES CATHODE SIDE OF DIODE.
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
   C INDICATES COLLECTOR LEAD OF TRANSISTOR.
   B INDICATES BASE LEAD OF TRANSISTOR.
   E INDICATES EMITTER LEAD OF TRANSISTOR.
   C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR.
   B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR.
   E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR.
8. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO.4 THRU FIND NO.30, FIND NO.33,34,47 THRU 50 PER ND 1002009, METHOD C
10. AR DENOTES AS REQUIRED.
11. APPLY ZINC CHROMATE PRIMER MIL-P-8585 TO THREADS OF FIND NO.40.
12. MOUNTING TORQUE FOR FIND NO.39 10/15 INCH POUND.
13. SOLDER PER ND 1002071.
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND.
15. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY NOT EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
16. MUST MEET REQUIREMENTS OF ND 1002136.
17. PROCURE PER PS 1007027.
18. BOND FIND NO.51, 52 AND 53 TO FIND NO.41 PER ND 1002237.
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
20. BOND FIND NO.45 TO FIND NO.1 PER ND 1002004 TYPE I
21. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.

REVISIONS			
SYM	DESCRIPTION	DATE	APPR
A	REVISED PER TDRR 17309	12 - MAR 65	GM EF
B	REVISED PER TDRR 19457	2 JUNE 65	DN CP



1
SEE NOTE 11
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1.540
.000
.005
SEE NOTE 15
2 SEE NOTE 7
41 SEE NOTE 16
42 SEE NOTE 16
.000
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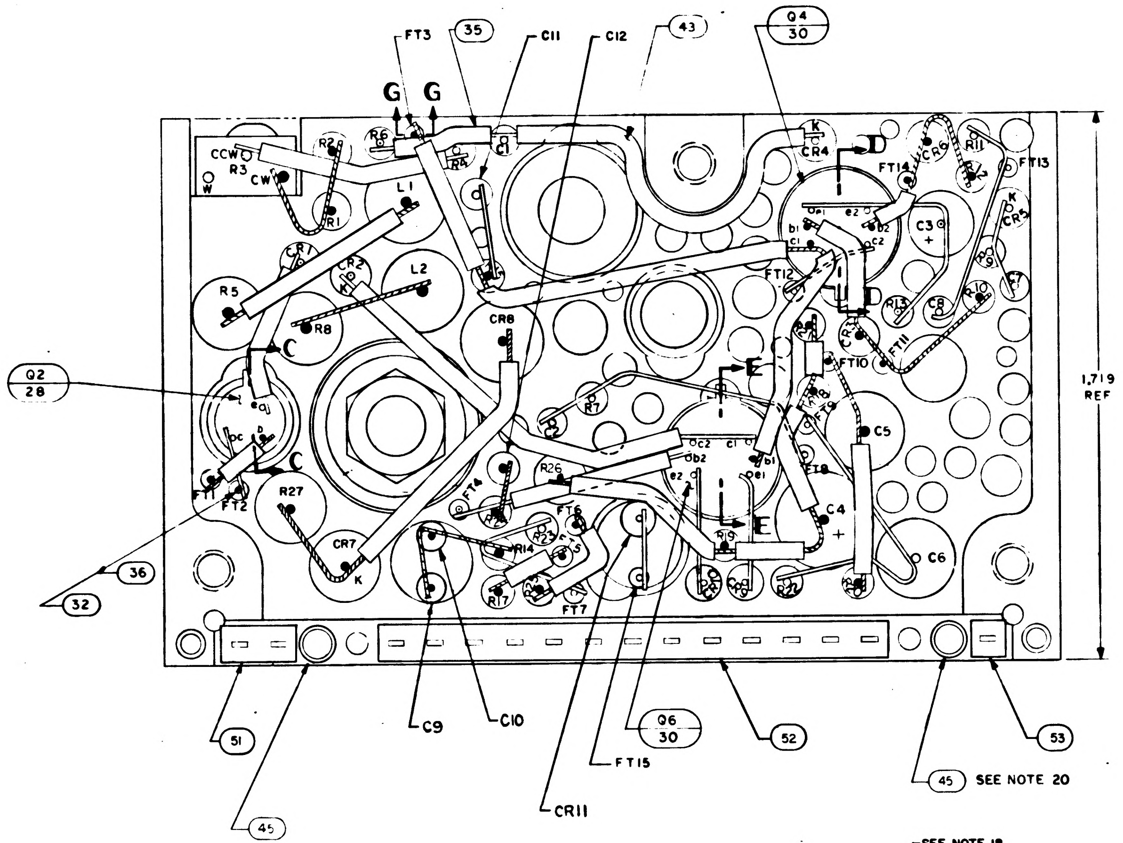
SEE NOTE 15
SEE NOTE 14
32



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CR1
CR2
L2
R8
R5
CR8
C
Q2
28
C
R27
FT1
FT2
CR7
K
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32
FT4
R26
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FT5
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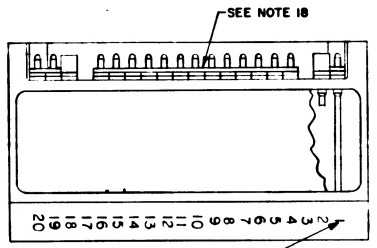


SEE NOTE 18
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 8

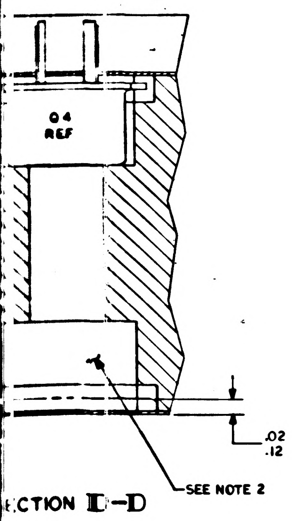
BINARY CURRENT SWITCH
1007427
REV
SER NO.

WARNING : CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

APPLICABLE DASH NO.

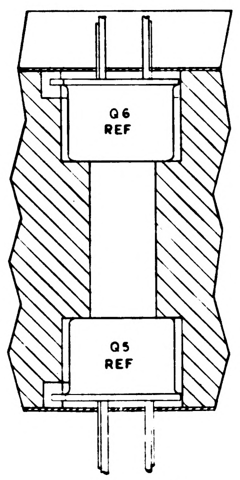
DWG REV LTR

MARKING VIEW
SCALE 2/1



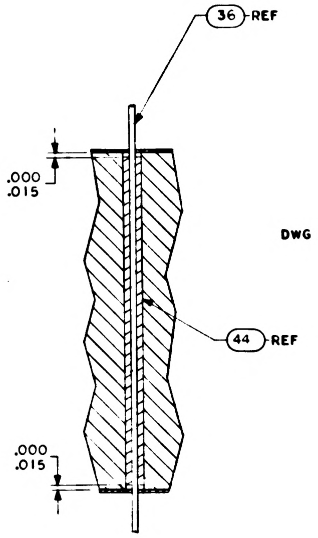
Q4
REF
.02
.12
SEE NOTE 2

SECTION D-D



Q6
REF
Q5
REF

SECTION E-E



36 REF
.000
.015
44 REF
.000
.015

SECTION G-G

QUANTITY REQUIRED							
			011	EFFECTIVITY	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
			1		1008540-1	GASKET, CONNECTOR MINIATURE	53
			1		1008540-13	GASKET, CONNECTOR MINIATURE	52
			1		1008540-2	GASKET, CONNECTOR MINIATURE	51
			2		1006777-1	CAPACITOR 10UUF 100V 10%	50
			X		1010043	SCHEMATIC	REF
			2		1006777-16	CAPACITOR	49
			1		1006750-40	RESISTOR	48
			1		1010372-6	DIODE	47
							46
			2		1008256	POLARIZING PIN	45
			AR		1006776 - 22	INSULATION SLEEVING	44
			AR		1006776 - 21	INSULATION SLEEVING	43
			16		1006782 — 4	CONTACT, WRAPOST MALE MINAT	42
			16		1006775	INSULATOR, WRAPOST MALE MINAT	41
			2		1000093 — 3	SCREW, BOTTON HEAD	40
			1		MS 35650 — 104	NUT, PLAIN, HEX	39
			1		1008020—1	WASHER, FLAT	38
			2		1008024—1	WASHER, INSULATOR	37
			AR		1006757—8	WIRE, ELEC, .020 DIA	36
			AR		1006757—1	WIRE, ELEC, .010 X .020	35
			2		1008025—1	INSULATOR BUSHING	34
			1		1008021 — 1	INSULATOR, BUSHING	33
			AR		1006776—20	INSULATION SLEEVING	32
							31
			3		1010376 — 4	TRANSISTOR	30
			1		1010269 — 1	TRANSISTOR	29
			2		1010357-1	TRANSISTOR	28
			2		1010388 — 39	INDUCTOR, 0.01 HY 75 MA 5%	27
			3		1010394	DIODE	26
			1		1010286 -20	DIODE	25
			2		1010462 - 6	DIODE	24
			4		1010385	DIODE	23
			2		1006777—24	CAP., FIXED CER, 0.001 UF, 100V ±10%	22
			2		1006777—33	CAP., FIXED CER, .022UF, 100V ±10%	21
			1		1010393 —039	CAP., FIXED TANT, 6.8 UF, 50V ±10%	20
			1		1006755 —73	CAP., FIXED TANT, 2.2 UF, 35V ±10%	19
			2		1006777 —13	CAP., FIXED CER, 100UUF, 100V ±10%	18
			1		1006750 —15	RESISTOR, FIXED MF. 200Ω.1/4W ±2%	17
			2		1006750— 56	RESISTOR, FIXED MF. 10 K.1/4W ±2%	16
							15
			2		1010369 — 87	RESISTOR, FIXED MF, 180K 1/8W 5%	14
			1		1006750- 78	RESISTOR, FIXED MF. 82 K 1/4W ± 2%	13
			4		1006750 —53	RESISTOR, FIXED MF, 7.5K, 1/4W ±2%	12
			1		1006750 —1	RESISTOR, FIXED MF. 51 Ω.1/4W ±2%	11
			4		1006750—67	RESISTOR. FIXED MF. 30K, 1/4W ± 2%	10
			4		1006750—81	RESISTOR, FIXED MF, 110 K, 1/4W ±2%	9
			2		1010389 —80	RESISTOR, FIXED WW. 10K. 3 W ±1%	8
			1		1010364 — 557	RESISTOR, FIXED MF 39.2K 1/8W ±1%	7
			1		1010373 —10	RESISTOR, VAR. 10K .1W ±5%	6
			1		1010364—635	RESISTOR, FIXED MF. 100K.1/8W ±1%	5
			1		1010364—683	RESISTOR, FIXED MF. 178K 1/8W ±1%	4
			1		1008055—1	INSULATOR, TOP	3
			1		1008055- 2	INSULATOR, BOTTOM	2
			1		1007035	HEATSINK	1

LIST OF MATERIALS

APPLICATION		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± #
DECIMALS XX±.02 XXX±.005
ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING
MATERIAL —#—
HEAT TREATMENT —#—
FINAL FINISH —#—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT NAS 9-4

DRAWN J. Klinger DATE 26 SEP 64
CHECKED A. Udovich 30 SEP 64
APPROVAL
APPROVAL 11/9/64
NASA APPROVAL
MIT APPROVAL 6/12/64

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

BINARY CURRENT SWITCH COMPUTER OUTPUT ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007427
SCALE 5/1
WT
SHEET 1 OF 1

1007427 B

(3H)

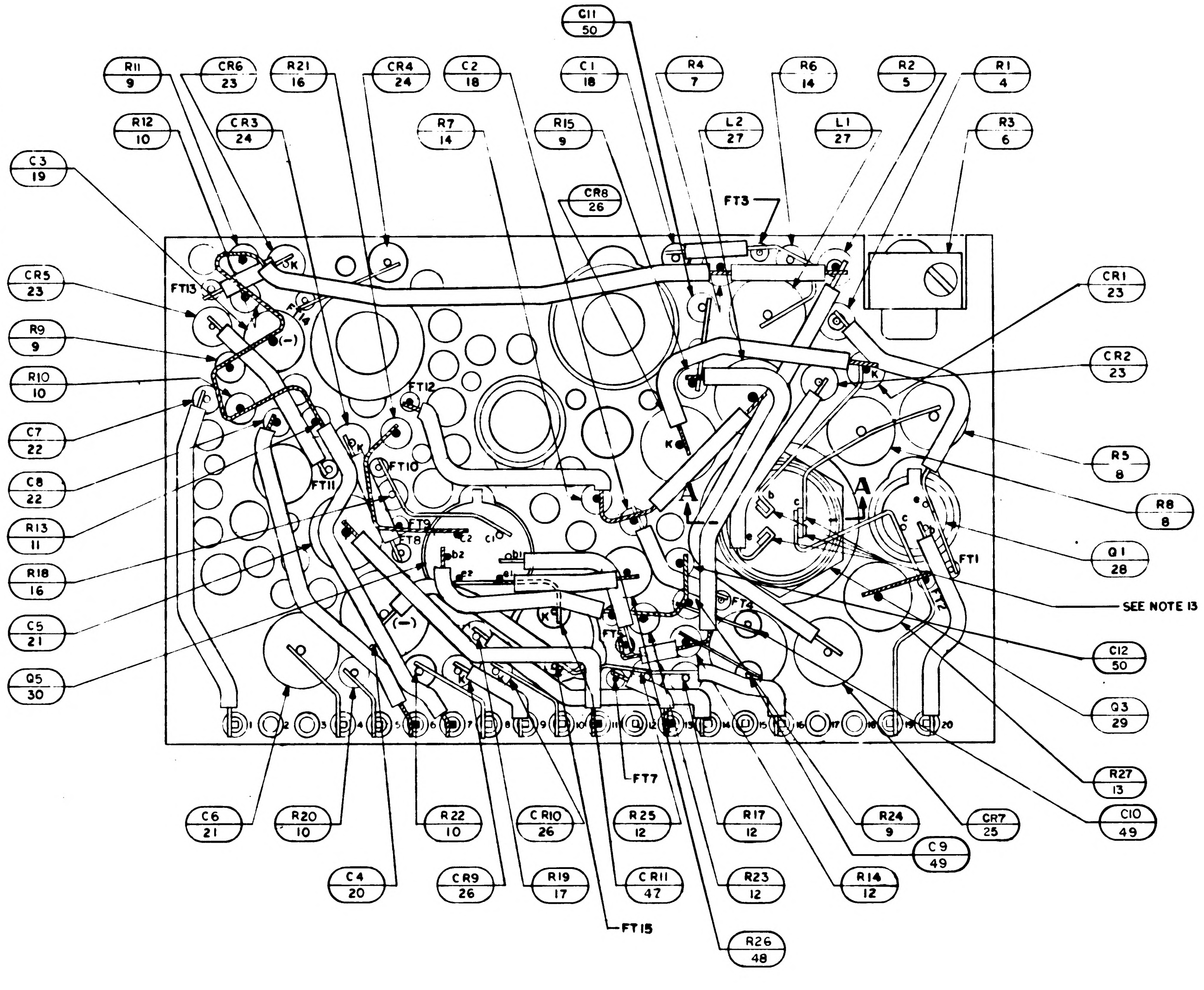
1007427 B

271007427

TSAT001

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEAT-SINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ±.03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.



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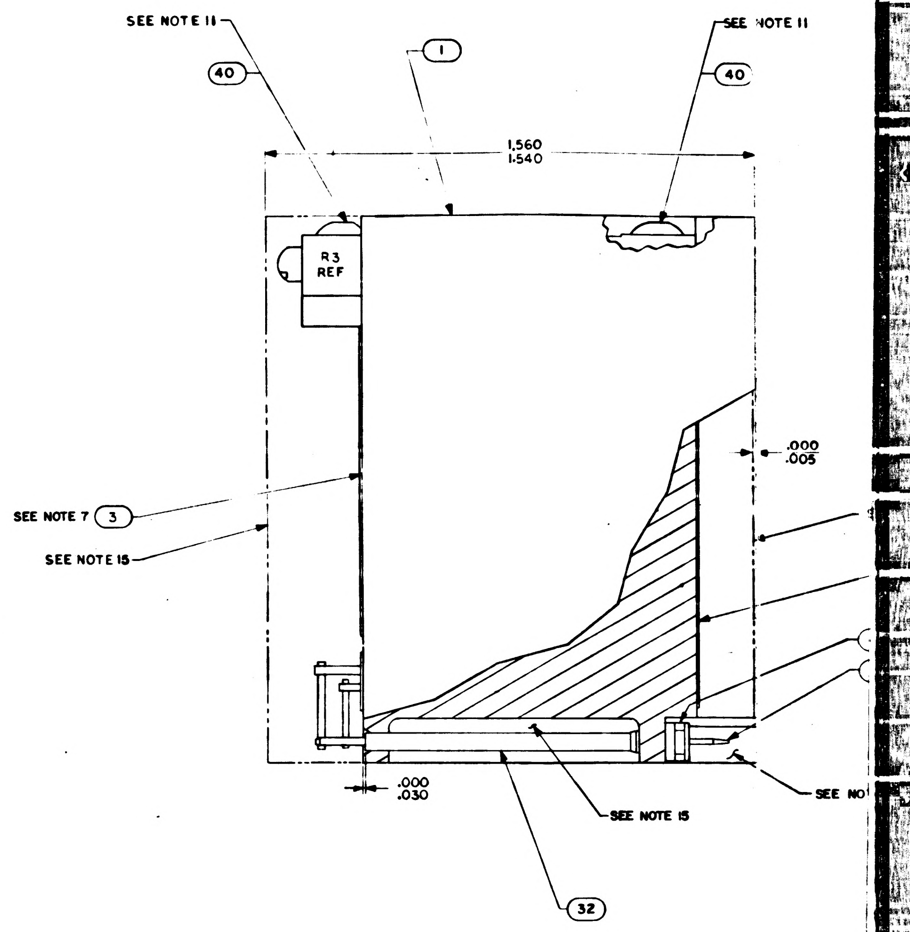
R11 9
CR6 23
R21 16
CR4 24
C2 18
C1 18
R4 7
R6 14
R2 5
R1 4
R12 10
CR3 24
R7 14
R15 9
L2 27
L1 27
R3 6
C3 19
CR8 26
FT3
CR5 23
FT13
R9 9
R10 10
FT12
C7 22
C8 22
FT11
FT10
R13 11
FT9
FT8
R18 16
C5 21
Q5 30
CR1 23
CR2 23
R5 8
R8 8
Q1 28
FT1
SEE NOTE 13
C12 50
Q3 29
R27 13
C10 49
CR7 25
C9 49
R24 9
FT7
C6 21
R20 10
R22 10
CR10 26
R25 12
R17 12
C4 20
CR9 26
R19 17
CR11 47
R23 12
R14 12
FT15
R26 48
A
A



SEE NOTE 11
1
SEE NOTE 11
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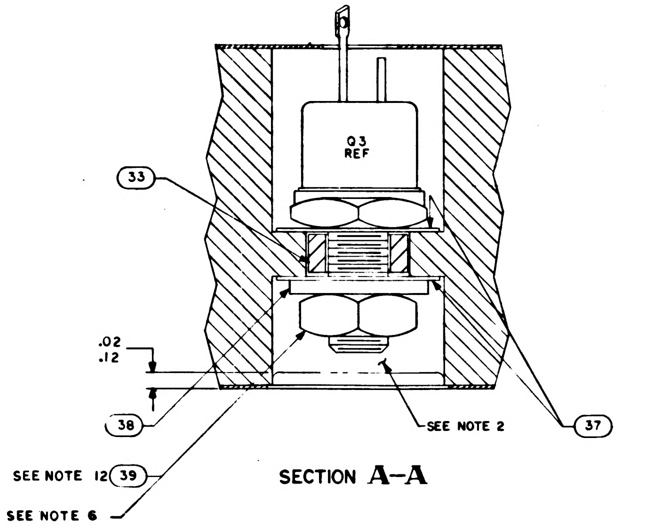
1.540
R3 REF
.000
.005
SEE NOTE 7
3
SEE NOTE 15
.000
.030
SEE NOTE 15
SEE NO
32



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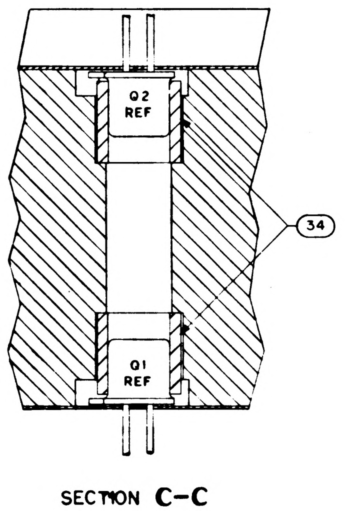
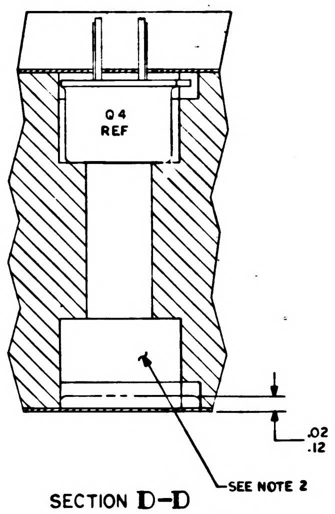
.02
.12
38
SEE NOTE 2
37
SEE NOTE 12
39
SEE NOTE 6

SECTION A–A



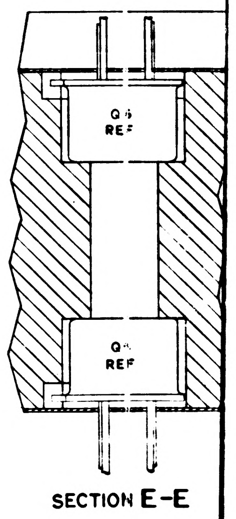
Q2 REF
Q1 REF
34

SECTION C–C



Q4 REF
.02
.12
SEE NOTE 2

SECTION D–D



Q4 REF
Q4 REF

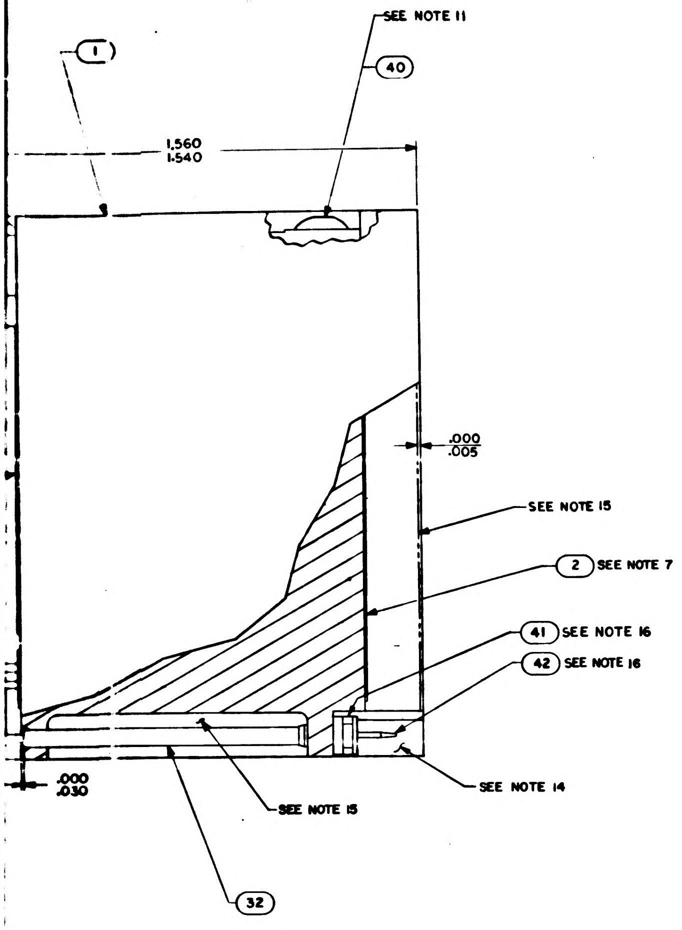
SECTION E–E

NOTES:

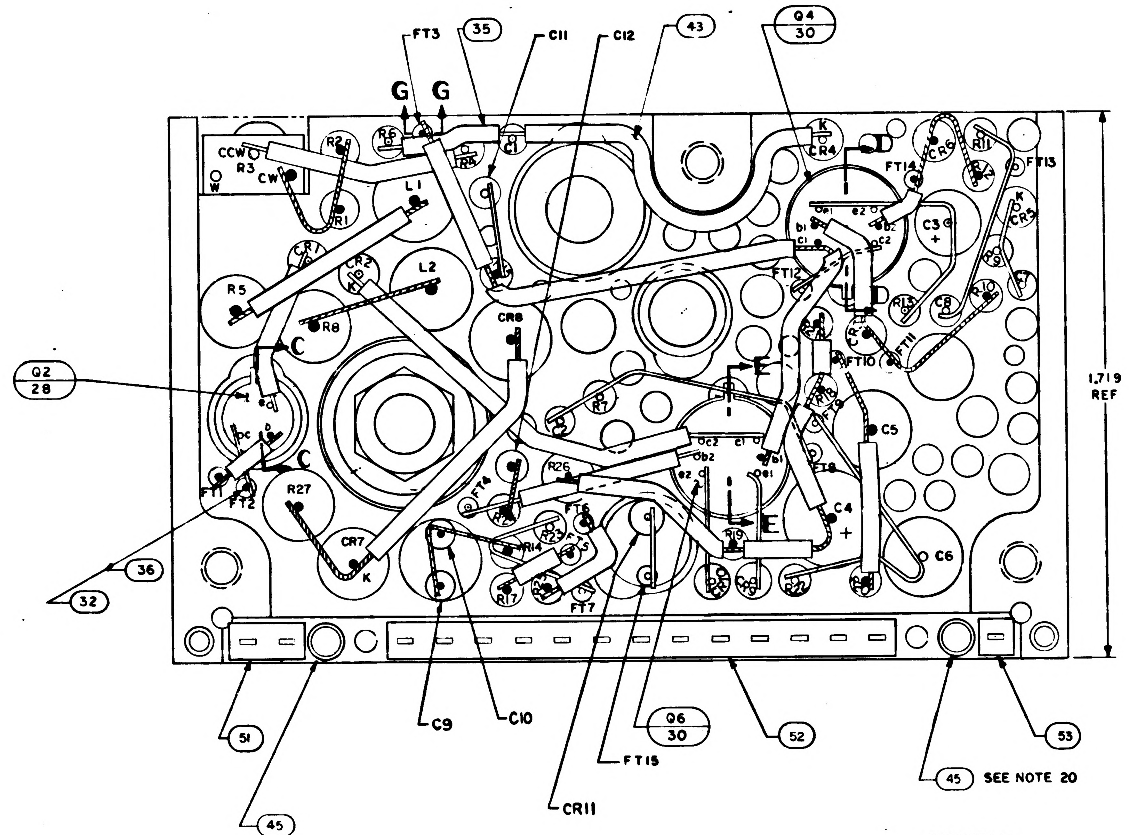
1. INTERPRET DRAWING IN ACCORDANCE WITHE STANDARDS PRESCRIBED BY MIL-D-70327.
2. FILL PER ND 1002117
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. APPLY SEALING COMPOUND MIL-S-22473 GRADE A TO FIND NO. 39.
7. ON FIND NUMBERS 2 AND 3 ;
   BROKEN PATHS INDICATE INSULATION SLEEVING.
   K INDICATES CATHODE SIDE OF DIODE.
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
   C INDICATES COLLECTOR LEAD OF TRANSISTOR.
   B INDICATES BASE LEAD OF TRANSISTOR.
   E INDICATES EMITTER LEAD OF TRANSISTOR.
   C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR.
   B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR.
   E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR.
8. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO.4 THRU FIND NO.30, FIND NO.33,34,47 THRU 50 PER ND 1002009, METHOD C
10. AR DENOTES AS REQUIRED.
11. APPLY ZINC CHROMATE PRIMER MIL-P-8585 TO THREADS OF FIND NO.40.
12. MOUNTING TORQUE FOR FIND NO.39 10/15 INCH POUND.
13. SOLDER PER ND 1002071.
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND.
15. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY NOT EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
16. MUST MEET REQUIREMENTS OF ND 1002136.
17. PROCURE PER PS 1007027.
18. BOND FIND NO.51, 52 AND 53 TO FIND NO.41 PER ND 1002237.
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
20. BOND FIND NO.45 TO FIND NO.1 PER ND 1002004 TYPE I
21. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
22. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.

1007427 B

SYM	DESCRIPTION	DATE	APPR
A	REVISED PER TDRR 17309	12 MAR 65	GM EF
B	REVISED PER TDRR 19457	2 JUNE 65	PW CP
C	REVISED PER TDRR 19528	9 JUL 65	MJK



SEE NOTE 11
1
40
1.560
1.540
.000
.005
SEE NOTE 15
2 SEE NOTE 7
41 SEE NOTE 16
42 SEE NOTE 16
.000
.030
SEE NOTE 15
SEE NOTE 14
32



FT3
35
C11
C12
43
Q4
30
G G
CCW
R3
CW
R2
R6
L1
CR7
R5
R8
L2
CR8
C3
FT11
FT12
FT13
CR4
CR5
R11
R15
FT10
Q2
28
C
1.719
REF
R26
R27
CR7
FT4
R14
E
C5
C4
C6
FT1
FT2
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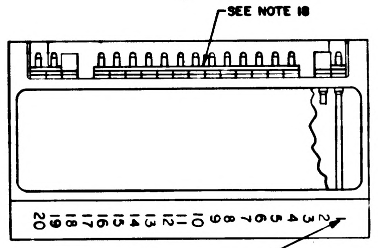
FT6
FT7
R17
51
45
C9
C10
CR11
Q6
30
FT15
52
45 SEE NOTE 20
53



SEE NOTE 18
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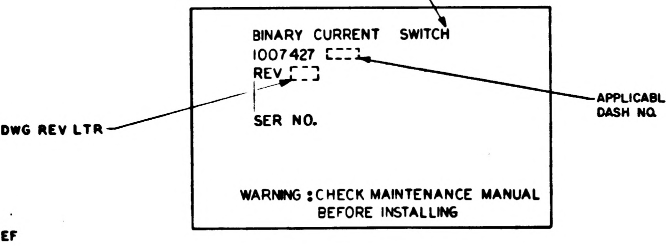
SEE NOTE 8

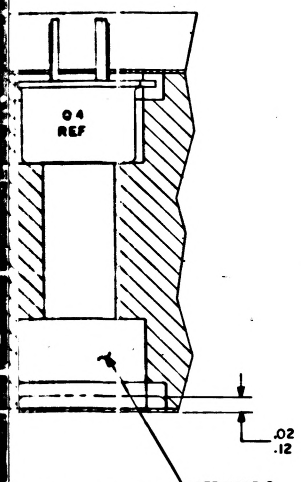


DWG REV LTR
APPLICABLE DASH NO.

BINARY CURRENT SWITCH
1007427 [ ]
REV [ ]
SER NO.

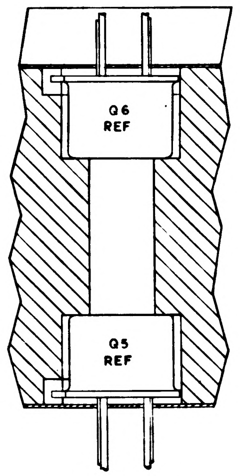
WARNING : CHECK MAINTENANCE MANUAL BEFORE INSTALLING

MARKING VIEW
SCALE 2/1



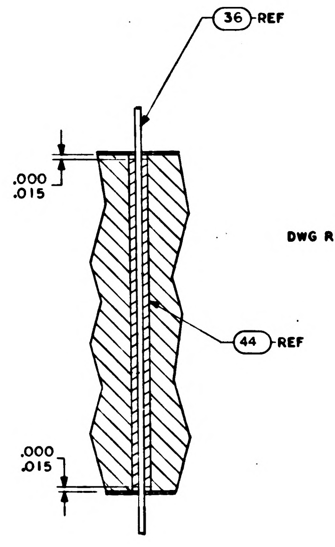
Q4
REF
.02
.12
SEE NOTE 2

SECTION D-D



Q6
REF
Q5
REF

SECTION E-E



36 REF
.000
.015
44 REF
.000
.015

SECTION G-G

					PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			1		1008540-1	GASKET, CONNECTOR MINIATURE	53
			1		1008540-13	GASKET, CONNECTOR MINIATURE	52
			1		1008540-2	GASKET, CONNECTOR MINIATURE	51
			2		1006777-1	CAPACITOR 10 UUF 100V 10%	50
			X		1010043	SCHEMATIC	REF
			2		1006777-16	CAPACITOR	49
			1		1006750-40	RESISTOR	48
			1		1010372-6	DIODE	47
							46
			2		1008256	POLARIZING PIN	45
			AR		1006776 - 22	INSULATION SLEEVING	44
			AR		1006776 - 21	INSULATION SLEEVING	43
			16		1006782 — 4	CONTACT, WRAPOST MALE MINAT	42
			16		1006775	INSULATOR, WRAPOST MALE MINAT	41
			2		1000093 — 3	SCREW, BOTTON HEAD	40
			1		MS 35650 — 104	NUT, PLAIN, HEX	39
			1		1008020—1	WASHER, FLAT	38
			2		1008024—1	WASHER, INSULATOR	37
			AR		1006757—8	WIRE, ELEC, .020 DIA	36
			AR		1006757—1	WIRE, ELEC, .010 X .020	35
			2		1008025—1	INSULATOR BUSHING	34
			1		1008021—1	INSULATOR, BUSHING	33
			AR		1006776—20	INSULATION SLEEVING	32
							31
			3		1010376 — 4	TRANSISTOR	30
			1		1010269 — 1	TRANSISTOR	29
			2		1010357-1	TRANSISTOR	28
			2		1010388 — 39	INDUCTOR, 0.01 HY 75 MA 5%	27
			3		1010394	DIODE	26
			1		1010830 -20	DIODE	25
			2		1010833 - 1	DIODE	24
			4		1010385	DIODE	23
			2		1006777—24	CAP., FIXED CER, 0.001 UF, 100V ±10%	22
			2		1006777—33	CAP., FIXED CER, .022UF, 100V ±10%	21
			1		1010393 —039	CAP., FIXED TANT, 6.8 UF, 50V ±10%	20
			1		1006755 —73	CAP., FIXED TANT, 2.2 UF, 35V ±10%	19
			2		1006777 —13	CAP., FIXED CER, 100UUF, 100V ±10%	18
			1		1006750 —15	RESISTOR, FIXED MF. 200Ω, 1/4W ±2%	17
			2		1006750 — 56	RESISTOR, FIXED MF, 10 K, 1/4W ±2%	16
							15
			2		1010369 - 87	RESISTOR, FIXED MF, 180K 1/8W 5%	14
			1		1006750 - 78	RESISTOR, FIXED MF, 82 K 1/4W ± 2%	13
			4		1006750 —53	RESISTOR, FIXED MF, 7.5K, 1/4W ± 2%	12
			1		1006750 —1	RESISTOR, FIXED MF, 51 Ω 1/4W ±2%	11
			4		1006750 —67	RESISTOR, FIXED MF. 30K, 1/4W ± 2%	10
			4		1006750 —81	RESISTOR, FIXED MF, 110K, 1/4W ±2%	9
			2		1010389 —80	RESISTOR, FIXED WW. 10K. 3 W ±1%	8
			1		1010364 —557	RESISTOR, FIXED MF 39.2K 1/8W ±1%	7
			1		1010373 —10	RESISTOR, VAR. 10K, 1W ±5%	6
			1		1010364 —635	RESISTOR, FIXED MF. 100K, 1/8W ±1%	5
			1		1010364 —683	RESISTOR, FIXED MF. 178K 1/8W ±1%	4
			1		1008055—1	INSULATOR, TOP	3
			1		1008055- 2	INSULATOR, BOTTOM	2
			1		1007035	HEATSINK	1
QUANTITY REQUIRED			011	EFFECTIVITY	LIST OF MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX ±.02 XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497
DRAWN J. Klumpp DATE 26 SEP 64
CHECKED A. Udrovch 30 SEP 64
APPROVAL
APPROVAL 11/9/64
NASA APPROVAL 11-2-64
MIT APPROVAL 12 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BINARY CURRENT SWITCH COMPUTER OUTPUT ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007427
SCALE 5/1
WT
SHEET 1 OF 1

(3H)

1007427 C

2/1007427

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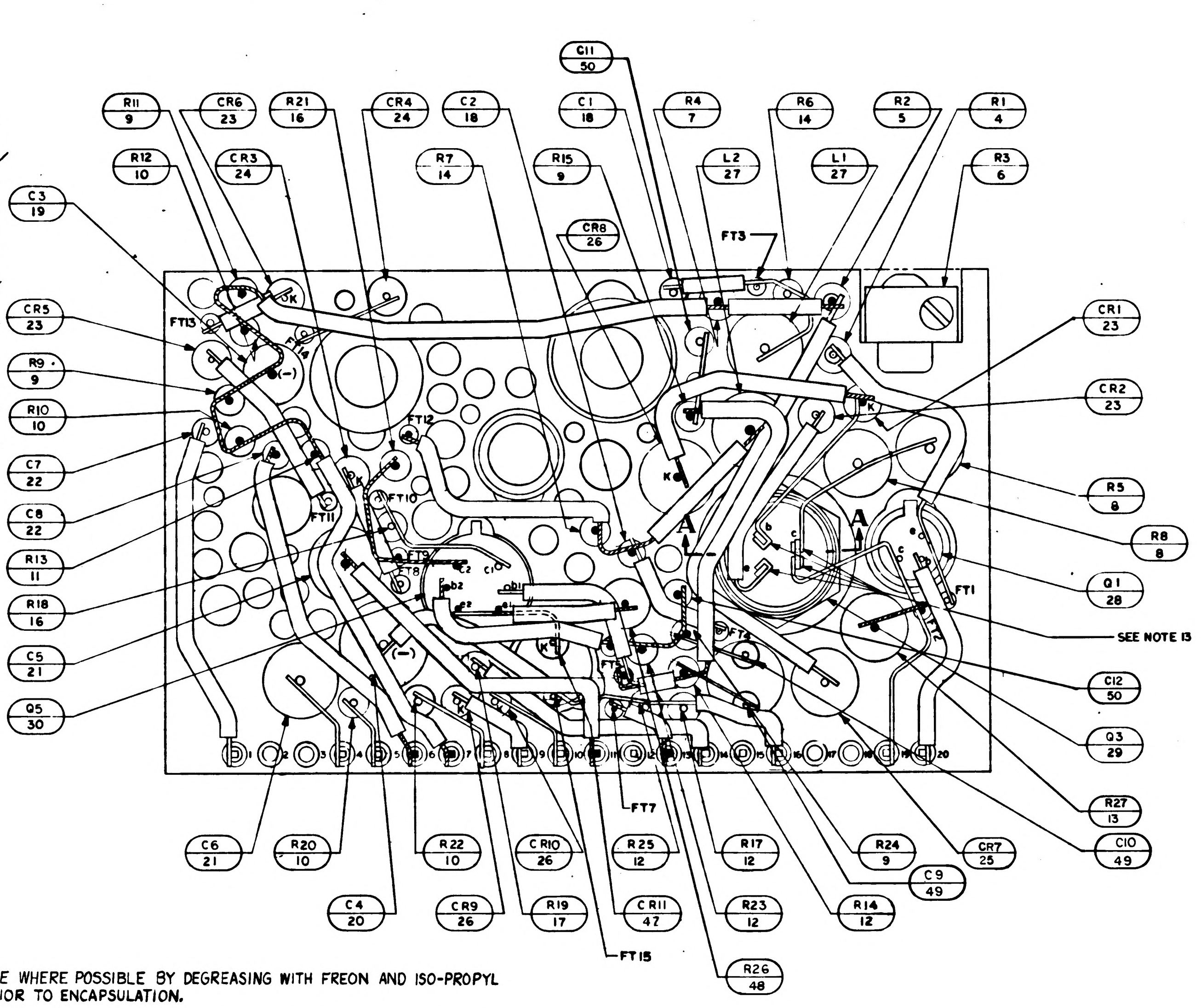
TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.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CR6 23
R21 16
CR4 24
C2 18
C1 18
R4 7
R6 14
R2 5
R1 4
R12 10
CR3 24
R7 14
R15 9
L2 27
L1 27
R3 6
CR8 26
FT3
C3 19
CR5 23
R9 9
R10 10
C7 22
C8 22
R13 11
R18 16
C5 21
Q5 30
FT13
FT12
FT11
FT10
FT1
FT7
FT15
A
A
CR1 23
CR2 23
R5 8
R8 8
Q1 28
SEE NOTE 13
C12 50
Q3 29
R27 13
C10 49
C6 21
R20 10
C4 20
R22 10
CR9 26
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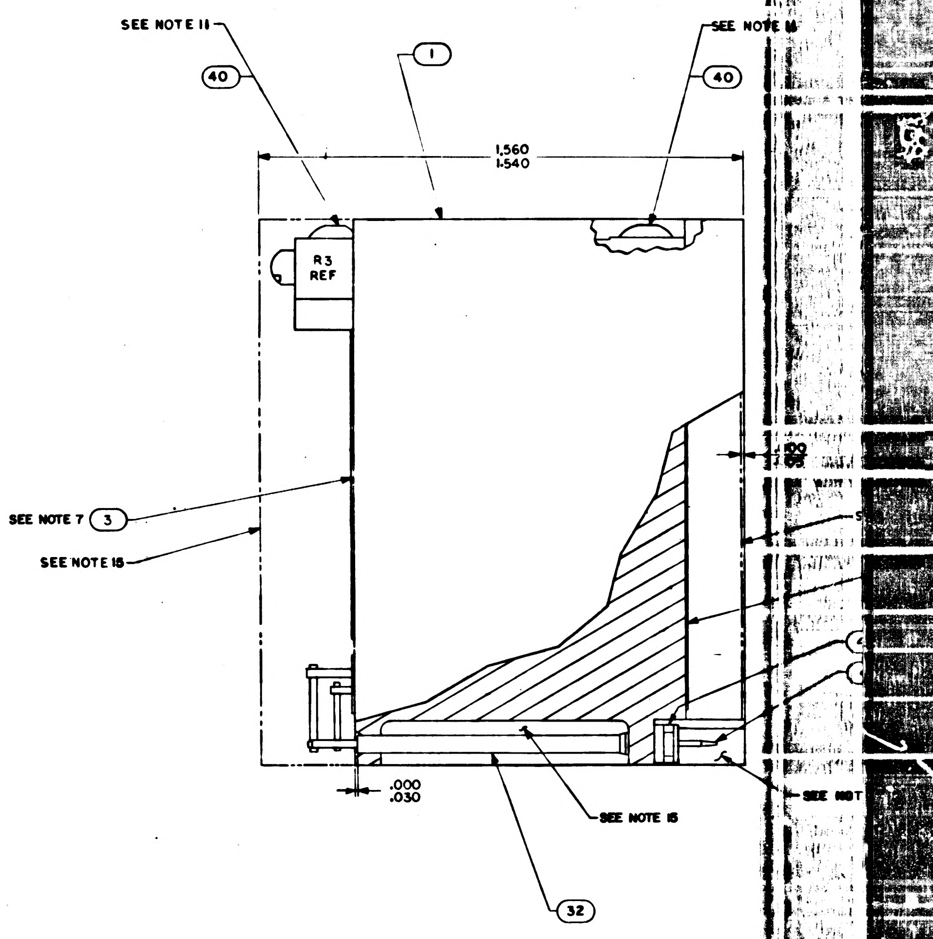
R24 9
C9 49
CR7 25
R14 12


SEE NOTE 11
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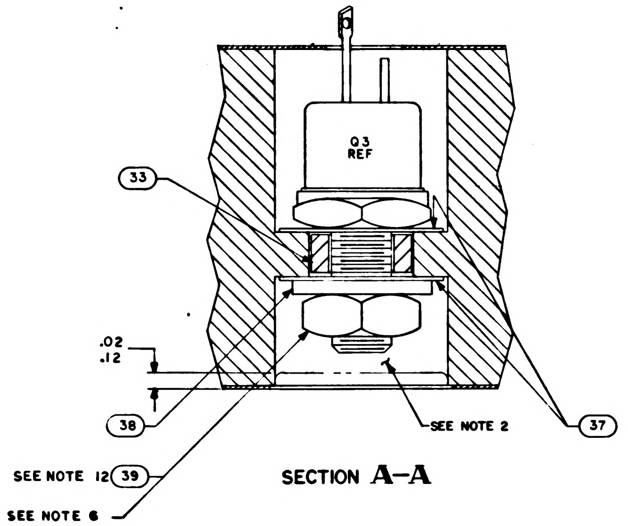
SEE NOTE 14
40
1.560
1.540
R3 REF
SEE NOTE 7
3
SEE NOTE 15
.000
.030
SEE NOTE 15
32

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITHE STANDARDS PRESCRIBED BY MIL-D-70327.
2. FILL PER ND 1002117
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. APPLY SEALING COMPOUND MIL-S-22473 GRADE A TO FIND NO. 39.
7. ON FIND NUMBERS 2 AND 3 ;
   BROKEN PATHS INDICATE INSULATION SLEEVING.
   K INDICATES CATHODE SIDE OF DIODE.
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
   C INDICATES COLLECTOR LEAD OF TRANSISTOR.
   B INDICATES BASE LEAD OF TRANSISTOR.
   E INDICATES EMITTER LEAD OF TRANSISTOR.
   C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR.
   B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR.
   E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR.
8. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO.4 THRU FIND NO.30, FIND NO.33,34,47 THRU 50 PER ND 1002009, METHOD H.
10. AR DENOTES AS REQUIRED.
11. APPLY ZINC CHROMATE PRIMER MIL-P-8585 TO THREADS OF FIND NO.40.
12. MOUNTING TORQUE FOR FIND NO.39 10/15 INCH POUND.
13. SOLDER PER ND 1002071.
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND.
15. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY NOT EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
16. MUST MEET REQUIREMENTS OF ND 1002136.
17. PROCURE PER PS 1007027.
18. BOND FIND NO.51, 52 AND 53 TO FIND NO.41 PER ND 1002237.
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
20 BOND FIND NO.45 TO FIND NO.1 PER ND 1002004 TYPE I
21. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
22. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.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SEE NOTE 2
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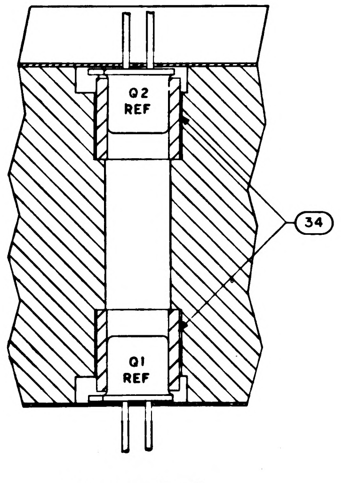
SEE NOTE 12
39
SEE NOTE 6

SECTION A-A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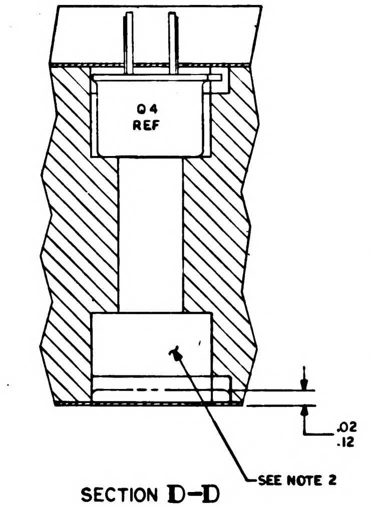
SECTION C-C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SEE NOTE 2
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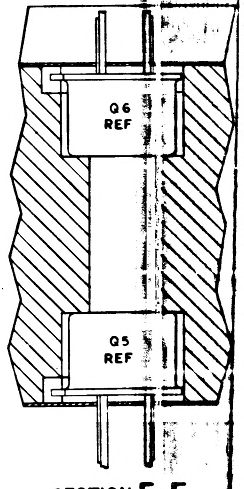
SECTION D-D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SECTION E-E

REVISIONS			
SYM	DESCRIPTION	DATE	APPR
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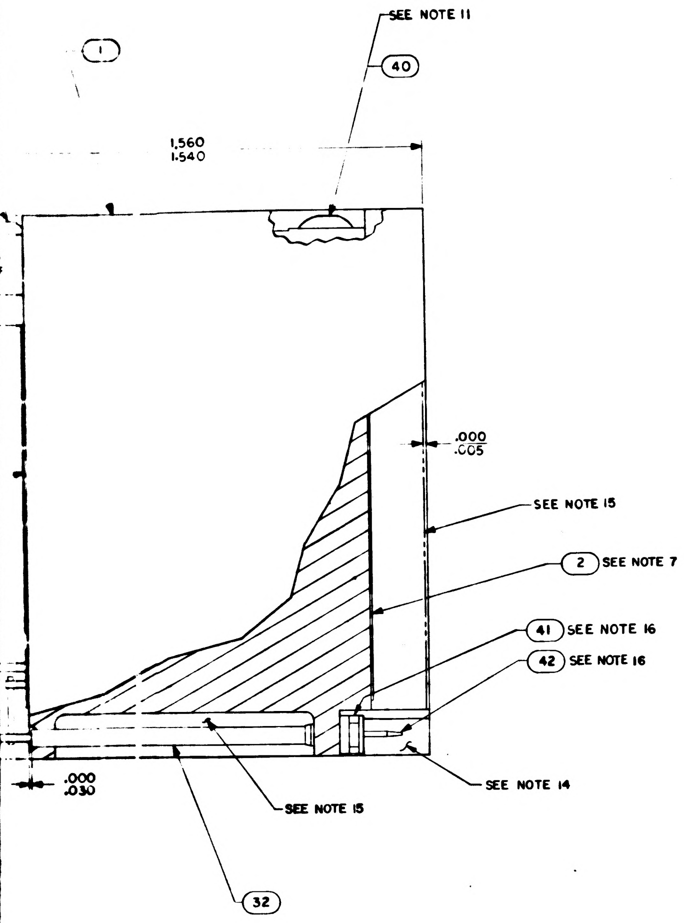
B	REVISED PER TDRR 19457	2 63	PN
C	REVISED PER TDRR 19528	9 65	
D	REVISED PER TDRR 20143	19 65	



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SEE NOTE 14
SEE NOTE 15
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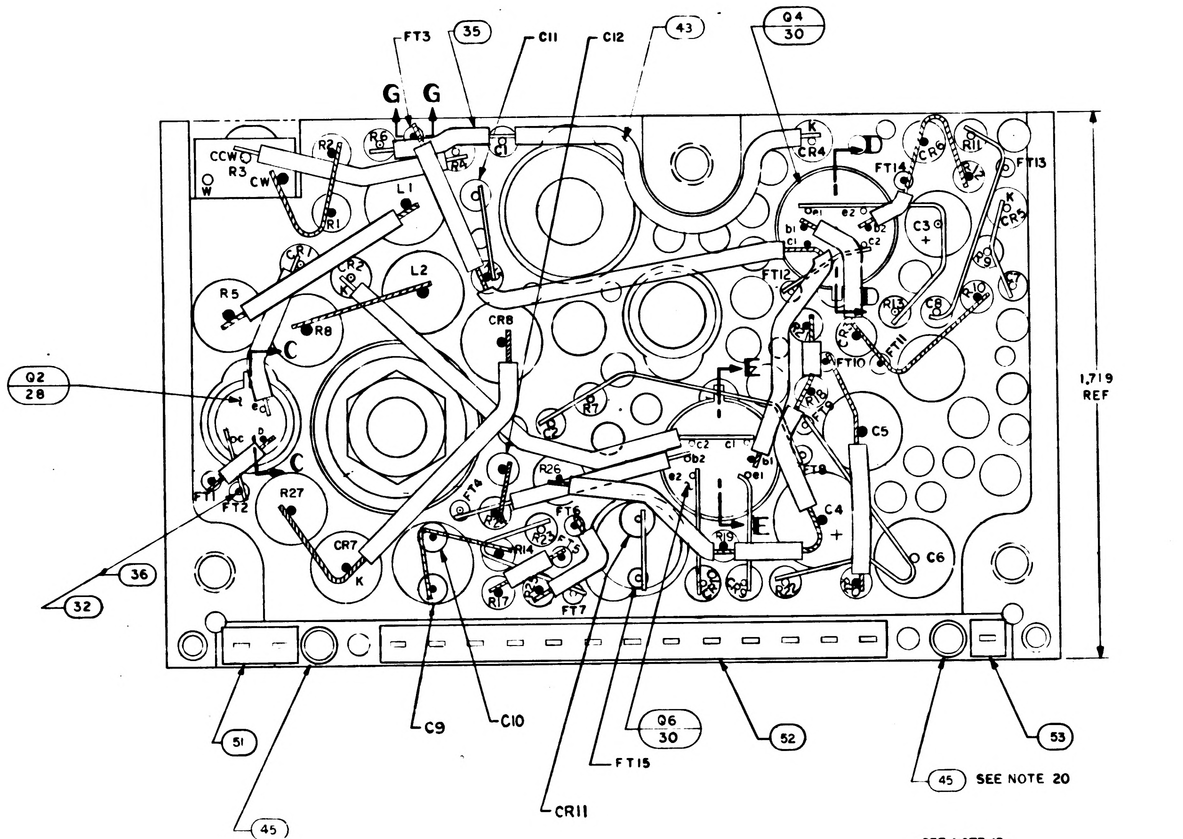

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R1
L1
CR1
CR2
L2
R5
R8
CR8
CR4
FT14
CR9
R11
FT13
C3
FT12
R13
C8
R10
CR5
R9
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FT11
C
C
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C5
C2
C4
C6
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FT6
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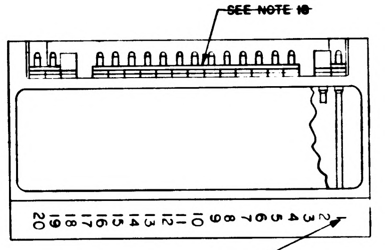
45 SEE NOTE 20
53



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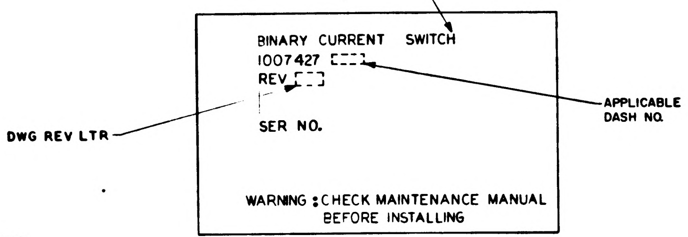
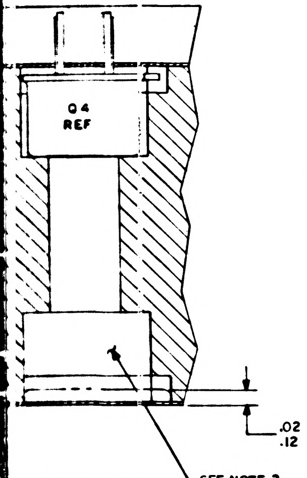
SEE NOTE 8



BINARY CURRENT SWITCH
1007427
REV
SER NO.
WARNING : CHECK MAINTENANCE MANUAL BEFORE INSTALLING
DWG REV LTR
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1



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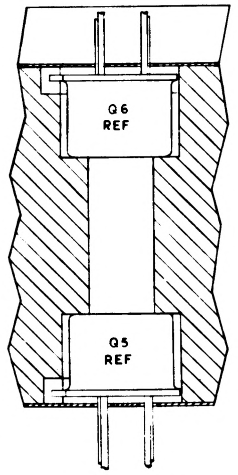
SEE NOTE 2

SECTION D-D



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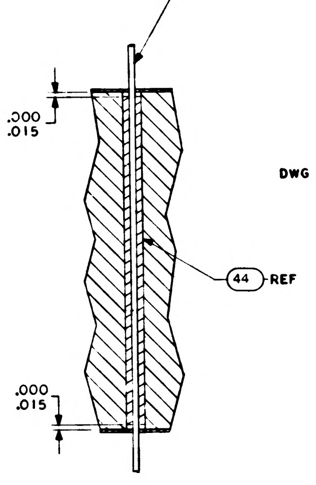
REF

SECTION E-E



36 REF
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44 REF
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.015

SECTION G-G

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			1		1008540-13	GASKET, CONNECTOR MINIATURE	52
			1		1008540-2	GASKET, CONNECTOR MINIATURE	51
			2		1006777-1	CAPACITOR 10UUF 100V 10%	50
			X		1010043	SCHEMATIC	REF
			2		1006777-16	CAPACITOR	49
			1		1006750-40	RESISTOR	48
			1		1010372-6	DIODE	47
							46
			2		1008256	POLARIZING PIN	45
			AR		1006776 - 22	INSULATION SLEEVING	44
			AR		1006776 - 21	INSULATION SLEEVING	43
			16		1006782 — 4	CONTACT, WRAPOST MALE MINAT	42
			16		1006775	INSULATOR, WRAPOST MALE MINAT	41
			2		1000093 — 3	SCREW, BOTTON HEAD	40
			1		MS 35650 — 104	NUT, PLAIN, HEX	39
			1		1008020—1	WASHER, FLAT	38
			2		1008024—1	WASHER, INSULATOR	37
			AR		1006757—8	WIRE, ELEC, .020 DIA	36
			AR		1006757—1	WIRE, ELEC, .010 X .020	35
			2		1008025—1	INSULATOR BUSHING	34
			1		1008021 — 1	INSULATOR, BUSHING	33
			AR		1006776—20	INSULATION SLEEVING	32
							31
			3		1010376 — 4	TRANSISTOR	30
			1		1010269 — 1	TRANSISTOR	29
			2		1010357-1	TRANSISTOR	28
			2		1010388 — 39	INDUCTOR, 0.01 HY 75 MA 5%	27
			3		1010394	DIODE	26
			1		1010830 -20	DIODE	25
			2		1010833 - 1	DIODE	24
			4		1010385	DIODE	23
			2		1006777—24	CAP., FIXED CER, 0.001 UF, 100V ±10%	22
			2		1006777—33	CAP., FIXED CER, .022UF, 100V ±10%	21
			1		1010393 —039	CAP., FIXED TANT, 6.8 UF, 50V ±10%	20
			1		1006755 —73	CAP., FIXED TANT, 2.2 UF, 35V ±10%	19
			2		1006777 — 13	CAP., FIXED CER, 100UUF, 100V ±10%	18
			1		1006750 — 15	RESISTOR, FIXED MF. 200Ω .1/4W ±2%	17
			2		1006750— 56	RESISTOR, FIXED MF, 10 K. 1/4W ±2%	16
							15
			2		1010369 - 87	RESISTOR, FIXED MF, 180K 1/8W 5%	14
			1		1006750-78	RESISTOR, FIXED MF, 82K 1/4W ±2%	13
			4		1006750 —53	RESISTOR, FIXED MF, 7.5K, 1/4W ±2%	12
			1		1006750 —1	RESISTOR, FIXED MF, 51 Ω 1/4W ±2%	11
			4		1006750—67	RESISTOR, FIXED MF. 30K, 1/4W ±2%	10
			4		1006750—81	RESISTOR, FIXED MF, 110K, 1/4W ±2%	9
			2		1010389 —80	RESISTOR, FIXED WW. 10K. 3 W ±1%	8
			1		1010364 —557	RESISTOR, FIXED MF 39.2K 1/8W ±1%	7
			1		1010373 —10	RESISTOR, VAR. 10K .1W ±5%	6
			1		1010364—635	RESISTOR, FIXED MF. 100K, 1/8W ±1%	5
			1		1010364—683	RESISTOR, FIXED MF. 178K 1/8W ±1%	4
			1		1008055—1	INSULATOR, TOP	3
			1		1008055-2	INSULATOR, BOTTOM	2
			1		1007035	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX ±.02 XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN J. Klumpp DATE 26 SEP 64
CHECKED A. Udovich 30 SEP 64
APPROVAL
APPROVAL 11/9/64
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

BINARY CURRENT SWITCH COMPUTER OUTPUT ASSEMBLY

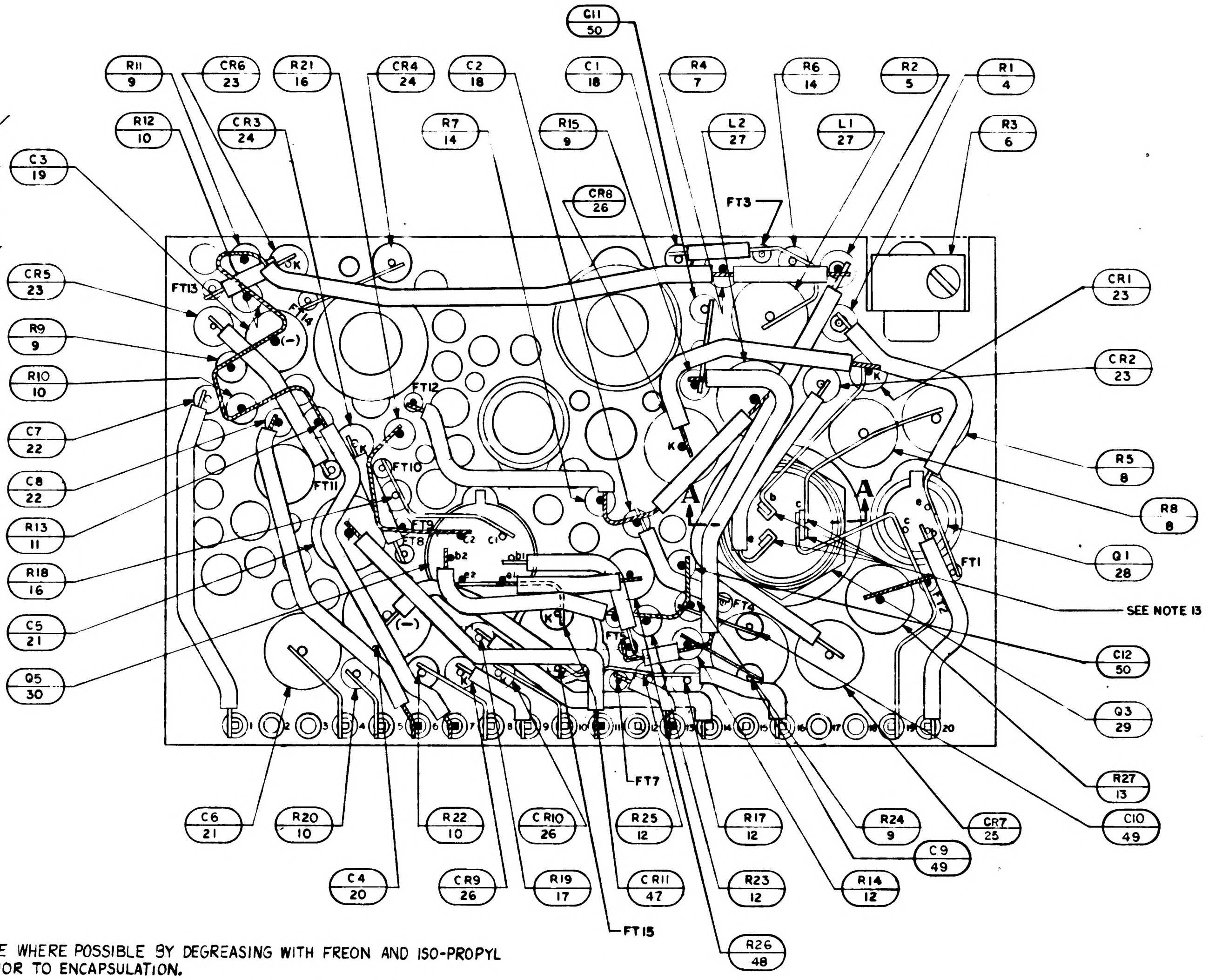
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007427
SCALE 5/1
WT
SHEET 1 OF 1

1007427 D

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ±.03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE.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R11 9
CR6 23
R21 16
CR4 24
C2 18
C1 18
R4 7
R6 14
R2 5
R1 4
R12 10
CR3 24
R7 14
R15 9
L2 27
L1 27
R3 6
CR8 26
FT3
C3 19
CR5 23
R9 9
R10 10
C7 22
C8 22
R13 11
R18 16
C5 21
Q5 30
FT13
FT12
FT11
FT10
FT1
A
A
CR1 23
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SEE NOTE 13
C12 50
Q3 29
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R20 10
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R25 12
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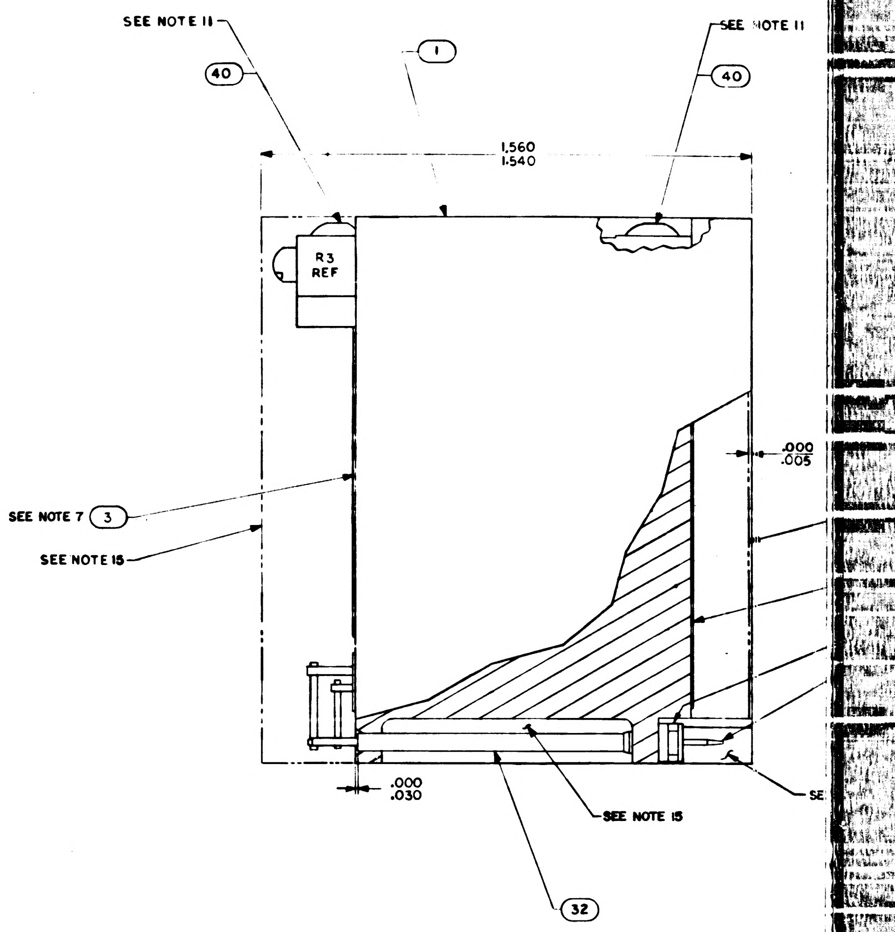
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SEE NOTE 11
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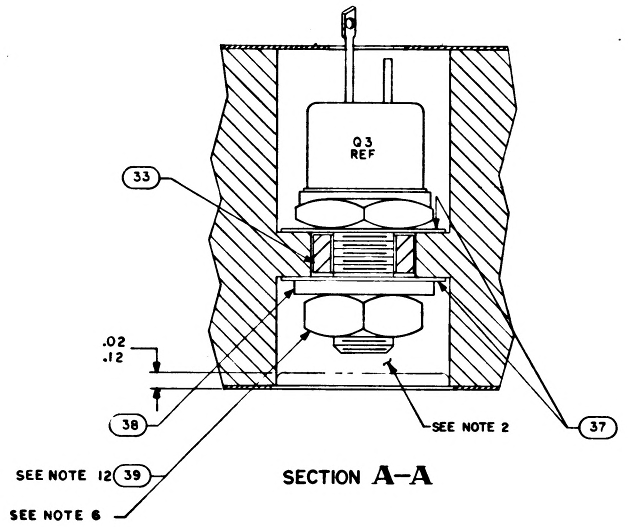
1.560
1.540
R3 REF
.000
.005
SEE NOTE 7
3
SEE NOTE 15
.000
.030
SEE NOTE 15
32

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITHE STANDARDS PRESCRIBED BY MIL-D-70327.
2. FILL PER ND 1002117
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. APPLY SEALING COMPOUND MIL-S-22473 GRADE A TO FIND NO. 39.
7. ON FIND NUMBERS 2 AND 3 ;
   - BROKEN PATHS INDICATE INSULATION SLEEVING.
   - K INDICATES CATHODE SIDE OF DIODE.
   - FT ( ) INDICATES FEED THRU
   - PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
   - C INDICATES COLLECTOR LEAD OF TRANSISTOR.
   - B INDICATES BASE LEAD OF TRANSISTOR.
   - E INDICATES EMITTER LEAD OF TRANSISTOR.
   - C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR.
   - B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR.
   - E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR.
8. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO.4 THRU FIND NO.30, FIND NO.33,34,47 THRU 50 PER ND 1002009, METHOD H.
10. AR DENOTES AS REQUIRED.
11. APPLY ZINC CHROMATE PRIMER MIL-P-8585 TO THREADS OF FIND NO.40.
12. MOUNTING TORQUE FOR FIND NO.39 10/15 INCH POUND.
13. SOLDER PER ND 1002071.
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND.
15. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY NOT EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
16. MUST MEET REQUIREMENTS OF ND 1002136.
17. PROCURE PER PS 1007027.
18. ~~BOND FIND NO.51, 52 AND 53 TO FIND NO.41 PER ND 1002237.~~
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
20. BOND FIND NO.45 TO FIND NO.1 PER ND 1002004 TYPE I
21. [illegible]
22. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.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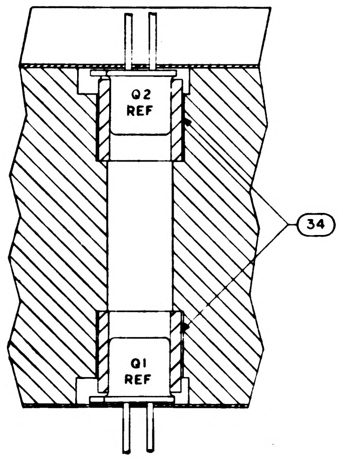
38
SEE NOTE 12
39
SEE NOTE 6
SEE NOTE 2
37

SECTION A-A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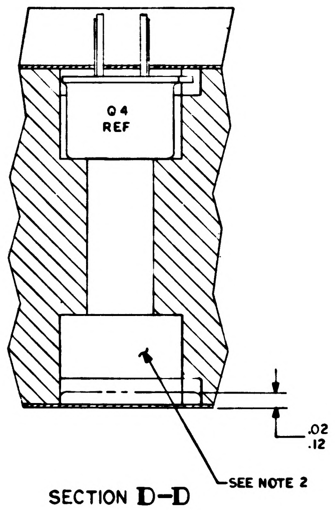
SECTION C-C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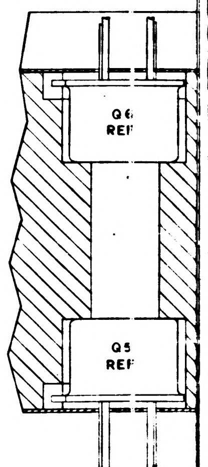
SECTION D-D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Q5 REF

SECTION E-E

REVISIONS			
SYM	DESCRIPTION	DATE	APPR
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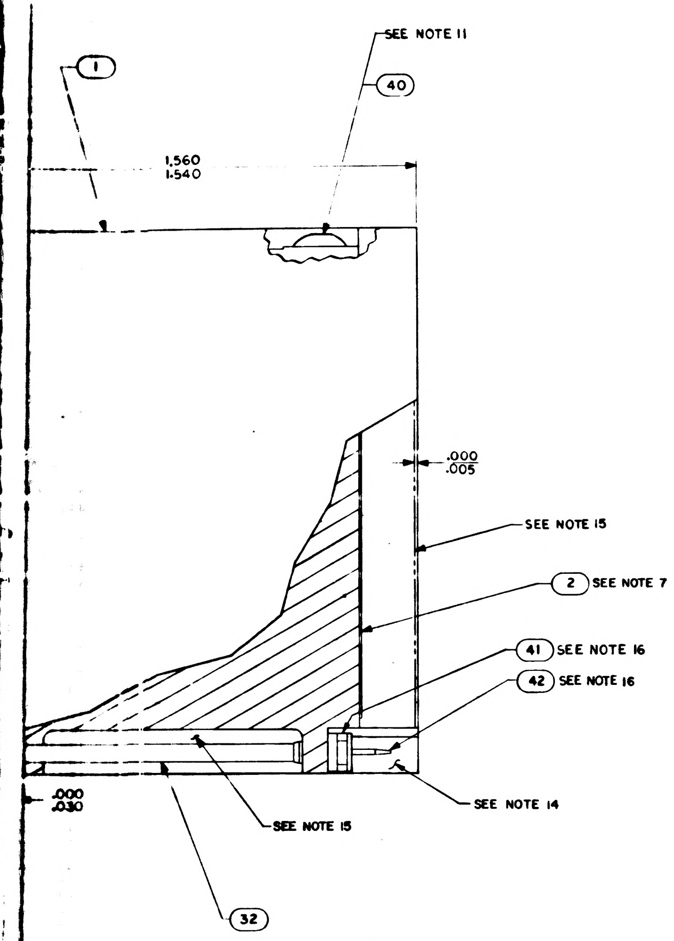
B	REVISED PER TDRR 19457	2 JUNE 65	PA CP
C	REVISED PER TDRR 19528	9 JUN 65	WJK
D	REVISED PER TDRR 20143	19 JUN 65	
E	REVISED PER TDRR 24385	6 DEC 65	



SEE NOTE 11
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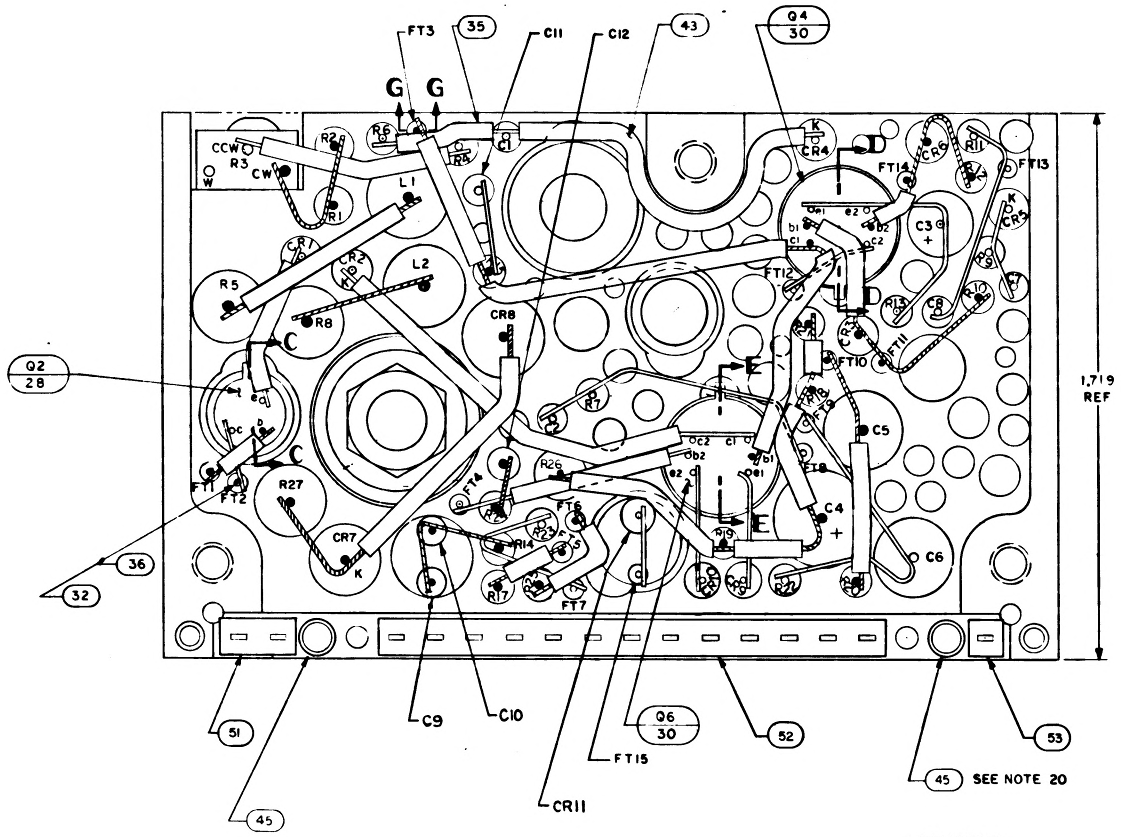

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CW
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C1
R5
CR4
K
R11
FT13
FT14
C3
CR3
CR1
CR2
L2
CR8
R8
FT12
R13
FT11
CR5
R12
FT10
C5
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C
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FT4
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C2
E
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R27
FT1
FT2
36
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CR7
K
FT6
FT5
R14
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FT15
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45 SEE NOTE 20
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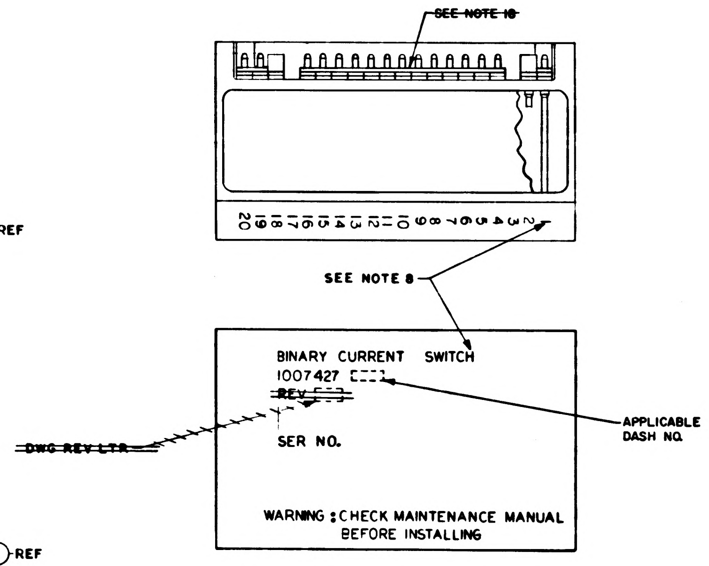

SEE NOTE 10
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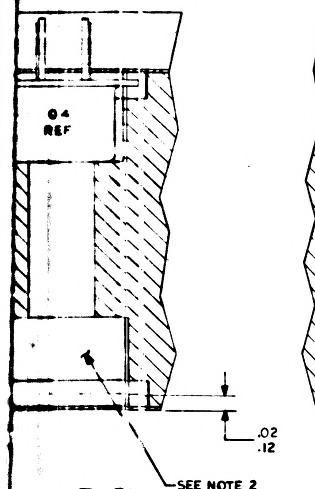
SEE NOTE 8
BINARY CURRENT SWITCH
1007427
REV
SER NO.
DWG REV LTR
APPLICABLE DASH NO.
WARNING: CHECK MAINTENANCE MANUAL BEFORE INSTALLING

MARKING VIEW
SCALE 2/1



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Q5 REF
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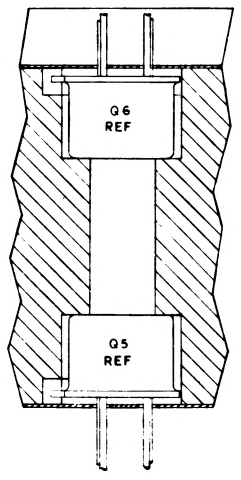
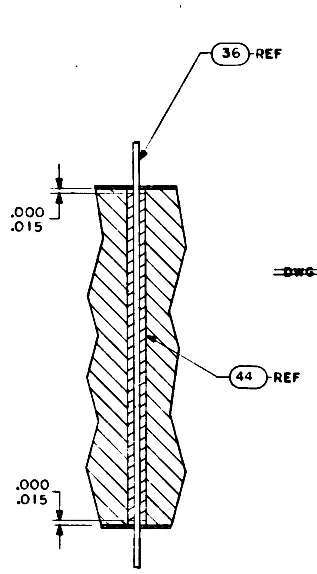
.12
SEE NOTE 2

CTION D-D



Q6 REF
Q5 REF

SECTION E-E



36 REF
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44 REF
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SECTION G-G

			1		1008540-1	GASKET, CONNECTOR MINIATURE	53
			1		1008540-13	GASKET, CONNECTOR MINIATURE	52
			1		1008540-2	GASKET, CONNECTOR MINIATURE	51
			2		1006777-1	CAPACITOR 10UUF 100V 10%	50
			☒		1010043	SCHEMATIC	REF
			2		1006777-16	CAPACITOR	49
			1		1006750-40	RESISTOR	48
			1		1010372-6	DIODE	47
							46
			2		1008256	POLARIZING PIN	45
			AR		1006776 - 22	INSULATION SLEEVING	44
			AR		1006776 - 21	INSULATION SLEEVING	43
			16		1006782 — 4	CONTACT, WRAPOST MALE MINAT	42
			16		1006775	INSULATOR, WRAPOST MALE MINAT	41
			2		1000093 — 3	SCREW, BOTTON HEAD	40
			1		MS 35650 — 104	NUT, PLAIN, HEX	39
			1		1008020—1	WASHER, FLAT	38
			2		1008024—1	WASHER, INSULATOR	37
			AR		1006757—8	WIRE, ELEC, .020 DIA	36
			AR		1006757—1	WIRE, ELEC, .010 x .020	35
			2		1008025—1	INSULATOR BUSHING	34
			1		1008021 — 1	INSULATOR, BUSHING	33
			AR		1006776—20	INSULATION SLEEVING	32
							31
			3		1010376 — 4	TRANSISTOR	30
			1		1010269 — 1	TRANSISTOR	29
			2		1010357-1	TRANSISTOR	28
			2		1010388 — 39	INDUCTOR, 0.01 HY 75 MA 5%	27
			3		1010394	DIODE	26
			1		1010830 -20	DIODE	25
			2		1010833 - 1	DIODE	24
			4		1010385	DIODE	23
			2		1006777—24	CAP., FIXED CER, 0.001 UF, 100V ±10%	22
			2		1006777—33	CAP., FIXED CER, .022UF, 100V ±10%	21
			1		1010393 —039	CAP., FIXED TANT, 6.8 UF, 50V ±10%	20
			1		1006755 —73	CAP., FIXED TANT, 2.2 UF, 35V ±10%	19
			2		1006777 —13	CAP., FIXED CER, 100UUF, 100V ±10%	18
			1		1006750 —15	RESISTOR, FIXED MF. 200Ω. 1/4W ±2%	17
			2		1006750— 56	RESISTOR, FIXED MF, 10 K. 1/4W ±2%	16
							15
			2		1010369 — 87	RESISTOR, FIXED MF, 180K 1/8W 5%	14
			1		1006750- 78	RESISTOR, FIXED MF, 82 K 1/4W ± 2%	13
			4		1006750 —53	RESISTOR, FIXED MF, 7.5K, 1/4W ±2%	12
			1		1006750 —1	RESISTOR, FIXED MF, 51 Ω 1/4W ±2%	11
			4		1006750 —67	RESISTOR, FIXED MF. 30K, 1/4W ± 2%	10
			4		1006750—81	RESISTOR, FIXED MF, 110 K, 1/4W ±2%	9
			2		1010389 —80	RESISTOR, FIXED WW. 10K. 3 W ±1%	8
			1		1010364 —557	RESISTOR, FIXED MF 39.2K 1/8W ±1%	7
			1		1010373 —10	RESISTOR, VAR. 10K .1W ±5%	6
			1		1010364—635	RESISTOR, FIXED MF. 100K, 1/8W ±1%	5
			1		1010364—683	RESISTOR, FIXED MF. 178K 1/8W ±1%	4
			1		1008055—1	INSULATOR, TOP	3
			1		1008055- 2	INSULATOR, BOTTOM	2
			1		1007035	HEATSINK	1
QUANTITY REQUIRED			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
					LIST OF MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN J. Klumpp DATE 26 SEP 64
CHECKED A. Udovich 30 SEP 64
APPROVAL
APPROVAL 11/9/64
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BINARY CURRENT SWITCH
COMPUTER OUTPUT
ASSEMBLY

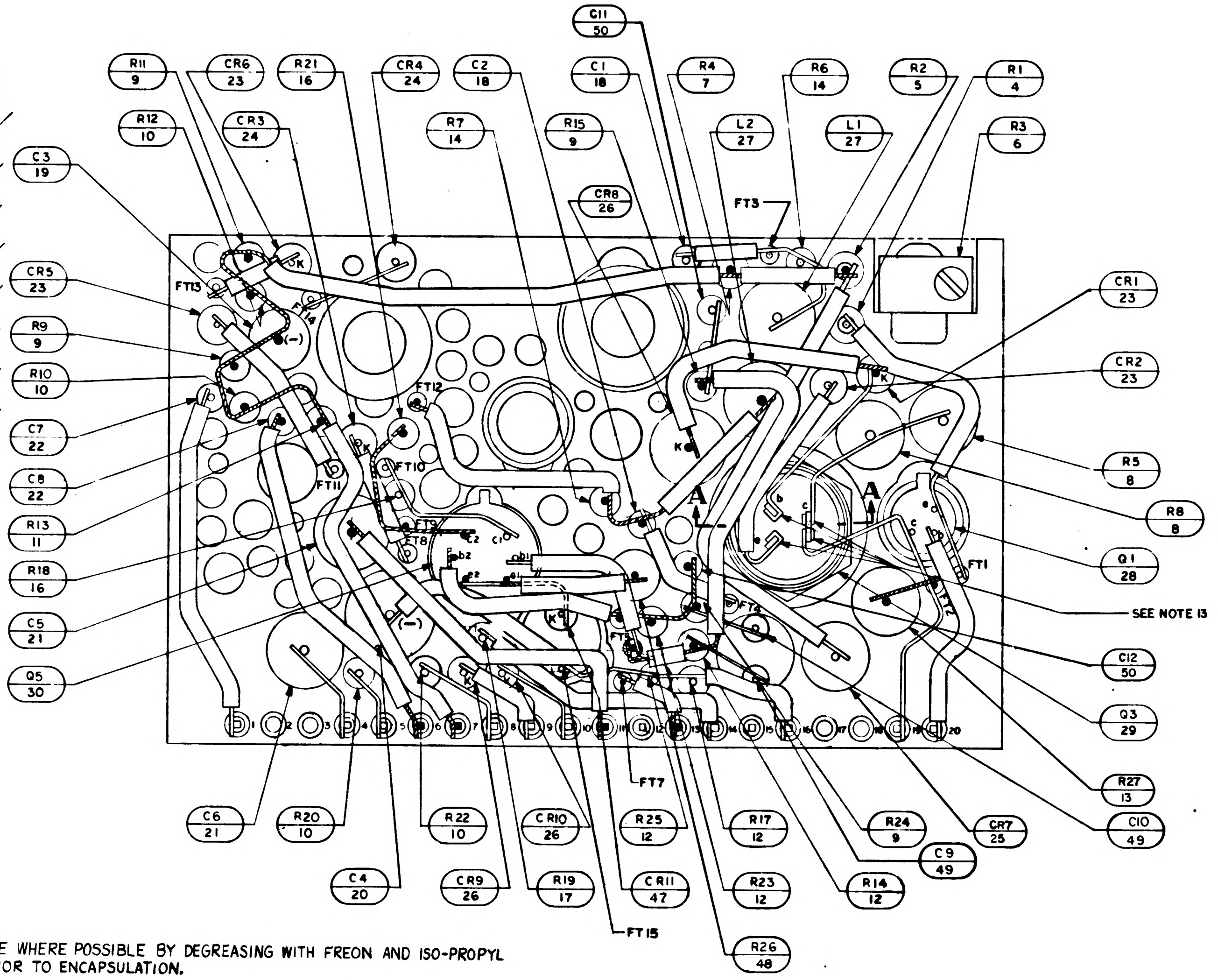
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007427
SCALE 5/1
WT
SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

D

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.



C11 50
R11 9
CR6 23
R21 16
CR4 24
C2 18
C1 18
R4 7
R6 14
R2 5
R1 4
R12 10
CR3 24
R7 14
R15 9
L2 27
L1 27
R3 6
C3 19
CR8 26
FT3
CR5 23
FT13
R9 9
R10 10
C7 22
C8 22
R13 11
R18 16
C5 21
Q5 30
CR1 23
CR2 23
R5 8
R8 8
Q1 28
SEE NOTE 13
C12 50
Q3 29
R27 13
C10 49
FT12
FT10
FT11
FT8
FT1
FT7
FT15
A
K
(-)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
C6 21
R20 10
R22 10
CR10 26
R25 12
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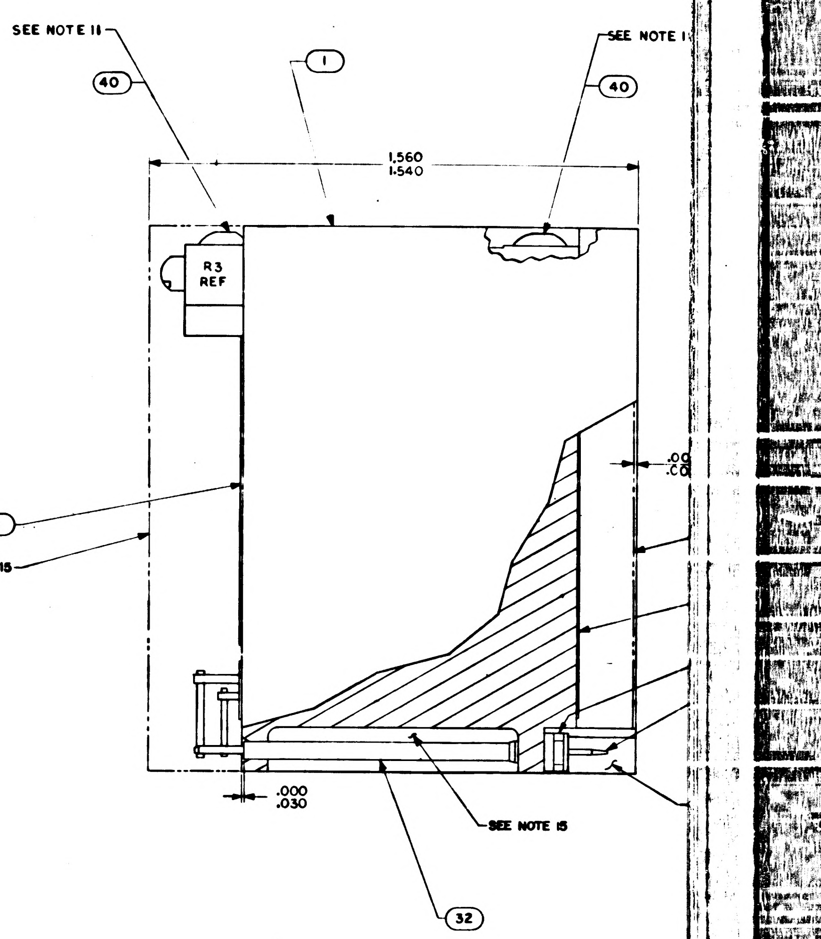
CR11 47
R23 12
R14 12
R26 48



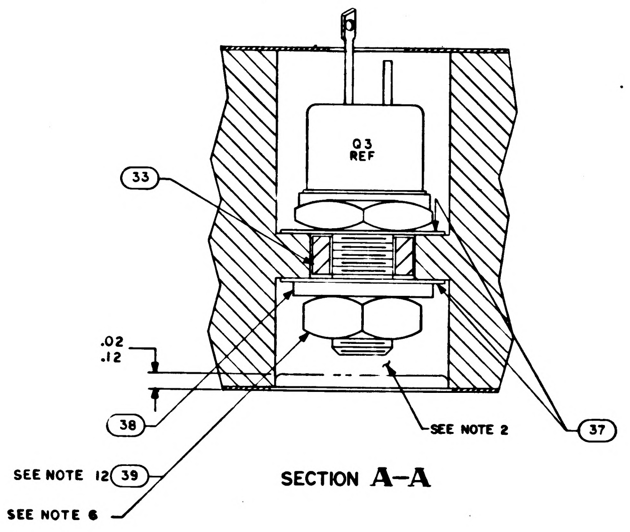
SEE NOTE 11
40
1
SEE NOTE 1
40
1.560
1.540
R3 REF
SEE NOTE 7
3
SEE NOTE 15
.00
.00
.000
.030
SEE NOTE 15
32

C

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITHE STANDARDS PRESCRIBED BY MIL-D-70327.
2. FILL PER ND 1002117
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. APPLY SEALING COMPOUND MIL-S-22473 GRADE A TO FIND NO. 39.
7. ON FIND NUMBERS 2 AND 3 ;
   - BROKEN PATHS INDICATE INSULATION SLEEVING.
   - K INDICATES CATHODE SIDE OF DIODE.
   - FT ( ) INDICATES FEED THRU
   - PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
   - C INDICATES COLLECTOR LEAD OF TRANSISTOR.
   - B INDICATES BASE LEAD OF TRANSISTOR.
   - E INDICATES EMITTER LEAD OF TRANSISTOR.
   - C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR.
   - B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR.
   - E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR.
8. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO.4 THRU FIND NO.30, FIND NO.33,34,47 THRU 50 PER ND 1002009, METHOD J.
10. AR DENOTES AS REQUIRED.
11. APPLY ZINC CHROMATE PRIMER MIL-P-8585 TO THREADS OF FIND NO.40.
12. MOUNTING TORQUE FOR FIND NO.39 10/15 INCH POUND.
13. SOLDER PER ND 1002071.
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND.
15. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY NOT EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
16. MUST MEET REQUIREMENTS OF ND 1002136.
17. PROCURE PER PS 1007027.
18. ~~BOND FIND NO.51, 52 AND 53 TO FIND NO.41 PER ND 1002237.~~
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
20. BOND FIND NO.45 TO FIND NO.1 PER ND 1002004 TYPE I
21. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
22. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279 USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

B



Q3 REF
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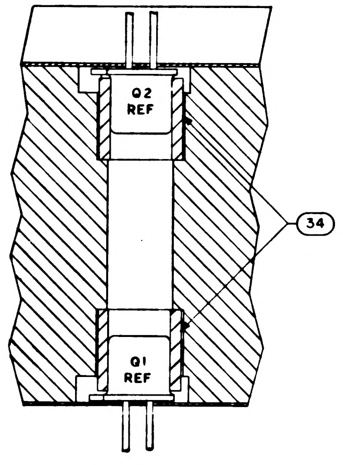
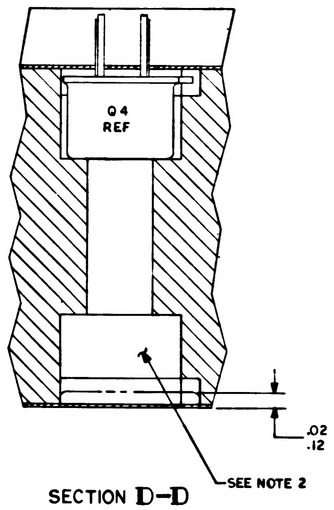
.02
.12
38
SEE NOTE 2
37
SEE NOTE 12
39
SEE NOTE 6

SECTION A-A



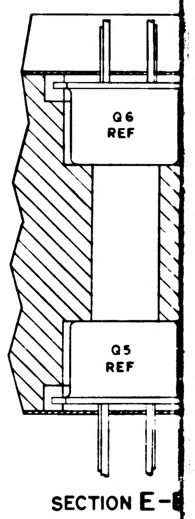
Q2 REF
Q1 REF
34

SECTION C-C



Q4 REF
.02
.12
SEE NOTE 2

SECTION D-D

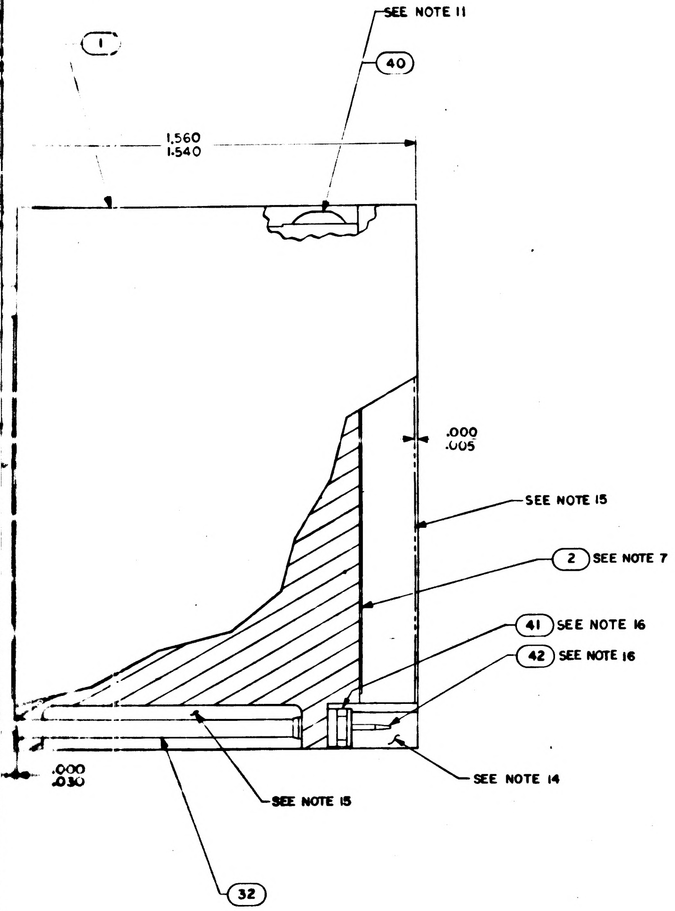


Q6 REF
Q5 REF

SECTION E-E

A

REVISIONS			
SYM	DESCRIPTION	DATE	APPR
A	REVISED PER TDRR 17309	12 MAR 65	GM EF
B	REVISED PER TDRR 19457	2 JUNE 65	PN CP
C	REVISED PER TDRR 19528	9 JUN 65	WJK
D	REVISED PER TDRR 20143	19 JUN 65	ah V.M.
E	REVISED PER TDRR 24385	6 DEC 65	eP
F	REVISED PER TDRR 26375	25 FEB 66	JIM P



SEE NOTE 11
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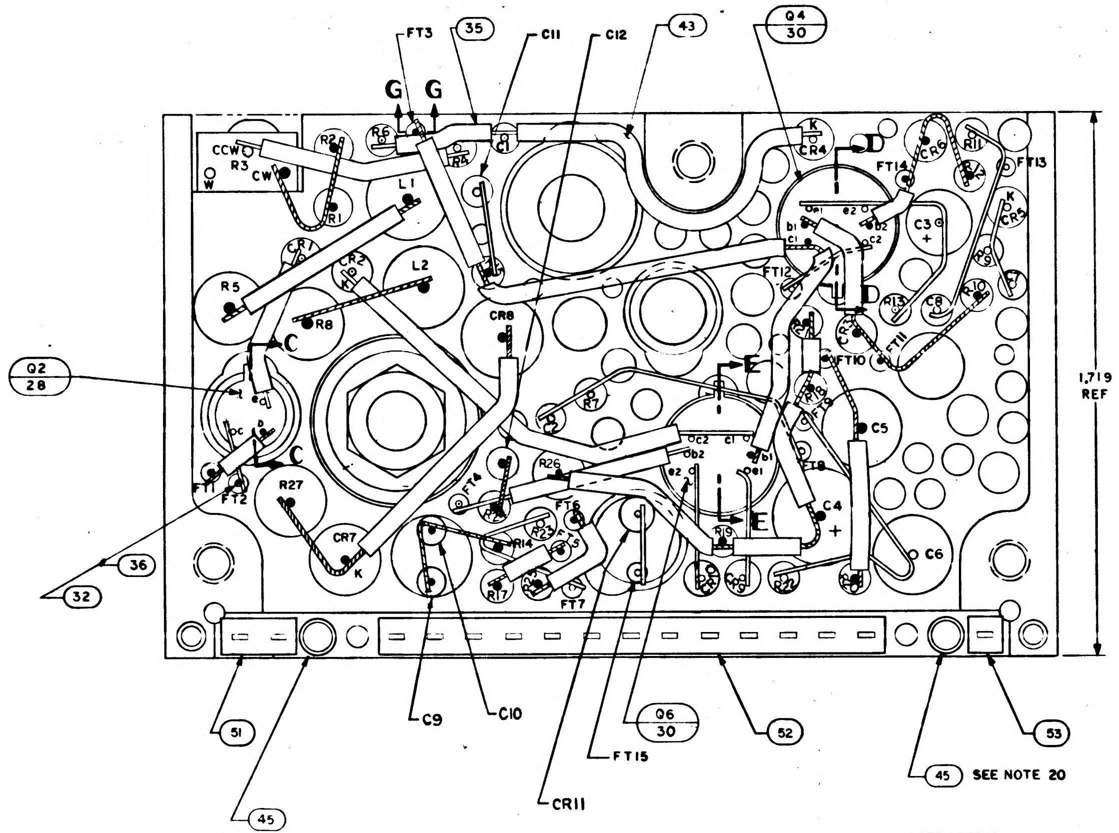
1
1.560
1.540
.000
.005
SEE NOTE 15
2 SEE NOTE 7
41 SEE NOTE 16
42 SEE NOTE 16
SEE NOTE 14
.000
.030
SEE NOTE 15
32



FT3
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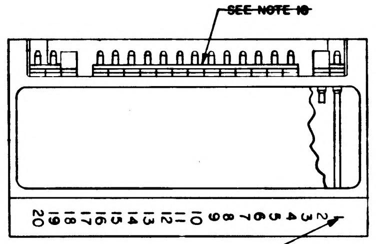
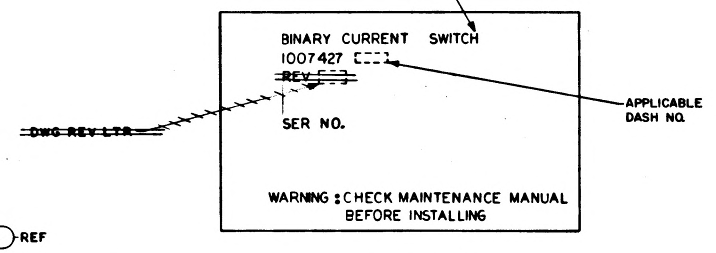
C11
C12
43
Q4
30
G
G
CCW
R3
CW
W
R2
R6
R4
L1
R1
CR1
CR2
L2
R5
R8
CR8
C
C
Q2
28
FT1
FT2
R27
CR7
K
FT4
R26
FT6
R14
FT7
C9
C10
Q6
30
FT15
CR11
36
32
CR4
D
D
FT14
CR3
R11
FT13
FT12
C3
CR5
R13
FT11
FT10
E
E
C5
C4
FT8
C6
R21
1.719
REF
51
45
52
45 SEE NOTE 20
53

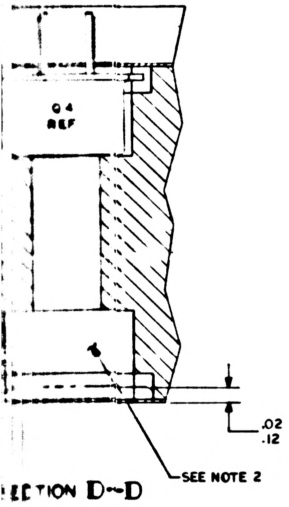


~~SEE NOTE 18~~
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 8



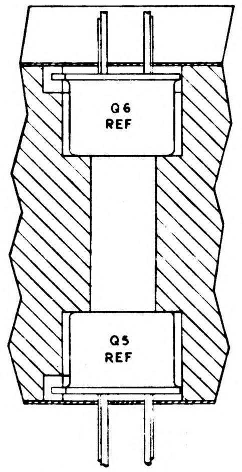
BINARY CURRENT SWITCH
1007427
REV
SER NO.
~~DWG REV LTR~~
APPLICABLE DASH NO.
WARNING : CHECK MAINTENANCE MANUAL BEFORE INSTALLING

MARKING VIEW
SCALE 2/1



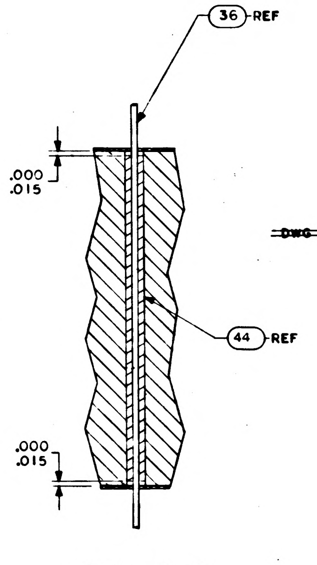
Q4
REF
.02
.12
SEE NOTE 2

SECTION D-D



Q6
REF
Q5
REF

SECTION E-E



36 REF
.000
.015
44 REF
.000
.015

SECTION G-G

QUANTITY REQUIRED					LIST OF MATERIALS		
		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
		AR	-		SEE NOTE 25	MOISTUREPROOFING	54
		1	1		1008540-1	GASKET, CONNECTOR MINIATURE	53
		1	1		1008540-13	GASKET, CONNECTOR MINIATURE	52
		1	1		1008540-2	GASKET, CONNECTOR MINIATURE	51
		2	2		1006777-1	CAPACITOR 10UUF 100V 10%	50
		X	X		1010043	SCHEMATIC	REF
		2	2		1006777-16	CAPACITOR	49
		1	1		1006750-40	RESISTOR	48
		1	1		1010372-6	DIODE	47
							46
		2	2		1008256	POLARIZING PIN	45
		AR	AR		1006776 - 22	INSULATION SLEEVING	44
		AR	AR		1006776 - 21	INSULATION SLEEVING	43
		16	16		1006782 — 4	CONTACT, WRAPOST MALE MINAT	42
		16	16		1006775	INSULATOR, WRAPOST MALE MINAT	41
		2	2		1000093 — 3	SCREW, BOTTON HEAD	40
		1	1		MS 35650 — 104	NUT, PLAIN, HEX	39
		1	1		1008020—1	WASHER, FLAT	38
		2	2		1008024—1	WASHER, INSULATOR	37
		AR	AR		1006757—8	WIRE, ELEC, .020 DIA	36
		AR	AR		1006757—1	WIRE, ELEC, .010 X .020	35
		2	2		1008025—1	INSULATOR BUSHING	34
		1	1		1008021 — 1	INSULATOR, BUSHING	33
		AR	AR		1006776—20	INSULATION SLEEVING	32
							31
		3	3		1010376 — 4	TRANSISTOR	30
		1	1		1010269 — 1	TRANSISTOR	29
		2	2		1010357-1	TRANSISTOR	28
		2	2		1010388 — 39	INDUCTOR, 0.01 HY 75 MA 5%	27
		3	3		1010394	DIODE	26
		1	1		1010830 -20	DIODE	25
		2	2		1010833 - 1	DIODE	24
		4	4		1010385	DIODE	23
		2	2		1006777—24	CAP., FIXED CER, 0.001 UF, 100V ±10%	22
		2	2		1006777—33	CAP., FIXED CER, .022UF, 100V ±10%	21
		1	1		1010393 —039	CAP., FIXED TANT, 6.8 UF, 50V ±10%	20
		1	1		1006755 —73	CAP., FIXED TANT, 2.2 UF, 35V ±10%	19
		2	2		1006777 —13	CAP., FIXED CER, 100UUF, 100V ±10%	18
		1	1		1006750 —15	RESISTOR, FIXED MF. 200Ω. 1/4W ±2%	17
		2	2		1006750— 56	RESISTOR, FIXED MF. 10 K. 1/4W ±2%	16
							15
		2	2		1010369 — 87	RESISTOR, FIXED MF, 180K 1/8W 5%	14
		1	1		1006750— 78	RESISTOR, FIXED MF. 82K 1/4W ±2%	13
		4	4		1006750 —53	RESISTOR, FIXED MF, 7.5K, 1/4W ±2%	12
		1	1		1006750 —1	RESISTOR, FIXED MF, 51 Ω, 1/4W ±2%	11
		4	4		1006750—67	RESISTOR, FIXED MF. 30K, 1/4W ±2%	10
		4	4		1006750—81	RESISTOR, FIXED MF, 110K, 1/4W ±2%	9
		2	2		1010389 —80	RESISTOR, FIXED WW. 10K. 3 W ±1%	8
		1	1		1010364 —557	RESISTOR, FIXED MF 39.2K 1/8W ±1%	7
		1	1		1010373 —10	RESISTOR, VAR. 10K, 1W ±5%	6
		1	1		1010364—635	RESISTOR, FIXED MF. 100K, 1/8W ±1%	5
		1	1		1010364—683	RESISTOR, FIXED MF. 178K 1/8W ±1%	4
		1	1		1008055—1	INSULATOR, TOP	3
		1	1		1008055- 2	INSULATOR, BOTTOM	2
		1	1		1007035	HEATSINK	1

1007427

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS XX±.02 XXX±.005
ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DWG NO
DRAWN J. Klinger DATE 26 SEP 64
CHECKED A. Udovich 30 SEP 64
APPROVAL
APPROVAL 11/9/64
NASA APPROVAL
MIT APPROVAL 12

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

BINARY CURRENT SWITCH
COMPUTER OUTPUT
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007427
SCALE 5/1
WT
SHEET 1 OF 1

1007427 REV F

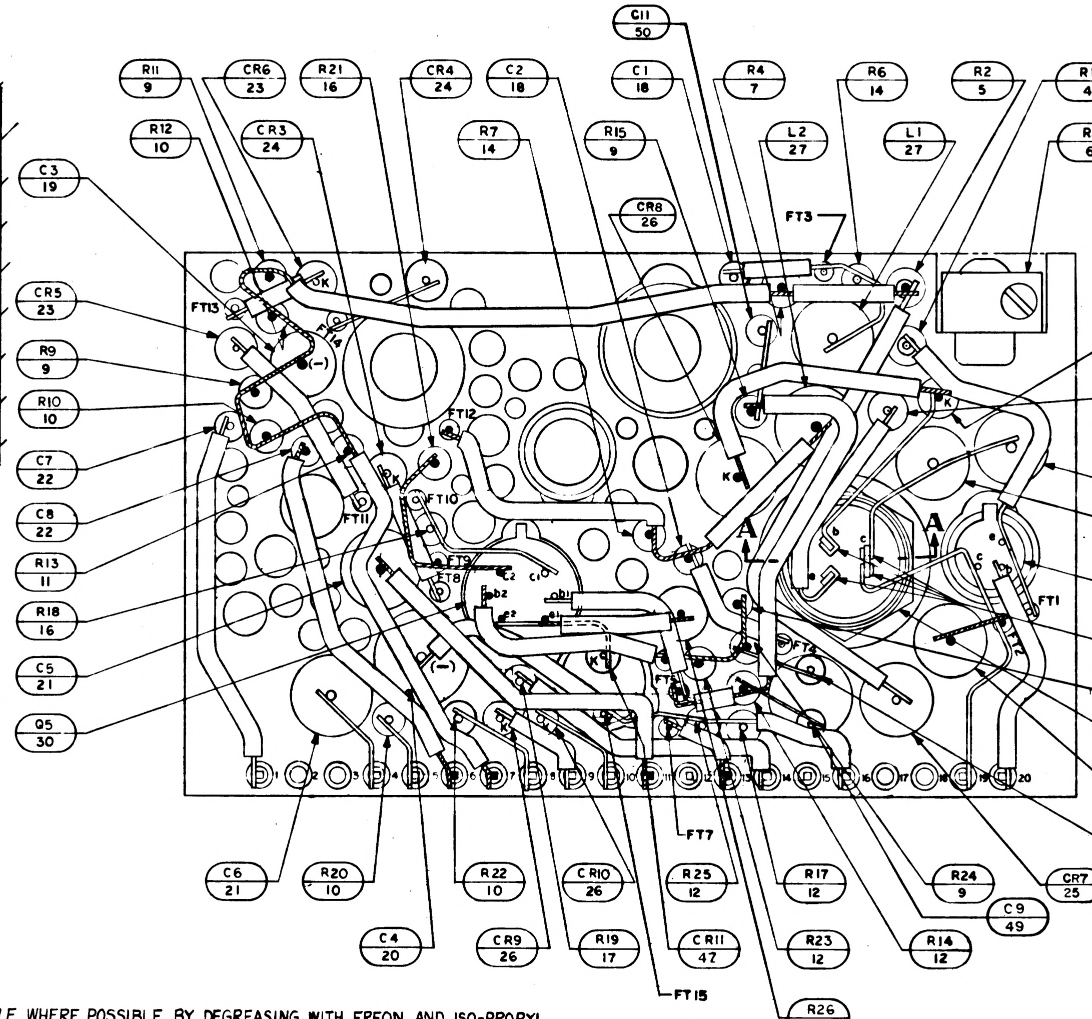
2/1007427

54

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEAT-SINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE~~	~~100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.~~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CR6 23
R21 16
CR4 24
C2 18
C1 18
R4 7
R6 14
R2 5
R1 4
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CR3 24
R7 14
R15 9
L2 27
L1 27
R3 6
C3 19
CR8 26
FT3
FT13
CR5 23
R9 9
R10 10
FT12
C7 22
C8 22
R13 11
R18 16
C5 21
Q5 30
CR1 23
CR2 23
R5 8
R8 8
Q1 28
FT1
SEE NOTE 13
C12 50
Q3 29
R27 13
C10 49
A
K
FT11
FT10
FT7
FT15
C6 21
R20 10
C4 20
R22 10
CR9 26
CR10 26
R19 17
CR11 47
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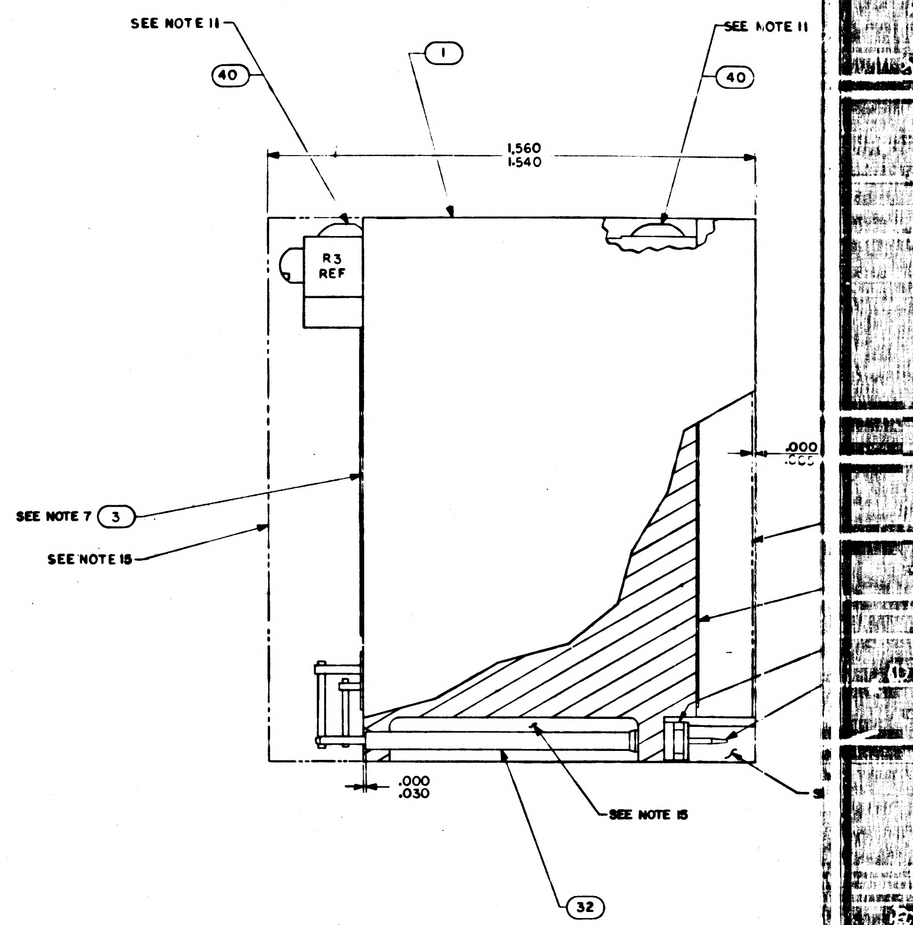
SEE NOTE 11
40
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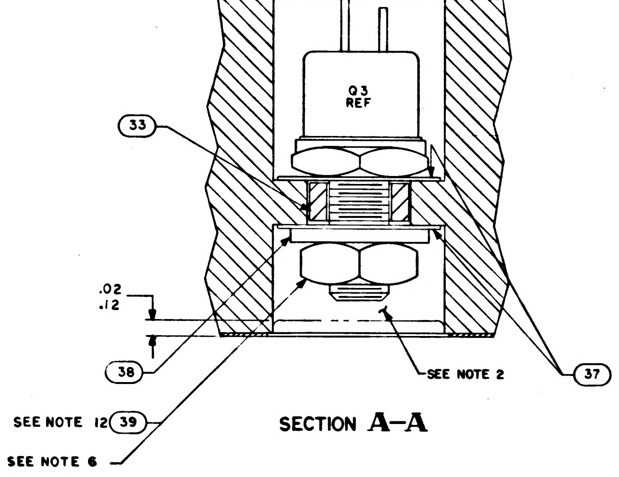
SEE NOTE 11
40
1.560
1.540
R3 REF
SEE NOTE 7
3
SEE NOTE 15
.000
.005
.000
.030
SEE NOTE 15
32

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITHE STANDARDS PRESCRIBED BY MIL-D-70327.
2. FILL PER ND 1002117
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. APPLY SEALING COMPOUND MIL-S-22473 GRADE A TO FIND NO. 39.
7. ON FIND NUMBERS 2 AND 3 ;
   - BROKEN PATHS INDICATE INSULATION SLEEVING.
   - K INDICATES CATHODE SIDE OF DIODE.
   - FT ( ) INDICATES FEED THRU
   - PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
   - C INDICATES COLLECTOR LEAD OF TRANSISTOR.
   - B INDICATES BASE LEAD OF TRANSISTOR.
   - E INDICATES EMITTER LEAD OF TRANSISTOR.
   - C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR.
   - B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR.
   - E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR.
8. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO.4 THRU FIND NO.30, FIND NO.33,34,47 THRU 50 PER ND 1002009, METHOD J.
10. AR DENOTES AS REQUIRED.
11. APPLY ZINC CHROMATE PRIMER MIL-P-8585 TO THREADS OF FIND NO.40.
12. MOUNTING TORQUE FOR FIND NO.39 10/15 INCH POUND.
13. SOLDER PER ND 1002071.
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND.
15. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY NOT EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
16. MUST MEET REQUIREMENTS OF ND 1002136.
17. PROCURE PER PS 1007027.
18. ~~BOND FIND NO.51, 52 AND 53 TO FIND NO.41 PER ND1002237.~~
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
20. BOND FIND NO.45 TO FIND NO.1 PER ND 1002004 TYPE I
21. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279 USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
25. MOISTUREPROOF PER ND 1002292 AS REQUIRED BY FIND NO. 54 USING INSULATION TAPE IN ACCORDANCE WITH SCD1008866 AND POLYURETHANE COATING PER SCD1008867 AFTER PAINTING AND STENCILING.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33
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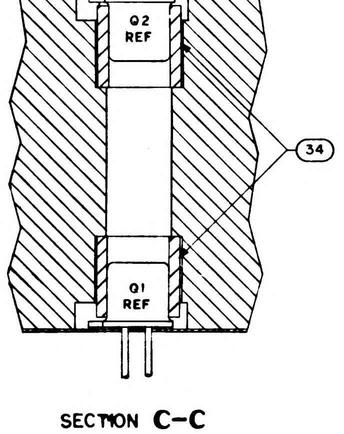
.12
38
SEE NOTE 2
37
SEE NOTE 12
39
SEE NOTE 6

SECTION A–A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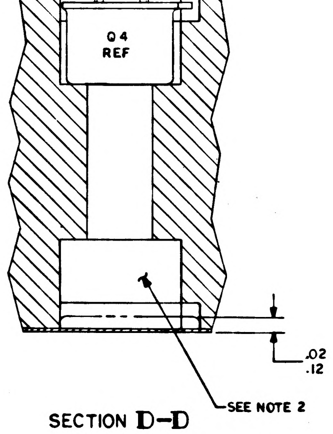
SECTION C–C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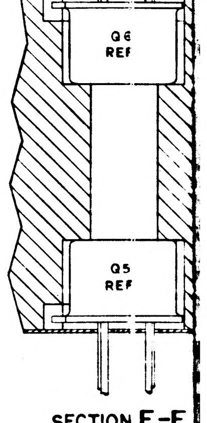
SEE NOTE 2
.02
.12

SECTION D–D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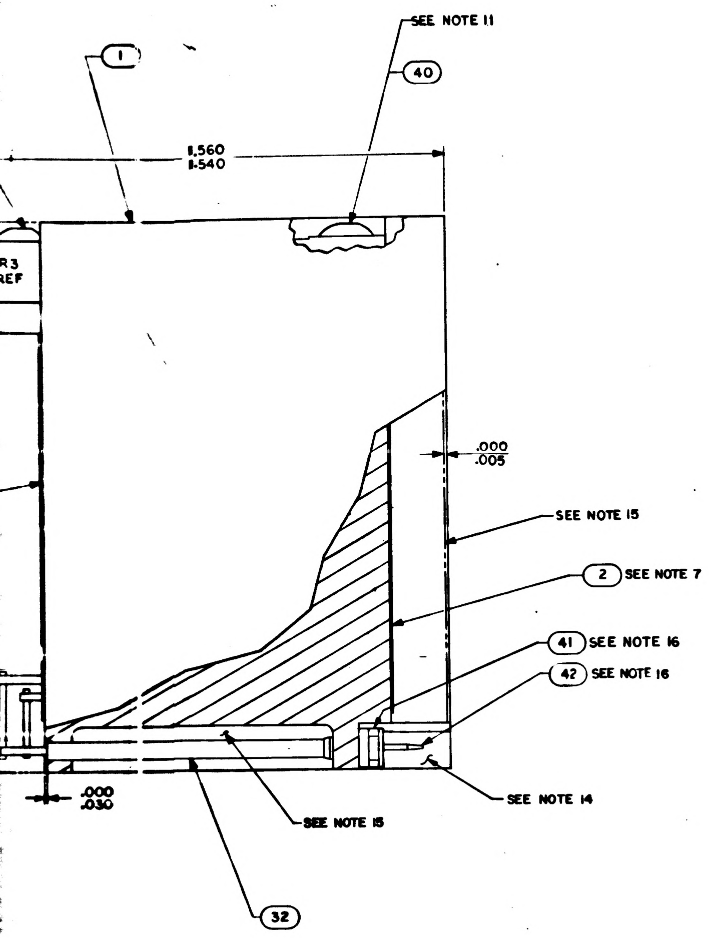
Q5 REF

SECTION E–E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SEE NOTE 14
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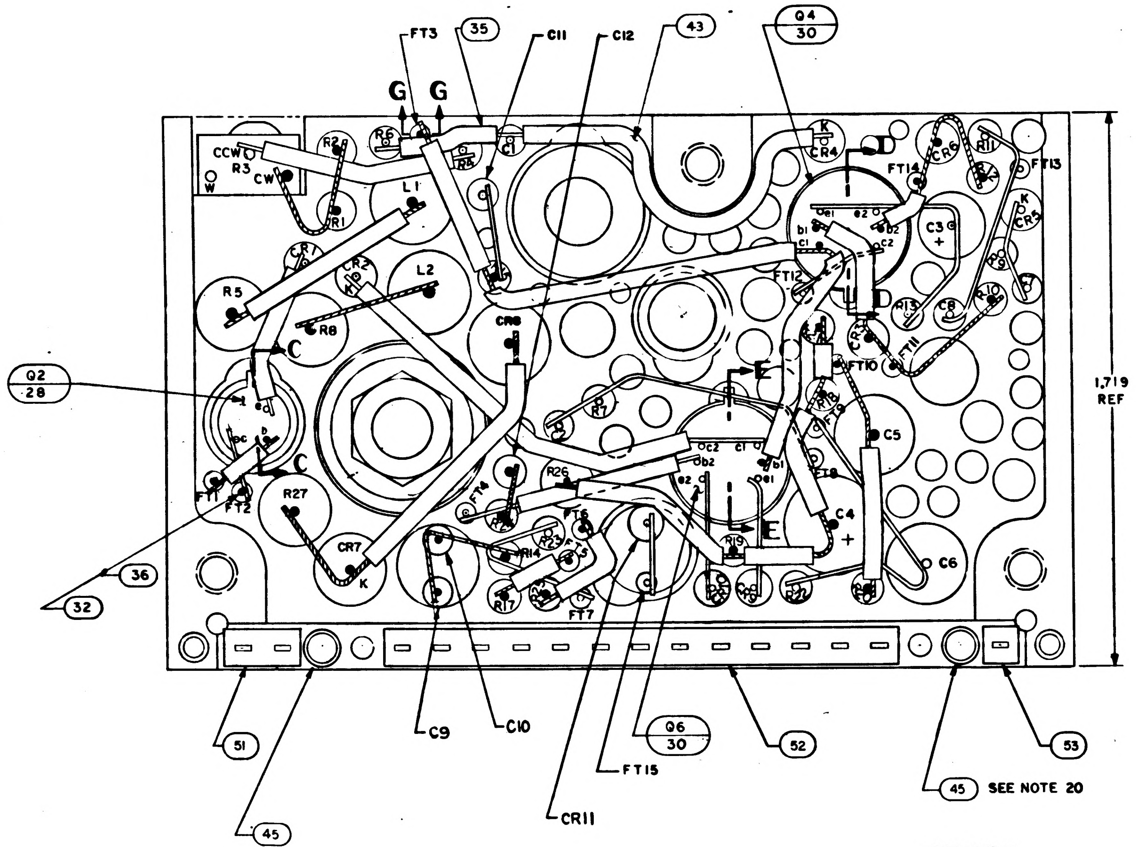
SEE NOTE 15
32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R2
R6
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CR4
K
FT14
R11
FT13
C3
CR3
CR1
CR2
L2
R5
R8
CR8
C1
b1
e1
e2
b2
C2
FT12
R13
C8
FT11
R10
R9
Q2
28
C
E
FT10
1.719
REF
C5
FT1
FT2
C
R27
FT4
R26
FT5
E
C4
FT8
36
32
CR7
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CR11
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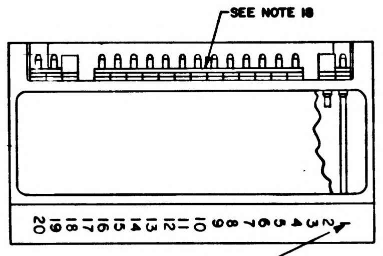
45 SEE NOTE 20
53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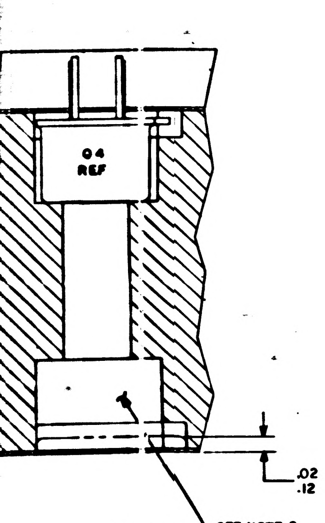
SEE NOTE 8

BINARY CURRENT SWITCH
1007427 [ ]
REV [ ]
SER NO.

WARNING : CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

DWG REV LTR
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1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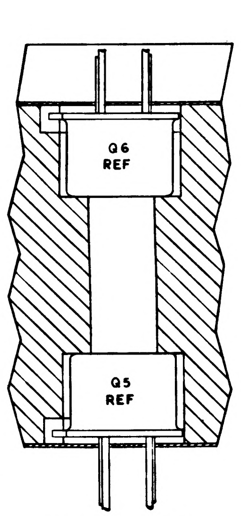
SEE NOTE 2

SECTION D-D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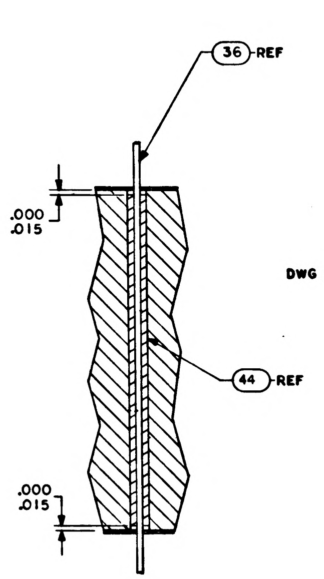
REF

SECTION E-E


36 REF
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44 REF
.000
.015

SECTION G-G

REVISIONS

			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			1		1008540-1	GASKET, CONNECTOR MINIATURE	53
			1		1008540-13	GASKET, CONNECTOR MINIATURE	52
			1		1008540-2	GASKET, CONNECTOR MINIATURE	51
			2		1006777-1	CAPACITOR 10UUF 100V 10%	50
			X		1010043	SCHEMATIC	REF
			2		1006777-16	CAPACITOR	49
			1		1006750-40	RESISTOR	48
			1		1010372-6	DIODE	47
							46
			2		1008256	POLARIZING PIN	45
			AR		1006776 - 22	INSULATION SLEEVING	44
			AR		1006776 - 21	INSULATION SLEEVING	43
			16		1006782 - 4	CONTACT, WRAPOST MALE MINAT	42
			16		1006775	INSULATOR, WRAPOST MALE MINAT	41
			2		1000093 - 3	SCREW, BOTTON HEAD	40
			1		MS 35650 - 104	NUT, PLAIN, HEX	39
			1		1008020-1	WASHER, FLAT	38
			2		1008024-1	WASHER, INSULATOR	37
			AR		1006757-8	WIRE, ELEC, .020 DIA	36
			AR		1006757-1	WIRE, ELEC, .010 X .020	35
			2		1008025-1	INSULATOR BUSHING	34
			1		1008021-1	INSULATOR, BUSHING	33
			AR		1006776-20	INSULATION SLEEVING	32
							31
			3		1010376-4	TRANSISTOR	30
			1		1010269-1	TRANSISTOR	29
			2		1010357-1	TRANSISTOR	28
			2		1010388-39	INDUCTOR, 0.01 HY 75 MA 5%	27
			3		1010394	DIODE	26
			1		1010286-20	DIODE	25
			2		1010462-6	DIODE	24
			4		1010385	DIODE	23
			2		1006777-24	CAP., FIXED CER, 0.001 UF, 100V ±10%	22
			2		1006777-33	CAP., FIXED CER, .022UF, 100V ±10%	21
			1		1010393-039	CAP., FIXED TANT, 6.8 UF, 50V ±10%	20
			1		1006755-73	CAP., FIXED TANT, 2.2 UF, 35V ±10%	19
			2		1006777-13	CAP., FIXED CER, 100UUF, 100V ±10%	18
			1		1006750-15	RESISTOR, FIXED MF, 200Ω, 1/4W ±2%	17
			2		1006750-56	RESISTOR, FIXED MF, 10 K, 1/4W ±2%	16
							15
			2		1010369-87	RESISTOR, FIXED MF, 180K 1/8W 5%	14
			1		1006750-78	RESISTOR, FIXED MF, 82K 1/4W ±2%	13
			4		1006750-53	RESISTOR, FIXED MF, 7.5K, 1/4W ±2%	12
			1		1006750-1	RESISTOR, FIXED MF, 51 Ω 1/4W ±2%	11
			4		1006750-67	RESISTOR, FIXED MF, 30K, 1/4W ±2%	10
			4		1006750-81	RESISTOR, FIXED MF, 110K, 1/4W ±2%	9
			2		1010389-80	RESISTOR, FIXED WW, 10K, 3 W ±1%	8
			1		1010364-557	RESISTOR, FIXED MF 39.2K 1/8W ±1%	7
			1		1010373-10	RESISTOR, VAR, 10K, 1W ±5%	6
			1		1010364-635	RESISTOR, FIXED MF, 100K, 1/8W ±1%	5
			1		1010364-683	RESISTOR, FIXED MF, 178K 1/8W ±1%	4
			1		1008055-1	INSULATOR, TOP	3
			1		1008055-2	INSULATOR, BOTTOM	2
			1		1007035	HEATSINK	1

QUANTITY REQUIRED
LIST OF MATERIALS

1007427

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± 1/2
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497

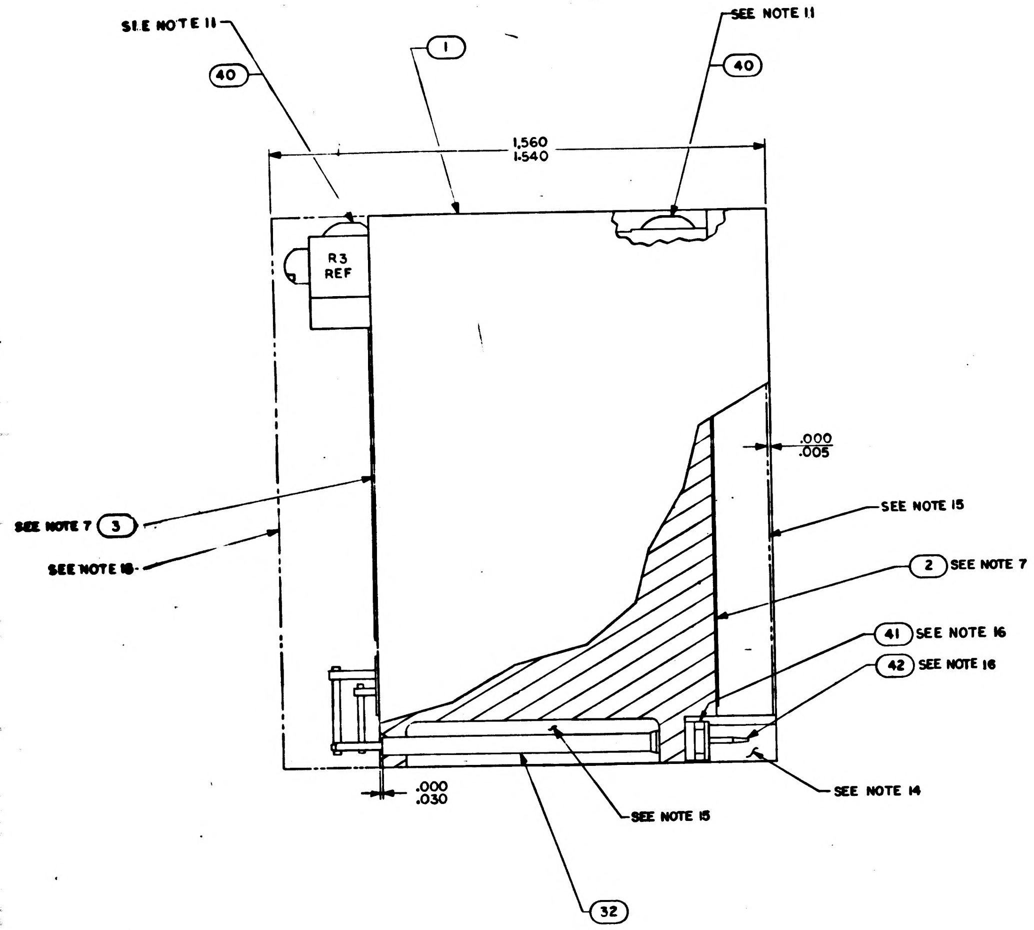
DRAWN J. Kleinman DATE 26 SEP 64
CHECKED A. Udrock 30 SEP 64
APPROVAL
APPROVAL 11/9/64
NASA APPROVAL 11-12-64
MIT APPROVAL 12/4/64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BINARY CURRENT SWITCH COMPUTER OUTPUT ASSEMBLY

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007427
SCALE 5/1
WT
SHEET 1 OF 1

1007427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SEE NOTE 11
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1.540
R3 REF
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SEE NOTE 7
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SEE NOTE 16
SEE NOTE 15
2 SEE NOTE 7
41 SEE NOTE 16
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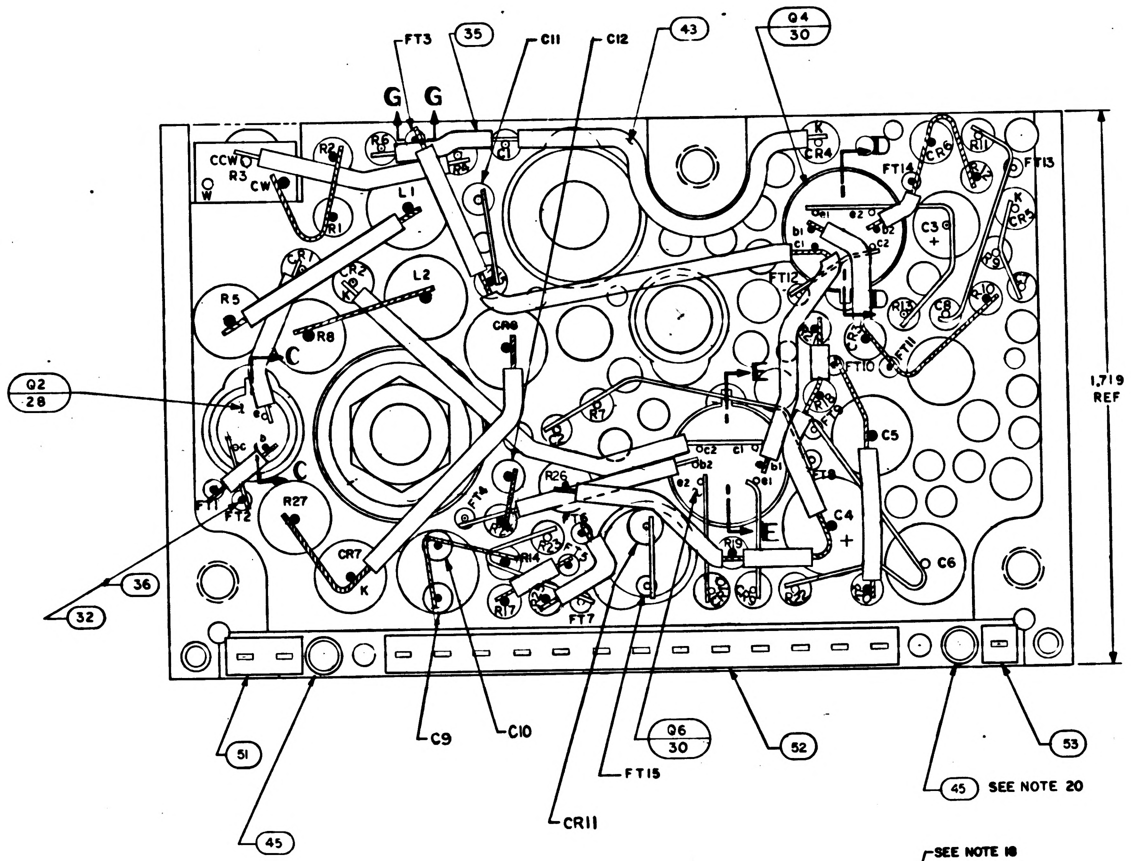
.000
.030
SEE NOTE 15
SEE NOTE 14
32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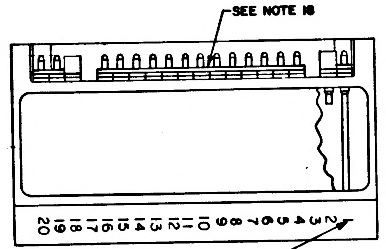
45 SEE NOTE 20
53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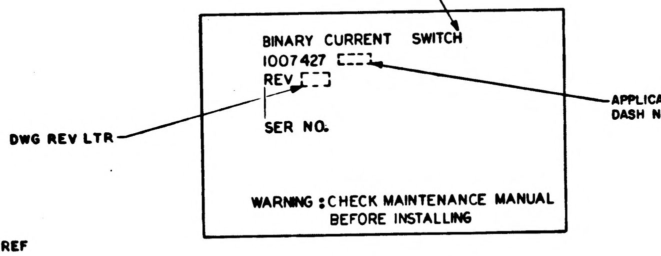
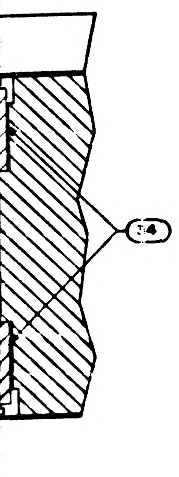
SEE NOTE 8


BINARY CURRENT SWITCH
1007427 ☐
REV ☐
SER NO.

WARNING : CHECK MAINTENANCE MANUAL BEFORE INSTALLING
APPLICABLE DASH NO.
DWG REV LTR

MARKING VIEW
SCALE 2/1



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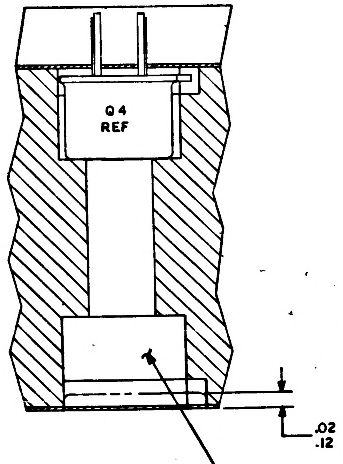
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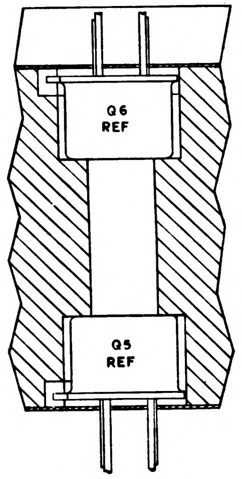
SEE NOTE 2

SECTION D-D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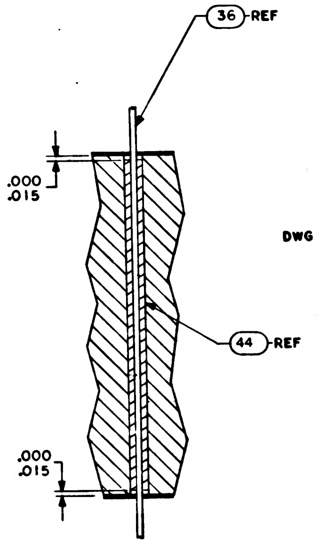
Q5 REF

SECTION E-E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44 REF
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SECTION G-G

			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
			1		1008540-1	GASKET, CONNECTOR MINIATURE
			1		1008540-13	GASKET, CONNECTOR MINIATURE
			1		1008540-2	GASKET, CONNECTOR MINIATURE
			2		1006777-1	CAPACITOR 10UUF 100V 10%
			☒		1010043	SCHEMATIC
			2		1006777-16	CAPACITOR
			1		1006750-40	RESISTOR
			1		1010372-6	DIODE
			2		1008256	POLARIZING PIN
			AR		1006776-22	INSULATION SLEEVING
			AR		1006776-21	INSULATION SLEEVING
			16		1006782-4	CONTACT, WRAPOST MALE MINAT
			16		1006775	INSULATOR, WRAPOST MALE MINAT
			2		1000093-3	SCREW, BOTTON HEAD
			1		MS 35650-104	NUT, PLAIN, HEX
			1		1008020-1	WASHER, FLAT
			2		1008024-1	WASHER, INSULATOR
			AR		1006757-8	WIRE, ELEC, .020 DIA
			AR		1006757-L	WIRE, ELEC, .010 X .020
			2		1008025-1	INSULATOR BUSHING
			1		1008021-1	INSULATOR, BUSHING
			AR		1006776-20	INSULATION SLEEVING
			3		1010376-4	TRANSISTOR
			1		1010269-1	TRANSISTOR
			2		1010357-1	TRANSISTOR
			2		1010388-39	INDUCTOR, 0.01HY 75 MA 5%
			3		1010394	DIODE
			1		1010286-20	DIODE
			2		1010462-6	DIODE
			4		1010385	DIODE
			2		1006777-24	CAP., FIXED CER, 0.001UF, 100V ±10%
			2		1006777-33	CAP., FIXED CER, .022UF, 100V ±10%
			1		1010393-039	CAP., FIXED TANT, 6.8UF, 50V ±10%
			1		1006755-73	CAP., FIXED TANT, 2.2 UF, 35V ±10%
			2		1006777-13	CAP., FIXED CER, 1000UUF, 100V ±10%
			1		1006750-15	RESISTOR, FIXED MF, 200Ω, 1/4W ±2%
			2		1006750-56	RESISTOR, FIXED MF, 10K, 1/4W ±2%
			2		1010369-87	RESISTOR, FIXED MF 80K 1/8W 5%
			1		1006750-78	RESISTOR, FIXED MF 82K 1/4W ±2%
			4		1006750-53	RESISTOR, FIXED MF 7.5K, 1/4W ±2%
			1		1006750-1	RESISTOR, FIXED MF 51 Ω 1/4W ±2%
			4		1006750-67	RESISTOR, FIXED MF 30K, 1/4W ±2%
			4		1006750-81	RESISTOR, FIXED MF 110K, 1/4W ±2%
			2		1010389-80	RESISTOR, FIXED WW 10K, 3 W ±1%
			1		1010364-557	RESISTOR, FIXED MF 39.2K 1/8W ±1%
			1		1010373-10	RESISTOR, VAR, 10K 1W ±5%
			1		1010364-635	RESISTOR, FIXED MF 100K, 1/8W ±1%
			1		1010364-683	RESISTOR, FIXED MF 178K 1/8W ±1%
			1		1008055-1	INSULATOR, TOP
			1		1008055-2	INSULATOR, BOTTOM
			1		1007035	HEATSINK

QUANTITY REQUIRED

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± $\frac{1}{64}$ DECIMALS XX±.02 XXX±.005 ANGLES ± $\frac{1}{2}$°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN J. Klempay DATE 26 SEP 64
CHECKED A. Udovich 30 SEP 64
APPROVAL
APPROVAL 11/4/64
NASA APPROVAL 11-2-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

BINARY CURRENT SWITCH COMPUTER OUTPUT ASSEMBLY

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007427
SCALE 5/1
WT
SHEET 1

REVISIONS
SYM DESCRIPTION DATE APPROVED

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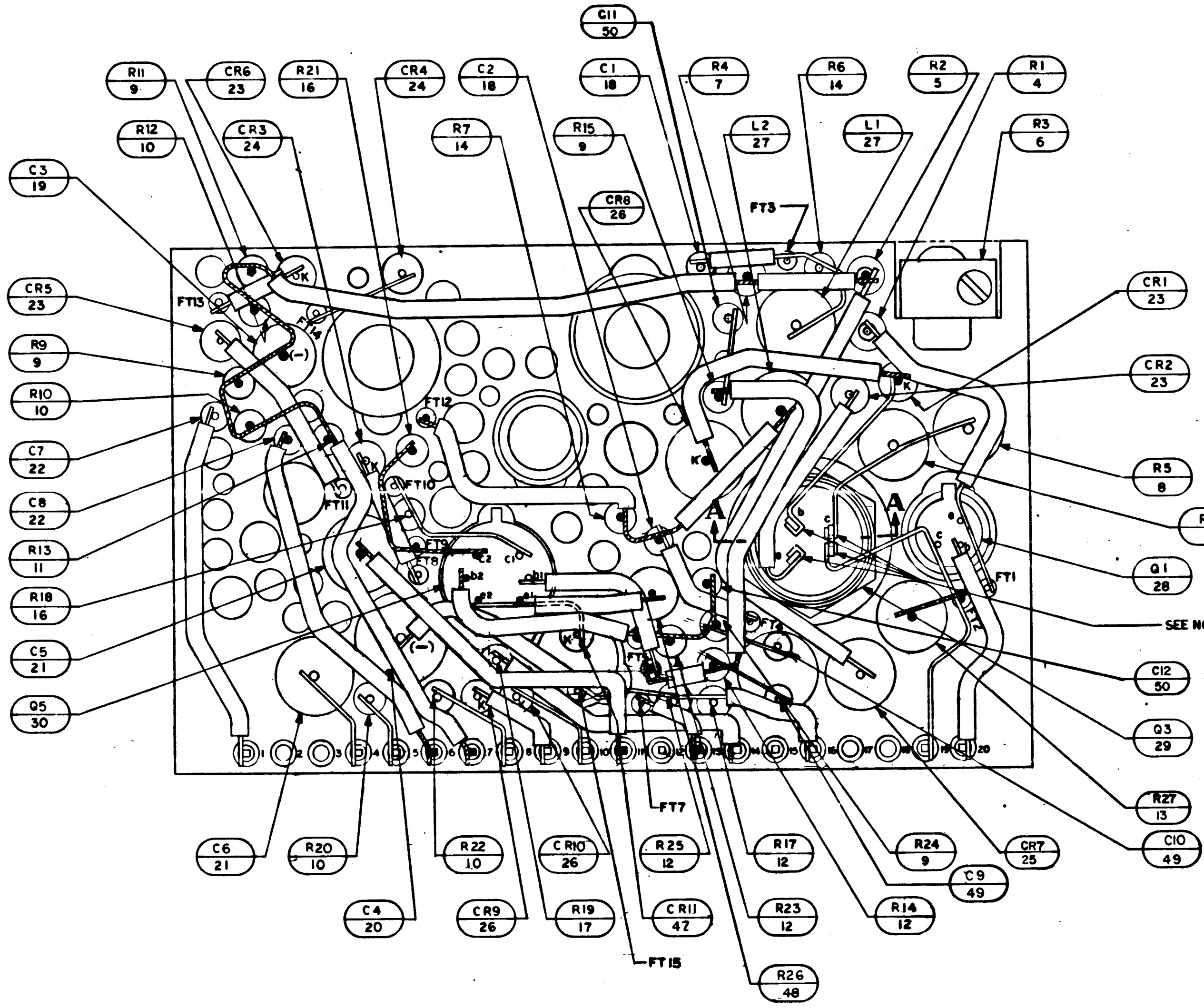
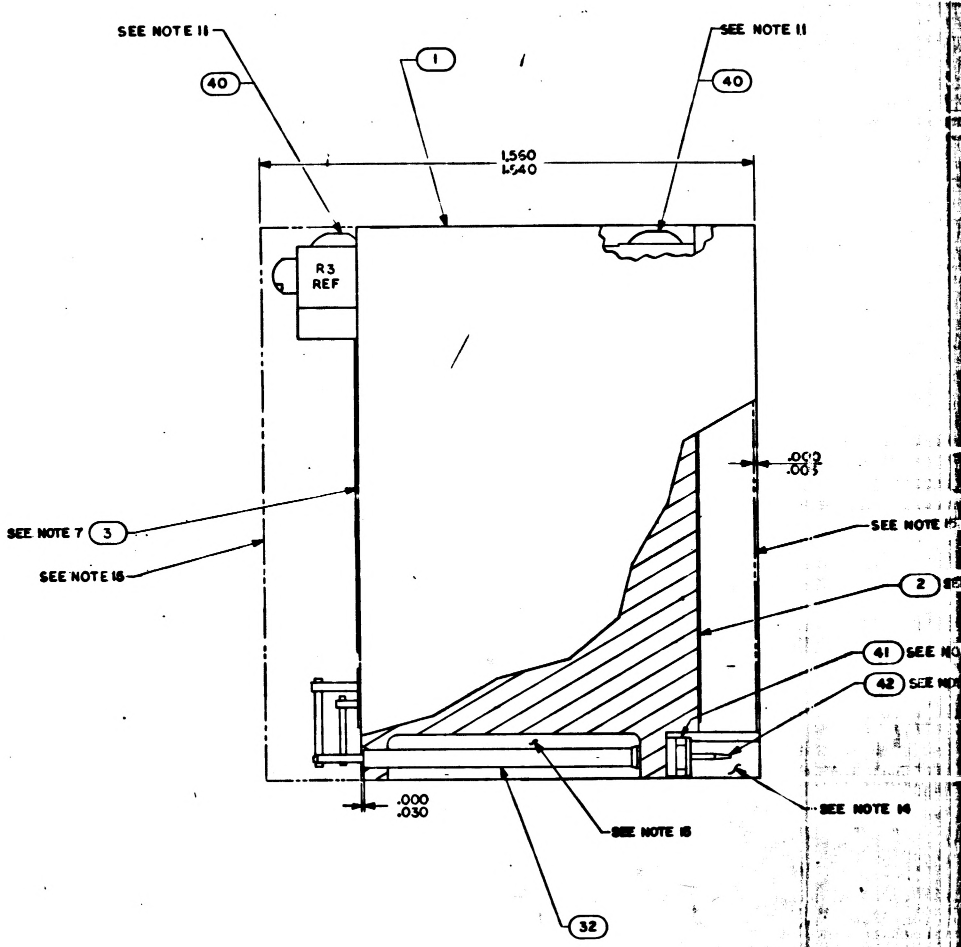
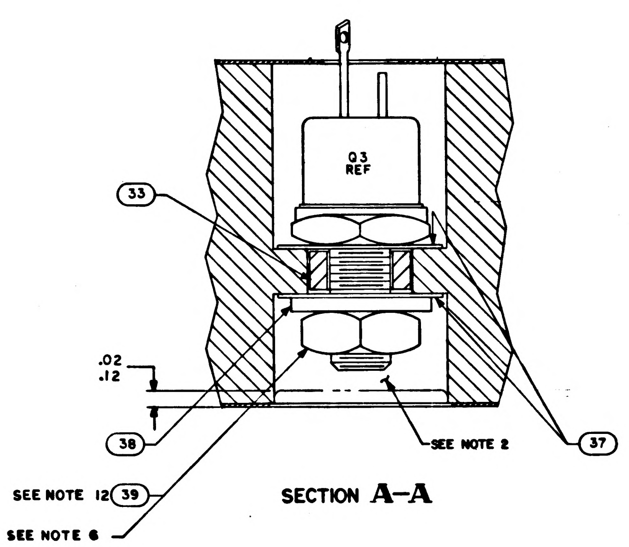

C11 50
R11 9
CR6 23
R21 16
CR4 24
C2 18
C1 18
R4 7
R6 14
R2 5
R1 4
R12 10
CR3 24
R7 14
R15 9
L2 27
L1 27
R3 6
C3 19
CR8 26
FT3
CR5 23
FT13
CR1 23
R9 9
CR2 23
R10 10
FT12
C7 22
R5 8
C8 22
FT11
FT10
R8 8
R13 11
A
A
Q1 28
R18 16
FT1
SEE NOTE 13
C5 21
C12 50
Q5 30
Q3 29
R27 13
C6 21
R20 10
R22 10
CR10 26
R25 12
FT7
R17 12
R24 9
CR7 25
C10 49
C9 49
C4 20
CR9 26
R19 17
CR11 42
R23 12
R14 12
FT15
R26 48

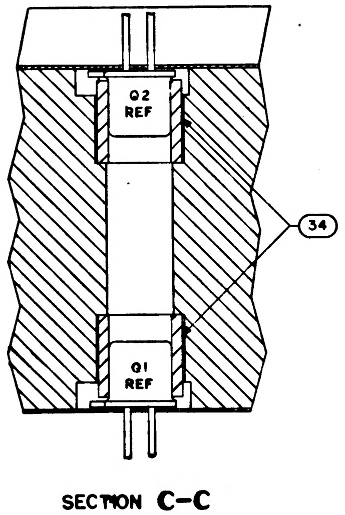

SEE NOTE 11
40
1
SEE NOTE 11
40
1.560
1.540
R3 REF
.000
.005
SEE NOTE 7
3
SEE NOTE 16
SEE NOTE 15
2
41 SEE NO
42 SEE NO
.000
.030
SEE NOTE 15
SEE NOTE 14
32

NOTES:

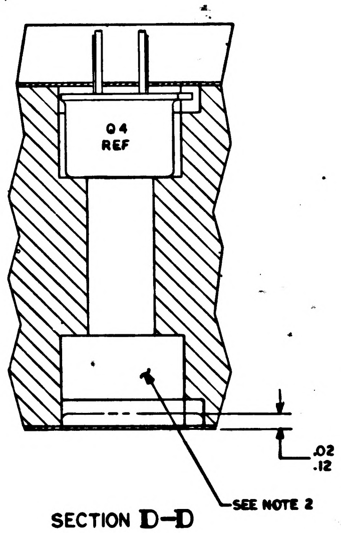
1. INTERPRET DRAWING IN ACCORDANCE WITHE STANDARDS PRESCRIBED BY MIL-D-70327.
2. FILL PER ND 1002117
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
6. APPLY SEALING COMPOUND MIL-S-22473 GRADE A TO FIND NO. 39.
7. ON FIND NUMBERS 2 AND 3 ;
    BROKEN PATHS INDICATE INSULATION SLEEVING.
    K INDICATES CATHODE SIDE OF DIODE.
    FT ( ) INDICATES FEED THRU
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
    C INDICATES COLLECTOR LEAD OF TRANSISTOR.
    B INDICATES BASE LEAD OF TRANSISTOR.
    E INDICATES EMITTER LEAD OF TRANSISTOR.
    C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR.
    B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR.
    E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR.
8. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO.4 THRU FIND NO.30, FIND NO.33,34,47 THRU 50 PER ND 1002009, METHOD C
10. AR DENOTES AS REQUIRED.
11. APPLY ZINC CHROMATE PRIMER MIL-P-8585 TO THREADS OF FIND NO.40.
12. MOUNTING TORQUE FOR FIND NO.39 10/15 INCH POUND.
13. SOLDER PER ND 1002071.
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND.
15. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY NOT EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
16. MUST MEET REQUIREMENTS OF ND 1002136.
17. PROCURE PER PS 1007027.
18. BOND FIND NO.51, 52 AND 53 TO FIND NO.41 PER ND 1002237.
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
20. BOND FIND NO.45 TO FIND NO.1 PER ND 1002004 TYPE I


Q3 REF
33
.02
.12
38
SEE NOTE 12
39
SEE NOTE 6
SEE NOTE 2
37

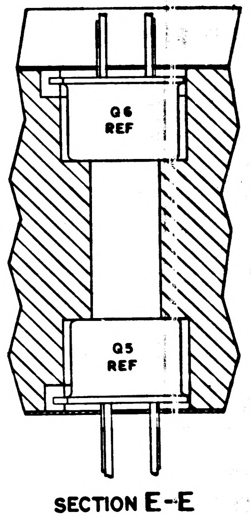
SECTION A–A


Q2 REF
Q1 REF
34

SECTION C–C


Q4 REF
SEE NOTE 2
.02
.12

SECTION D–D


Q6 REF
Q5 REF

SECTION E–E

1007427

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 73:9		3 VAR -65	DAS / CF

NOTES:

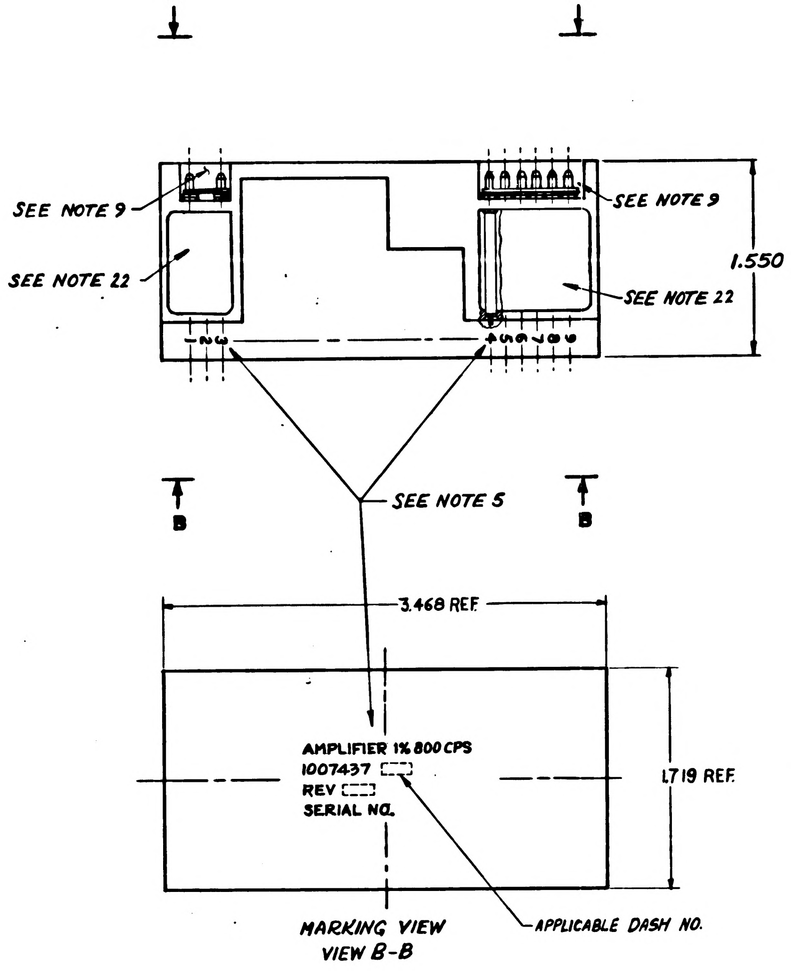
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. COMPONENTS TO BE CENTRALIZED AND CEMENTED IN PLACE PER ND 1002008 METHOD C
3. UNLESS OTHERWISE SPECIFIED:
   WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
4. ALL WELDED CONNECTIONS TO BE MADE PER ND 1002005.
5. MARK PIN NUMBERS .060/.100 HIGH (WHITE) ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019
. SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.

7. MOUNTING TORQUE FOR ITEM ⑧ 24 IN-LBS ± 2 IN-LBS.
8. SOLDER PER ND 1002071.
9. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.

11. AR DENOTES AS REQUIRED
12. BOND (42) AND (43) TO ⑦ PER ND1002237
13. ON ITEM ③ AND ④:
    K INDICATES CATHODE END.
    FT ( ) INDICATES FEED THRU.
    PLUS (+) INDICATES POSITVE END OF CAPACITOR.
    C - INDICATES COLLECTOR LEAD OF TRANSISTOR.
    B - BASE
    E - EMITTER
    C_A COLLECTOR
    B_A BASE
    E_A EMITTER
    C_B COLLECTOR
    B_B BASE
    E_B EMITTER
    MULTI STAGE TRANSISTOR.
14. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVER WIRING.
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.

16. TYPICAL SLEEVING FOR R3, R5, R6, R8, R9, R12, R13, R14, R15 AND R16
17. TYPICAL SLEEVING AND WIRE FOR FT1 THRU FT10.
18. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007047 PART TO BE SELECTED FROM CHART, VALUE IS IN OHMS.
19. ASSEMBLE PER ND 1002136.
20. BOND ITEM (35) TO ITEM (29). CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM ①.
21. PROCURE PER PS 1007047

22. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005 WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE, SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
23. FILL PER ND1002117
24. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.



MARKING VIEW
VIEW B-B

SELECTION CHART FOR R11	
PART NUMBER	VALUE
1010364 - 325	2430
329	2550
337	2800
343	3010
351	3320
355	3480
361	3740
367	4020
371	4220
375	4420
377	4530
381	4750
385	4990
387	5110
391	5360
395	5620
399	5900
403	6190
405	6340
409	6650

QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
X		KCI	1010045	SCHEMATIC, ELECTRICAL
1		43	1008540-3	GASKET, CONNECTOR MINIATURE
1		42	1008540-6	GASKET CONNECTOR MINIATURE
AR		41	1006757-8	WIRE, ELECTRICAL .020 DIA
AR		40	1006757-1	WIRE, ELECTRICAL .010 × .020
AR		39	1006757-9	WIRE, ELECTRICAL .032 DIA
AR		38	-22	INSULATION SLEEVING, ELECTRICAL
AR		37	-21	INSULATION SLEEVING, ELECTRICAL
AR		36	1006776-20	INSULATION SLEEVING, ELECTRICAL
AR		35	MIL-I-15126	INSUL TAPE TYPE MFT 2.5 ½ IN. WIDE
1		34	1010273-2	TRANSISTOR (MATCHED PAIR)
1		33	1010324	TRANSFORMER
1		32	1010307	TRANSFORMER
1		31	1010431	TRANSISTOR
1		30	1010345-2	TRANSISTOR (MATCHED PAIR)
1		29	1010265-2	SEMICONDUCTOR DEVICE, DIODE
1		28	1010372-15	SEMICONDUCTOR DEVICE, DIODE
2		27	1010264-9	CAPACITOR, FIXED
2		26	1010264-37	CAPACITOR, FIXED
1		25	-57	
1		24	-73	
2		23	-25	
2		22	-12	
2		21	1006750-1	
2		20	1010369-1	
		19	1010364-	
1		18	-573	
2		17	-327	
1		16	-309	
1		15	1010364-273	RESISTOR, FIXED
2		14	1008025-2	INSULATOR, BUSHING
2		13	1000093-13	SCREW
2		12	1008024-4	WASHER, INSULATOR
2		11	1008024-3	WASHER, INSULATOR
2		10	1008021-2	BUSHING, INSULATOR
2		7	1008071-5	WASHER, FLAT
2		8	MS20341-416B	NUT
8		7	1006775	INSULATOR
8		6	1006782-5	CONTACT, WRAPOST-MALE
		5		
1		4	1015712	
1		3	1015711	INSULATOR
		2		
1		1	1015709	HEATSINK

SEE NOTE 18

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		
1007572		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
±	.XX ±.02	±
	.XXX ±.005	

DO NOT SCALE THIS DRAWING

MATERIAL

CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN

ACSP PN

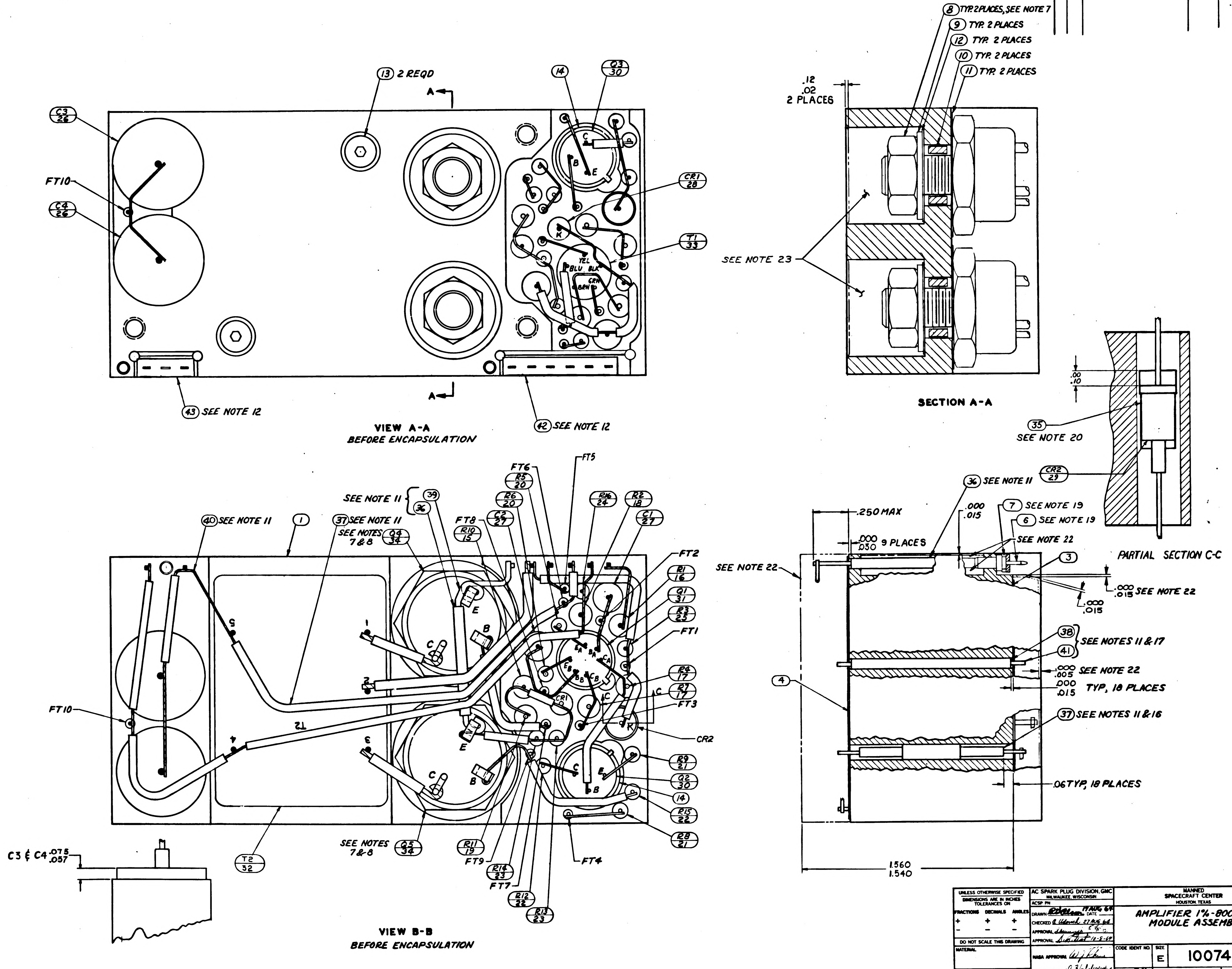
DRAWN R. Allen DATE 17 AUG 64
CHECKED A. Ulrich 27 AUG 64
APPROVAL Shewsgale 8/7/8
APPROVAL D. B. Test 10-8-64
NASA APPROVAL
MIT APPROVAL C. Kobel 10/4/64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1%-800 CPS
MODULE ASSEMBLY

CODE IDENT NO.
SIZE E
1007437
SCALE 2/1
SHEET 1 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION		DATE	APPD.
A		REVISED PER TDRR 17319	CHG NO.	2 JUL -65	DAS/



13 2 REQD
A
14
Q3 30
C3 26
FT10
C4 26
C
B
E
CR1 28
K
YEL
BLU
BLK
GRN
BRN
T1 33
43 SEE NOTE 12
42 SEE NOTE 12
VIEW A-A
BEFORE ENCAPSULATION
.12 .02 2 PLACES
8 TYP. 2 PLACES, SEE NOTE 7
9 TYP. 2 PLACES
12 TYP. 2 PLACES
10 TYP. 2 PLACES
11 TYP. 2 PLACES
SEE NOTE 23
SECTION A-A
.00 .10
35 SEE NOTE 20
CR2 29
FT6
FT5
R5 20
R6 20
R16 24
R2 18
C2 27
C1 27
FT8
R10 15
SEE NOTE 11
39
36
40 SEE NOTE 11
1
37 SEE NOTE 11
SEE NOTES 7&8
Q4 34
FT2
R1 16
Q1 31
R3 25
FT1
R4 17
R7 17
FT3
CR2
R9 21
Q2 30
14
R15 22
R8 21
FT4
R13 23
R12 22
FT7
R14 23
FT9
R11 19
SEE NOTES 7&8
Q5 34
T2 32
T2
FT10
C3 & C4 .075 .057
VIEW B-B
BEFORE ENCAPSULATION
36 SEE NOTE 11
.250 MAX
.000 .015
7 SEE NOTE 19
6 SEE NOTE 19
.000 .030 9 PLACES
SEE NOTE 22
SEE NOTE 22
3
PARTIAL SECTION C-C
.000 .015 SEE NOTE 22
.000 .015
4
38
41
SEE NOTES 11 & 17
.000 .005 SEE NOTE 22
.000 .015 TYP, 18 PLACES
37 SEE NOTES 11 & 16
.06 TYP, 18 PLACES
1.560 1.540

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
FRACTIONS + − DECIMALS + − ANGLES + −	ACSP PN DRAWN 17 AUG 64 DATE CHECKED 27 AUG 64 APPROVAL APPROVAL 10-8-64	AMPLIFIER 1%-800 CPS MODULE ASSEMBLY		
DO NOT SCALE THIS DRAWING				
MATERIAL	NASA APPROVAL	CODE IDENT NO.	SIZE E	1007437
CONTRACT NAS 9-497	MIT APPROVAL	SCALE 5/1		SHEET 2 OF 2

1007437

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 17319		12 MAR 65	DAE / EF
B		REVISED PER TDRR 19458		2 JUN 65	WSM /

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80%. OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE

NOTES:

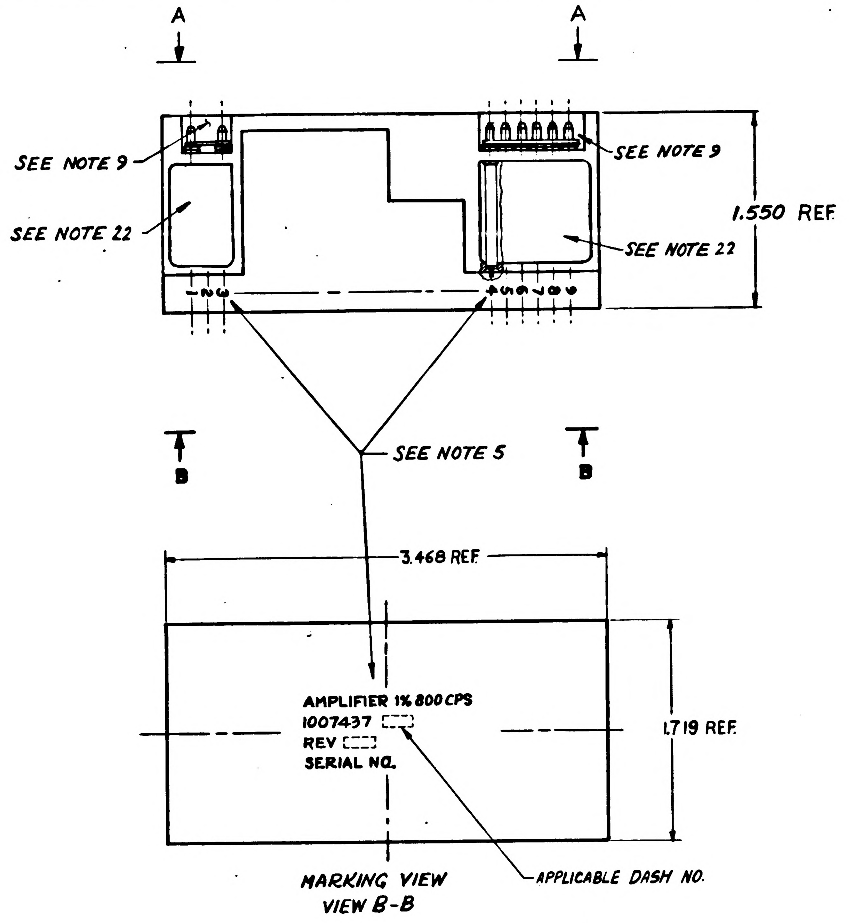
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. COMPONENTS TO BE CENTRALIZED AND CEMENTED IN PLACE PER ND1002009 METHOD C
3. UNLESS OTHERWISE SPECIFIED:
   WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
4. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005.
5. MARK PIN NUMBERS .060/.100 HIGH (WHITE) ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019
   SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.

7. MOUNTING TORQUE FOR ITEM ⑧ 24 IN-LBS ± 2 IN-LBS.
8. SOLDER PER ND 1002071.
9. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.

11. AR DENOTES AS REQUIRED
12. BOND (42) AND (43) TO ⑦ PER ND1002237
13. ON ITEM ③ AND ④:
    K INDICATES CATHODE END.
    FT ( ) INDICATES FEED THRU.
    PLUS (+) INDICATES POSITVE END OF CAPACITOR.
    C - INDICATES COLLECTOR LEAD OF TRANSISTOR.
    B - BASE
    E - EMITTER
    C_A COLLECTOR
    B_A BASE
    E_A EMITTER
    C_B COLLECTOR
    B_B BASE
    E_B EMITTER
    MULTI STAGE TRANSISTOR.
14. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVER WIRING.
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.

16. TYPICAL SLEEVING FOR R3, R5, R6, R8, R9, R12, R13, R14, R15 AND R16
17. TYPICAL SLEEVING AND WIRE FOR FT1 THRU FT10.
18. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007047 PART TO BE SELECTED FROM CHART, VALUE IS IN OHMS.
19. ASSEMBLE PER ND1002136.
20. BOND ITEM (35) TO ITEM (29). CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM ①.
21. PROCURE PER PS 1007047

22. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005 WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE, SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
23. FILL PER ND1002117
24. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
25. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.



MARKING VIEW
VIEW B-B

SELECTION CHART FOR R11

PART NUMBER	VALUE
1010364-325	2430
329	2550
337	2800
343	3010
351	3320
355	3480
361	3740
367	4020
371	4220
375	4420
377	4530
381	4750
385	4990
387	5110
391	5360
395	5620
399	5900
403	6190
405	6340
409	6650

SEE NOTE 18

QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
X		KC.	1010045	SCHEMATIC, ELECTRICAL
1		43	1008540-3	GASKET, CONNECTOR MINIATURE
1		42	1008540-6	GASKET CONNECTOR MINIATURE
AR		41	1006757-8	WIRE, ELECTRICAL .020 DIA
AR		40	1006757-1	WIRE, ELECTRICAL .010 × .020
AR		39	1006757-9	WIRE, ELECTRICAL .032 DIA
AR		38	-22	INSULATION SLEEVING, ELECTRICAL
AR		37	-21	INSULATION SLEEVING, ELECTRICAL
AR		36	1006776-20	INSULATION SLEEVING, ELECTRICAL
AR		35	MIL-I-15126	INSUL TAPE TYPE MFT 2.5 ½ IN. WIDE
1		34	1010273-2	TRANSISTOR (MATCHED PAIR)
1		33	1010324	TRANSFORMER
1		32	1010307	TRANSFORMER
1		31	1010431	TRANSISTOR
1		30	1010345-2	TRANSISTOR (MATCHED PAIR)
1		29	1010265-2	SEMICONDUCTOR DEVICE, DIODE
1		28	1010372-15	SEMICONDUCTOR DEVICE, DIODE
2		27	1010264-9	CAPACITOR, FIXED
2		26	1010264-37	CAPACITOR, FIXED
1		25	-57	
1		24	-73	
2		23	-25	
2		22	-12	
2		21	1006750-1	
2		20	1010369-1	
		19	1010364-	
1		18	-573	
2		17	-327	
1		16	-309	
1		15	1010364-273	RESISTOR, FIXED
2		14	1008025-2	INSULATOR, BUSHING
2		13	1000093-13	SCREW
2		12	1008024-4	WASHER, INSULATOR
2		11	1008024-3	WASHER, INSULATOR
2		10	1008021-2	BUSHING, INSULATOR
2		7	1008071-5	WASHER, FLAT
2		8	MS20341-416B	NUT
8		7	1006775	INSULATOR
8		6	1006782-5	CONTACT, WRAPOST-MALE
		5		
1		4	1015712	
1		3	1015711	INSULATOR
		2		
1		1	1015709	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		
1007572		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + − DECIMALS .XX ±.02 .XXX ±.005 ANGLES + −
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE 17 AUG 64
CHECKED 17 AUG 64
APPROVAL
APPROVAL 0-8-64
NASA APPROVAL
MIT APPROVAL

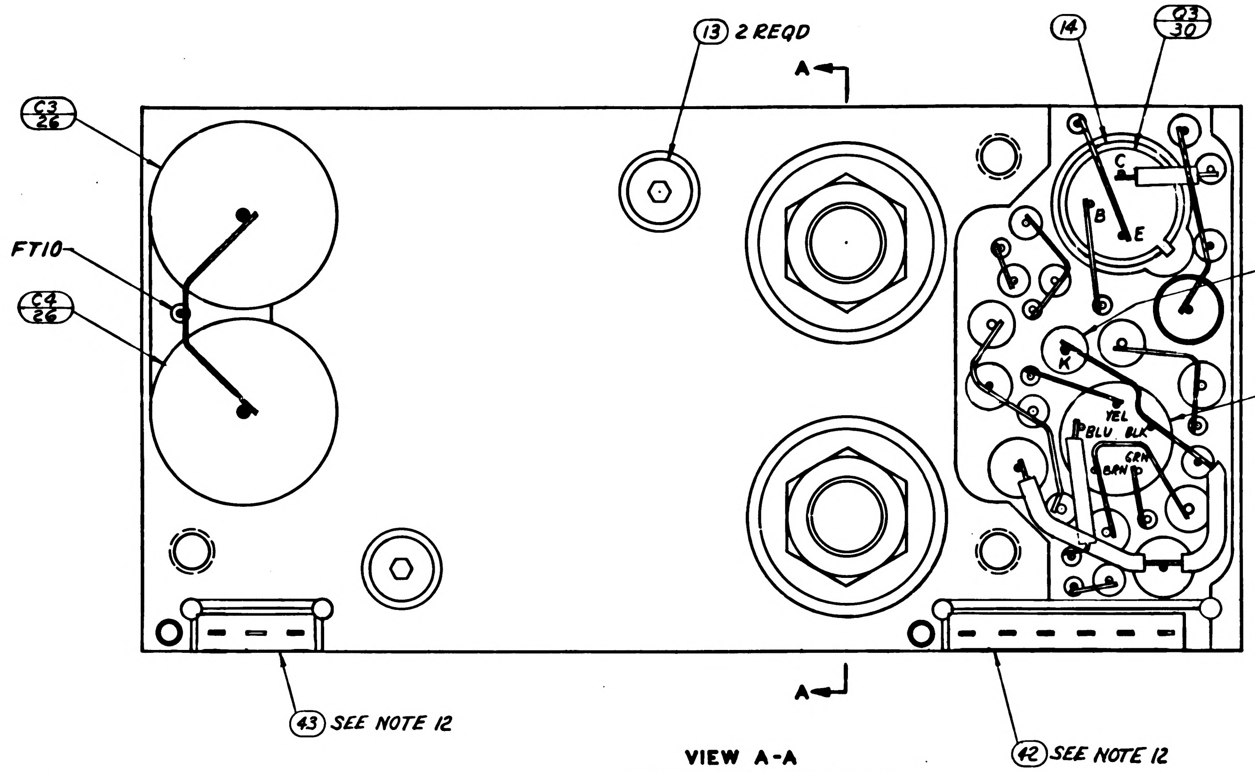
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1%-800 CPS
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007437
SCALE 2/1
SHEET 1 OF 2

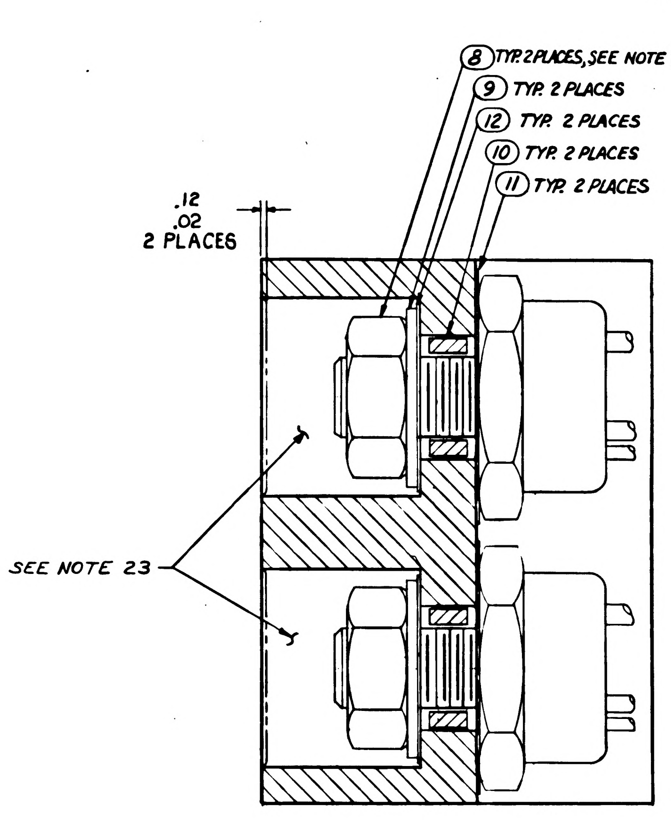
1007437 B

REVISIONS					
SYM	ZONE	DESCRIPTION		DATE	APPD.
A		ZEVISED PER TDRR 17319	CHG NO.	12 MAR -65	DAS/EF
B		REVISED PER TDRR 19458		2 JUN 65	



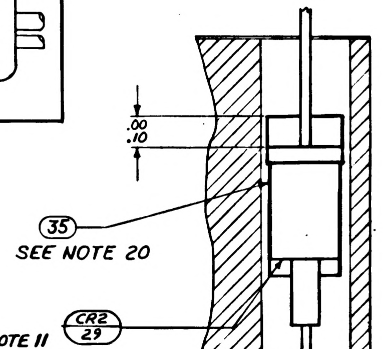
C3
26
FT10
C4
26
13 2 REQD
A
A
14
Q3
30
C
B
E
CR1
28
K
YEL
BLU
BLK
GRN
BRN
T1
33
43 SEE NOTE 12
42 SEE NOTE 12

VIEW A-A
BEFORE ENCAPSULATION



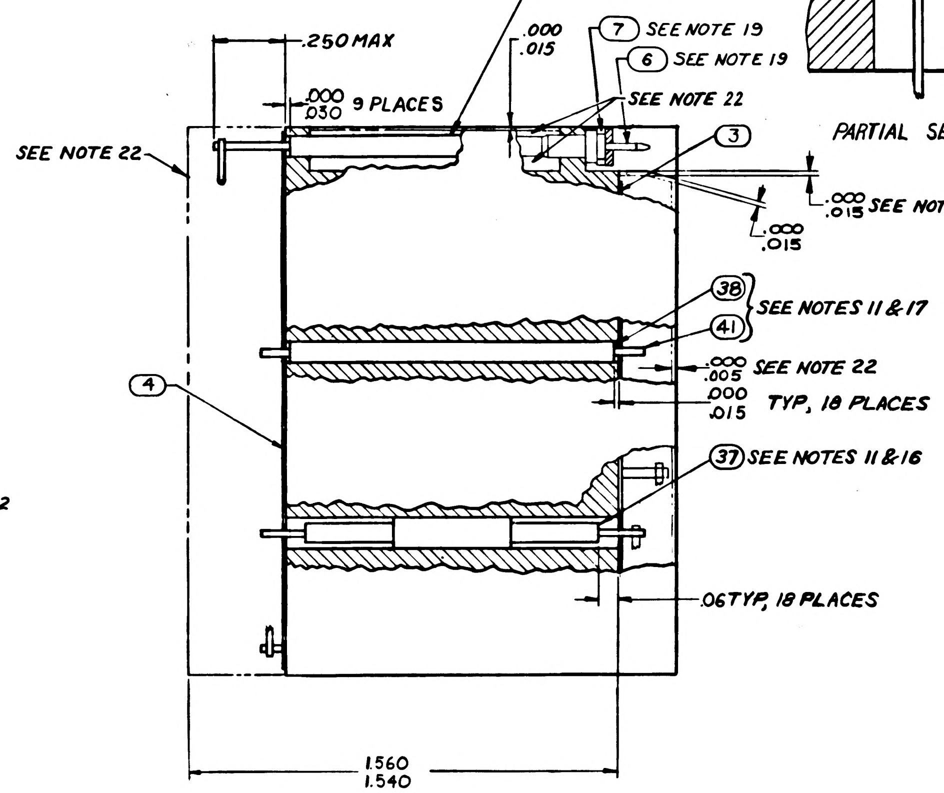
8 TYP. 2 PLACES, SEE NOTE 7
9 TYP. 2 PLACES
12 TYP. 2 PLACES
10 TYP. 2 PLACES
11 TYP. 2 PLACES
.12
.02
2 PLACES
SEE NOTE 23

SECTION A-A

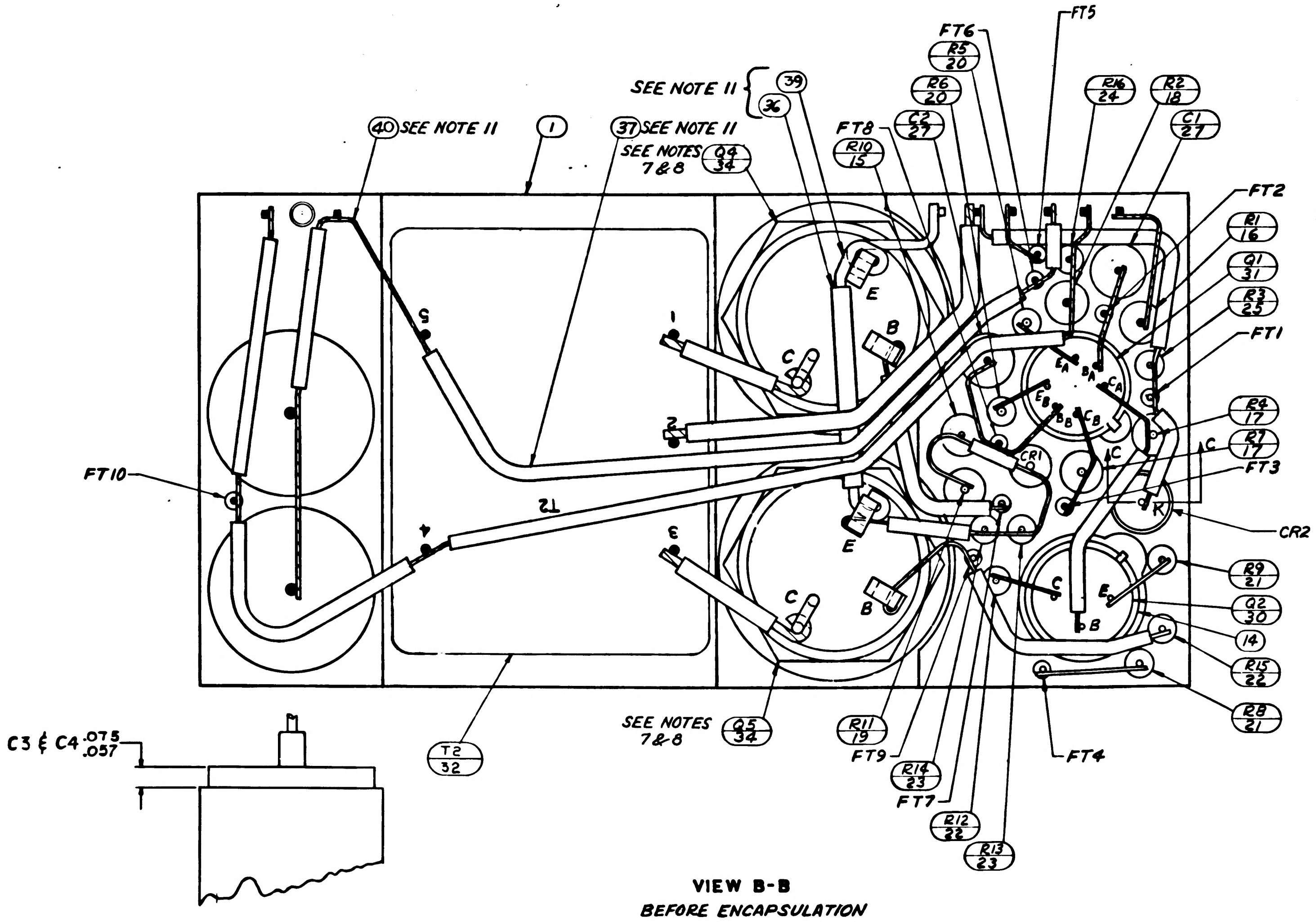


.00
.10
35
SEE NOTE 20
CR2
29

PARTIAL SECTION C-C



36 SEE NOTE 11
.250 MAX
.000
.015
7 SEE NOTE 19
6 SEE NOTE 19
.000
.030 9 PLACES
SEE NOTE 22
SEE NOTE 22
3
.000
.015 SEE NOTE 22
.000
.015
4
38
41
SEE NOTES 11 & 17
.000
.005 SEE NOTE 22
.000
.015 TYP, 18 PLACES
37 SEE NOTES 11 & 16
.06 TYP, 18 PLACES
1.560
1.540



SEE NOTE 11
39
36
40 SEE NOTE 11
1
37 SEE NOTE 11
SEE NOTES 7&8
Q4
34
FT8
R10
15
FT6
R5
20
R6
20
C2
27
FT5
R16
24
R2
18
C1
27
FT2
R1
16
Q1
31
R3
23
FT1
R4
17
R7
17
FT3
CR2
R9
21
Q2
30
14
R15
22
R8
21
FT4
FT10
5
1
2
3
4
T2
E
B
C
CR1
K
FT9
FT7
R11
19
R14
23
R12
22
R13
23
SEE NOTES 7&8
Q5
34
T2
32
C3 & C4 .075
.057

VIEW B-B
BEFORE ENCAPSULATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON	M I T INSTRUMENTATION LAB Cambridge Mass	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
FRACTIONS DECIMALS ANGLES + + + − − −	DRAWN 19 AUG 64 DATE CHECKED A Udovich 27 AUG 64 APPROVAL APPROVAL 10-5-64	AMPLIFIER 1%-800CPS MODULE ASSEMBLY		
DO NOT SCALE THIS DRAWING				
MATERIAL	NASA APPROVAL	CODE IDENT NO. 80230	SIZE E	1007437
CONTRACT NAS 9-497	MIT APPROVAL	SCALE 5/1		SHEET 2 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 17319		2 MAR 65	DAS / EF
B		REVISED PER TDRR 19458		2 JUN 65	JSM
C		REVISED PER TDRR 19529		8 JUN 65	HCK

TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE~~

NOTES:

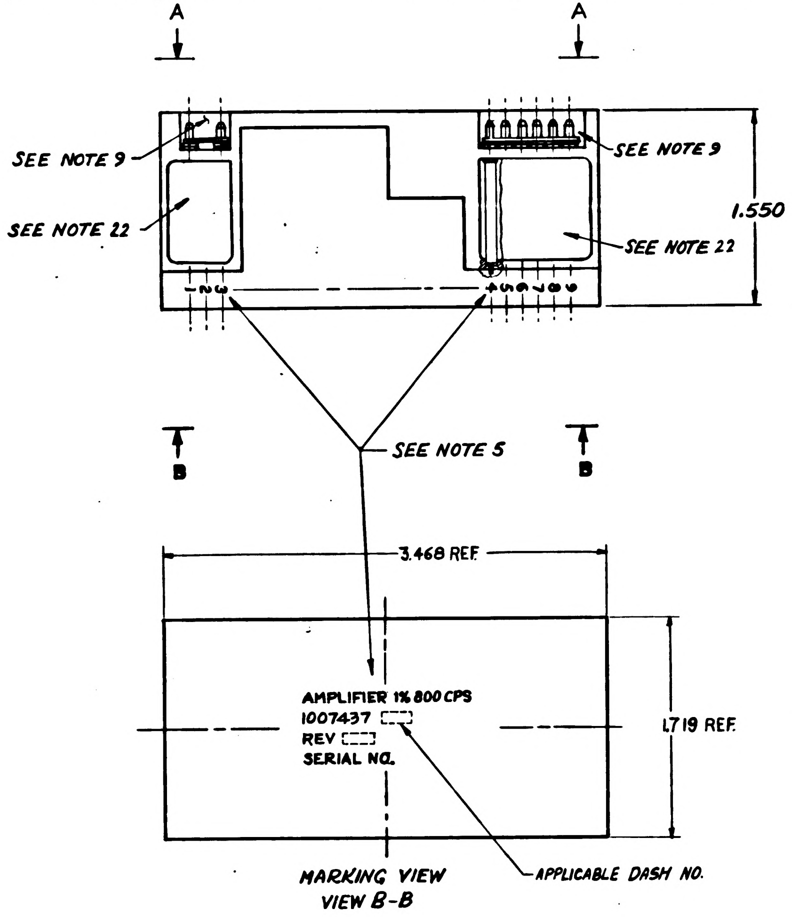
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. COMPONENTS TO BE CENTRALIZED AND CEMENTED IN PLACE PER ND1002009 METHOD H.
3. UNLESS OTHERWISE SPECIFIED:
   WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
4. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005.
5. MARK PIN NUMBERS .060/100 HIGH (WHITE) ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019
   SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.

7. MOUNTING TORQUE FOR ITEM ⑧ 24 IN-LBS ± 2 IN-LBS.
8. SOLDER PER ND1002071.
9. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.

11. AR DENOTES AS REQUIRED
12. BOND (42) AND (43) TO ⑦ PER ND1002237
13. ~~ON ITEM ③ AND ④:~~
    K INDICATES CATHODE END.
    FT ( ) INDICATES FEED THRU.
    PLUS (+) INDICATES POSITVE END OF CAPACITOR.
    C - INDICATES COLLECTOR LEAD OF TRANSISTOR.
    B - BASE
    E - EMITTER
    C_A COLLECTOR
    B_A BASE
    E_A EMITTER
    C_B COLLECTOR
    B_B BASE
    E_B EMITTER
    MULTI STAGE TRANSISTOR.
14. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVER WIRING.
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.

16. TYPICAL SLEEVING FOR R3, R5, R6, R8, R9, R12, R13, R14, R15 AND R16
17. TYPICAL SLEEVING AND WIRE FOR FT1 THRU FT10.
18. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007047 PART TO BE SELECTED FROM CHART, VALUE IS IN OHMS.
19. ASSEMBLE PER ND1002136.
20. BOND ITEM (35) TO ITEM (29). CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM ①.
21. PROCURE PER PS1007047

22. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005 WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE, SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
23. FILL PER ND1002117
24. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
25. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~



MARKING VIEW
VIEW B-B

26. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
27. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

SELECTION CHART FOR R11

PART NUMBER	VALUE
1010364-325	2430
329	2550
337	2800
343	3010
351	3320
355	3480
361	3740
367	4020
371	4220
375	4420
377	4530
381	4750
385	4990
387	5110
391	5360
395	5620
399	5900
403	6190
405	6340
409	6650

SEE NOTE 18

LIST OF PARTS AND MATERIALS

QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
X		KL	1010045	SCHEMATIC, ELECTRICAL
1		43	1008540-3	GASKET, CONNECTOR MINIATURE
1		42	1008540-6	GASKET, CONNECTOR MINIATURE
AR		41	1006757-8	WIRE, ELECTRICAL .020 DIA
AR		40	1006757-1	WIRE, ELECTRICAL .010 × .020
AR		39	1006757-9	WIRE, ELECTRICAL .032 DIA
AR		38	-22	INSULATION SLEEVING, ELECTRICAL
AR		37	-21	INSULATION SLEEVING, ELECTRICAL
AR		36	1006776-20	INSULATION SLEEVING, ELECTRICAL
AR		35	MIL-I-15126	INSUL TAPE TYPE MFT 2.5 ½ IN. WIDE
1		34	1010273-2	TRANSISTOR (MATCHED PAIR)
1		33	1010324	TRANSFORMER
1		32	1010307	TRANSFORMER
1		31	1010431	TRANSISTOR
1		30	1010345-2	TRANSISTOR (MATCHED PAIR)
1		29	1010829-2	SEMICONDUCTOR DEVICE, DIODE
1		28	1010372-15	SEMICONDUCTOR DEVICE, DIODE
2		27	1010264-9	CAPACITOR, FIXED
2		26	1010264-37	CAPACITOR, FIXED
1		25	-57	
1		24	-73	
2		23	-25	
2		22	-12	
2		21	1006750-1	
2		20	1010369-1	
		19	1010364-	
1		18	-573	
2		17	-327	
1		16	-309	
1		15	1010364-273	RESISTOR, FIXED
2		14	1008025-2	INSULATOR, BUSHING
2		13	1000093-13	SCREW
2		12	1008024-4	WASHER, INSULATOR
2		11	1008024-3	WASHER, INSULATOR
2		10	1008021-2	BUSHING, INSULATOR
2		9	1008071-5	WASHER, FLAT
2		8	MS20341-416B	NUT
8		7	1006775	INSULATOR
8		6	1006782-5	CONTACT, WRAPOST-MALE
		5		
~~1~~		~~4~~	~~1015712~~	
~~1~~		~~3~~	~~1015711~~	~~INSULATOR~~
		2		
1		1	1015709	HEATSINK

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		
1007572		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± .XX ±.02 ±
.XXX ±.005
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

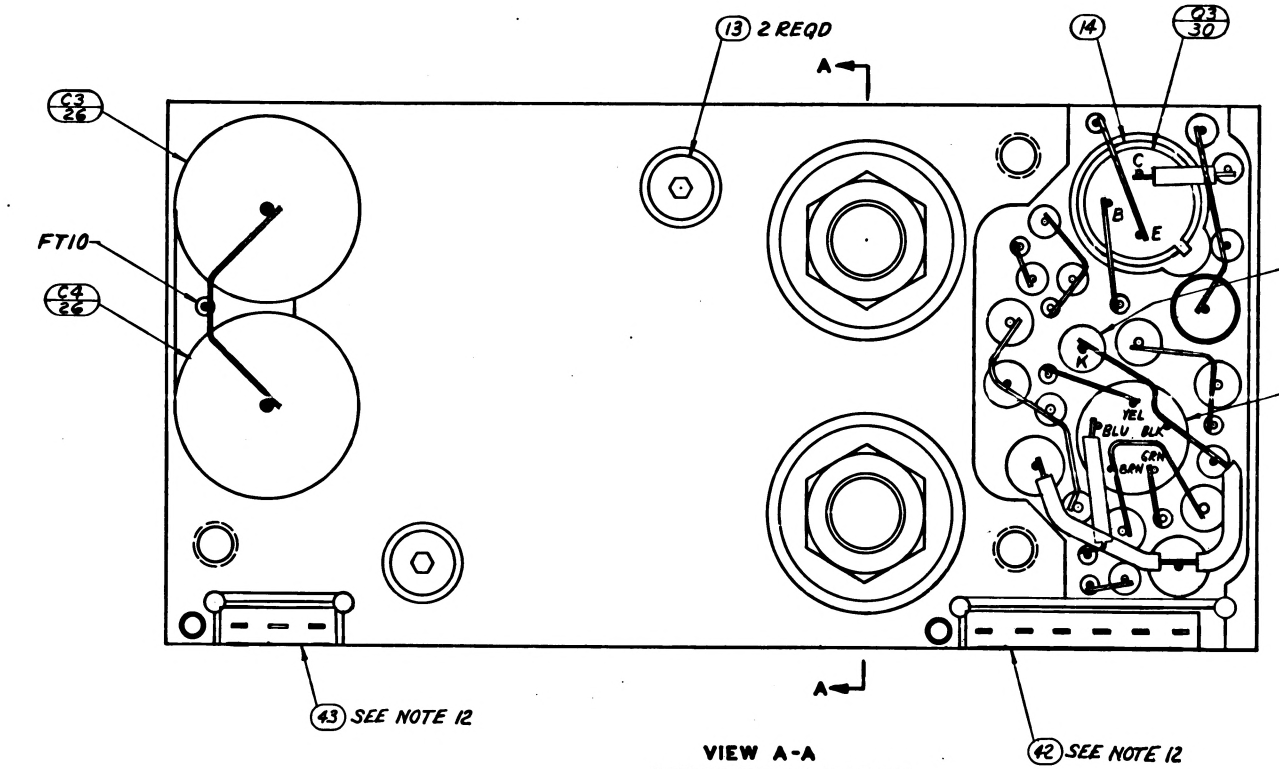
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE 19 AUG 64
CHECKED 27 AUG 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1%-800 CPS
MODULE ASSEMBLY

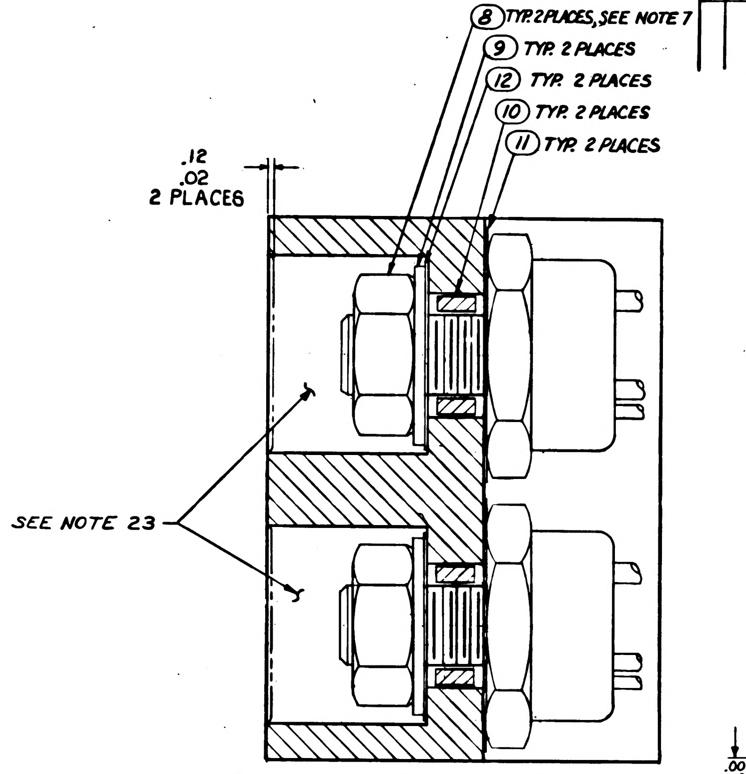
CODE IDENT NO. 80230
SIZE E
1007437
SCALE 2/1
SHEET 1 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		ZEVISED PER TDRR 17319		12 MAR 65	DAS / CF
B		REVISED PER TDRR 9458		2 JUN 65	HSM /
C		REVISED PER TDRR 9529		9 JUN 65	HLK



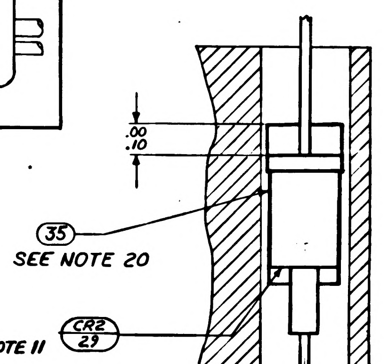
13 2 REQD
A
14
Q3 30
C3 26
FT10
C4 26
CR1 28
T1 33
C
B
E
K
YEL
BLU
BLK
GRN
BRN
43 SEE NOTE 12
42 SEE NOTE 12

VIEW A-A
BEFORE ENCAPSULATION



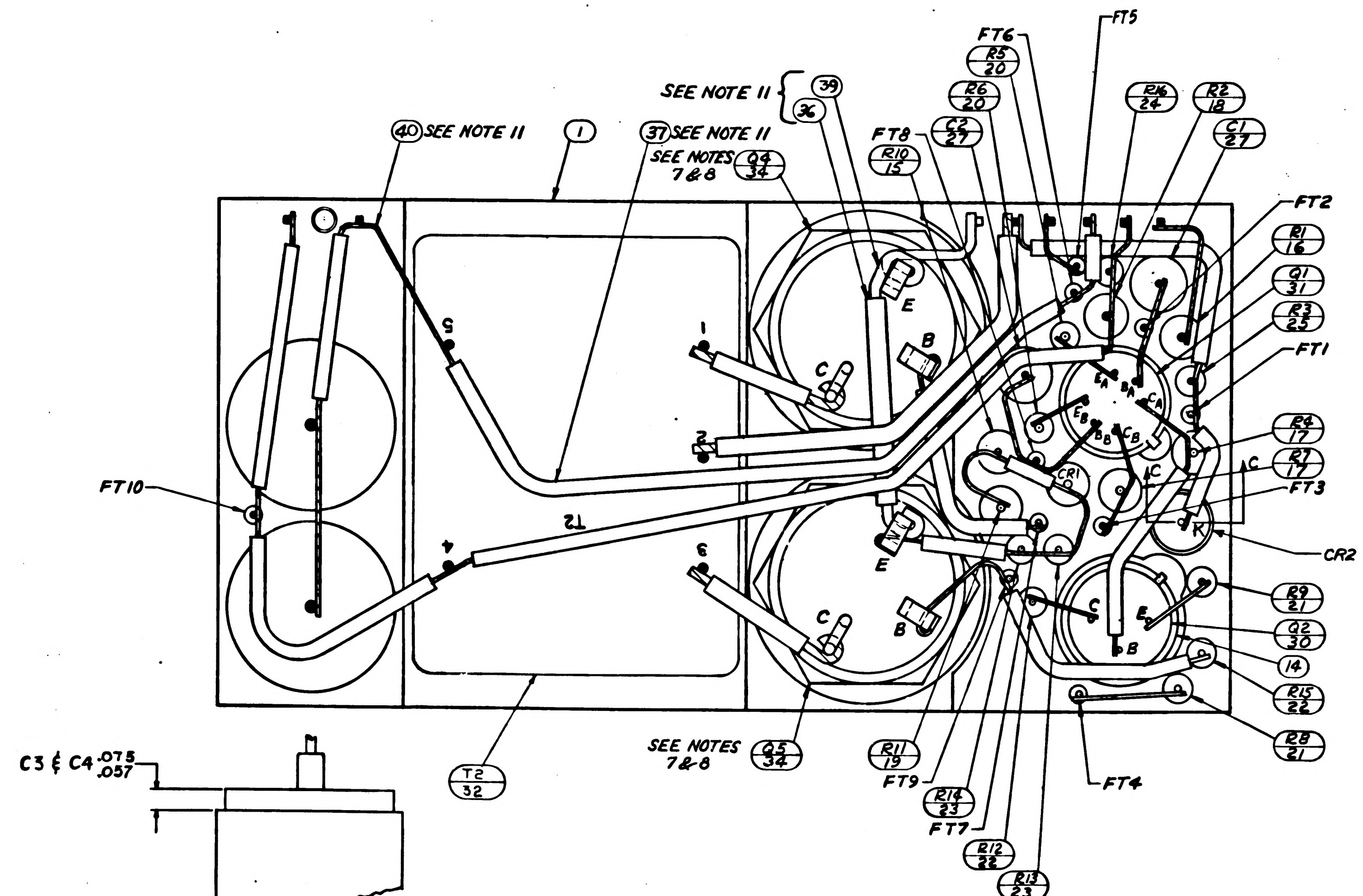
8 TYP. 2 PLACES, SEE NOTE 7
9 TYP. 2 PLACES
12 TYP. 2 PLACES
10 TYP. 2 PLACES
11 TYP. 2 PLACES
.12
.02
2 PLACES
SEE NOTE 23

SECTION A-A



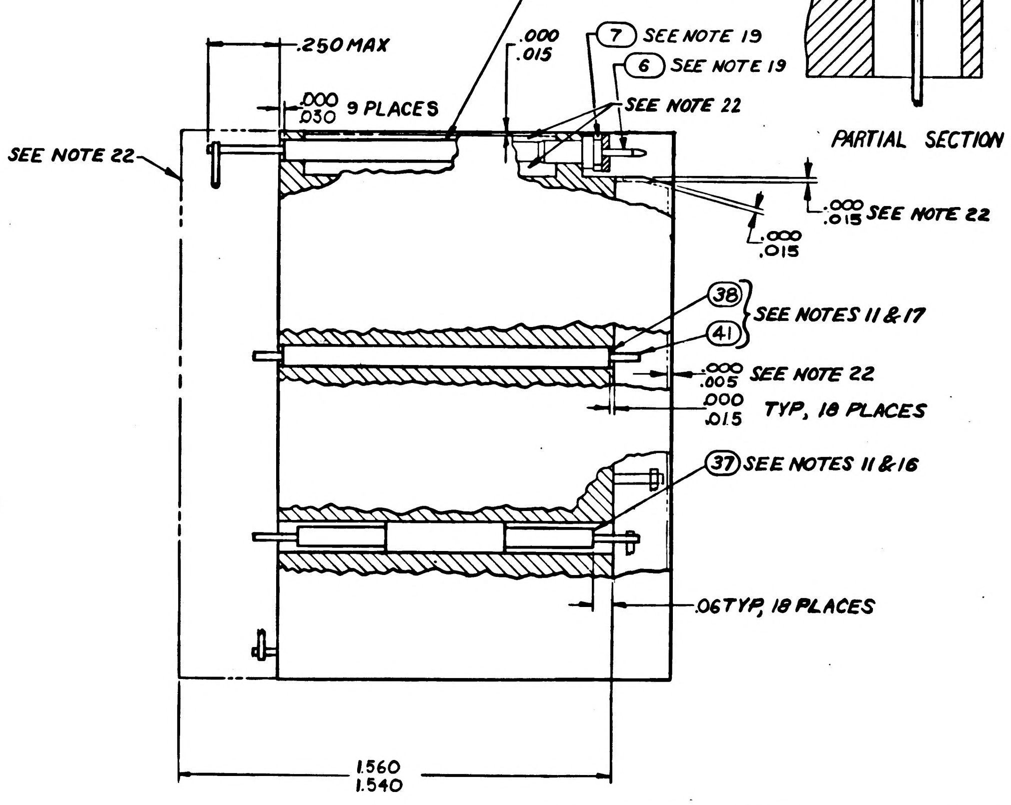
.00
.10
35
SEE NOTE 20
CR2 29

PARTIAL SECTION C-C



FT6
FT5
R5 20
R6 20
R16 24
R2 18
C1 27
SEE NOTE 11
39
36
FT8
C2 27
R10 15
40 SEE NOTE 11
1
37 SEE NOTE 11
SEE NOTES 7 & 8
Q4 34
FT2
R1 16
Q1 31
R3 25
FT1
R4 17
R7 17
FT3
CR2
R9 21
Q2 30
14
R15 22
R8 21
FT4
FT10
T2
CR1
C
B
E
K
1
2
3
4
5
SEE NOTES 7 & 8
Q5 34
T2 32
R11 19
FT9
R14 23
FT7
R12 22
R13 23
C3 & C4 .075 .057

VIEW B-B
BEFORE ENCAPSULATION



36 SEE NOTE 11
.250 MAX
.000
.015
7 SEE NOTE 19
6 SEE NOTE 19
.000 .030 9 PLACES
SEE NOTE 22
SEE NOTE 22
.000 .015 SEE NOTE 22
.000 .015
38
41
SEE NOTES 11 & 17
.000 .005 SEE NOTE 22
.000 .015 TYP, 18 PLACES
37 SEE NOTES 11 & 16
.06 TYP, 18 PLACES
1.560
1.540

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
Cambridge Mass
DRAWN R.D. Allen DATE 17 AUG 64
CHECKED D. Udovich 27 AUG 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1%-800 CPS
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007437
SCALE 5/1
SHEET 2 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 73 9		2 MAR 65	DAS
B		REVISED PER TDRR 19458		3 JUN 65	SH
C		REVISED PER TDRR 19529		8 JUN 65	HCK
D		REVISED PER TDRR 20.43		9 JUN 65	DKD

TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE~~

NOTES:

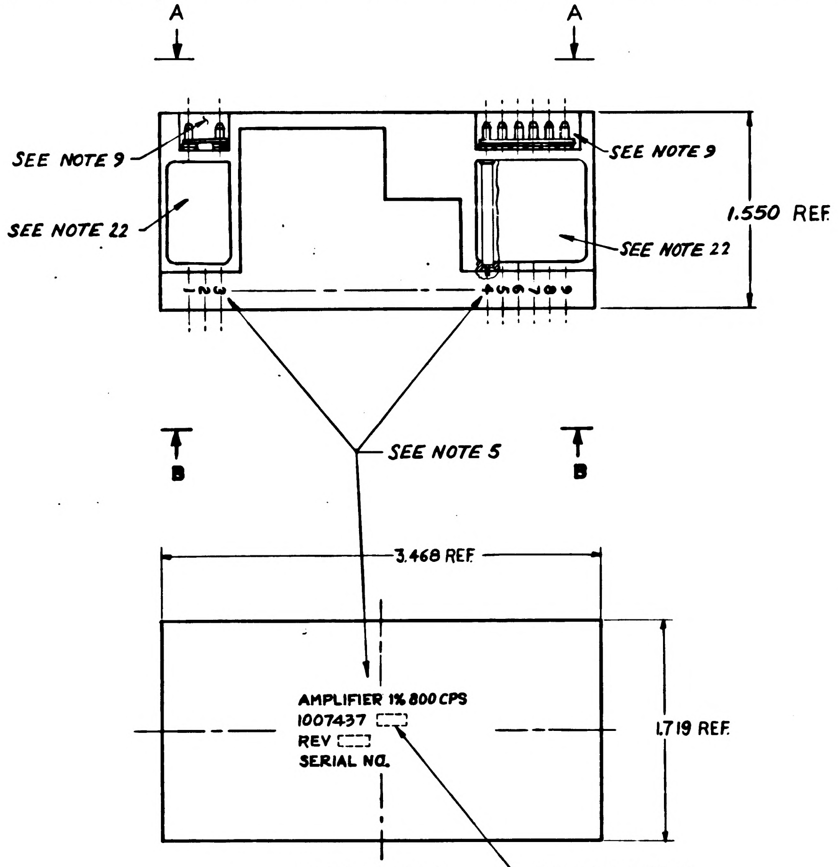
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. COMPONENTS TO BE CENTRALIZED AND CEMENTED IN PLACE PER ND1002009 METHOD H.
3. UNLESS OTHERWISE SPECIFIED:
   WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
4. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005.
5. MARK PIN NUMBERS .060/.100 HIGH (WHITE) ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.

7. MOUNTING TORQUE FOR ITEM ⑧ 24 IN-LBS ± 2 IN-LBS.
8. SOLDER PER ND 1002071.
9. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.

11. AR DENOTES AS REQUIRED
~~12. BOND (42) AND (43) TO ⑦ PER ND1002237~~
13. ~~ON ITEM ③ AND ④ :~~
    K INDICATES CATHODE END.
    FT ( ) INDICATES FEED THRU.
    PLUS (+) INDICATES POSITVE END OF CAPACITOR.
    C - INDICATES COLLECTOR LEAD OF TRANSISTOR.
    B - BASE
    E - EMITTER
    C_A COLLECTOR
    B_A BASE
    E_A EMITTER
    C_B COLLECTOR
    B_B BASE
    E_B EMITTER
    MULTI STAGE TRANSISTOR.
14. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVER WIRING.
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.

16. TYPICAL SLEEVING FOR R3, R5, R6, R8, R9, R12, R13, R14, R15 AND R16
17. TYPICAL SLEEVING AND WIRE FOR FT1 THRU FT10.
18. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007047 PART TO BE SELECTED FROM CHART, VALUE IS IN OHMS.
19. ASSEMBLE PER ND1002136.
20. BOND ITEM (35) TO ITEM (29). CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM ①.
21. PROCURE PER PS 1007047

22. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005 WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE, SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
23. FILL PER ND1002117
~~24. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
~~25. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II, APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~



MARKING VIEW
VIEW B-B

—APPLICABLE DASH NO.

26. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
27. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

SELECTION CHART FOR R11

PART NUMBER	VALUE
1010364-325	2430
329	2550
337	2800
343	3010
351	3320
355	3480
361	3740
367	4020
371	4220
375	4420
377	4530
381	4750
385	4990
387	5110
391	5360
395	5620
399	5900
403	6190
405	6340
409	6650

SEE NOTE 18

QUANTITY REQUIRED				EFFEC-TIVITY	ITEM NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			X		KC1	1010045	SCHEMATIC, ELECTRICAL
			1		43	1008540-3	GASKET, CONNECTOR MINIATURE
			1		42	1008540-6	GASKET, CONNECTOR MINIATURE
			AR		41	1006757-8	WIRE, ELECTRICAL .020 DIA
			AR		40	1006757-1	WIRE, ELECTRICAL .010 × .020
			AR		39	1006757-9	WIRE, ELECTRICAL .032 DIA
			AR		38	-22	INSULATION SLEEVING, ELECTRICAL
			AR		37	-21	INSULATION SLEEVING, ELECTRICAL
			AR		36	1006776-20	INSULATION SLEEVING, ELECTRICAL
			AR		35	MIL-I-15126	INSUL TAPE TYPE MFT 2.5 ½ IN. WIDE
			1		34	1010273-2	TRANSISTOR (MATCHED PAIR)
			1		33	1010324	TRANSFORMER
			1		32	1010307	TRANSFORMER
			1		31	1010431	TRANSISTOR
			1		30	1010345-2	TRANSISTOR (MATCHED PAIR)
			1		29	1010829-2	SEMICONDUCTOR DEVICE, DIODE
			1		28	1010372-15	SEMICONDUCTOR DEVICE, DIODE
			2		27	1010264-9	CAPACITOR, FIXED
			2		26	1010264-37	CAPACITOR, FIXED
			1		25	-57	
			1		24	-73	
			2		23	-25	
			2		22	-12	
			2		21	1006750-1	
			2		20	1010369-1	
					19	1010364-	
			1		18	-573	
			2		17	-327	
			1		16	-309	
			1		15	1010364-273	RESISTOR, FIXED
			2		14	1008025-2	INSULATOR, BUSHING
			2		13	1000093-13	SCREW
			2		12	1008024-4	WASHER, INSULATOR
			2		11	1008024-3	WASHER, INSULATOR
			2		10	1008021-2	BUSHING, INSULATOR
			2		9	1008071-5	WASHER, FLAT
			2		8	MS20341-416B	NUT
			8		7	1006775	INSULATOR
			8		6	1006782-5	CONTACT, WRAPOST-MALE
					5		
			~~1~~		~~4~~	~~1015712~~	
			~~1~~		~~3~~	~~1015711~~	~~INSULATOR~~
					2		
			1		1	1015709	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		
1007572		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

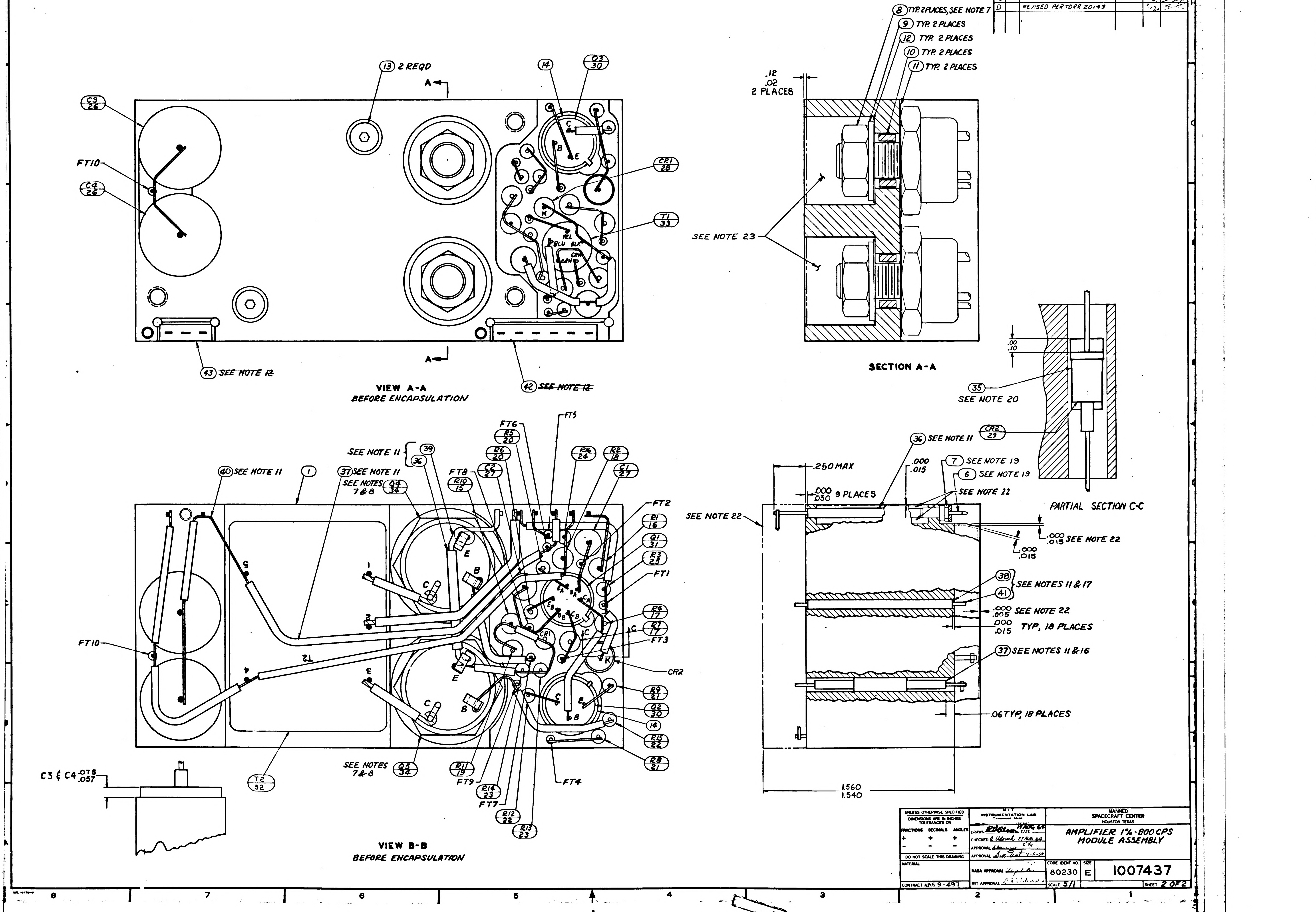
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± .XX ±.02 ±
± .XXX ±.005 ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN R.L. Allen DATE 17 AUG 64
CHECKED E. Merrick 27 AUG 64
APPROVAL
APPROVAL 9-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1%-800 CPS
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007437
SCALE 2/1
SHEET 1 OF 2


13 2 REQD
14
Q3 30
C3 26
FT10
C4 26
CR1 28
T1 33
A
43 SEE NOTE 12
42 SEE NOTE 12
C
B
E
K
YEL
BLU
BLK
GRN
BRN
VIEW A-A
BEFORE ENCAPSULATION
8 TYP. 2 PLACES, SEE NOTE 7
9 TYP. 2 PLACES
12 TYP. 2 PLACES
10 TYP. 2 PLACES
11 TYP. 2 PLACES
.12
.02
2 PLACES
SEE NOTE 23
SECTION A-A
.00
.10
35
SEE NOTE 20
CR2 29
PARTIAL SECTION C-C
36 SEE NOTE 11
.250 MAX
.000
.015
.000
.030 9 PLACES
7 SEE NOTE 19
6 SEE NOTE 19
SEE NOTE 22
SEE NOTE 22
.000
.015 SEE NOTE 22
.000
.015
38
41
SEE NOTES 11 & 17
.000
.005 SEE NOTE 22
.000
.015 TYP, 18 PLACES
37 SEE NOTES 11 & 16
.06 TYP, 18 PLACES
1.560
1.540
FT6
FT5
R5 20
R16 24
R2 18
R6 20
C2 27
C1 27
FT8
R10 15
SEE NOTE 11
39
36
40 SEE NOTE 11
1
37 SEE NOTE 11
SEE NOTES 7 & 8
Q4 34
FT2
R1 16
Q1 31
R3 25
FT1
R4 17
R7 17
FT3
CR2
R9 21
Q2 30
14
R15 22
R8 21
FT4
FT10
T2
5
4
3
2
1
E
B
C
CR1
T2 32
SEE NOTES 7 & 8
Q5 34
R11 19
FT9
R14 23
FT7
R12 22
R13 23
C3 & C4 .075 .057
VIEW B-B
BEFORE ENCAPSULATION
8
7
6
5
4
3
2
1

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 17319		2 MAR 65	
B		REVISED PER TDRR 9458		2 JUN 65	
C		REVISED PER TDRR 9529		9 JUN 65	
D		REVISED PER TDRR 20143		9 JUN 65	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN R. Olson DATE 17 AUG 64
CHECKED Udovich 27 AUG 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1%-800 CPS
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007437
SCALE 5/1
SHEET 2 OF 2

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 17319		12 MAR -65	[illegible]
B		REVISED PER TDRR 19458		[illegible] 65	[illegible]
C		REVISED PER TDRR 19529		[illegible] 65	[illegible]
D		REVISED PER TDRR 20143		[illegible] 65	[illegible]
E		REVISED PER TDRR 22964		[illegible] 65	[illegible]

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. COMPONENTS TO BE CENTRALIZED AND CEMENTED IN PLACE PER ND1002009 METHOD J.
3. UNLESS OTHERWISE SPECIFIED:
   WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
4. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005.
5. MARK PIN NUMBERS .060/.100 HIGH (WHITE) ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019
   SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.

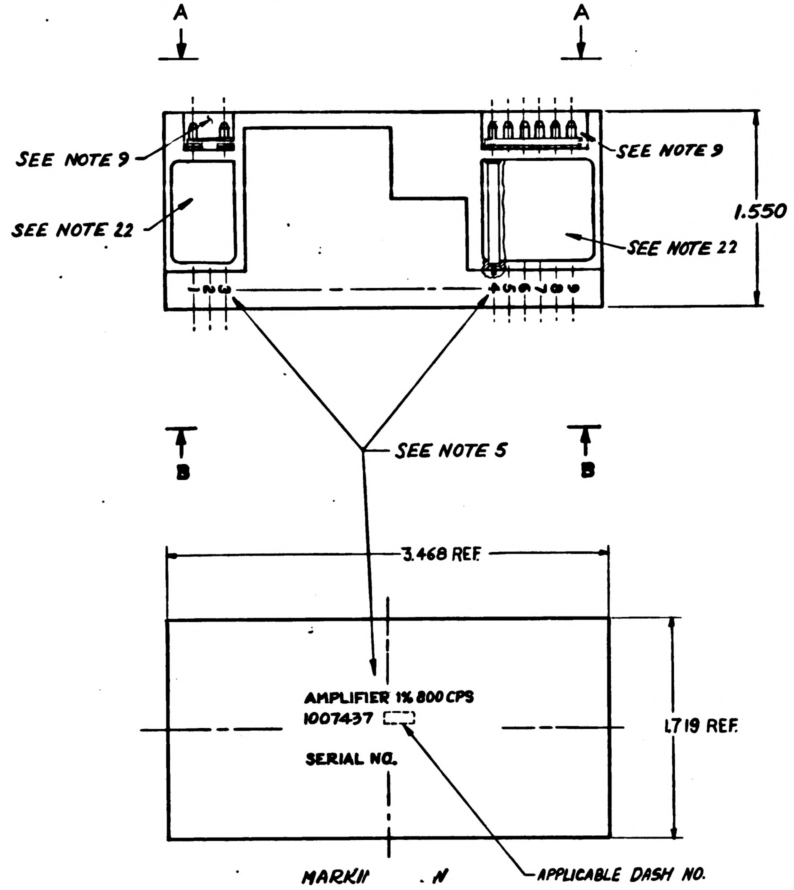
7. MOUNTING TORQUE FOR ITEM ⑧ 24 IN-LBS ± 2 IN-LBS.
8. SOLDER PER ND 1002071.
9. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.

11. AR DENOTES AS REQUIRED
~~12. BOND (42) AND (43) TO ⑦ PER ND1002237~~
13. ~~ON ITEM ③ AND ④:~~
K INDICATES CATHODE END.
FT ( ) INDICATES FEED THRU.
PLUS (+) INDICATES POSITVE END OF CAPACITOR.
C - INDICATES COLLECTOR LEAD OF TRANSISTOR.
B - BASE
E - EMITTER
C_A COLLECTOR
B_A BASE
E_A EMITTER
C_B COLLECTOR
B_B BASE
E_B EMITTER
MULTI STAGE TRANSISTOR.

14. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVER WIRING.
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.

16. TYPICAL SLEEVING FOR R3, R5, R6, R8, R9, R12, R13, R14, R15 AND R16
17. TYPICAL SLEEVING AND WIRE FOR FT1 THRU FT10.
18. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007047 PART TO BE SELECTED FROM CHART, VALUE IS IN OHMS.
19. ASSEMBLE PER ND1002136.
20. BOND ITEM (35) TO ITEM (29). CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM ①.
21. PROCURE PER PS 1007047

22. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005 WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE, SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
23. FILL PER ND1002117
~~24. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
~~25. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~



MARKING VIEW B-B

26. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
27. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279 USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

SELECTION CHART FOR R11

PART NUMBER	VALUE
1010364-325	2430
329	2550
337	2800
343	3010
351	3320
355	3480
361	3740
367	4020
371	4220
375	4420
377	4530
381	4750
385	4990
387	5110
391	5360
395	5620
399	5900
403	6190
405	6340
409	6650

SEE NOTE 18

QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
X		Kc1	1010045	SCHEMATIC, ELECTRICAL
1		43	1008540-3	GASKET, CONNECTOR MINIATURE
1		42	1008540-6	GASKET, CONNECTOR MINIATURE
AR		41	1006757-8	WIRE, ELECTRICAL .020 DIA
AR		40	1006757-1	WIRE, ELECTRICAL .010 × .020
AR		39	1006757-9	WIRE, ELECTRICAL .032 DIA
AR		38	-22	INSULATION SLEEVING, ELECTRICAL
AR		37	-21	INSULATION SLEEVING, ELECTRICAL
AR		36	1006776-20	INSULATION SLEEVING, ELECTRICAL
AR		35	MIL-I-15126	INSUL TAPE TYPE MFT 2.5 ½ IN. WIDE
1		34	1010273-2	TRANSISTOR (MATCHED PAIR)
1		33	1010324	TRANSFORMER
1		32	1010307	TRANSFORMER
1		31	1010431	TRANSISTOR
1		30	1010345-2	TRANSISTOR (MATCHED PAIR)
1		29	1010829-2	SEMICONDUCTOR DEVICE, DIODE
1		28	1010372-15	SEMICONDUCTOR DEVICE, DIODE
2		27	1010264-9	CAPACITOR, FIXED
2		26	1010264-37	CAPACITOR, FIXED
1		25	-57	
1		24	-73	
2		23	-25	
2		22	-12	
2		21	1006750-1	
2		20	1010369-1	
		19	1010364-	
1		18	-573	
2		17	-327	
1		16	-309	
1		15	1010364-273	RESISTOR, FIXED
2		14	1008025-2	INSULATOR, BUSHING
2		13	1000093-13	SCREW
2		12	1008024-4	WASHER, INSULATOR
2		11	1008024-3	WASHER, INSULATOR
2		10	1008021-2	BUSHING, INSULATOR
2		9	1008071-5	WASHER, FLAT
2		8	MS20341-416B	NUT
8		7	1006775	INSULATOR
8		6	1006782-5	CONTACT, WRAPOST-MALE
		5		
~~1~~		~~4~~	~~1015712~~	
~~1~~		~~3~~	~~1015711~~	~~INSULATOR~~
		2		
1		1	1015709	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		
1007572		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + − DECIMALS .XX ±.02 .XXX ±.005 ANGLES + −
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

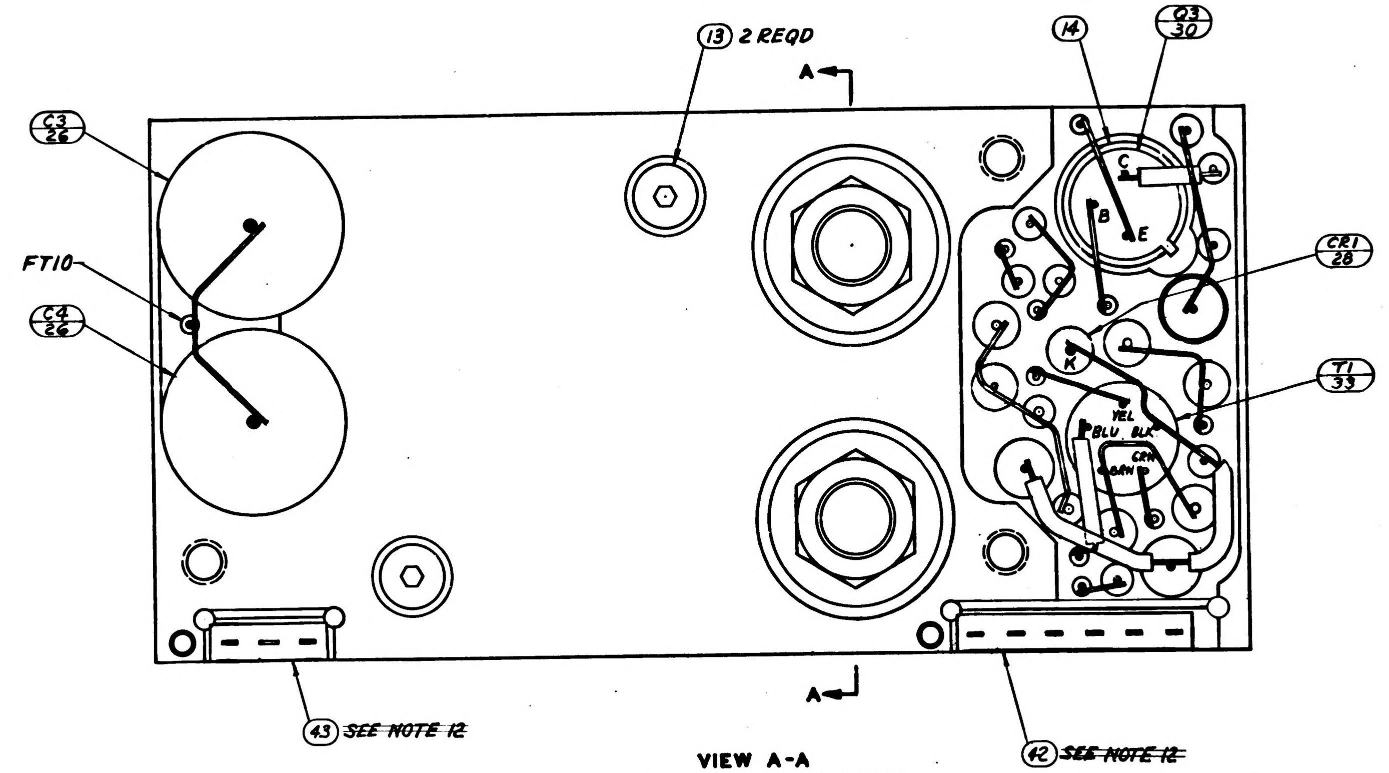
MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN [illegible] DATE 17 AUG 64
CHECKED A. Ulevrak 27 AUG 64
APPROVAL [illegible]
APPROVAL [illegible] 10-9-64
NASA APPROVAL W J K[illegible] 10-9-64
MIT APPROVAL [illegible]

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1% - 800 CPS
MODULE ASSEMBLY

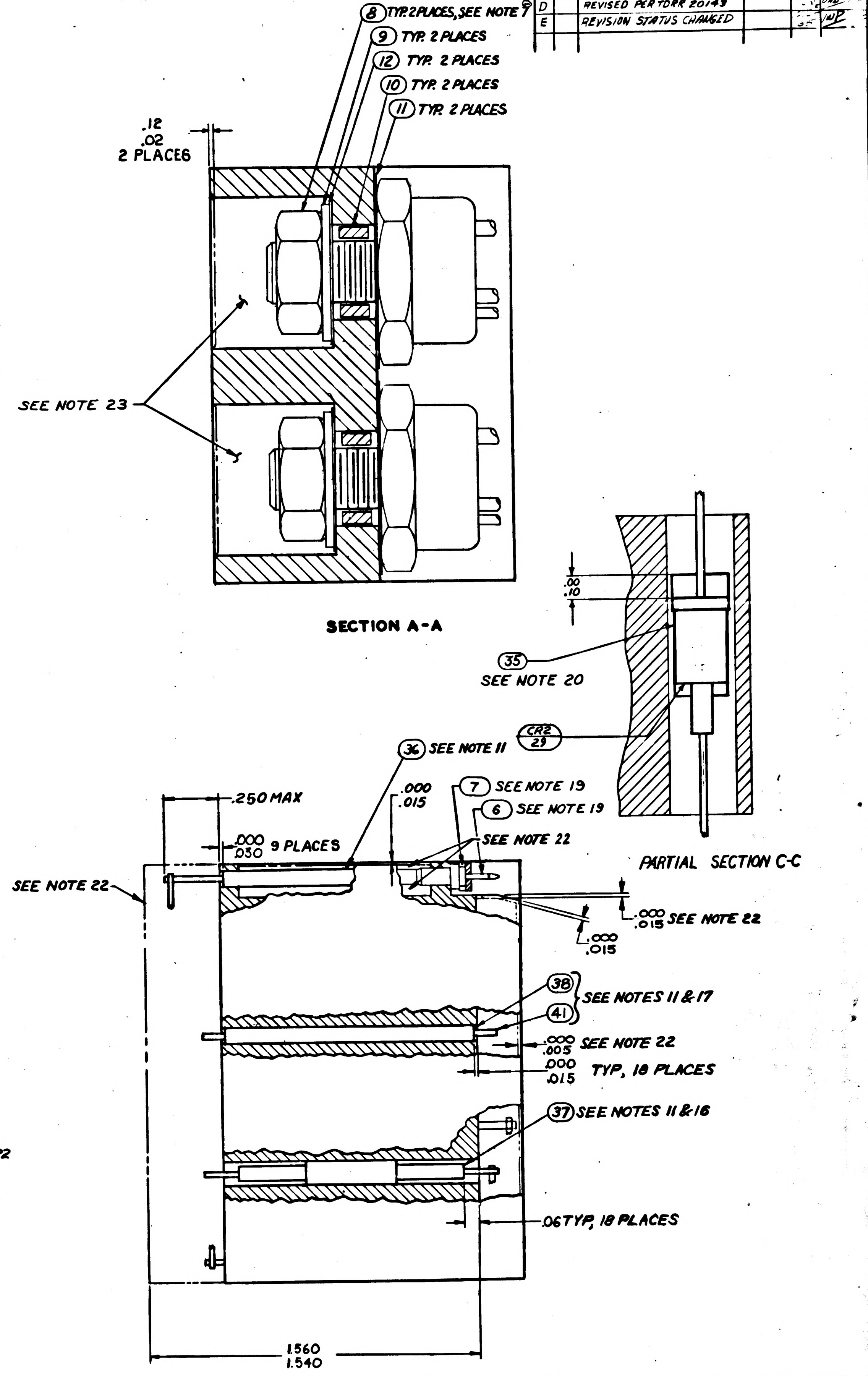
CODE IDENT NO. 80230
SIZE E
1007437
SCALE 2/1
SHEET 1 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		ZEVISED PER TDRR 17319			DAS
B		REVISED PER TDRR 19458			HSM
C		REVISED PER TDRR 19529			HCK
D		REVISED PER TDRR 20143			DKD
E		REVISION STATUS CHANGED			WP



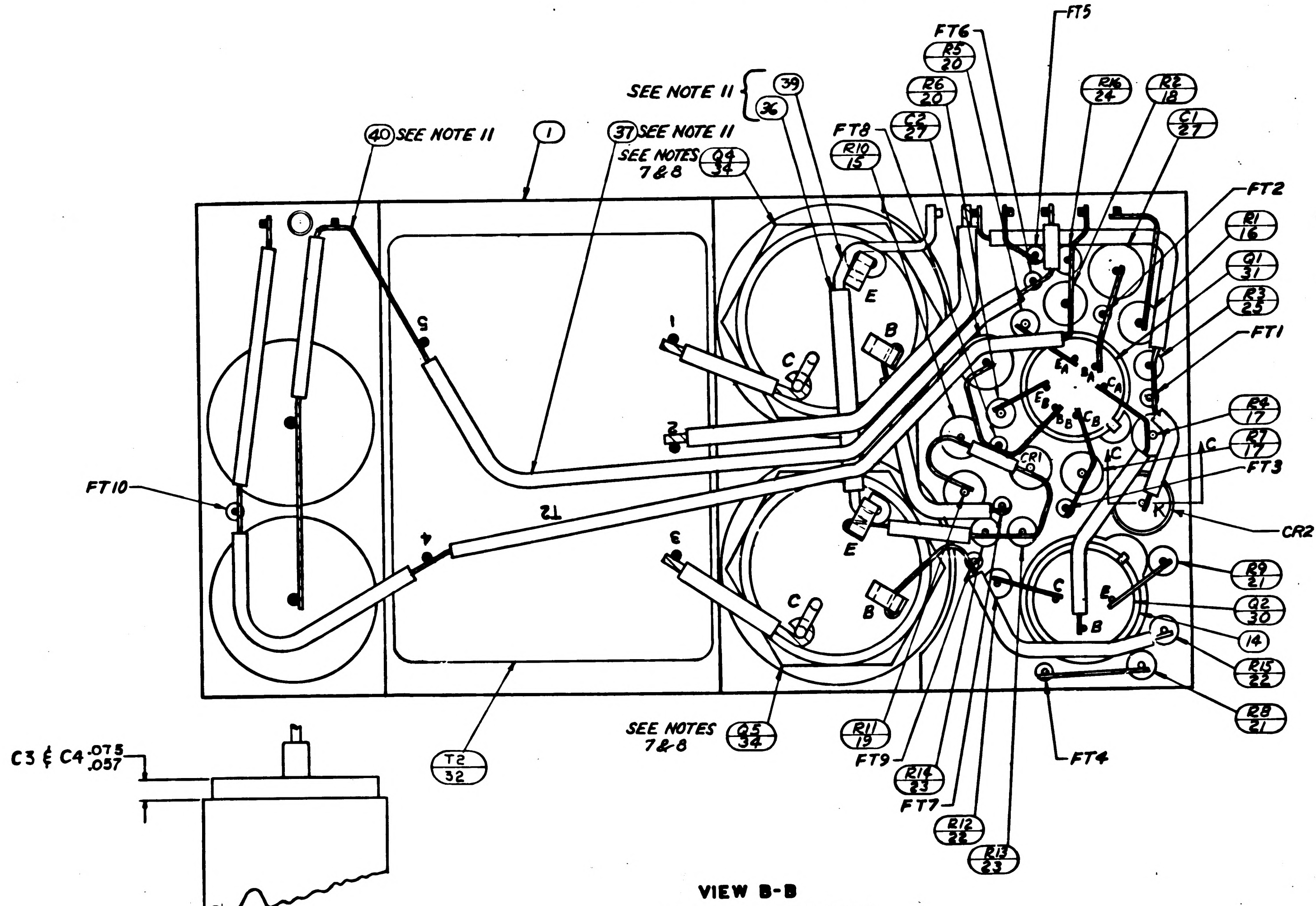
13 2 REQD
A
14
Q3 30
C3 26
FT10
C4 26
CR1 28
T1 33
B
E
C
K
YEL
BLU
BLK
GRN
BRN
43 ~~SEE NOTE 12~~
42 ~~SEE NOTE 12~~
A

VIEW A-A
BEFORE ENCAPSULATION



8 TYP 2 PLACES, SEE NOTE 7
9 TYP. 2 PLACES
12 TYP. 2 PLACES
10 TYP. 2 PLACES
11 TYP. 2 PLACES
.12 .02 2 PLACES
SEE NOTE 23
35 SEE NOTE 20
.00 .10
CR2 29
36 SEE NOTE 11
7 SEE NOTE 19
6 SEE NOTE 19
SEE NOTE 22
.250 MAX
.000 .015
.000 .030 9 PLACES
SEE NOTE 22
PARTIAL SECTION C-C
.000 .015 SEE NOTE 22
.000 .015
38
41
SEE NOTES 11 & 17
.000 .005 SEE NOTE 22
.000 .015 TYP. 18 PLACES
37 SEE NOTES 11 & 16
.06 TYP. 18 PLACES
1.560 1.540

SECTION A-A



SEE NOTE 11
39
36
40 SEE NOTE 11
1
37 SEE NOTE 11
SEE NOTES 7 & 8
Q4 34
R10 15
FT8
C2 27
R6 20
R5 20
FT6
FT5
R16 24
R2 18
C1 27
FT2
R1 16
Q1 31
R3 25
FT1
R4 17
R7 17
FT3
CR2
R9 21
Q2 30
14
R15 22
R8 21
FT4
R13 23
R12 22
FT7
R14 23
FT9
R11 19
SEE NOTES 7 & 8
Q5 34
T2 32
T2
FT10
CR1
E
B
C
K
1
2
3
4
5
C3 & C4 .075 .057

VIEW B-B
BEFORE ENCAPSULATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE 17 AUG 64
CHECKED A. Udovich 27 AUG 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

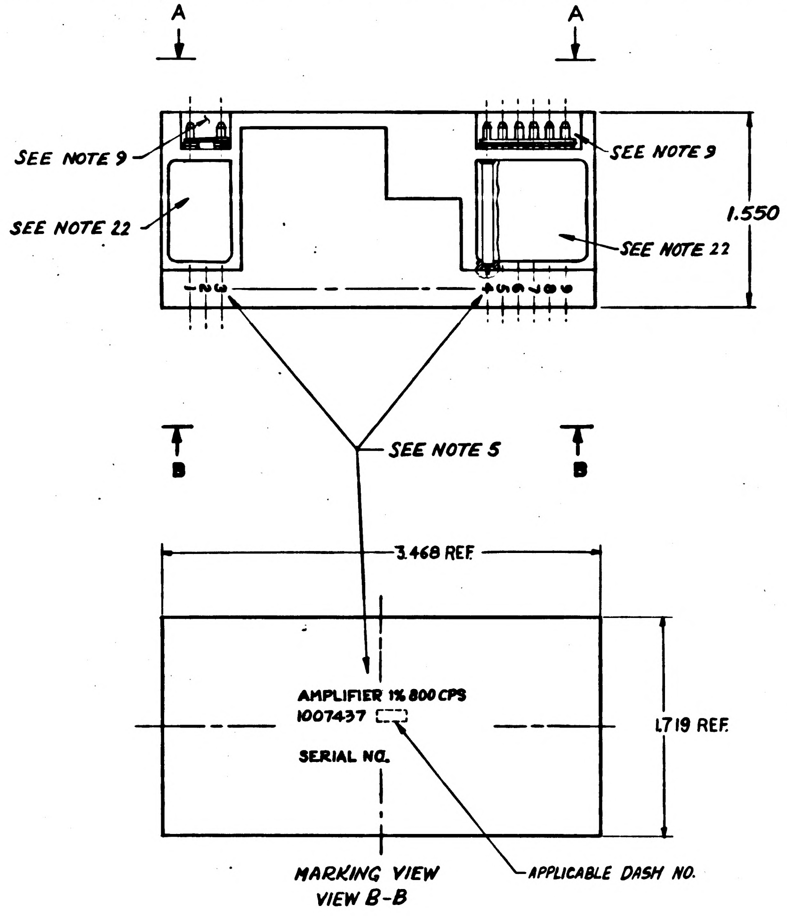
AMPLIFIER 1%-800 CPS
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007437
SCALE 5/1
SHEET 2 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 17319		12 MAR 65	
B		REVISED PER TDRR 19458		2 JUN 65	JSM
C		REVISED PER TDRR 19529		8 JUN 65	HCK
D		REVISED PER TDRR 20143		19 JUN 65	DKC
E		REVISED PER TDRR 22964		12 OCT 65	JNP
F		REVISED PER TDRR 26375		25 FEB 66	JIM

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE



MARKING VIEW
VIEW B-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. COMPONENTS TO BE CENTPALIZED AND CEMENTED IN PLACE PER ND1002009 METHOD J.
3. UNLESS OTHERWISE SPECIFIED:
   WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
4. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005.
5. MARK PIN NUMBERS .060/.100 HIGH (WHITE) ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.

7. MOUNTING TORQUE FOR ITEM ⑧ 24 IN-LBS ± 2 IN-LBS.
8. SOLDER PER ND1002071.
9. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.

11. AR DENOTES AS REQUIRED
~~12. BOND (42) AND (43) TO ⑦ PER ND1002237~~
13. ~~ON ITEM ③ AND ④:~~
    K INDICATES CATHODE END.
    FT ( ) INDICATES FEED THRU.
    PLUS (+) INDICATES POSITVE END OF CAPACITOR.
    C - INDICATES COLLECTOR LEAD OF TRANSISTOR.
    B - BASE
    E - EMITTER
    C_A COLLECTOR
    B_A BASE
    E_A EMITTER
    C_B COLLECTOR
    B_B BASE
    E_B EMITTER
    MULTI STAGE TRANSISTOR.
14. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVER WIRING.
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.

16. TYPICAL SLEEVING FOR R3, R5, R6, R8, R9, R12, R13, R14, R15 AND R16
17. TYPICAL SLEEVING AND WIRE FOR FT1 THRU FT10.
18. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007047 PART TO BE SELECTED FROM CHART, VALUE IS IN OHMS.
19. ASSEMBLE PER ND1002136.
20. BOND ITEM (35) TO ITEM (29). CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM ①.
21. PROCURE PER PS 1007047

22. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005 WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE, SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
23. FILL PER ND1002117
~~24. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
~~25. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~

26. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
27. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279 USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
28. MOISTUREPROOF PER ND1002292 AS REQUIRED BY ITEM NO. 44 USING INSULATION TAPE IN ACCORDANCE WITH SCD1008866 AND POLYURETHANE COATING PER SCD1008867 AFTER PAINTING AND STENCILING.

SELECTION CHART FOR R11	
PART NUMBER	VALUE
1010364-325	2430
329	2550
337	2800
343	3010
351	3320
355	3480
361	3740
367	4020
371	4220
375	4420
377	4530
381	4750
385	4990
387	5110
391	5360
395	5620
399	5900
403	6190
405	6340
409	6650

SEE NOTE 18

QUANTITY REQUIRED 021	QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
	X		REF	1010045	SCHEMATIC, ELECTRICAL
AR	–		44	SEE NOTE 28	MOISTUREPROOFING
1	1		43	1008540-3	GASKET, CONNECTOR MINIATURE
1	1		42	1008540-6	GASKET, CONNECTOR MINIATURE
AR	AR		41	1006757-8	WIRE, ELECTRICAL .020 DIA
AR	AR		40	1006757-1	WIRE, ELECTRICAL .010 × .020
AR	AR		39	1006757-9	WIRE, ELECTRICAL .032 DIA
AR	AR		38	↑ -22	INSULATION SLEEVING, ELECTRICAL
AR	AR		37	-21	INSULATION SLEEVING, ELECTRICAL
AR	AR		36	1006776-20	INSULATION SLEEVING, ELECTRICAL
AR	AR		35	MIL-I-15126	INSUL TAPE TYPE MFT 2.5 ½ IN WIDE
1	1		34	1010273-2	TRANSISTOR (MATCHED PAIR)
1	1		33	1010324	TRANSFORMER
1	1		32	1010307	TRANSFORMER
1	1		31	1010431	TRANSISTOR
1	1		30	1010345-2	TRANSISTOR (MATCHED PAIR)
1	1		29	1010829-2	SEMICONDUCTOR DEVICE, DIODE
1	1		28	1010372-15	SEMICONDUCTOR DEVICE, DIODE
2	2		27	1010264-9	CAPACITOR, FIXED
2	2		26	1010264-37	CAPACITOR, FIXED
1	1		25	↑ -57	↑
1	1		24	-73	
2	2		23	-25	
2	2		22	-12	
2	2		21	1006750-1	
2	2		20	1010369-1	
1	1		19	1010364-	
1	1		18	↑ -573	
2	2		17	-327	
1	1		16	-309	
1	1		15	1010364-273	RESISTOR, FIXED
2	2		14	1008025-2	INSULATOR, BUSHING
2	2		13	1000093-13	SCREW
2	2		12	1008024-4	WASHER, INSULATOR
2	2		11	1008024-3	WASHER, INSULATOR
2	2		10	1008021-2	BUSHING, INSULATOR
2	2		9	1008071-5	WASHER, FLAT
2	2		8	MS20341-416B	NUT
8	8		7	1006775	INSULATOR
8	8		6	1006782-5	CONTACT, WRAPOST-MALE
			5		
	~~1~~		~~4~~	~~1015712~~	
	~~1~~		~~3~~	~~1015711~~	~~INSULATOR~~
			2		
1	1		1	1015709	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		
1007572		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS .XX ±.02 .XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

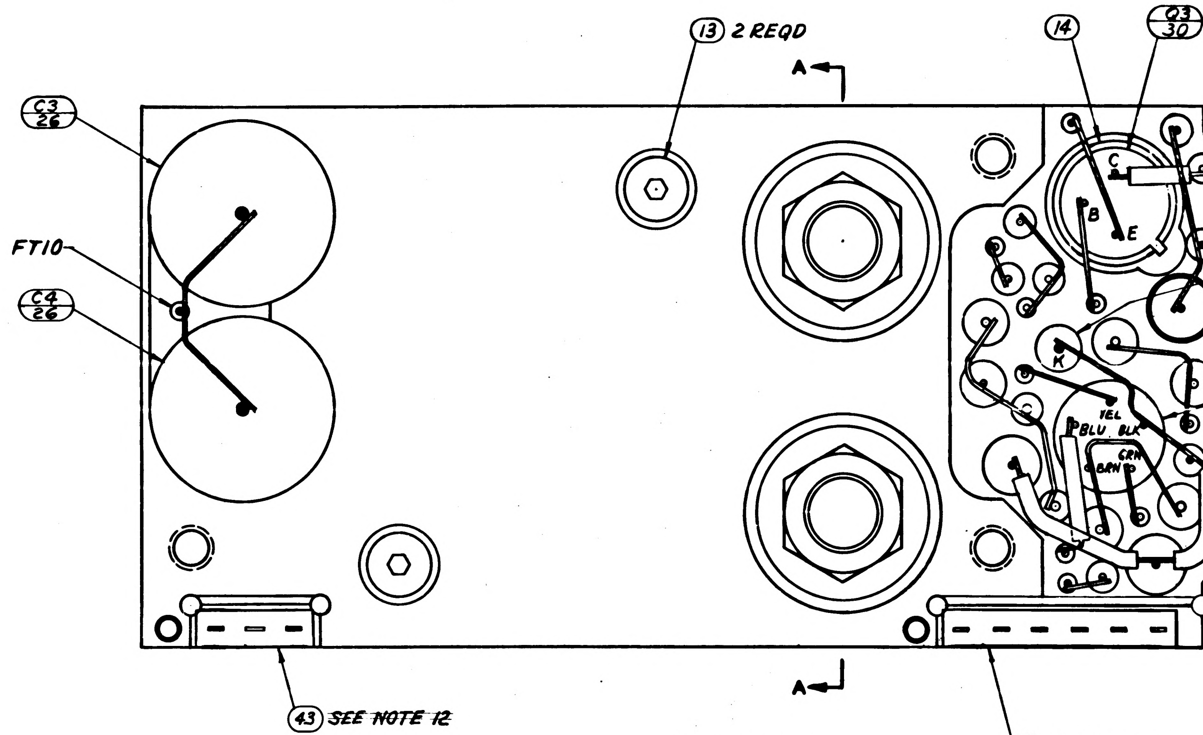
MIT INSTRUMENTATION LAB CAMBRIDGE MASS
DRAWN DATE 19AUG64
CHECKED 27AUG64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1%-800 CPS
MODULE ASSEMBLY

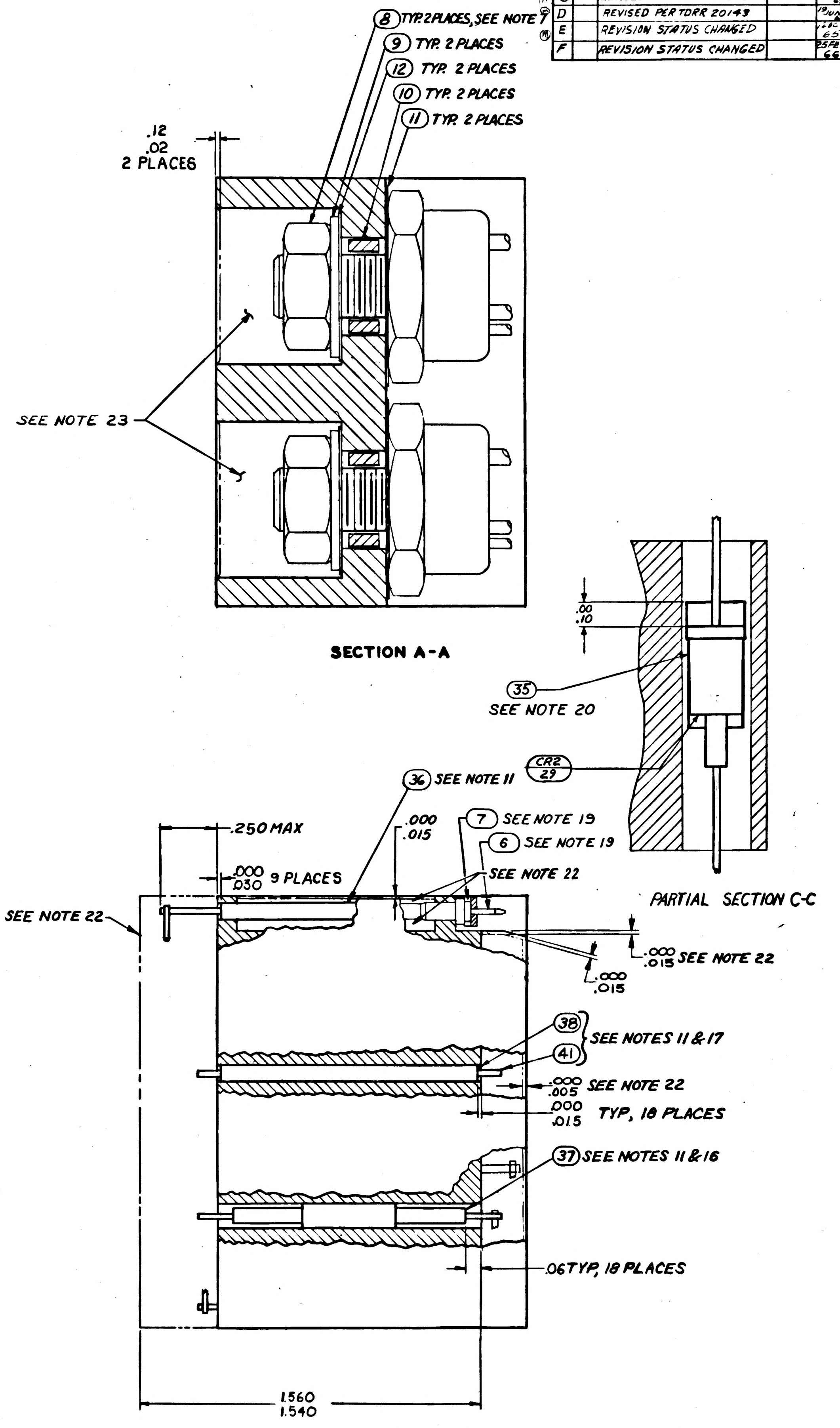
CODE IDENT NO. 80230
SIZE E
1007437
SCALE 2/1
SHEET 1 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		ZEVISED PER TDRR 17319		2 MAR 65	DAS
B		REVISED PER TDRR 19458		2 JUN 65	SPY
C		REVISED PER TDRR 19529		9 JUN 65	
D		REVISED PER TDRR 20143		19 JUN 65	
E		REVISION STATUS CHANGED		2 DEC 65	
F		REVISION STATUS CHANGED		25 FEB 66	JM



13 2 REQD
A
14
Q3 30
C3 26
FT10
C4 26
CR1 28
T1 33
C
B
E
K
YEL
BLU
BLK
GRN
BRN
43 SEE NOTE 12
42 ~~SEE NOTE 12~~
A

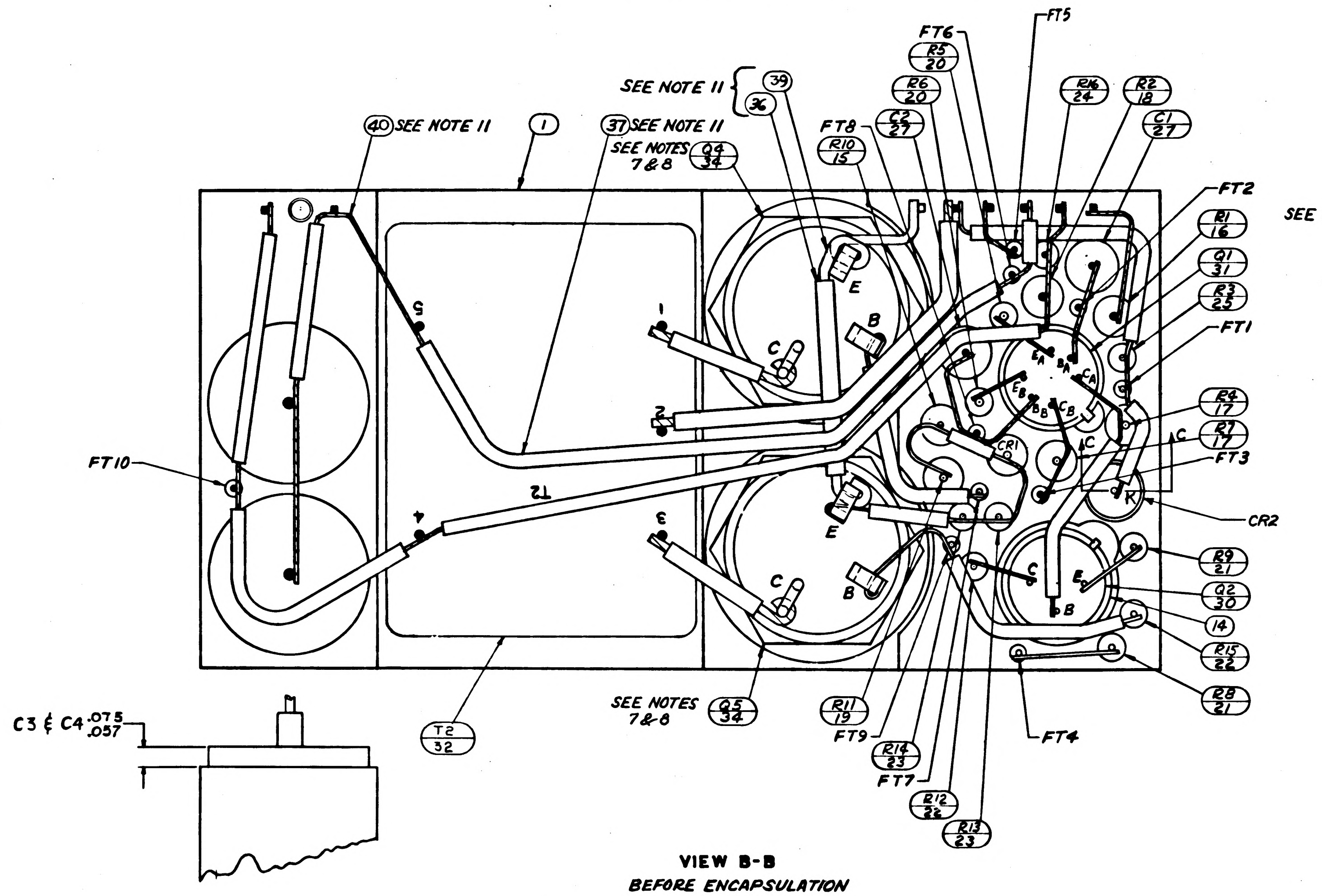
VIEW A-A
BEFORE ENCAPSULATION



8 TYP. 2 PLACES, SEE NOTE 7
9 TYP. 2 PLACES
12 TYP. 2 PLACES
10 TYP. 2 PLACES
11 TYP. 2 PLACES
.12 .02 2 PLACES
SEE NOTE 23
.00 .10
35 SEE NOTE 20
CR2 29
36 SEE NOTE 11
7 SEE NOTE 19
6 SEE NOTE 19
SEE NOTE 22
.250 MAX
.000 .015
.000 .030 9 PLACES
SEE NOTE 22
.000 .015 SEE NOTE 22
.000 .015
38
41
SEE NOTES 11 & 17
.000 .005 SEE NOTE 22
.000 .015 TYP, 18 PLACES
37 SEE NOTES 11 & 16
.06 TYP, 18 PLACES
1.560 1.540

SECTION A-A

PARTIAL SECTION C-C



FT6
FT5
R5 20
R6 20
R16 24
R2 18
C1 27
SEE NOTE 11
39
36
40 SEE NOTE 11
1
37 SEE NOTE 11
SEE NOTES 7 & 8
Q4 34
R10 15
FT8
C2 27
FT2
R1 16
Q1 31
R3 25
FT1
5
1
2
3
4
E
B
C
T2
FT10
R4 17
R7 17
C
FT3
CR1
CR2
K
R9 21
Q2 30
14
R15 22
R8 21
FT4
SEE NOTES 7 & 8
Q5 34
T2 32
R11 19
FT9
R14 23
FT7
R12 22
R13 23
C3 & C4 .075 .057

VIEW B-B
BEFORE ENCAPSULATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + − DECIMALS + − ANGLES + −
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
Cambridge Mass
DRAWN R. Olson DATE 17 AUG 64
CHECKED A. Udovich 27 AUG 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

AMPLIFIER 1%-800 CPS
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007437
SCALE 5/1
SHEET 2 OF 2

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 17319		12 MAR 65	
B		REVISED PER TDRR 19458		2 JUN 65	
C		REVISED PER TDRR 19529		8 JUN 65	HCK
D		REVISED PER TDRR 20143		19 JUN 65	
E		REVISED PER TDRR 22964		12 OCT 65	
F		REVISED PER TDRR 26375		3 FEB 66	JIM
G		REVISED PER TDRR 29752		7 JUN 66	

NOTES:

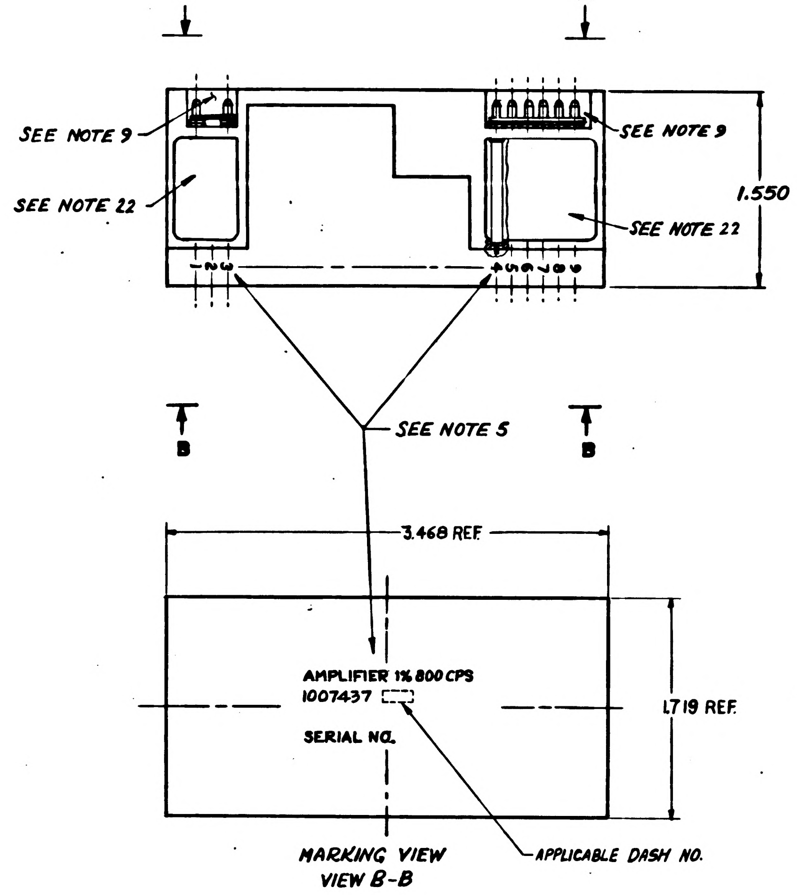
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. COMPONENTS TO BE CENTRALIZED AND CEMENTED IN PLACE PER ND 1002009 METHOD J.
3. UNLESS OTHERWISE SPECIFIED:
   WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
4. ALL WELDED CONNECTIONS TO BE MADE PER ND 1002005.
5. MARK PIN NUMBERS .060/.100 HIGH (WHITE) ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019
   SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.

7. MOUNTING TORQUE FOR ITEM ⑧ 24 IN-LBS ± 2 IN-LBS.
8. SOLDER PER ND 1002071.
9. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.

11. AR DENOTES AS REQUIRED
~~12. BOND (42) AND (43) TO ⑦ PER ND1002237~~
13. ~~ON ITEM ③ AND ④:~~
    K INDICATES CATHODE END.
    FT ( ) INDICATES FEED THRU.
    PLUS (+) INDICATES POSITVE END OF CAPACITOR.
    C - INDICATES COLLECTOR LEAD OF TRANSISTOR.
    B - BASE
    E - EMITTER
    C_A COLLECTOR
    B_A BASE
    E_A EMITTER
    C_B COLLECTOR
    B_B BASE
    E_B EMITTER
    MULTI STAGE TRANSISTOR.
14. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVER WIRING.
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.

16. TYPICAL SLEEVING FOR R3, R5, R6, R8, R9, R12, R13, R14, R15 AND R16
17. TYPICAL SLEEVING AND WIRE FOR FT1 THRU FT10.
18. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007047 PART TO BE SELECTED FROM CHART, VALUE IS IN OHMS.
19. ASSEMBLE PER ND 1002136.
20. BOND ITEM (35) TO ITEM (29). CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM ①.
21. PROCURE PER PS 1007047

22. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005 WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE, SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
23. FILL PER ND1002117
~~24. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
25. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.



MARKING VIEW
VIEW B-B

SELECTION CHART FOR R11

PART NUMBER	VALUE
1010364-325	2430
329	2550
337	2800
343	3010
351	3320
355	3480
361	3740
367	4020
371	4220
375	4420
377	4530
381	4750
385	4990
387	5110
391	5360
395	5620
399	5900
403	6190
405	6340
409	6650

26. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
27. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279 USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
28. MOISTUREPROOF PER ND1002292 AS REQUIRED BY ITEM NO. 44 USING INSULATION TAPE IN ACCORDANCE WITH SCD1008866 AND POLYURETHANE COATING PER SCD1008867 AFTER PAINTING AND STENCILING.

SEE NOTE 18

LIST OF PARTS AND MATERIALS

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			X		REF	1010045	SCHEMATIC, ELECTRICAL
		AR	–		44	SEE NOTE 28	MOISTUREPROOFING
		1	1		43	1008540-3	GASKET, CONNECTOR MINIATURE
		1	1		42	1008540-6	GASKET, CONNECTOR MINIATURE
		AR	AR		41	1006757-8	WIRE, ELECTRICAL .020 DIA
		AR	AR		40	1006757-1	WIRE, ELECTRICAL .010 × .020
		AR	AR		39	1006757-9	WIRE, ELECTRICAL .032 DIA
		AR	AR		38	-22	INSULATION SLEEVING, ELECTRICAL
		AR	AR		37	-21	INSULATION SLEEVING, ELECTRICAL
		AR	AR		36	1006776-20	INSULATION SLEEVING, ELECTRICAL
		AR	AR		35	MIL-I-15126	INSUL TAPE TYPE MFT 2.5 ½ IN WIDE
		1	1		34	1010273-2	TRANSISTOR (MATCHED PAIR)
		1	1		33	1010324	TRANSFORMER
		1	1		32	1010307	TRANSFORMER
		1	1		31	1010431	TRANSISTOR
		1	1		30	1008813-3	TRANSISTOR (MATCHED PAIR)
		1	1		29	1010829-2	SEMICONDUCTOR DEVICE, DIODE
		1	1		28	1010372-15	SEMICONDUCTOR DEVICE, DIODE
		2	2		27	1010264-9	CAPACITOR, FIXED
		2	2		26	1010264-37	CAPACITOR, FIXED
		1	1		25	-57	
		1	1		24	-73	
		2	2		23	-25	
		2	2		22	-12	
		2	2		21	1006750-1	
		2	2		20	1010369-1	
		1	1		19	1010364-	
		1	1		18	-573	
		2	2		17	-327	
		1	1		16	-309	
		1	1		15	1010364-273	RESISTOR, FIXED
		2	2		14	1008025-2	INSULATOR, BUSHING
		2	2		13	1000093-13	SCREW
		2	2		12	1008024-4	WASHER, INSULATOR
		2	2		11	1008024-3	WASHER, INSULATOR
		2	2		10	1008021-2	BUSHING, INSULATOR
		2	2		9	1008071-5	WASHER, FLAT
		2	2		8	MS20341-416B	NUT
		8	8		7	1006775	INSULATOR
		8	8		6	1006782-5	CONTACT, WRAPOST-MALE
					5		
			~~1~~		~~4~~	~~1015712~~	
			~~1~~		~~3~~	~~1015711~~	~~INSULATOR~~
					2		
		1	1		1	1015709	HEATSINK
		021	011				

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		
1007572		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS .XX ±.02 .XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN DATE 17 AUG 64
CHECKED 27 AUG 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

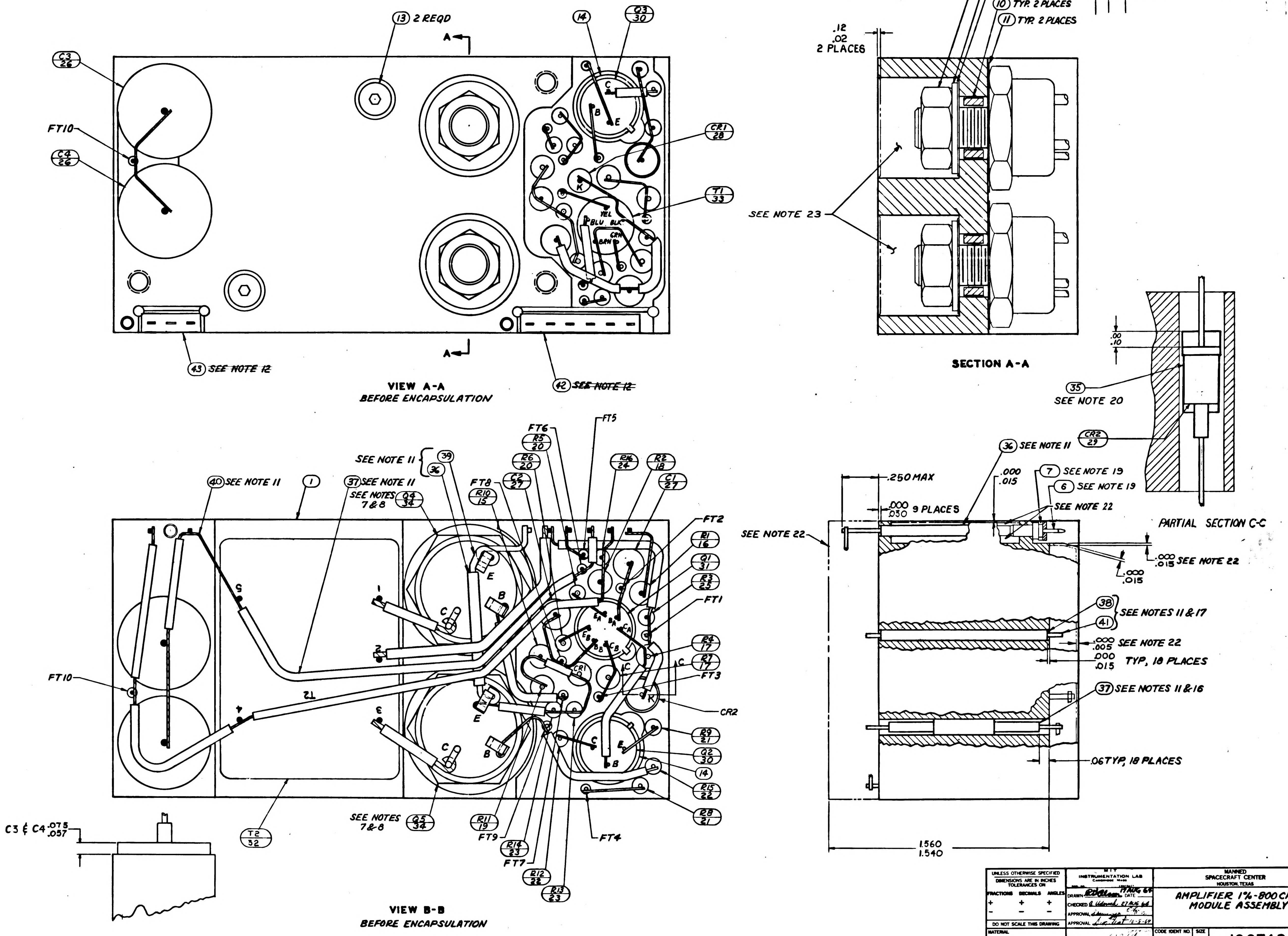
AMPLIFIER 1% - 800 CPS
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007437
SCALE 2/1
SHEET 1 OF 2

1007437

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 17315		2 MA 65	DAS
B		REVISED PER TDRR 19458		2 JUN 65	SPY
C		REVISED PER TDRR 19529		9 JUN 65	[illegible]
D		REVISED PER TDRR 20143		19 JUN 65	[illegible]
E		REVISION STATUS CHANGED		[illegible] 65	[illegible]
F		REVISION STATUS CHANGED		25 FEB 66	[illegible]
G		REVISION STATUS CHANGED		28 [illegible] 66	[illegible]


13 2 REQD
A
C3 26
FT10
C4 26
14
Q3 30
CR1 28
T1 33
YEL
BLU
BLK
GRN
BRN
43 SEE NOTE 12
42 SEE NOTE 12
VIEW A-A
BEFORE ENCAPSULATION
8 TYP. 2 PLACES, SEE NOTE 7
9 TYP. 2 PLACES
12 TYP. 2 PLACES
10 TYP. 2 PLACES
11 TYP. 2 PLACES
.12
.02
2 PLACES
SEE NOTE 23
SECTION A-A
.00
.10
35
SEE NOTE 20
CR2 29
PARTIAL SECTION C-C
SEE NOTE 11
39
36
40 SEE NOTE 11
1
37 SEE NOTE 11
SEE NOTES 7 & 8
Q4 34
FT6
R5 20
R6 20
FT8
R10 15
C2 27
FT5
R16 24
R2 18
C1 27
FT2
R1 16
Q1 31
R3 23
FT1
R4 17
R7 17
FT3
CR2
R9 21
Q2 30
14
R15 22
R8 21
FT4
FT9
R11 19
R14 23
FT7
R12 22
R13 23
SEE NOTES 7 & 8
Q5 34
T2 32
T2
E
B
C
K
CR1
C3 & C4 .075 .057
VIEW B-B
BEFORE ENCAPSULATION
36 SEE NOTE 11
.250 MAX
.000 .015
7 SEE NOTE 19
6 SEE NOTE 19
SEE NOTE 22
.000 .050 9 PLACES
SEE NOTE 22
.000 .015 SEE NOTE 22
38 SEE NOTES 11 & 17
41
.000 .005 SEE NOTE 22
.000 .015 TYP, 18 PLACES
37 SEE NOTES 11 & 16
.06 TYP, 18 PLACES
1.560
1.540

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
+	+	+
−	−	−

DO NOT SCALE THIS DRAWING

MATERIAL

CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
Cambridge Mass

DRAWN R D Allen 17 AUG 64 DATE
CHECKED A. Udovich 27 AUG 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL 10/14/64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1%-800CPS
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007437
SCALE 5/1
SHEET 2 OF 2

REVISIONS 13403					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.

NOTES:

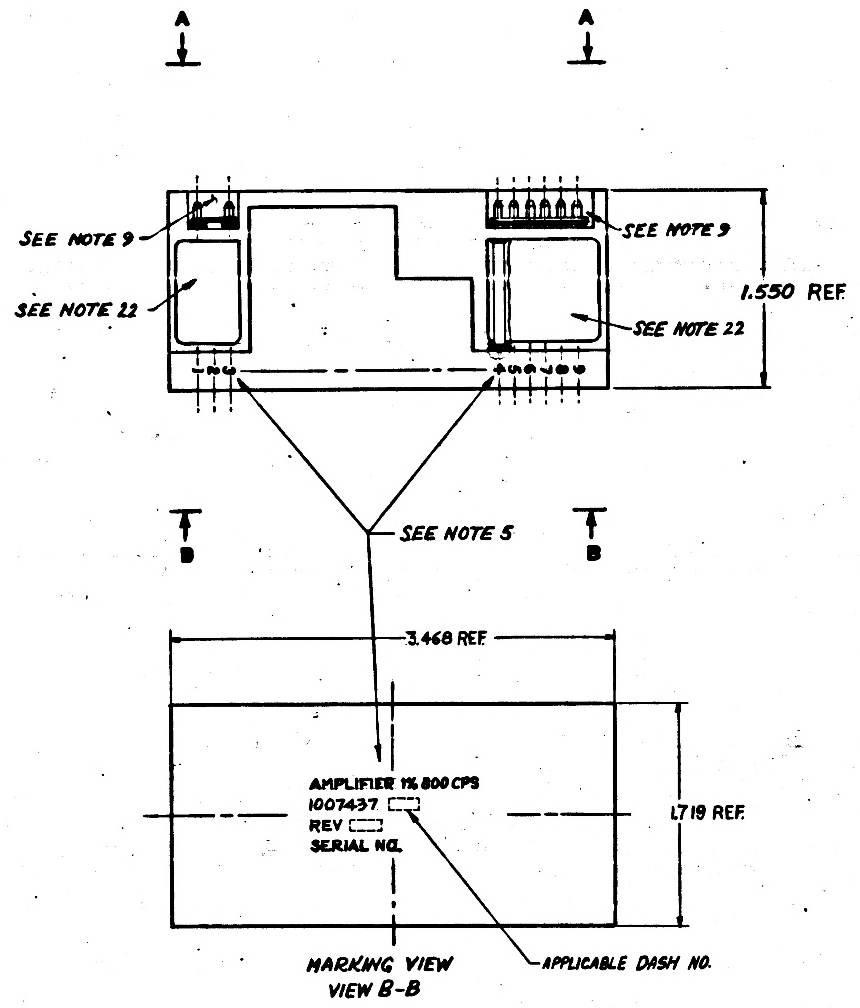
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. COMPONENTS TO BE CENTRALIZED AND CEMENTED IN PLACE PER ND1002000 METHOD C
3. UNLESS OTHERWISE SPECIFIED: WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
4. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005.
5. MARK PIN NUMBERS .060/.100 HIGH (WHITE) ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019
6. SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.

7. MOUNTING TORQUE FOR ITEM ⑧ 24 IN-LBS ± 2 IN-LBS.
8. SOLDER PER ND 1002071.
9. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.

11. AR DENOTES AS REQUIRED
12. BOND ㊷ AND ㊸ TO ⑦ PER ND1002237
13. ON ITEM ③ AND ④:
    K INDICATES CATHODE END.
    FT ( ) INDICATES FEED THRU.
    PLUS (+) INDICATES POSITVE END OF CAPACITOR.
    C - INDICATES COLLECTOR LEAD OF TRANSISTOR.
    B - BASE
    E - EMITTER
    C_A COLLECTOR
    B_A BASE
    E_A EMITTER
    C_B COLLECTOR
    B_B BASE
    E_B EMITTER
    MULTI STAGE TRANSISTOR.
14. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVER WIRING.
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.

16. TYPICAL SLEEVING FOR R3, R5, R6, R8, R9, R12, R13, R14, R15 AND R16
17. TYPICAL SLEEVING AND WIRE FOR FT1 THRU FT 10.
18. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007047 PART TO BE SELECTED FROM CHART, VALUE IS IN OHMS.
19. ASSEMBLE PER ND 1002136.
20. BOND ITEM ㉟ TO ITEM ㉙. CURE AT AIR TEMPERATURE BEFORE ASSEMBLY TO ITEM ①.
21. PROCURE PER PS 1007047

22. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED: PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005 WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE, SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
23. FILL PER ND1002117



MARKING VIEW
VIEW B-B

SELECTION CHART FOR R11	
PART NUMBER	VALUE
1010364 - 325	2430
329	2550
337	2800
343	3010
351	3320
355	3480
361	3740
367	4020
371	4220
375	4420
377	4530
381	4750
385	4990
387	5110
391	5360
395	5620
399	5900
403	6190
405	6340
409	6650

SEE NOTE 18

			X		KC1	1010045	SCHEMATIC, ELECTRICAL
			1		43	1008540-3	GASKET, CONNECTOR MINIATURE
			1		42	1008540-6	GASKET, CONNECTOR MINIATURE
			AR		41	1006757-8	WIRE, ELECTRICAL .020 DIA
			AR		40	1006757-1	WIRE, ELECTRICAL .010 × .020
			AR		39	1006757-9	WIRE, ELECTRICAL .032 DIA
			AR		38	-22	INSULATION SLEEVING, ELECTRICAL
			AR		37	-21	INSULATION SLEEVING, ELECTRICAL
			AR		36	1006776-20	INSULATION SLEEVING, ELECTRICAL
			AR		35	MIL-I-15126	INSUL TAPE TYPE MFT 2.5 ½ IN. WIDE
			1		34	1010273-2	TRANSISTOR (MATCHED PAIR)
			1		33	1010324	TRANSFORMER
			1		32	1010307	TRANSFORMER
			1		31	1010431	TRANSISTOR
			1		30	1010345-2	TRANSISTOR (MATCHED PAIR)
			1		29	1010265-2	SEMICONDUCTOR DEVICE, DIODE
			1		28	1010372-15	SEMICONDUCTOR DEVICE, DIODE
			2		27	1010264-9	CAPACITOR, FIXED
			2		26	1010264-37	CAPACITOR, FIXED
			1		25	-57	
			1		24	-73	
			2		23	-25	
			2		22	-12	
			2		21	1006750-1	
			2		20	1010369-1	
			1		19	1010364-	
			1		18	-573	
			2		17	-327	
			1		16	-309	
			1		15	1010364-273	RESISTOR, FIXED
			2		14	1008025-2	INSULATOR, BUSHING
			2		13	1000093-13	SCREW
			2		12	[illegible]	WASHER, INSULATOR
			2		11	1008024-3	WASHER, INSULATOR
			2		10	1008021-2	BUSHING, INSULATOR
			2		9	1008071-5	WASHER, FLAT
			2		8	MS20341-416B	NUT
			8		7	[illegible]	INSULATOR
			8		6	1006782-5	CONTACT, WRAPOST-MALE
					5		
			1		4	1015712	
			1		3	1015711	INSULATOR
					2		
			1		1	1015709	HEATSINK
			011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		
1007572		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± .XX ±.02 ±
.XXX ±.005
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN DATE
CHECKED 27 AUG 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL 10-19-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

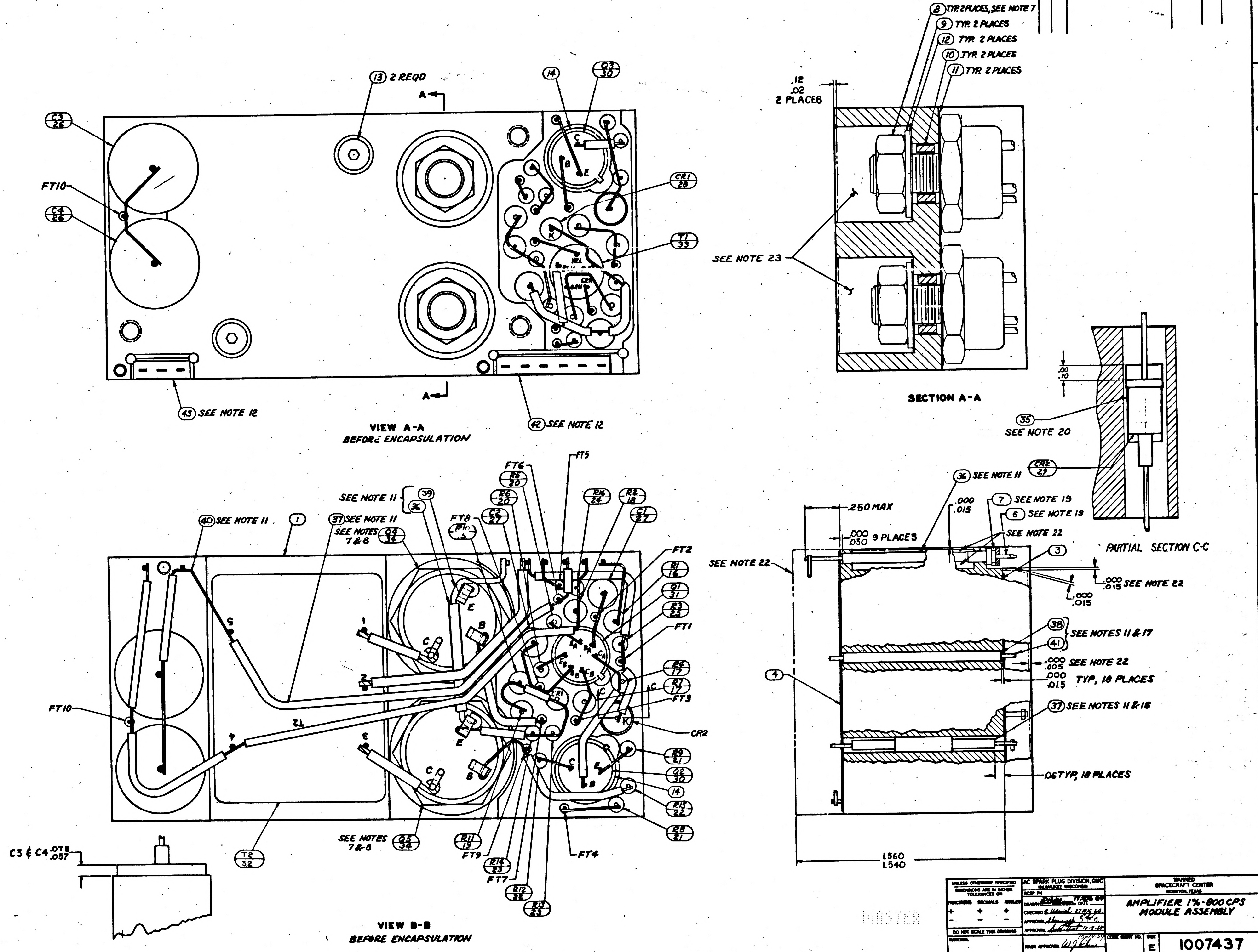
AMPLIFIER 1%-800 CPS
MODULE ASSEMBLY

CODE IDENT NO.
SIZE E
1007437
SCALE 2/1
SHEET 1 OF 2

1007437

MASTER

SYM	ZONE	REVISIONS DESCRIPTION	CHG. NO.	DATE	APPD.



13 2 REQD
A
14
Q3 30
C3 26
FT10
C4 26
CR1 28
T1 33
C
B
E
K
43 SEE NOTE 12
42 SEE NOTE 12
VIEW A-A
BEFORE ENCAPSULATION
8 TYP. 2 PLACES, SEE NOTE 7
9 TYP. 2 PLACES
12 TYP. 2 PLACES
10 TYP. 2 PLACES
11 TYP. 2 PLACES
.12 .02 2 PLACES
SEE NOTE 23
SECTION A-A
.00 .10
35 SEE NOTE 20
CR2 29
PARTIAL SECTION C-C
36 SEE NOTE 11
.000 .015
7 SEE NOTE 19
6 SEE NOTE 19
SEE NOTE 22
3
.250 MAX
.000 .030 9 PLACES
SEE NOTE 22
.000 .015 SEE NOTE 22
.000 .015
38
41
SEE NOTES 11 & 17
SEE NOTE 22
.005 .000 .015
TYP, 18 PLACES
4
37 SEE NOTES 11 & 16
.06 TYP, 18 PLACES
1.560 1.540
SEE NOTE 11
39
36
40 SEE NOTE 11
1
37 SEE NOTE 11
SEE NOTES 7 & 8
Q4 34
FT8
P11 .3
C2 27
FT6
R5 20
R6 20
FT5
R16 24
R2 18
C1 27
FT2
R1 16
Q1 31
R3 23
FT1
R4 17
R7 17
FT3
CR2
R9 21
Q2 30
14
R15 22
R8 21
FT4
FT10
T2
T2 32
SEE NOTES 7 & 8
Q5 34
R11 19
FT9
R14 23
FT7
R12 22
R13 23
1
2
3
4
5
C
B
E
C3 & C4 .075 .057
VIEW B-B
BEFORE ENCAPSULATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN R.B. Olsen DATE 17 AUG 64
CHECKED A. Udovich 27 AUG 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL W J 10-14-64
MIT APPROVAL 10/14/64

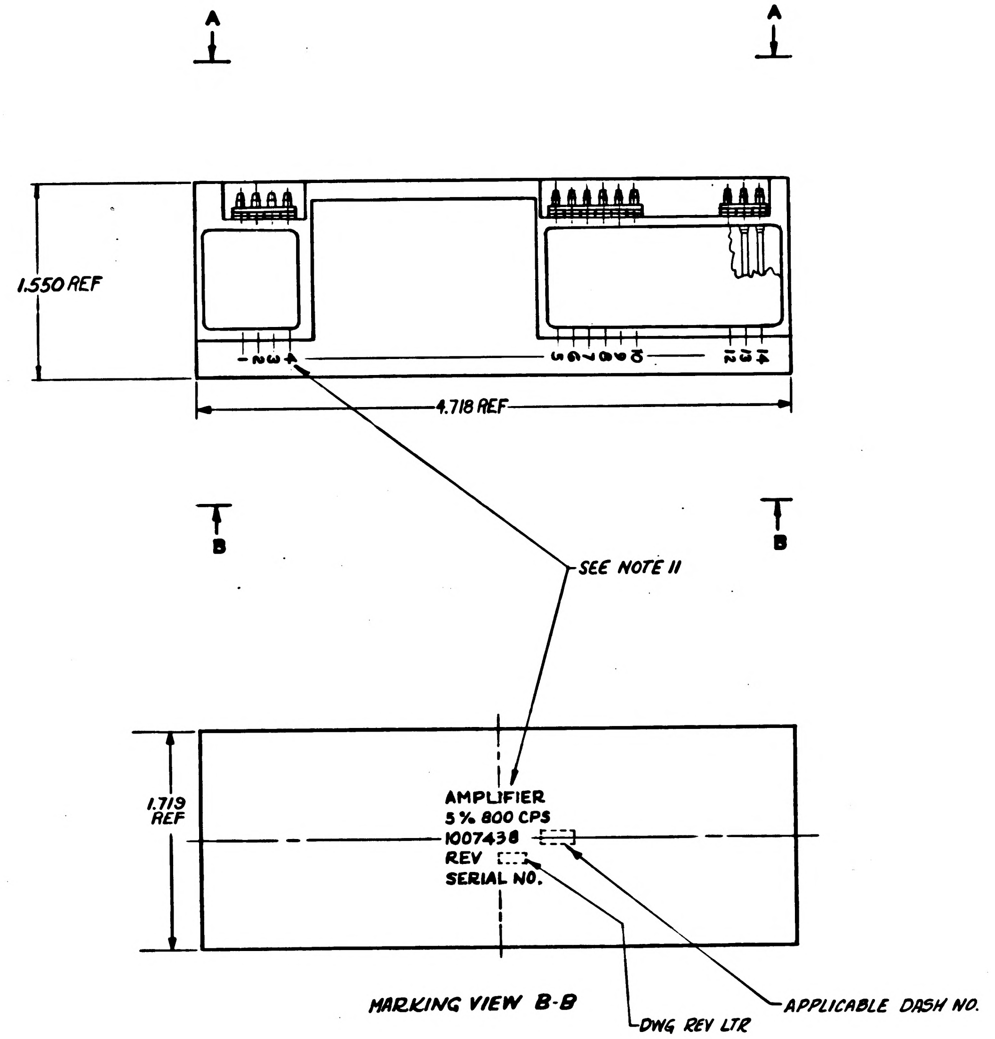
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER 1%-800 CPS
MODULE ASSEMBLY

CODE IDENT NO.
SIZE E
1007437
SCALE 5/1
SHEET 2 OF 2

MASTER

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 17329			



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. COMPONENTS TO BE CENTRALIZED & CEMENTED IN PLACE PER ND 1002009. METHOD C
3. BOND (39) (40) AND (41) TO (6) PER ND 1002237.
4. ASSEMBLE PER ND 1002136.
5. UNLESS OTHERWISE SPECIFIED:
   a. WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
   b. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005.
6. MOUNTING TORQUE 24 INCH POUNDS ± 2 IN LBS.
7. SOLDER PER ND 1002071.
8. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.
9. PROCURE PER PS 1007048.
10. AR DENOTES AS REQUIRED
11. MARK PIN NUMBERS .060/.100 HIGH (WHITE) ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
12. ON (2) AND (3):
    BROKEN PATHS INDICATE INSULATION SLEEVING.
    K INDICATES CATHODE SIDE OF DIODE.
    FT( ) INDICATES FEED THRU.
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
    C INDICATES COLLECTOR LEAD OF TRANSISTOR.
    B ↓ BASE ↓ ↓ ↓
    C ↓ EMITTER ↓ ↓ ↓
13. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
14. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
15. TYPICAL SLEEVING FOR CR1, CR2, R9, R12, R13 AND R14.
16. TYPICAL WIRE AND SLEEVING FOR FT1 THRU FT8.
17. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007048 PART TO BE SELECTED FROM CHART
18. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
19. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE 1.

SELECTION CHART FOR R5		SELECTION CHART FOR R7		SELECTION CHART FOR R11	
PART NUMBER	VALUE Ω	PART NUMBER	VALUE Ω	PART NUMBER	VALUE Ω
1010389-96	2800	1010389-60	1500	1010364-195	511
67	3000	61	1600	203	562
68	3300	62	1800	211	619
69	3600	63	2000	219	681
70	3900	64	2200	227	750
97	4100	107	2300	235	825
71	4300	65	2400	243	909
98	4500	95	2600	251	1000
110	4900	96	2800	259	1100
73	5100	67	3000	267	1210
99	5300	108	3100	273	1300
74	5600	68	3300	279	1400
100	5800	109	3500	285	1500
101	6100	69	3600		
102	6300	70	3700		
103	6600	97	4100		
104	6900	71	4300		
105	7200	98	4500		
77	7500				
106	7800				

SEE NOTE 17 (item 23)

SEE NOTE 17 (item 20)

SEE NOTE 17 (item 19)

QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
☒		REF	1010046	SCHEMATIC, ELECTRICAL
1		41	↑ -3	↑
1		40	-6	
1		39	1008540-4	GASKET, CONNECTOR MINIATURE
2		38	1000093-13	SCREW
AR		37	1006757-8	↑ .020 DIA
AR		36	1006757-1	.020 × .010
AR		35	1006757-9	WIRE .032 DIA
AR		34	1006776-22	↑
AR		33	1006776-21	
AR		32	1006776-20	INSULATION
1		31	1010273-2	TRANSISTOR (MATCHED PAIR)
1		30	1010398-4	TRANSISTOR (MATCHED PAIR)
2		29	1010385	SEMICONDUCTOR DEVICE, DIODE
1		28	1010407	TRANSFORMER
1		27	1010308	TRANSFORMER
2		26	↑ 37	↑
1		25	35	
2		24	1010264-1	CAPACITOR
1		23	SEE TABLE	↑
1		22	1010364-251	
1		21	1006750-12	
1		20	SEE TABLE	
1		19	SEE TABLE	
1		18	↑ 65	
1		17	56	
1		16	53	
1		15	1010389-43	
1		14	1006750-73	
2		13	1006750-20	RESISTOR, FIXED
2		12	1008025-2	INSULATOR, BUSHING
2		11	1008024-4	WASHER, INSULATOR
2		10	1008024-3	WASHER, INSULATOR
2		9	1008021-2	BUSHING, INSULATOR
2		8	1008071-5	WASHER, FLAT
2		7	MS20341-416B	NUT
13		6	1006775	INSULATOR
13		5	1006782-5	CONTACT, WRAPOST-MALE
1		4		
1		3	1015730	INSULATOR
1		2	1015729	INSULATOR
1		1	1015703	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		
1007572		
1007460		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

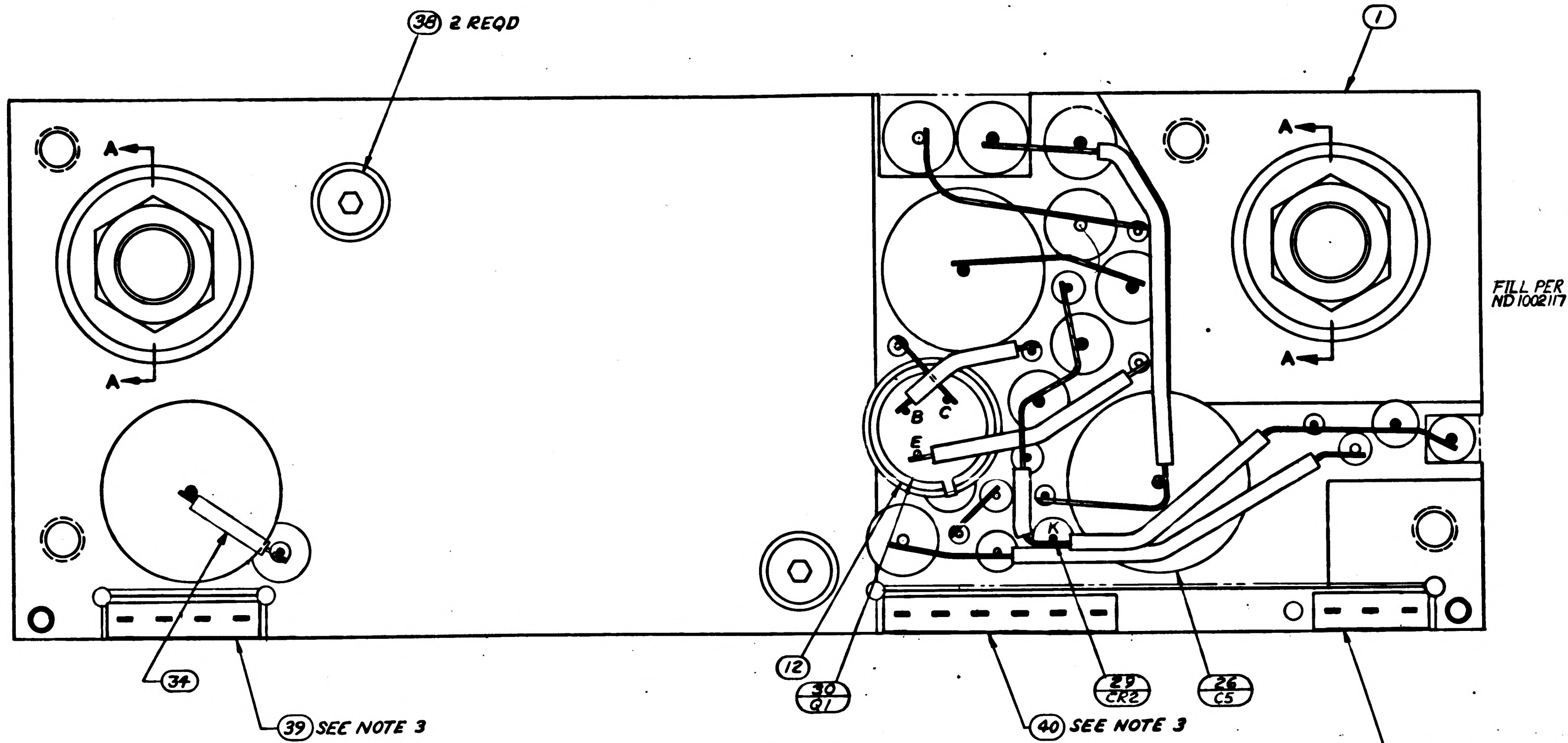
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN R.G. Olson DATE 14 AUG 64
CHECKED
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL W. J. R
MIT APPROVAL 10/14/64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER, 5% 800 CPS
MODULE ASSEMBLY

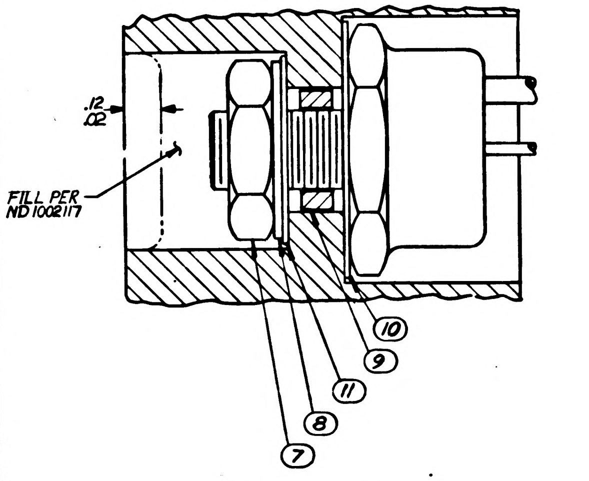
CODE IDENT NO. SIZE E 1007438
SCALE 2/1 SHEET 1 OF 2

REVISIONS 13 ... 3					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
Ⓜ A		REVISED PER MRR 17329		12 Aug 64	GW



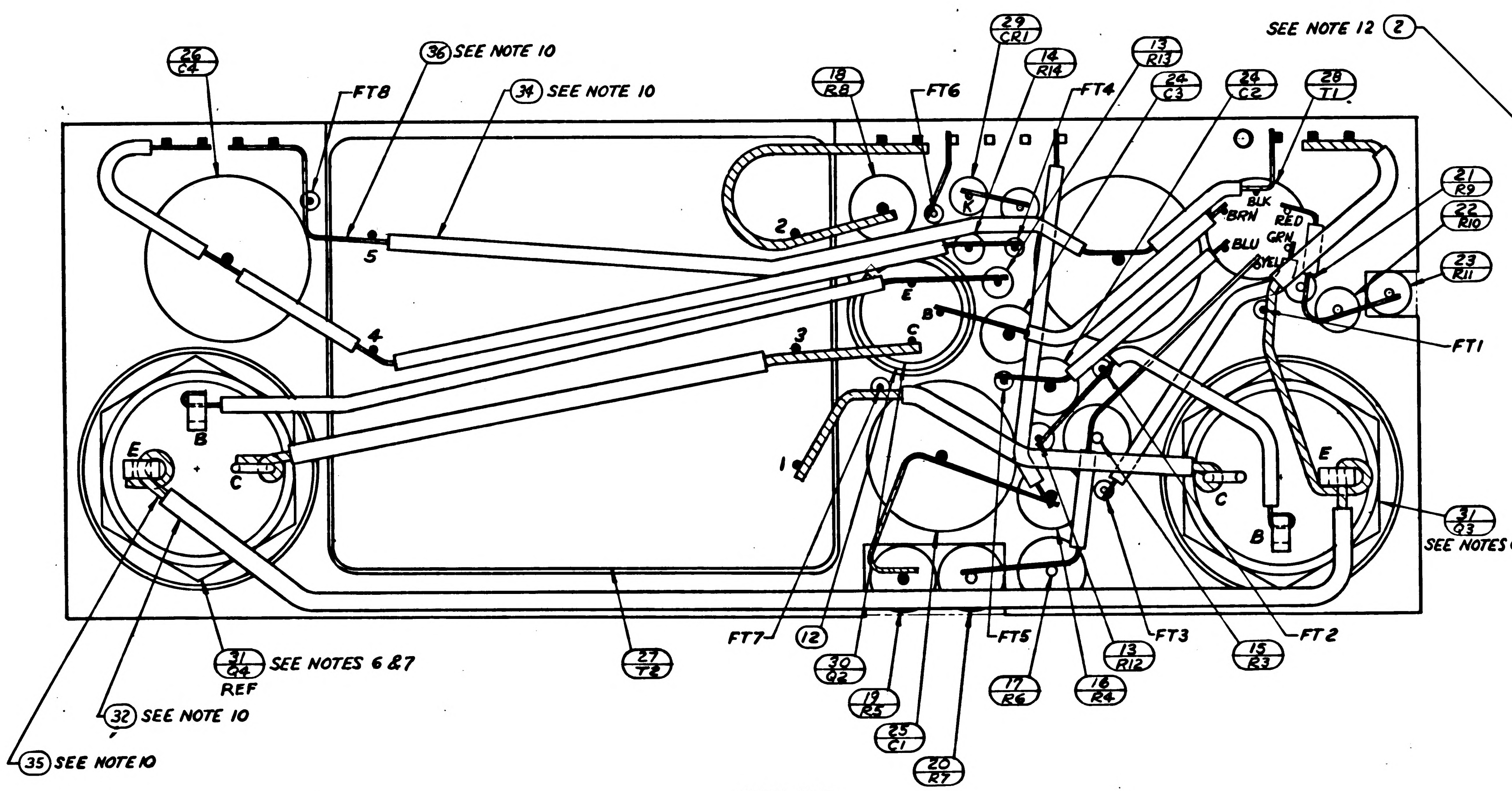
38 2 REQD
1
A
A
A
A
B
C
E
K
12
30 Q1
34
39 SEE NOTE 3
40 SEE NOTE 3
29 CR2
26 C5
41 SEE NOTE 3

VIEW A-A
BEFORE ENCAPSULATION



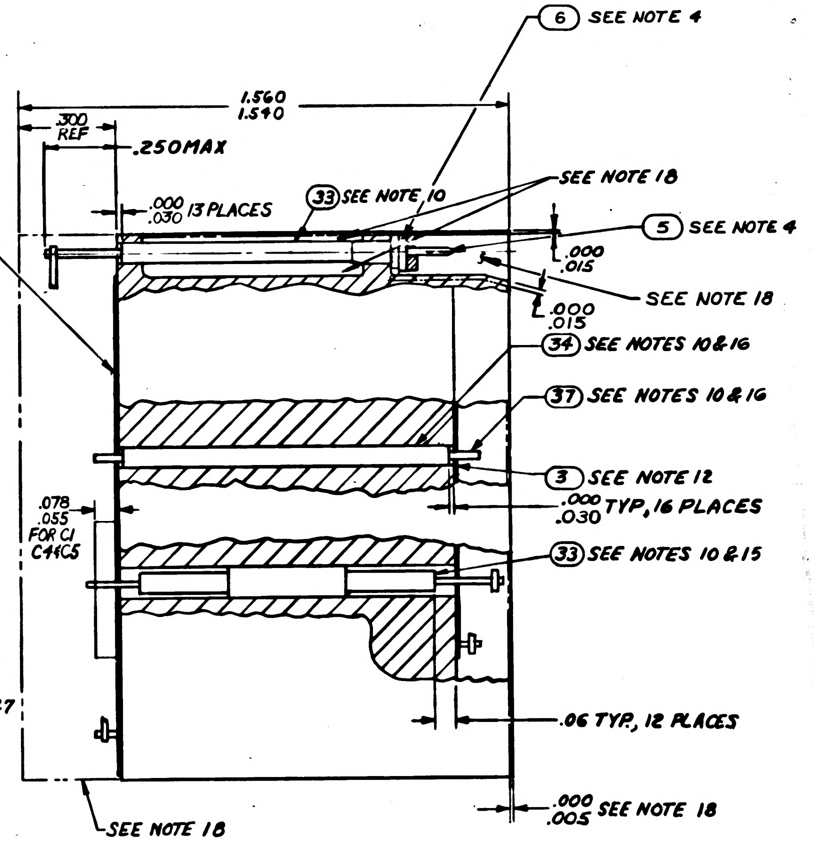
.12
.02
FILL PER ND1002117
10
9
11
8
7

PARTIAL SECTION A-A
2 PLACES



26 C4
36 SEE NOTE 10
34 SEE NOTE 10
FT8
18 R8
FT6
29 CR1
14 R14
FT4
13 R13
24 C3
24 C2
28 T1
SEE NOTE 12
2
21 R9
22 R10
23 R11
FT1
5
4
3
2
1
E
B
C
K
BLK
BRN
RED
GRN
BLU
YEL
31 Q3
SEE NOTES 6&7
FT7
12
30 Q2
19 R5
25 C1
20 R7
FT5
17 R6
16 R4
13 R12
FT3
15 R3
FT2
27 T2
31 Q4 REF
SEE NOTES 6 &7
32 SEE NOTE 10
35 SEE NOTE 10

VIEW B-B
BEFORE ENCAPSULATION



6 SEE NOTE 4
1.560
1.540
.300 REF
.250 MAX
.000
.030 13 PLACES
33 SEE NOTE 10
SEE NOTE 18
5 SEE NOTE 4
.000
.015
SEE NOTE 18
.000
.015
34 SEE NOTES 10 & 16
37 SEE NOTES 10 & 16
3 SEE NOTE 12
.000
.030 TYP, 16 PLACES
.078
.055
FOR C1
C4 4 C5
33 SEE NOTES 10 & 15
.06 TYP, 12 PLACES
.000
.005 SEE NOTE 18
SEE NOTE 18

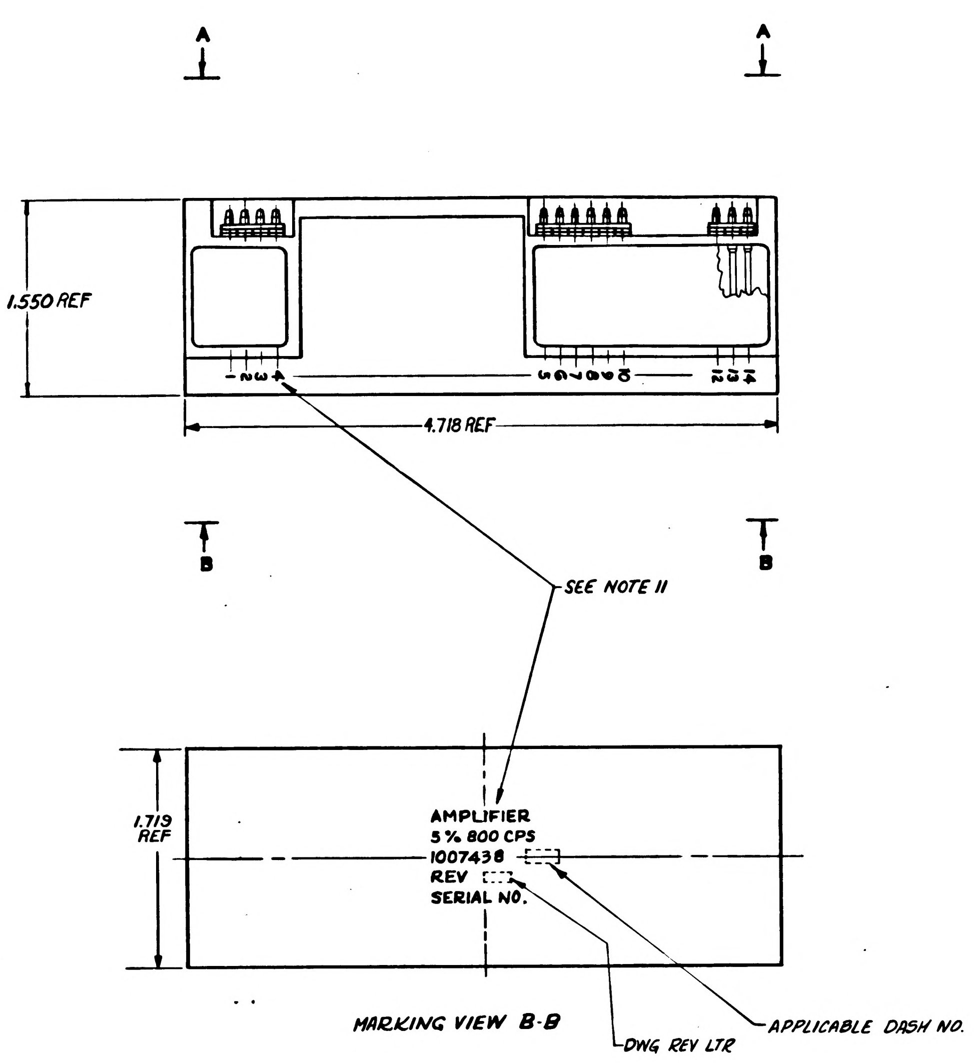
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES + XX ±.02 +— − XXX ±.005 ——	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
	ACSP PN		
	DRAWN A.G. Olson DATE 14 AUG 64 CHECKED J.A. Pi... 20 AUG 64 APPROVAL ... APPROVAL O.A. ... 10-8-64	AMPLIFIER, 5% 800 CPS MODULE ASSEMBLY	
DO NOT SCALE THIS DRAWING			
MATERIAL —	NASA APPROVAL W J ... 10-14-64	CODE IDENT NO.	SIZE E 1007438
CONTRACT NAS 9-497	MIT APPROVAL ... 10/14/64	SCALE 5/1	SHEET 2 OF 2

1007438 A

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 17329		MAR 65	GM
B		REVISED PER TDRR 19459		1 JUNE 65	TRD

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE.	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER.	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.



MARKING VIEW B-B

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. COMPONENTS TO BE CENTRALIZED & CEMENTED IN PLACE PER ND 1002009. METHOD C
3. BOND (39) (40) AND (41) TO (6) PER ND 1002237.
4. ASSEMBLE PER ND 1002136.
5. UNLESS OTHERWISE SPECIFIED:
   a. WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
   b. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005.
6. MOUNTING TORQUE 24 INCH POUNDS ± 2 IN LBS.
7. SOLDER PER ND 1002071.
8. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.
9. PROCURE PER PS 1007048.
10. AR DENOTES AS REQUIRED
11. MARK PIN NUMBERS .060/.100 HIGH (WHITE) ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
12. ON (2) AND (3):
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    K INDICATES CATHODE SIDE OF DIODE.
    FT( ) INDICATES FEED THRU.
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
    C INDICATES COLLECTOR LEAD OF TRANSISTOR.
    B ↓ BASE ↓ ↓ ↓
    C EMITTER
13. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
14. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
15. TYPICAL SLEEVING FOR CR1, CR2, R9, R12, R13 AND R14.
16. TYPICAL WIRE AND SLEEVING FOR FT1 THRU FT8.
17. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007048 PART TO BE SELECTED FROM CHART
18. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
19. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187, TYPE II.~~
20. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATRIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.

SELECTION CHART FOR R5		SELECTION CHART FOR R7		SELECTION CHART FOR R11	
PART NUMBER	VALUE Ω	PART NUMBER	VALUE Ω	PART NUMBER	VALUE Ω
1010389-96	2800	1010389-60	1500	1010364-195	511
67	3000	61	1600	203	562
68	3300	62	1800	211	619
69	3600	63	2000	219	681
70	3900	64	2200	227	750
97	4100	107	2300	235	825
71	4300	65	2400	243	909
98	4500	95	2600	251	1000
110	4900	96	2800	259	1100
73	5100	67	3000	267	1210
99	5300	108	3100	273	1300
74	5600	68	3300	279	1400
100	5800	109	3500	285	1500
101	6100	69	3600		
102	6300	70	3900		
103	6600	97	4100		
104	6900	71	4300		
105	7200	98	4500		
77	7500				
106	7800				

	QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			REF	1010046	SCHEMATIC, ELECTRICAL
	1		41	-3	
	1		40	-6	
	7		39	1008540-4	GASKET, CONNECTOR MINIATURE
	2		38	1000093-13	SCREW
	AR		37	1006757-8	.020 DIA
	AR		36	1006757-1	.020 × .010
	AR		35	1006757-9	WIRE .032 DIA
	AR		34	1006776-22	
	AR		33	1006776-21	
	AR		32	1006776-20	INSULATION
	1		31	1010273-2	TRANSISTOR (MATCHED PAIR)
	1		30	1010398-4	TRANSISTOR (MATCHED PAIR)
	2		29	1010385	SEMICONDUCTOR DEVICE, DIODE
	1		28	1010407	TRANSFORMER
	1		27	1010308	TRANSFORMER
	2		26	37	
	1		25	35	
	2		24	1010264-1	CAPACITOR
SEE NOTE 17	1		23	SEE TABLE	
	1		22	1010364-251	
	1		21	1006750-12	
SEE NOTE 17	1		20	SEE TABLE	
SEE NOTE 17	1		19	SEE TABLE	
	1		18	65	
	1		17	56	
	1		16	53	
	1		15	1010389-43	
	1		14	1006750-73	
	2		13	1006750-20	RESISTOR, FIXED
	2		12	1008025-2	INSULATOR, BUSHING
	2		11	1008024-4	WASHER, INSULATOR
	2		10	1008024-3	WASHER, INSULATOR
	2		9	1008021-2	BUSHING, INSULATOR
	2		8	1008071-5	WASHER, FLAT
	2		7	MS20341-416B	NUT
	13		6	1006775	INSULATOR
	13		5	1006782-5	CONTACT, WRAPOST-MALE
	1		4		
	1		3	1015730	INSULATOR
	1		2	1015729	INSULATOR
	1		1	1015703	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		
1007572		
1007460		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

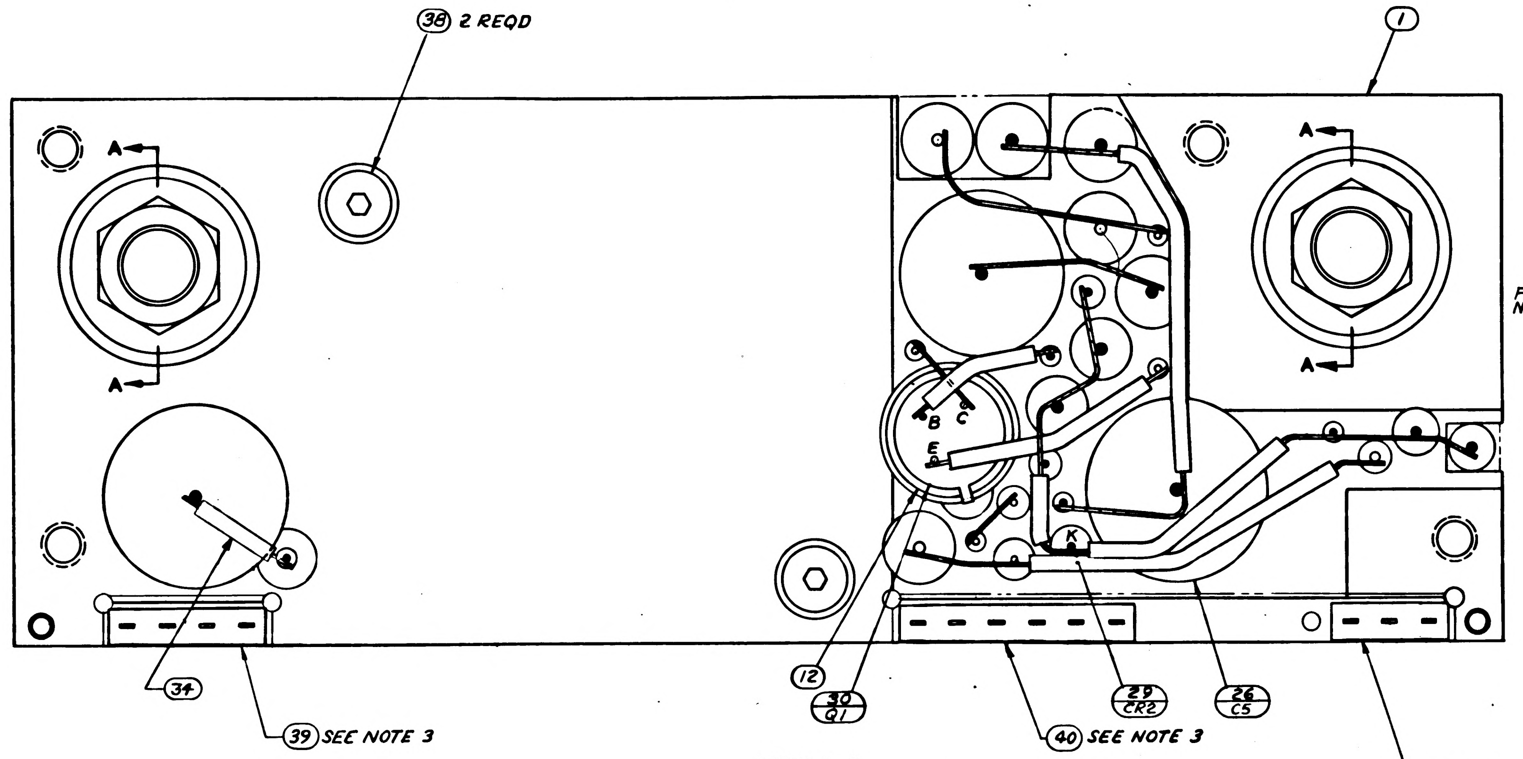
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN R. H. Olson 14 AUG 64
CHECKED 20 AUG 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER, 5% 800 CPS
MODULE ASSEMBLY

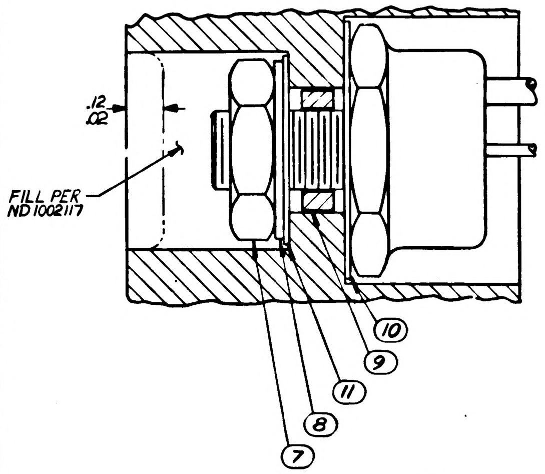
CODE IDENT NO. 80230
SIZE E
1007438
SCALE 2/1
SHEET 1 OF 2

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 17329		12 MAY 65	GW
B		REVISED PER TDRR 19459		1 JUNE 65	JRD



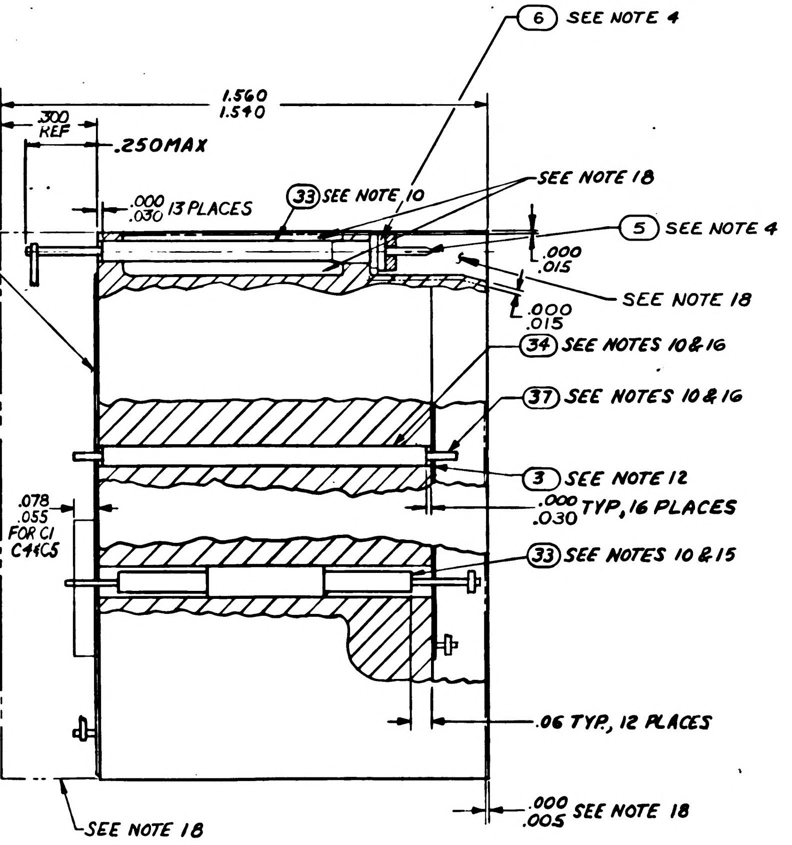
38 2 REQD
1
A
A
A
A
B
C
E
K
34
39 SEE NOTE 3
12
30 Q1
40 SEE NOTE 3
29 CR2
26 C5
41 SEE NOTE 3

VIEW A-A
BEFORE ENCAPSULATION

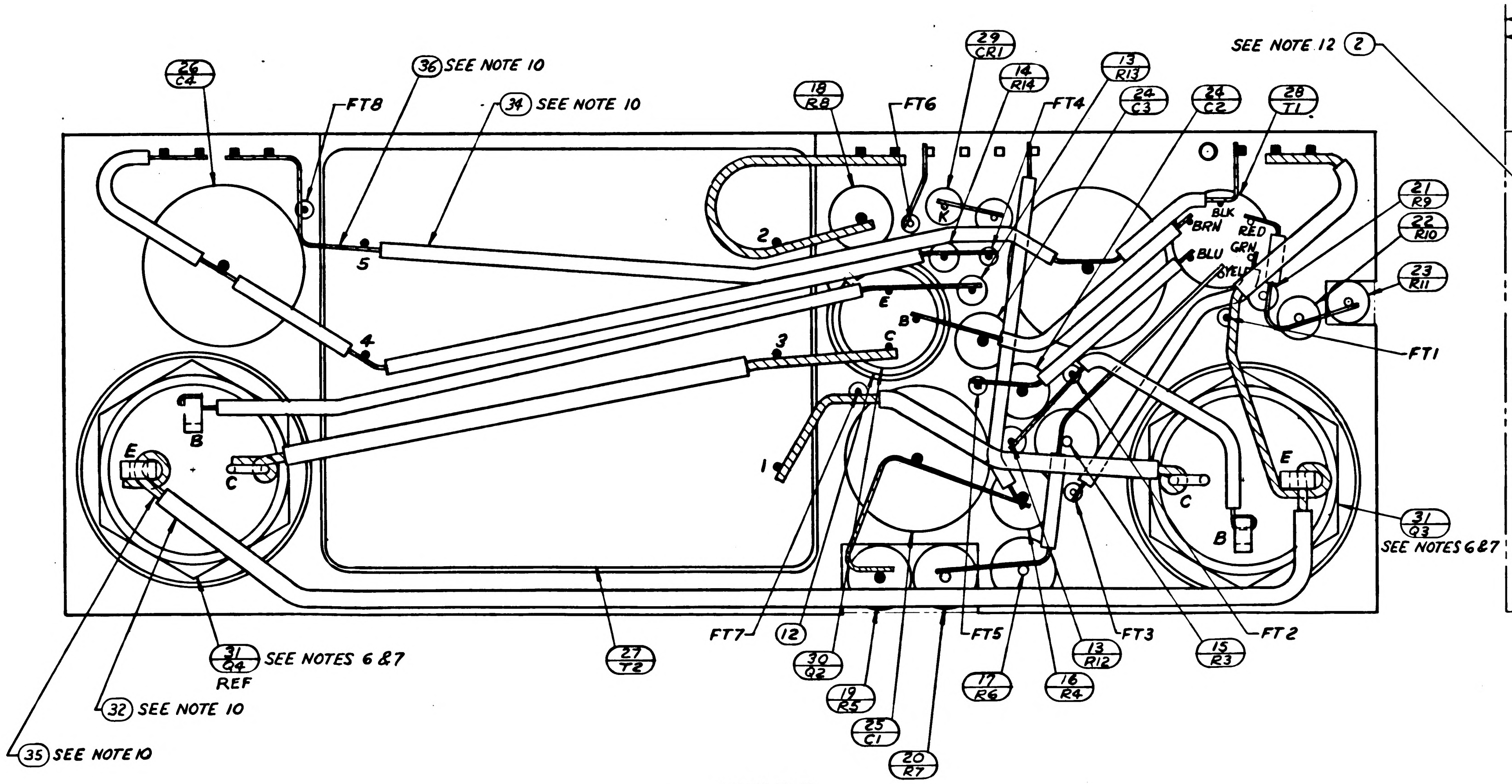


.12 .02
FILL PER ND1002117
10
9
11
8
7

PARTIAL SECTION A-A
2 PLACES



6 SEE NOTE 4
1.560 1.540
.300 REF
.250 MAX
.000 .030 13 PLACES
33 SEE NOTE 10
SEE NOTE 18
5 SEE NOTE 4
.000 .015
SEE NOTE 18
.000 .015
34 SEE NOTES 10 & 16
37 SEE NOTES 10 & 16
3 SEE NOTE 12
.000 .030 TYP, 16 PLACES
.078 .055 FOR C1 C4 & C5
33 SEE NOTES 10 & 15
.06 TYP, 12 PLACES
SEE NOTE 18
.000 .005 SEE NOTE 18



26 C4
FT8
36 SEE NOTE 10
34 SEE NOTE 10
18 R8
FT6
29 CR1
14 R14
FT4
13 R13
24 C3
24 C2
28 T1
SEE NOTE 12
2
21 R9
22 R10
23 R11
FT1
BLK
BRN
RED
GRN
BLU
YEL
5
4
3
2
1
E
B
C
K
31 Q3
SEE NOTES 6 & 7
31 Q4 REF
SEE NOTES 6 & 7
32 SEE NOTE 10
35 SEE NOTE 10
27 T2
FT7
12
30 Q2
19 R5
25 C1
20 R7
FT5
17 R6
16 R4
13 R12
FT3
15 R3
FT2

VIEW B-B
BEFORE ENCAPSULATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES + XX ±.02 +— — XXX ±.005 ——	M I T INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON TEXAS
DO NOT SCALE THIS DRAWING	DRAWN A.J. Olson DATE 14 AUG 64 CHECKED J.J. Rim 20 AUG 64 APPROVAL APPROVAL 10-8-64	AMPLIFIER, 5% 800 CPS MODULE ASSEMBLY
MATERIAL —	NASA APPROVAL	CODE IDENT NO 80230 · SIZE E · 1007438
CONTRACT NAS 9-497	MIT APPROVAL	SCALE 5/1 · SHEET 2 OF 2

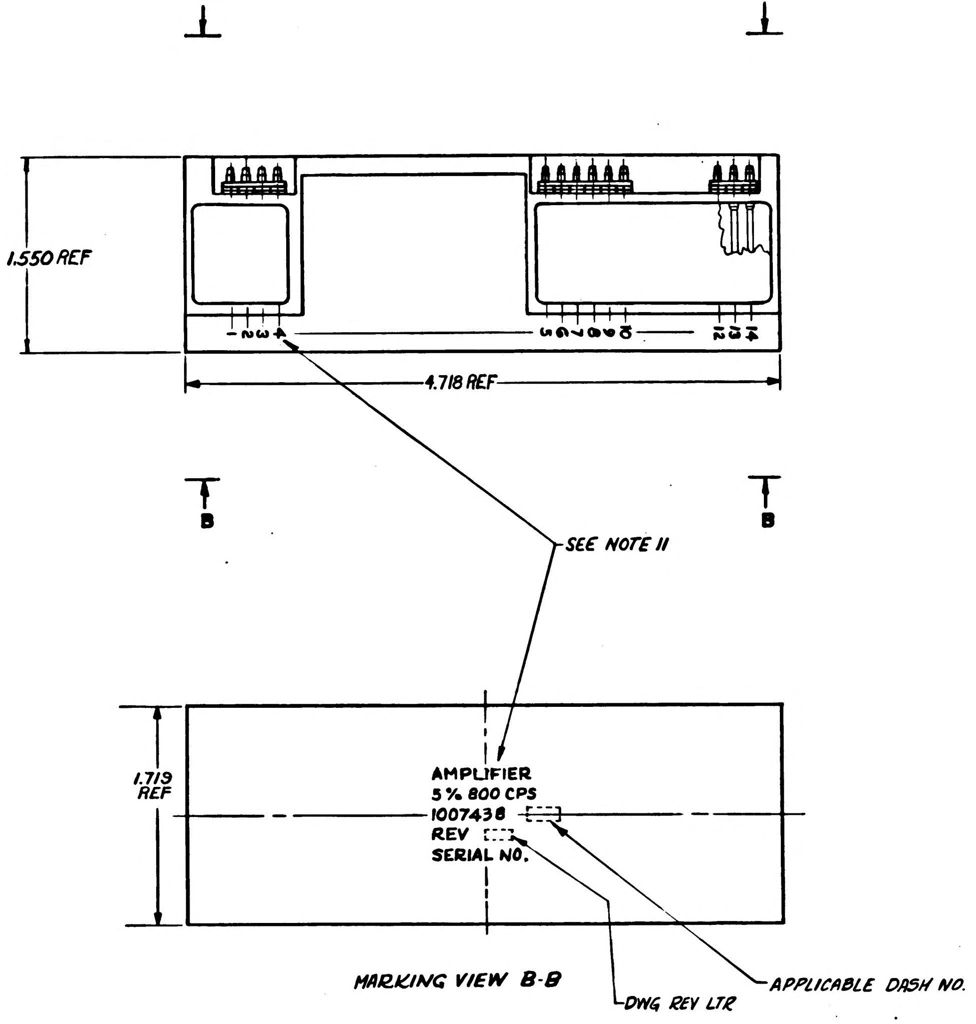
1007438 B

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 17329		MAR 65	GM
B		REVISED PER TDRR 19459		65	
C		REVISED PER TDRR 19530			

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE.	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER.	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.



MARKING VIEW B-B

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. COMPONENTS TO BE CENTRALIZED & CEMENTED IN PLACE PER ND 1002009. METHOD H.
3. BOND (39) (40) AND (41) TO (6) PER ND 1002237.
4. ASSEMBLE PER ND 1002136.
5. UNLESS OTHERWISE SPECIFIED:
   a. WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
   b. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005.
6. MOUNTING TORQUE 24 INCH POUNDS ± 2 IN LBS.
7. SOLDER PER ND 1002071.
8. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.
9. PROCURE PER PS 1007048.
10. AR DENOTES AS REQUIRED
11. MARK PIN NUMBERS .060/.100 HIGH (WHITE) ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
12. ON (2)
    BROKEN PATHS INDICATE INSULATION SLEEVING.
    K INDICATES CATHODE SIDE OF DIODE.
    FT( ) INDICATES FEED THRU.
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
    C INDICATES COLLECTOR LEAD OF TRANSISTOR.
    B ↓ BASE ↓ ↓ ↓
    C ↓ EMITTER ↓ ↓ ↓
13. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
14. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
15. TYPICAL SLEEVING FOR CR1, CR2, R9, R12, R13 AND R14.
16. TYPICAL WIRE AND SLEEVING FOR FT1 THRU FT8.
17. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007048 PART TO BE SELECTED FROM CHART
18. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
19. BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187. TYPE I.
20. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

SELECTION CHART FOR R5		SELECTION CHART FOR R7		SELECTION CHART FOR R11	
PART NUMBER	VALUE Ω	PART NUMBER	VALUE Ω	PART NUMBER	VALUE Ω
1010389-96	2800	1010389-60	1500	1010364-195	511
67	3000	61	1600	203	562
68	3300	62	1800	211	619
69	3600	63	2000	219	681
70	3900	64	2200	227	750
97	4100	107	2300	235	825
71	4300	65	2400	243	909
98	4500	95	2600	251	1000
110	4900	96	2800	259	1100
73	5100	67	3000	267	1210
99	5300	108	3100	273	1300
74	5600	68	3300	279	1400
100	5800	109	3500	285	1500
101	6100	69	3600		
102	6300	70	3700		
103	6600	97	4100		
104	6900	71	4300		
105	7200	98	4500		
77	7500				
106	7800				

SEE NOTE 17

SEE NOTE 17
SEE NOTE 17

QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
		REF	1010046	SCHEMATIC, ELECTRICAL
1		41	↑ -3	↑
1		40	-6	
1		39	1008540-4	GASKET, CONNECTOR MINIATURE
2		38	1000093-13	SCREW
AR		37	1006757-8	↑ .020 DIA
AR		36	1006757-1	.020 × .010
AR		35	1006757-9	WIRE .032 DIA
AR		34	1006776-22	↑
AR		33	1006776-21	
AR		32	1006776-20	INSULATION
1		31	1010273-2	TRANSISTOR (MATCHED PAIR)
1		30	1010398-4	TRANSISTOR (MATCHED PAIR)
2		29	1010385	SEMICONDUCTOR DEVICE, DIODE
1		28	1010407	TRANSFORMER
1		27	1010308	TRANSFORMER
2		26	↑ 37	↑
1		25	35	
2		24	1010264-1	CAPACITOR
1		23	SEE TABLE	↑
1		22	1010364-251	
1		21	1006750-12	
1		20	SEE TABLE	
1		19	SEE TABLE	
1		18	↑ 65	
1		17	56	
1		16	53	
1		15	1010389-43	
1		14	1006750-73	
2		13	1006750-20	RESISTOR, FIXED
2		12	1008025-2	INSULATOR, BUSHING
2		11	1008024-4	WASHER, INSULATOR
2		10	1008024-3	WASHER, INSULATOR
2		9	1008021-2	BUSHING, INSULATOR
2		8	1008071-5	WASHER, FLAT
2		7	MS20341-416B	NUT
13		6	1006775	INSULATOR
13		5	1006782-5	CONTACT, WRAPOST-MALE
1		4		
		3	1015730	INSULATOR
1		2	1015729	INSULATOR
1		1	1015703	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		
1007572		
1007460		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

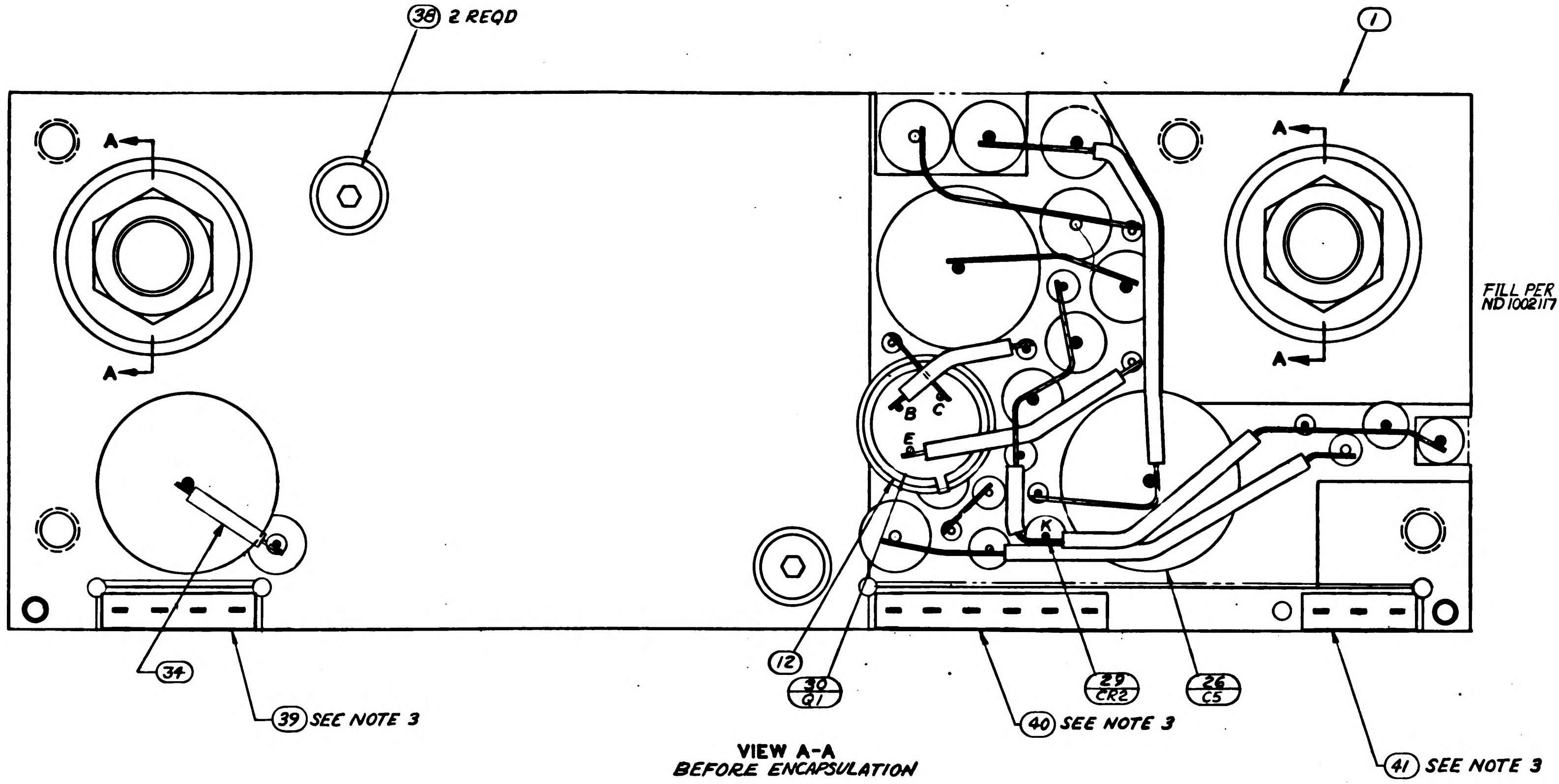
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN R.Y. Olson DATE 14 AUG 64
CHECKED J. Rima 20 AUG 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

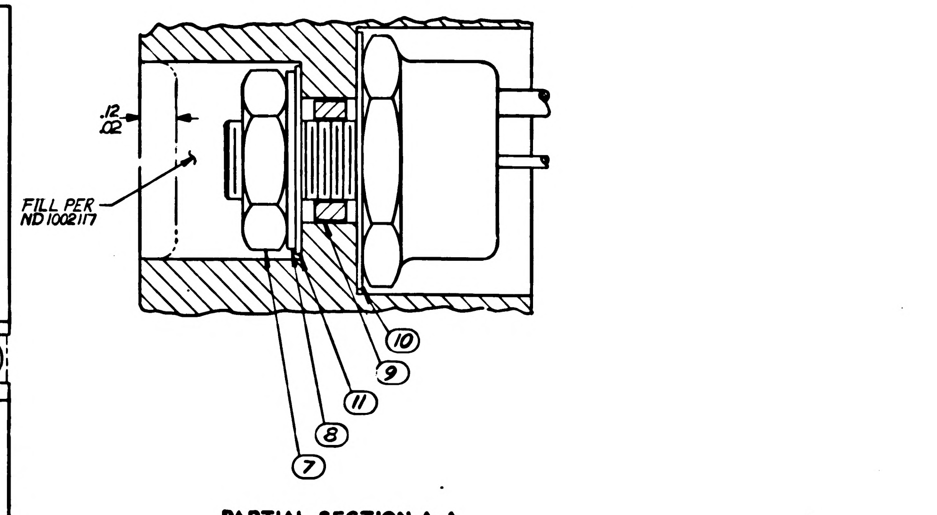
AMPLIFIER, 5% 800 CPS
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007438
SCALE 2/1
SHEET 1 OF 2

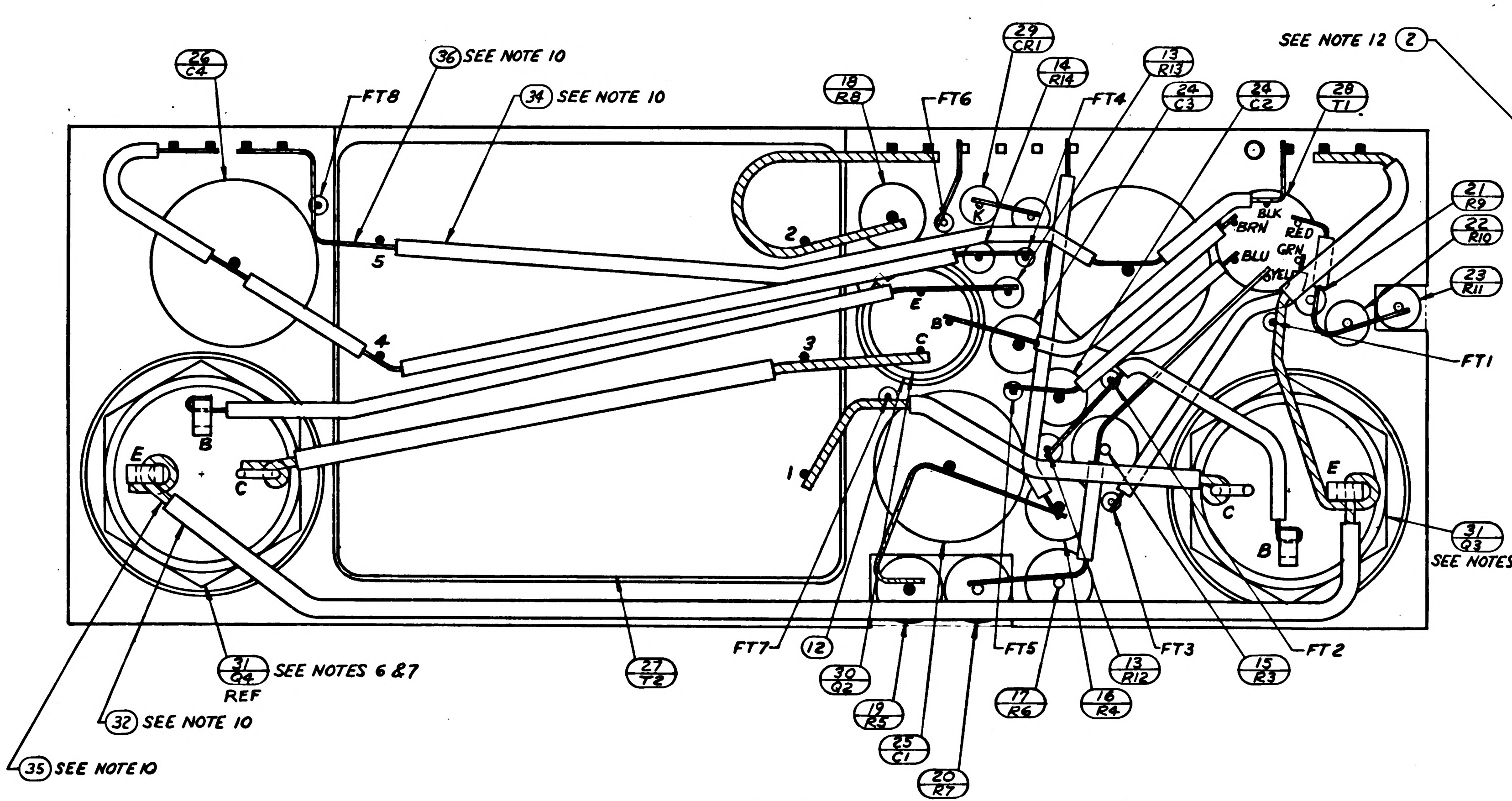
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 17329		12 AUG 65	GW
B		REVISED PER TDRR 19459		JUNE 65	JRD
C		REVISED PER TDRR 19530			


38 2 REQD
1
A
A
34
39 SEE NOTE 3
12
30 Q1
40 SEE NOTE 3
29 CR2
26 C5
41 SEE NOTE 3
B
C
E
K

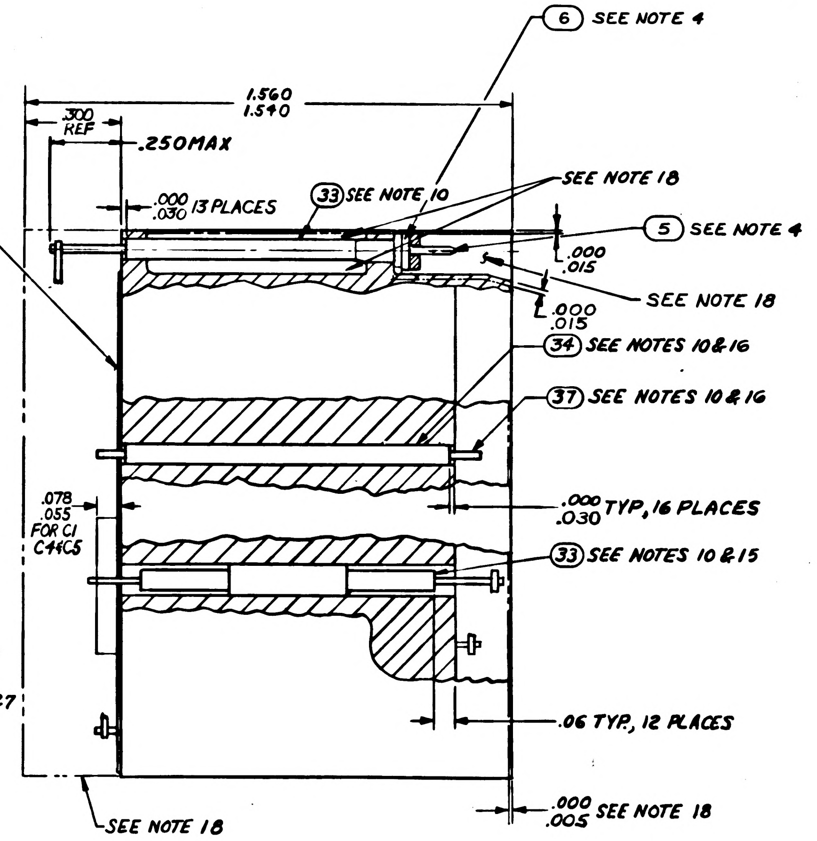
VIEW A-A
BEFORE ENCAPSULATION


.12
.02
FILL PER ND1002117
7
8
9
10
11

PARTIAL SECTION A-A
2 PLACES


26 C4
36 SEE NOTE 10
34 SEE NOTE 10
FT8
18 R8
FT6
29 CR1
14 R14
FT4
13 R13
24 C3
24 C2
28 T1
SEE NOTE 12
2
21 R9
22 R10
23 R11
FT1
BLK
BRN
RED
GRN
BLU
YEL
31 Q3
SEE NOTES 6&7
1
2
3
4
5
E
B
C
K
31 Q4 REF
SEE NOTES 6 &7
32 SEE NOTE 10
35 SEE NOTE 10
27 T2
FT7
12
30 Q2
19 R5
25 C1
20 R7
FT5
17 R6
16 R4
13 R12
FT3
15 R3
FT2

VIEW B-B
BEFORE ENCAPSULATION


6 SEE NOTE 4
1.560
1.540
.300 REF
.250 MAX
.000
.030 13 PLACES
33 SEE NOTE 10
SEE NOTE 18
5 SEE NOTE 4
.000
.015
SEE NOTE 18
.000
.015
34 SEE NOTES 10 & 16
37 SEE NOTES 10 & 16
.078
.055 FOR C1 C4 C5
.000
.030 TYP, 16 PLACES
33 SEE NOTES 10 & 15
.06 TYP, 12 PLACES
.000
.005 SEE NOTE 18
SEE NOTE 18

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
+ XX ±.02 +—
— XXX ±.005 ——
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN A J Olson DATE 14 AUG 64
CHECKED J. J. Ryan 20 AUG 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER, 5% 800 CPS
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007438
SCALE 5/1
SHEET 2 OF 2

TABLE I

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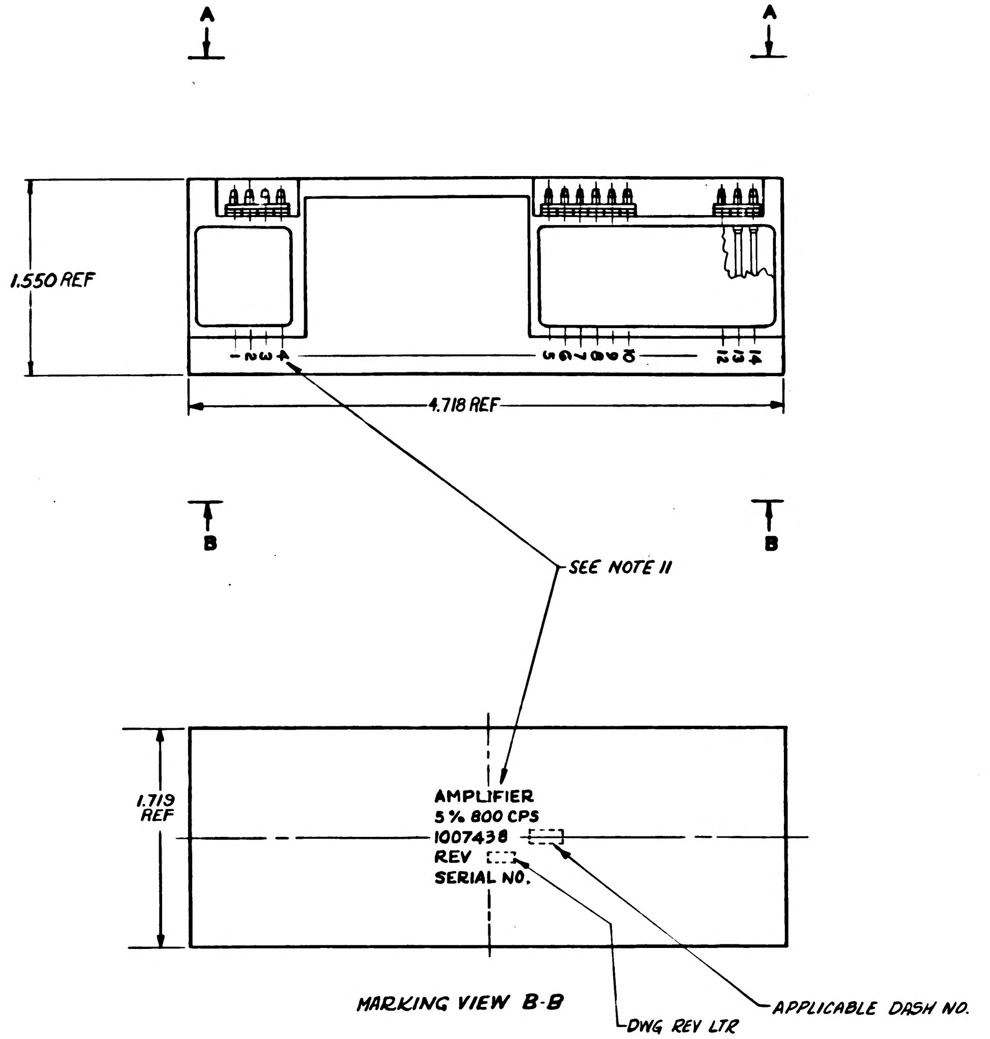
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 17329			
B		REVISED PER TDRR 19459			
C		REVISED PER TDRR 1953			
D		REVISED PER TDRR 20143			



MARKING VIEW B-B

NOTES

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   b. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005.
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9. PROCURE PER PS 1007048.
10. AR DENOTES AS REQUIRED
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    FT( ) INDICATES FEED THRU.
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
    C INDICATES COLLECTOR LEAD OF TRANSISTOR.
    B ↓ BASE ↓
    C ↓ EMITTER ↓
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16. TYPICAL WIRE AND SLEEVING FOR FT1 THRU FT8.
17. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007048 PART TO BE SELECTED FROM CHART
18. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
19. BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE 1.
20. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

SELECTION CHART FOR R5		SELECTION CHART FOR R7		SELECTION CHART FOR R11	
PART NUMBER	VALUE Ω	PART NUMBER	VALUE Ω	PART NUMBER	VALUE Ω
1010389-96	2800	1010389-60	1500	1010364-195	511
↓ 67	3000	↓ 61	1600	↓ 203	562
68	3300	62	1800	211	619
69	3600	63	2000	219	681
70	3900	64	2200	227	750
97	4100	107	2300	235	825
71	4300	65	2400	243	909
98	4500	95	2600	251	1000
110	4900	96	2800	259	1100
73	5100	67	3000	267	1210
99	5300	108	3100	273	1300
74	5600	68	3300	279	1400
100	5800	109	3500	285	1500
101	6100	69	3600		
102	6300	70	3900		
103	6600	97	4100		
104	6900	71	4300		
105	7200	98	4500		
77	7500				
106	7800				

	QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
				011				
				☒		REF	1010046	SCHEMATIC, ELECTRICAL
				1		41	↑ -3	↑
				1		40	-6	
				1		39	1008540-4	GASKET, CONNECTOR MINIATURE
				2		38	1000093-13	SCREW
				AR		37	1006757-8	↑ .020 DIA
				AR		36	1006757-1	.020 × .010
				AR		35	1006757-9	WIRE .032 DIA
				AR		34	1006776-22	↑
				AR		33	1006776-21	
				AR		32	1006776-20	INSULATION
				1		31	1010273-2	TRANSISTOR (MATCHED PAIR)
				1		30	1010398-4	TRANSISTOR (MATCHED PAIR)
				2		29	1010385	SEMICONDUCTOR DEVICE, DIODE
				1		28	1010407	TRANSFORMER
				1		27	1010308	TRANSFORMER
				2		26	↑ 37	↑
				1		25	35	
				2		24	1010264-1	CAPACITOR
SEE NOTE 17				1		23	SEE TABLE	↑
				1		22	1010364-251	
				1		21	1006750-12	
SEE NOTE 17				1		20	SEE TABLE	
SEE NOTE 17				1		19	SEE TABLE	
				1		18	↑ 65	
				1		17	56	
				1		16	53	
				1		15	1010389-43	
				1		14	1006750-73	
				2		13	1006750-20	RESISTOR, FIXED
				2		12	1008025-2	INSULATOR, BUSHING
				2		11	1008024-4	WASHER, INSULATOR
				2		10	1008024-3	WASHER, INSULATOR
				2		9	1008021-2	BUSHING, INSULATOR
				2		8	1008071-5	WASHER, FLAT
				2		7	MS20341-416B	NUT
				13		6	1006775	INSULATOR
				13		5	1006782-5	CONTACT, WRAPOST-MALE
				1		4		
				[illegible]		3	1015730	INSULATOR
				1		2	1015729	INSULATOR
				1		1	1015703	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		
1007572		
1007460		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + − DECIMALS XX ±.02 XXX ±.005 ANGLES + — — —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

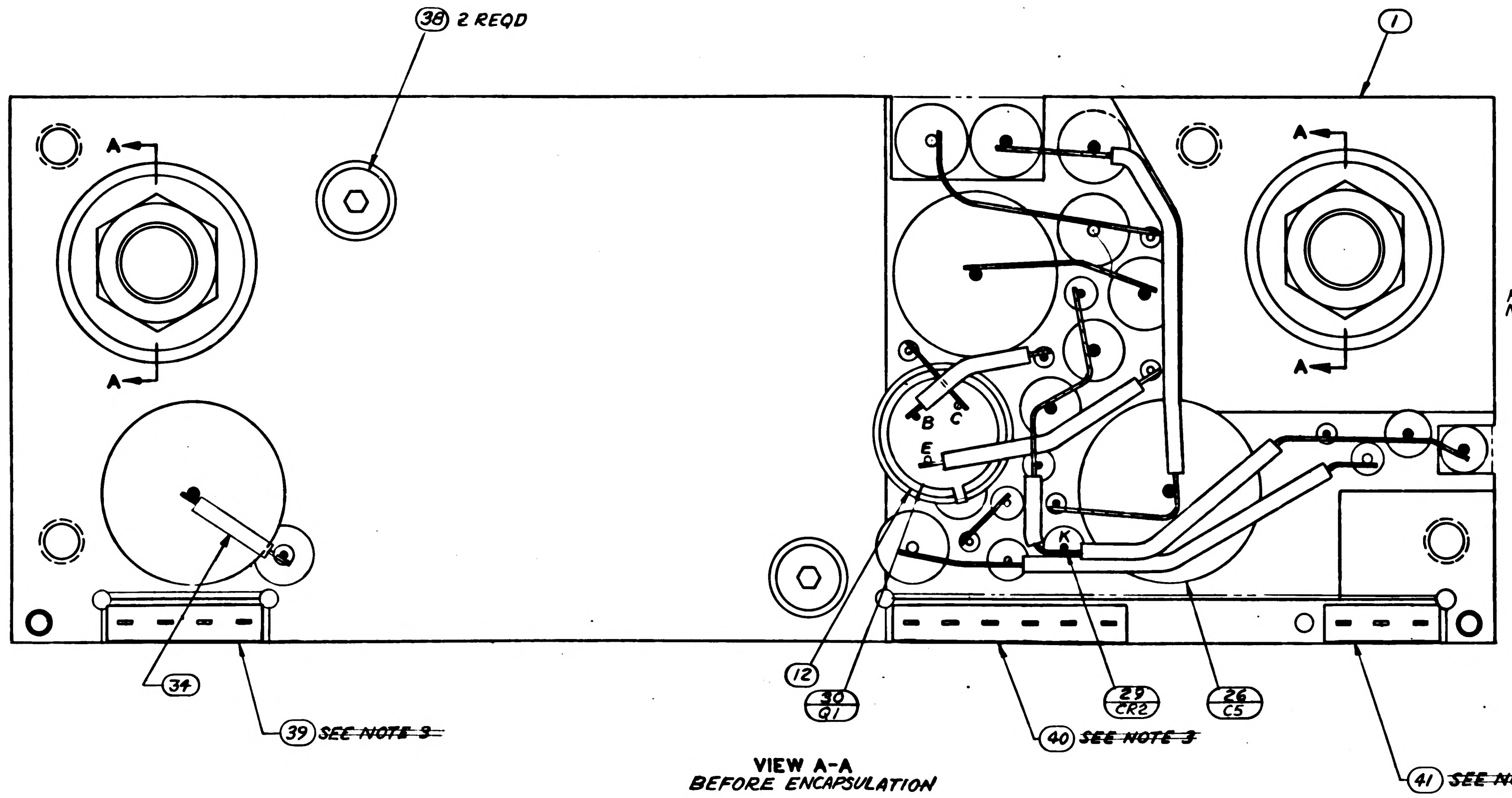
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN R.G. Olson DATE 14 AUG 64
CHECKED J. Rina 20 AUG 64
APPROVAL
APPROVAL A. B. Fost 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER, 5% 800 CPS
MODULE ASSEMBLY

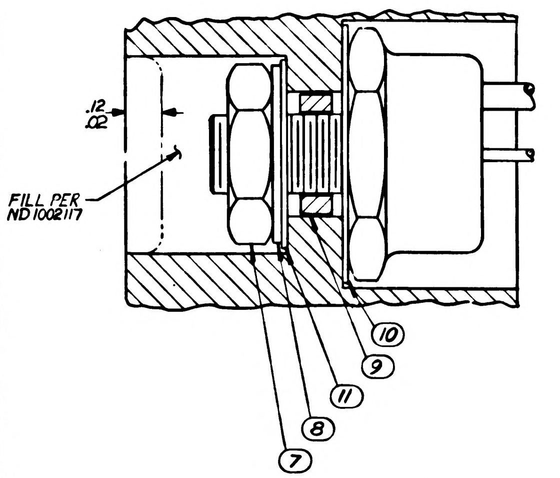
CODE IDENT NO. 80230
SIZE E
1007438
SCALE 2/1
SHEET 1 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 17329		[illegible]	GW
		REVISED PER TDRR 19459		[illegible] 65	[illegible]
		REVISED PER TDRR 19530		[illegible]	[illegible]
D		REVISED PER TDRR 20143		[illegible]	[illegible]



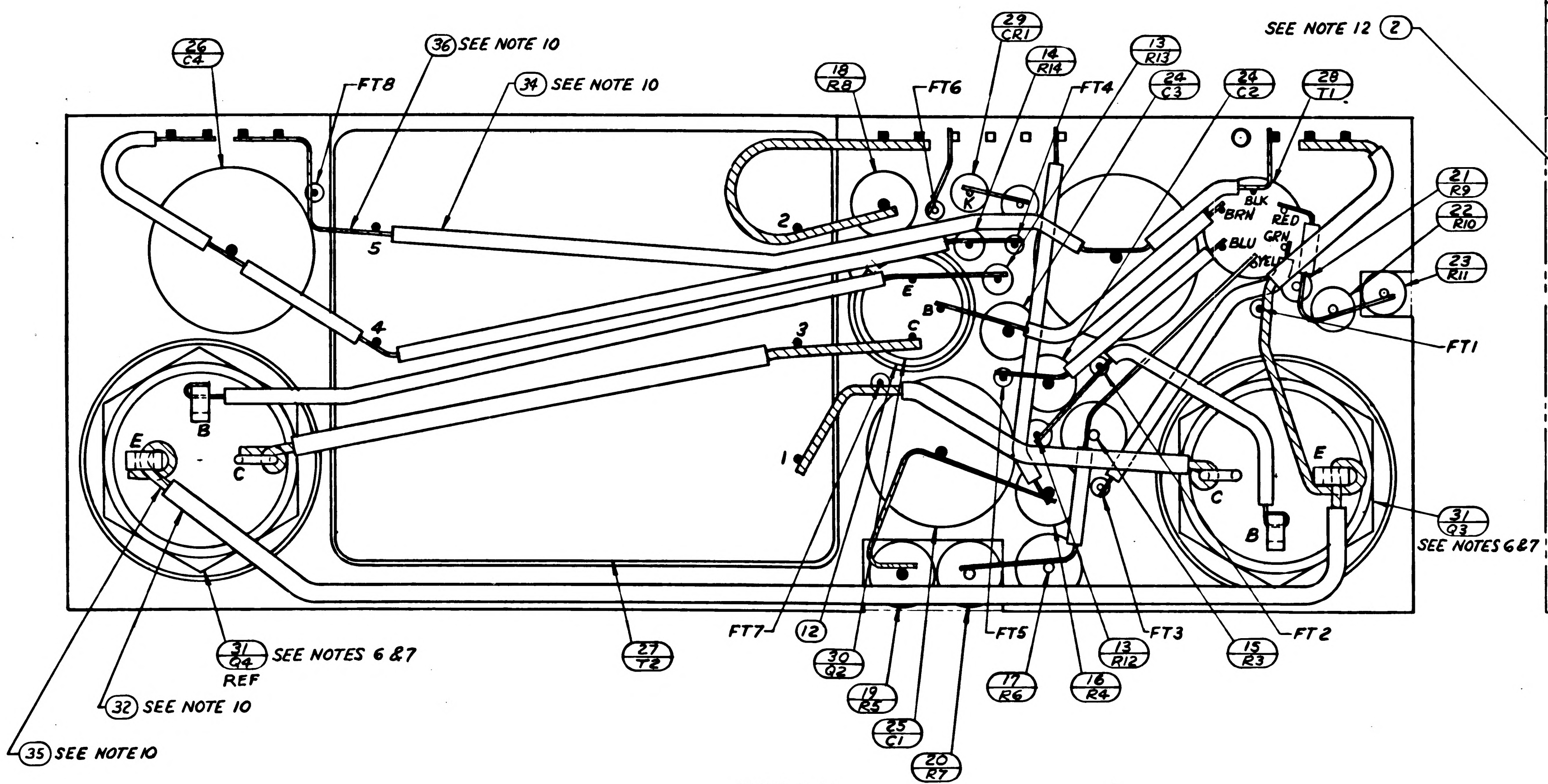
38 2 REQD
1
A
A
A
A
B
C
E
K
34
12
30 / Q1
29 / CR2
26 / C5
39 SEE NOTE 3
40 SEE NOTE 3
41 SEE NOTE 3

VIEW A-A
BEFORE ENCAPSULATION



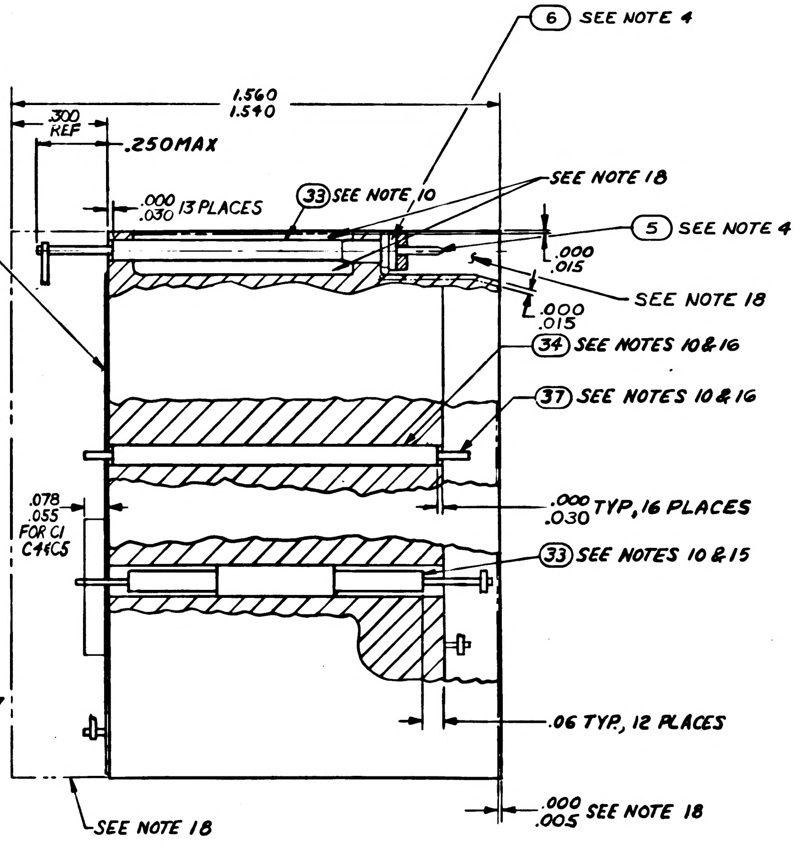
.12
.02
FILL PER
ND1002117
10
9
11
8
7

PARTIAL SECTION A-A
2 PLACES



26 / C4
36 SEE NOTE 10
34 SEE NOTE 10
FT8
18 / R8
FT6
29 / CR1
14 / R14
FT4
13 / R13
24 / C3
24 / C2
28 / T1
SEE NOTE 12
2
21 / R9
22 / R10
23 / R11
FT1
BLK
BRN
RED
GRN
BLU
YELO
K
5
4
3
2
1
E
B
C
E
B
C
E
C
B
31 / Q3
SEE NOTES 6&7
31 / Q4
SEE NOTES 6 &7
REF
32 SEE NOTE 10
35 SEE NOTE 10
27 / T2
FT7
12
30 / Q2
19 / R5
25 / C1
20 / R7
FT5
17 / R6
16 / R4
13 / R12
FT3
15 / R3
FT2

VIEW B-B
BEFORE ENCAPSULATION



6 SEE NOTE 4
1.560
1.540
.300
REF
.250MAX
.000
.030 13 PLACES
33 SEE NOTE 10
SEE NOTE 18
5 SEE NOTE 4
.000
.015
SEE NOTE 18
.000
.015
34 SEE NOTES 10&16
37 SEE NOTES 10&16
.078
.055
FOR C1
C4&C5
.000
.030 TYP, 16 PLACES
33 SEE NOTES 10&15
.06 TYP, 12 PLACES
.000
.005 SEE NOTE 18
SEE NOTE 18

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
+	XX ±.02	+—
−	XXX ±.005	−—

DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN A.J. Olson DATE 14 AUG 64
CHECKED J.J. Rizzo 20 AUG 64
APPROVAL [illegible]
APPROVAL D.R. Test 10-8-64
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

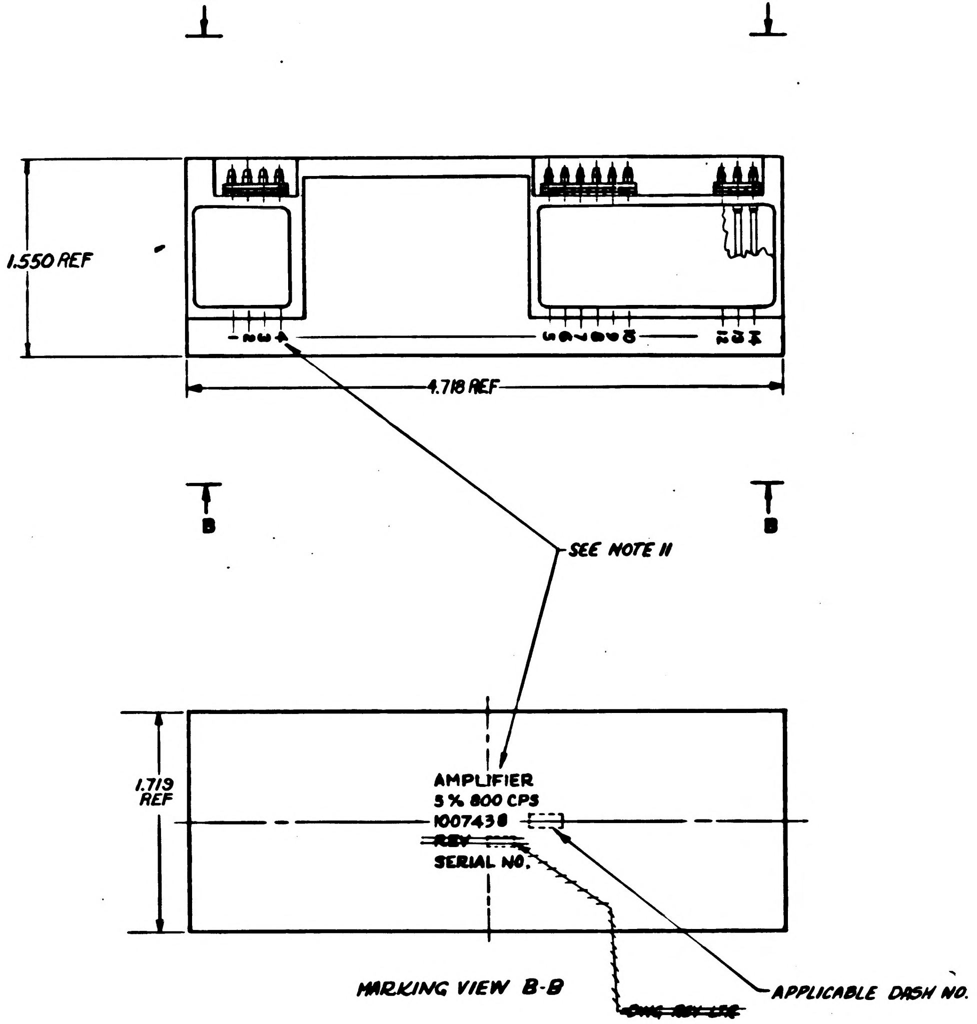
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER, 5% 800 CPS
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007438
SCALE 5/1
SHEET 2 OF 2

TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE.~~	~~100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER.~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.~~



MARKING VIEW B-B

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. COMPONENTS TO BE CENTRALIZED & CEMENTED IN PLACE PER ND1002009. METHOD J.
3. ~~BOND (39) (40) AND (41) TO (6) PER ND 1002257.~~
4. ASSEMBLE PER ND1002136.
5. UNLESS OTHERWISE SPECIFIED:
   a. WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
   b. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005.
6. MOUNTING TORQUE 24 INCH POUNDS ± 2 IN LBS.
7. SOLDER PER ND 1002071.
8. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.
9. PROCURE PER PS 1007048.
10. AR DENOTES AS REQUIRED
11. MARK PIN NUMBERS .060/.100 HIGH (WHITE) ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
12. ON (2)

    BROKEN PATHS INDICATE INSULATION SLEEVING.
    K INDICATES CATHODE SIDE OF DIODE.
    FT( ) INDICATES FEED THRU.
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
    C INDICATES COLLECTOR LEAD OF TRANSISTOR.
    B ↓ BASE ↓ ↓ ↓
    C ↓ EMITTER ↓ ↓ ↓
13. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
14. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.

15. TYPICAL SLEEVING FOR CR1, CR2, R9, R12, R13 AND R14.
16. TYPICAL WIRE AND SLEEVING FOR FT1 THRU FT8.
17. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007048 PART TO BE SELECTED FROM CHART
18. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
19. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002181 TYPE 1.~~
20. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002279 USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

SELECTION CHART FOR R5		SELECTION CHART FOR R7		SELECTION CHART FOR R11	
PART NUMBER	VALUE Ω	PART NUMBER	VALUE Ω	PART NUMBER	VALUE Ω
1010389-96	2800	1010389-60	1500	1010364-195	511
67	3000	61	1600	203	562
68	3300	62	1800	211	619
69	3600	63	2000	219	681
70	3900	64	2200	227	750
97	4100	107	2300	235	825
71	4300	65	2400	243	909
98	4500	95	2600	251	1000
110	4900	96	2800	259	1100
73	5100	67	3000	267	1210
99	5300	108	3100	273	1300
74	5600	68	3300	279	1400
100	5800	109	3500	285	1500
101	6100	69	3600		
102	6300	70	3900		
103	6600	97	4100		
104	6900	71	4300		
105	7200	98	4500		
77	7500				
106	7800				

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 17329			
B		REVISED PER TDRR 19459		65	
C		REVISED PER TDRR 19530			
D		REVISED PER TDRR 20143		65	DKD
E		REVISED PER TDRR 23303		22 OCT 65	

SEE NOTE 17
SEE NOTE 17
SEE NOTE 17

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			☒		REF	1010046	SCHEMATIC, ELECTRICAL
			1		41	↑ -3	↑
			1		40	-6	
			1		39	1008540-4	GASKET, CONNECTOR MINIATURE
			2		38	1000093-13	SCREW
			AR		37	1006757-8	↑ .020 DIA
			AR		36	1006757-1	.020 × .010
			AR		35	1006757-9	WIRE .032 DIA
			AR		34	1006776-22	↑
			AR		33	1006776-21	
			AR		32	1006776-20	INSULATION
			1		31	1010273-2	TRANSISTOR (MATCHED PAIR)
			1		30	1010398-4	TRANSISTOR (MATCHED PAIR)
			2		29	1010385	SEMICONDUCTOR DEVICE, DIODE
			1		28	1010407	TRANSFORMER
			1		27	1010308	TRANSFORMER
			2		26	↑ 37	↑
			1		25	35	
			2		24	1010264-1	CAPACITOR
			1		23	SEE TABLE	↑
			1		22	1010364-251	
			1		21	1006750-12	
			1		20	SEE TABLE	
			1		19	SEE TABLE	
			1		18	↑ 65	
			1		17	56	
			1		16	53	
			1		15	1010389-43	
			1		14	1006750-73	
			2		13	1006750-20	RESISTOR, FIXED
			2		12	1008025-2	INSULATOR, BUSHING
			2		11	1008024-4	WASHER, INSULATOR
			2		10	1008024-3	WASHER, INSULATOR
			2		9	1008021-2	BUSHING, INSULATOR
			2		8	1008071-5	WASHER, FLAT
			2		7	MS20341-416B	NUT
			13		6	1006775	INSULATOR
			13		5	1006782-5	CONTACT, WRAPOST-MALE
			1		4		
			▨		3	~~1015730~~	~~INSULATOR~~
			1		2	1015729	INSULATOR
			1		1	1015703	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007458		
1007572		
1007460		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ANGLES
XX ±.02
XXX ±.005
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

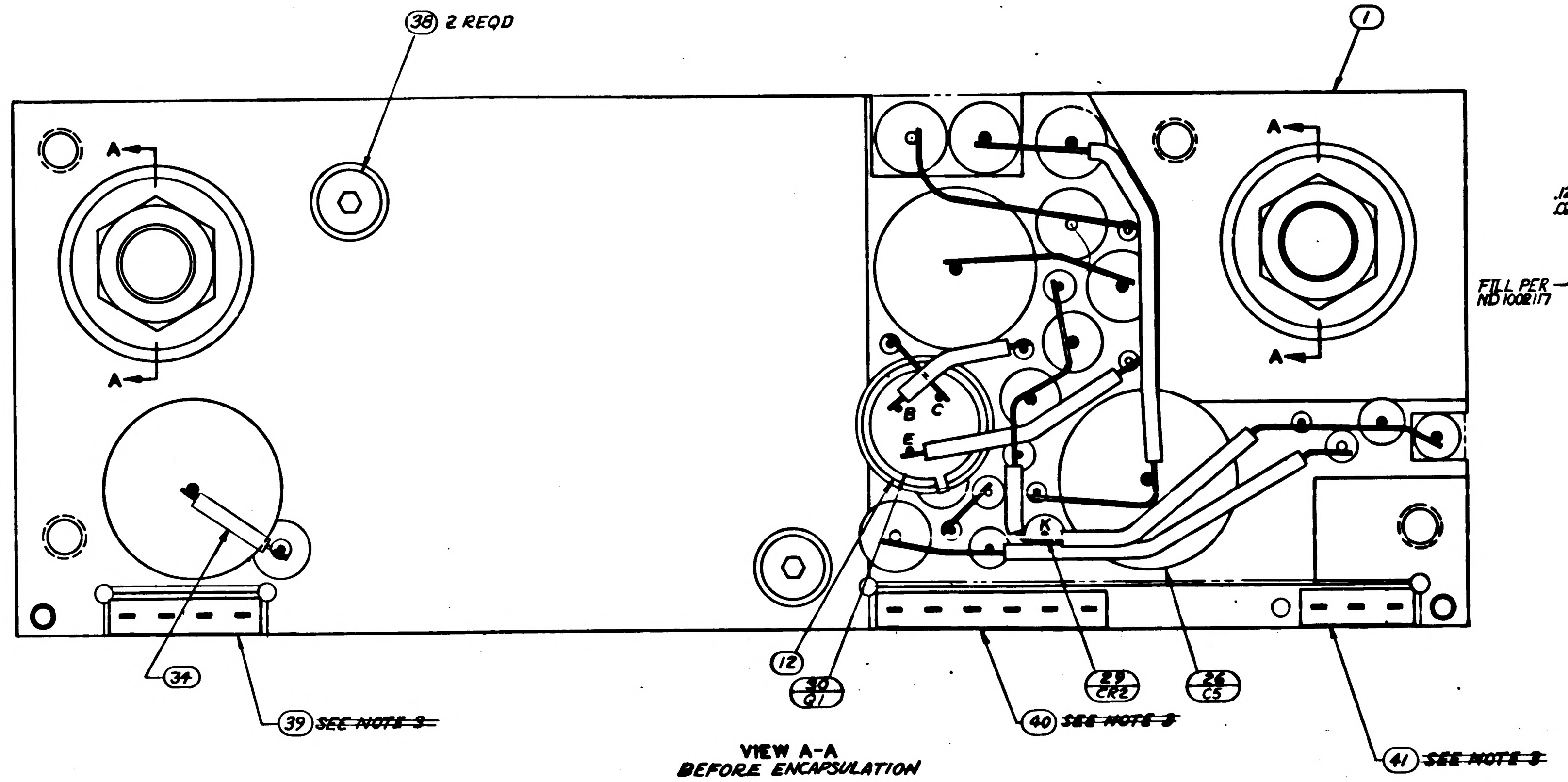
M.I.T.
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN 18 AUG 64 DATE
CHECKED 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL 10-14-64
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

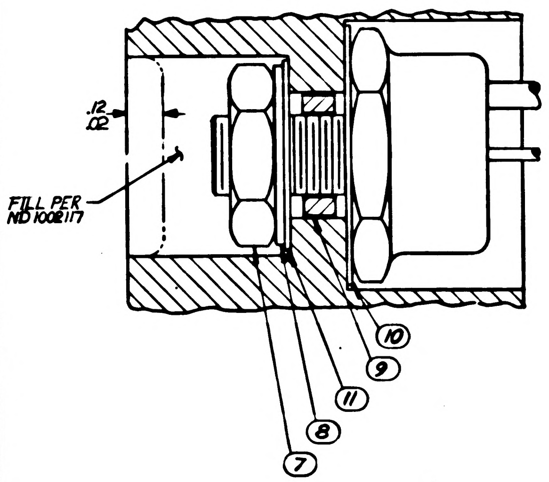
AMPLIFIER, 5% 800 CPS
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007438
SCALE 2/1
SHEET 1 OF 2

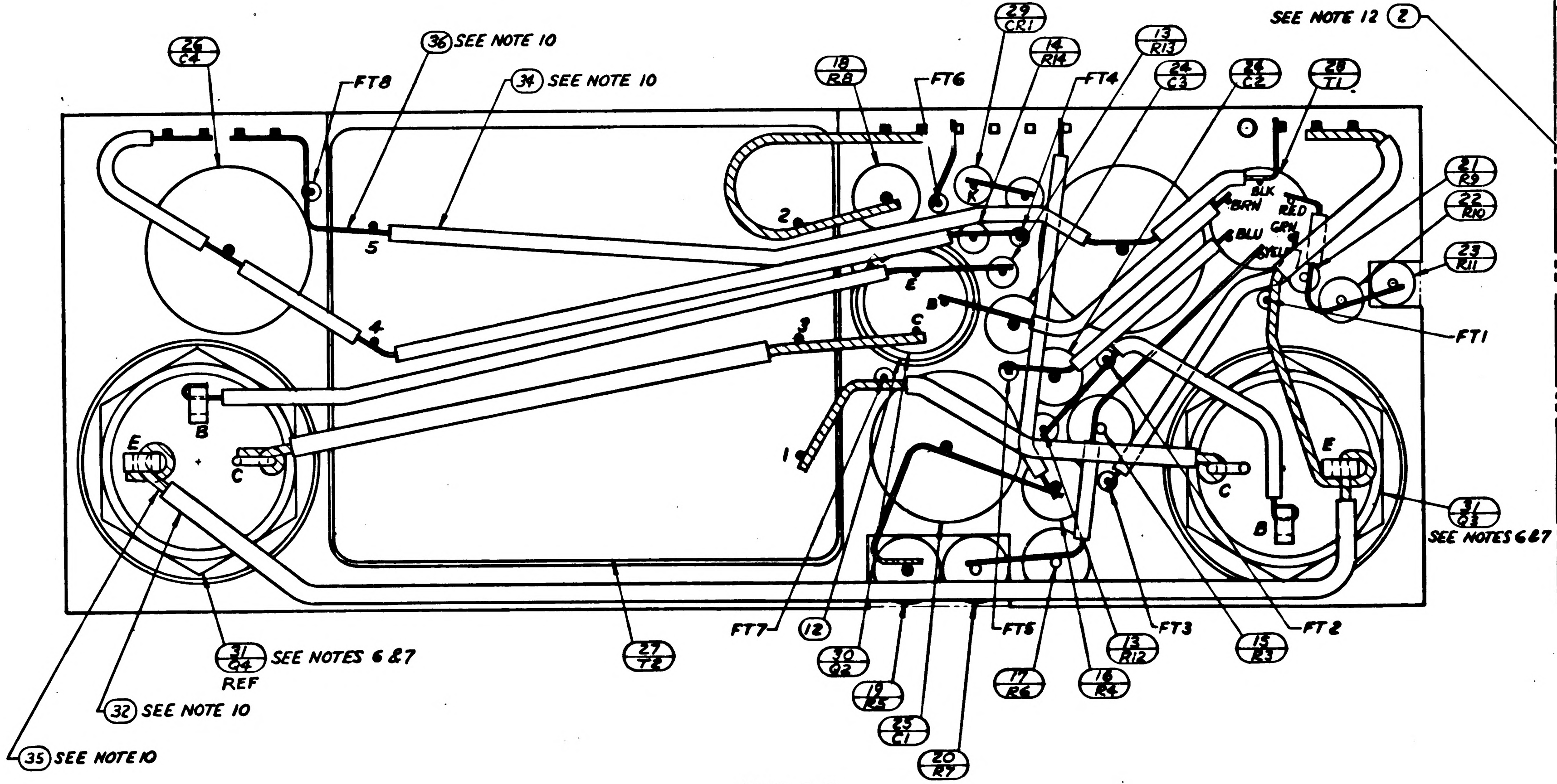
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 17829			
B		REVISED PER TDRR 19459		JUNE 65	JRD
C		REVISED PER TDRR 19530			RWM
D		REVISED PER TDRR 20143		JUN 65	JRD
E		REVISION STATUS CHANGED		22 OCT 65	MEM


38 2 REQD
1
A
A
34
39 ~~SEE NOTE 3~~
12
30 Q1
29 CR2
26 C5
40 ~~SEE NOTE 3~~
41 ~~SEE NOTE 3~~
B C E K

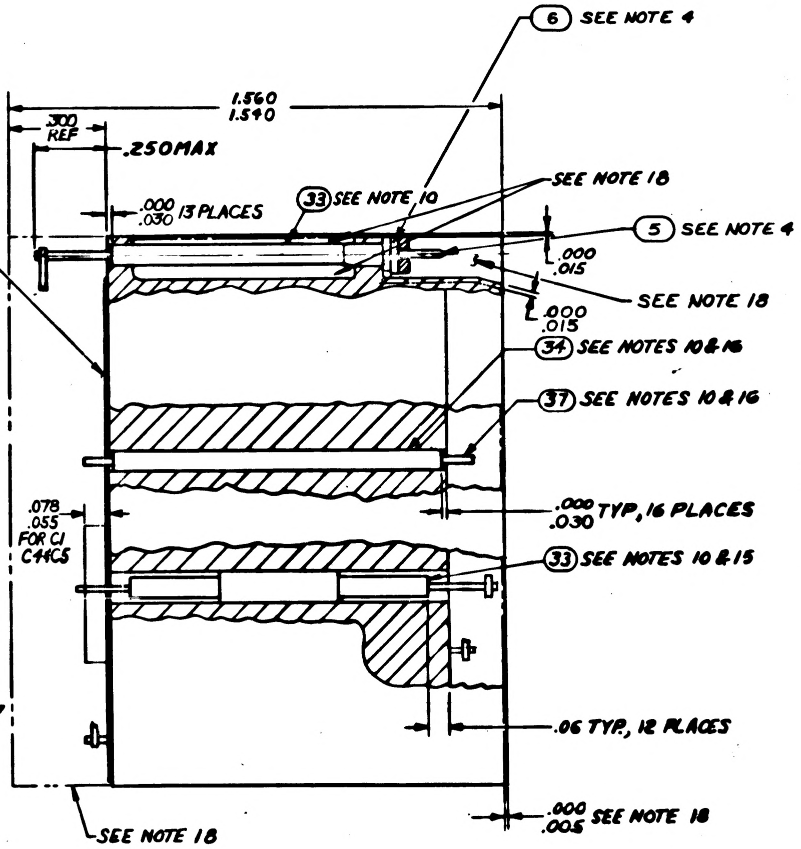
VIEW A-A
BEFORE ENCAPSULATION


.12
.02
FILL PER ND1002117
10
9
11
8
7

PARTIAL SECTION A-A
2 PLACES


26 C4
36 SEE NOTE 10
34 SEE NOTE 10
FT8
18 R8
FT6
29 CR1
14 R14
FT4
13 R13
24 C3
26 C2
28 T1
SEE NOTE 12
2
21 R9
22 R10
23 R11
FT1
31 Q3
SEE NOTES 6&7
BLK
BRN
RED
GRN
BLU
YEL
5
4
3
2
1
E
B
C
FT7
12
30 Q2
19 R5
25 C1
20 R7
FT5
17 R6
16 R4
13 R12
FT3
15 R3
FT2
27 T2
31 Q4 REF
SEE NOTES 6 & 7
32 SEE NOTE 10
35 SEE NOTE 10

VIEW B-B
BEFORE ENCAPSULATION

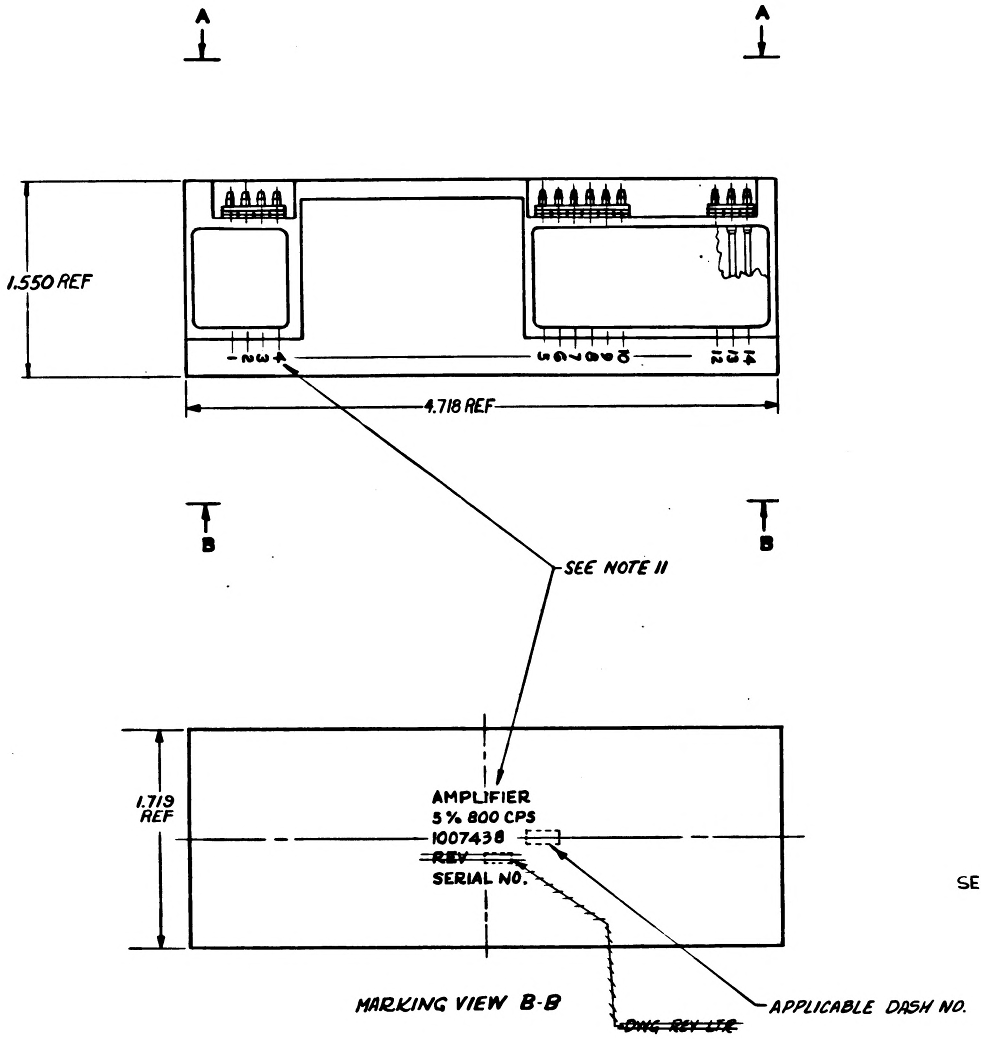

6 SEE NOTE 4
1.560
1.540
.300 REF
.250MAX
.000
.030 13 PLACES
33 SEE NOTE 10
SEE NOTE 18
5 SEE NOTE 4
.000
.015
SEE NOTE 18
.000
.015
34 SEE NOTES 10 & 16
37 SEE NOTES 10 & 16
.078
.055
FOR C1
C4 C5
.000
.030 TYP, 16 PLACES
33 SEE NOTES 10 & 15
.06 TYP, 12 PLACES
.000
.005 SEE NOTE 18
SEE NOTE 18

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES + XX ±.02 +— − XXX ±.005 ——	M I T INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
DO NOT SCALE THIS DRAWING	DRAWN A.Wilson DATE 14 AUG 64 CHECKED J.A.Bjornn 20 AUG 64 APPROVAL APPROVAL 10-2-64	AMPLIFIER, 5% 600 CPS MODULE ASSEMBLY		
MATERIAL —	NASA APPROVAL W J 10-14-64	CODE IDENT NO. 80230	SIZE E	1007438
CONTRACT NAS 9-497	MIT APPROVAL	SCALE 5/1		SHEET 2 OF 2

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100 % OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE.	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER.	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.

REVISIONS				
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 17329		15 MAR 65	GM
B		REVISED PER TDRR 19459		65	TED
C		REVISED PER TDRR 19530		9 JUN 65	NJK
D		REVISED PER TDRR 20143		JUN 65	JKD
E		REVISED PER TDRR 23303		22 OCT 65	JP
F		REVISED PER TDRR 24288		DEC 65	JP



MARKING VIEW B-B

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. COMPONENTS TO BE CENTRALIZED & CEMENTED IN PLACE PER ND 1002009. METHOD J.
3. ~~BOND (39) (40) AND (41) TO (6) PER ND 1002237.~~
4. ASSEMBLE PER ND 1002136.
5. UNLESS OTHERWISE SPECIFIED:
   a. WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
   b. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005.
6. MOUNTING TORQUE 24 INCH POUNDS ± 2 IN LBS.
7. SOLDER PER ND 1002071.
8. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.
9. PROCURE PER PS 1007048.
10. AR DENOTES AS REQUIRED
11. MARK PIN NUMBERS .060/.100 HIGH (WHITE) ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
12. ON (2)
    BROKEN PATHS INDICATE INSULATION SLEEVING.
    K INDICATES CATHODE SIDE OF DIODE.
    FT ( ) INDICATES FEED THRU.
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
    C INDICATES COLLECTOR LEAD OF TRANSISTOR.
    B ↓ BASE ↓ ↓ ↓
    C ↓ EMITTER ↓ ↓ ↓
13. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
14. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
15. TYPICAL SLEEVING FOR CR1, CR2, R9, R12, R13 AND R14.
16. TYPICAL WIRE AND SLEEVING FOR FT1 THRU FT8.
17. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007048 PART TO BE SELECTED FROM CHART
18. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
19. BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187, TYPE I.
20. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002279 USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

SELECTION CHART FOR R5		SELECTION CHART FOR R7		SELECTION CHART FOR R11		SELECTION CHART FOR R15	
PART NUMBER	VALUE Ω	PART NUMBER	VALUE Ω	PART NUMBER	VALUE Ω	PART NUMBER	VALUE Ω
1010389-96	2800	1010389-60	1500	1010364-195	511	1006750-23	430
67	3000	61	1600	203	562	26	560
68	3300	62	1800	211	619	29	750
69	3600	63	2000	219	681	32	1000
70	3900	64	2200	227	750	35	1300
97	4100	107	2300	235	825	36	1500
71	4300	65	2400	243	909	38	1800
98	4500	95	2600	251	1000	40	2200
110	4900	96	2800	259	1100	42	2700
73	5100	67	3000	267	1210	47	4300
99	5300	108	3100	273	1300	54	8200
74	5600	68	3300	279	1400	59	13K
100	5800	109	3500	285	1500	66	27K
101	6100	69	3600			84	150K
102	6300	70	3900			105	375
103	6600	97	4100			108	490
104	6900	71	4300			111	650
105	7200	98	4500			114	865
77	7500					117	1150
106	7800					128	3450
						1006750-134	5900

	QTY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			REF	1010046	SCHEMATIC, ELECTRICAL
SEE NOTE 17	1		42	SEE TABLE	RESISTOR, FIXED
	1		41	↑ -3	↑
	1		40	-6	
	1		39	1008540-4	GASKET, CONNECTOR MINIATURE
	2		38	1000093-13	SCREW
	AR		37	1006757-8	↑ .020 DIA
	AR		36	1006757-1	.020 × .010
	AR		35	1006757-9	WIRE .032 DIA
	AR		34	1006776-22	↑
	AR		33	1006776-21	
	AR		32	1006776-20	INSULATION
	1		31	1010273-2	TRANSISTOR (MATCHED PAIR)
	1		30	1010398-4	TRANSISTOR (MATCHED PAIR)
	2		29	1010385	SEMICONDUCTOR DEVICE, DIODE
	1		28	1010407	TRANSFORMER
	1		27	1010308	TRANSFORMER
	2		26	↑ 37	↑
	1		25	35	
	2		24	1010264-1	CAPACITOR
SEE NOTE 17	1		23	SEE TABLE	↑
	1		22	1010364-251	
	1		21	1006750-12	
SEE NOTE 17	1		20	SEE TABLE	
SEE NOTE 17	1		19	SEE TABLE	
	1		18	↑ 65	
	1		17	56	
	1		16	53	
	1		15	1010389-43	
	1		14	1006750-73	
	2		13	1006750-20	RESISTOR, FIXED
	2		12	1008025-2	INSULATOR, BUSHING
	2		11	1008024-4	WASHER, INSULATOR
	2		10	1008024-3	WASHER, INSULATOR
	2		9	1008021-2	BUSHING, INSULATOR
	2		8	1008071-5	WASHER, FLAT
	2		7	MS20341-416B	NUT
	13		6	1006775	INSULATOR
	13		5	1006782-5	CONTACT, WRAPOST-MALE
	1		4		
			3	1015730	INSULATOR
			2	1015729	INSULATOR
			1	1015703	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		
1007572		
1007460		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

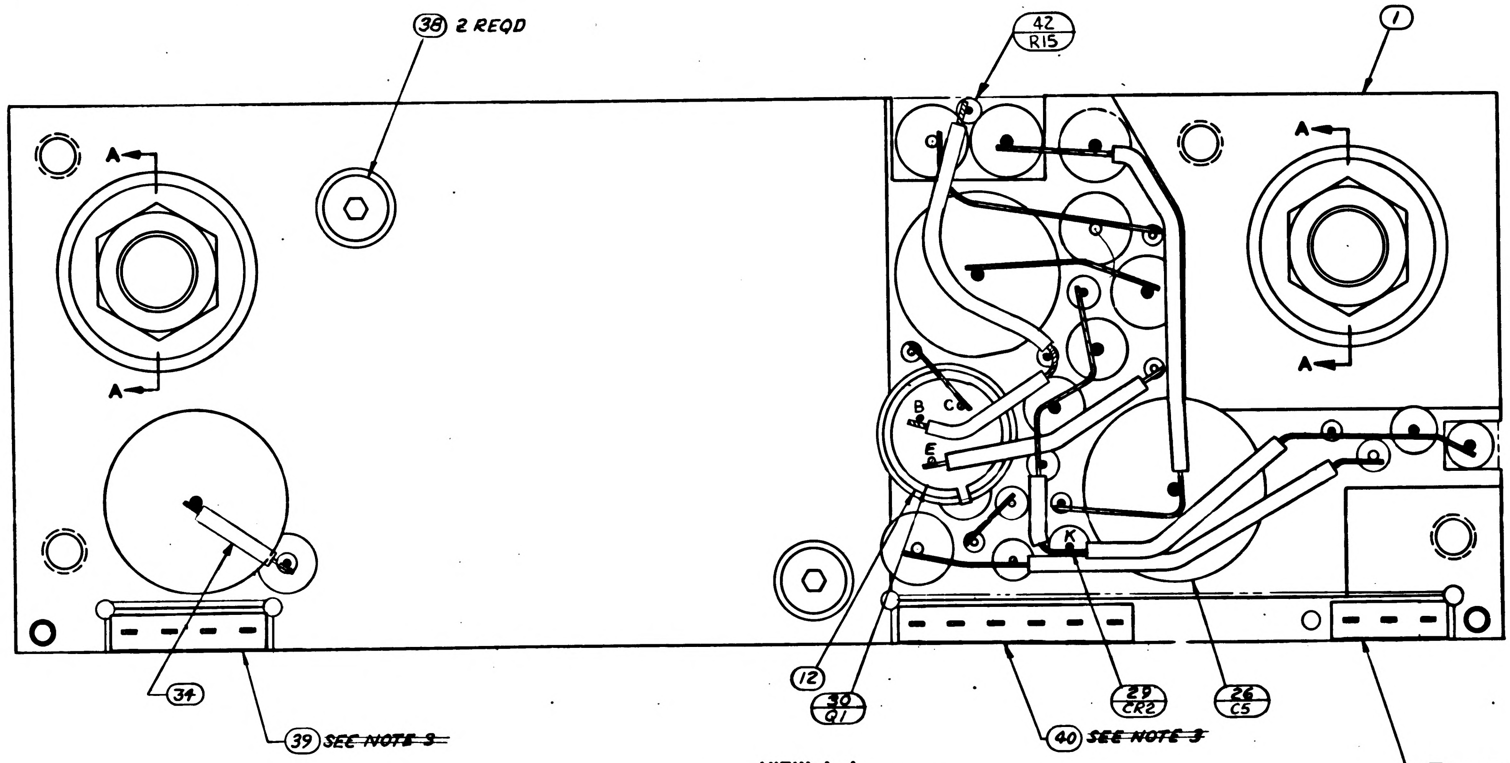
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE 14 AUG 64
CHECKED 20 AUG 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER, 5 % 800 CPS
MODULE ASSEMBLY

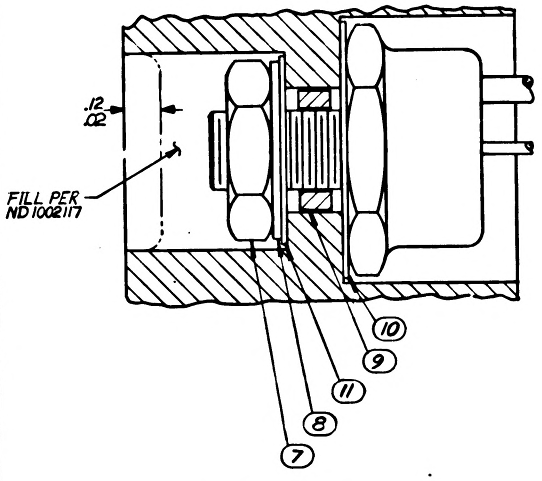
CODE IDENT NO. 80230
SIZE E
1007438
SCALE 2/1
SHEET 1 OF 2

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 17329		65	GW
B		REVISED PER TDRR 19459		JUNE 65	JRD
C		REVISED PER TDRR 19530		65	RWH
D		REVISED PER TDRR 20143		65	
E		REVISION STATUS CHANGED		22 OCT 65	
F		REVISED PER TDRR 24288		15 DEC 65	



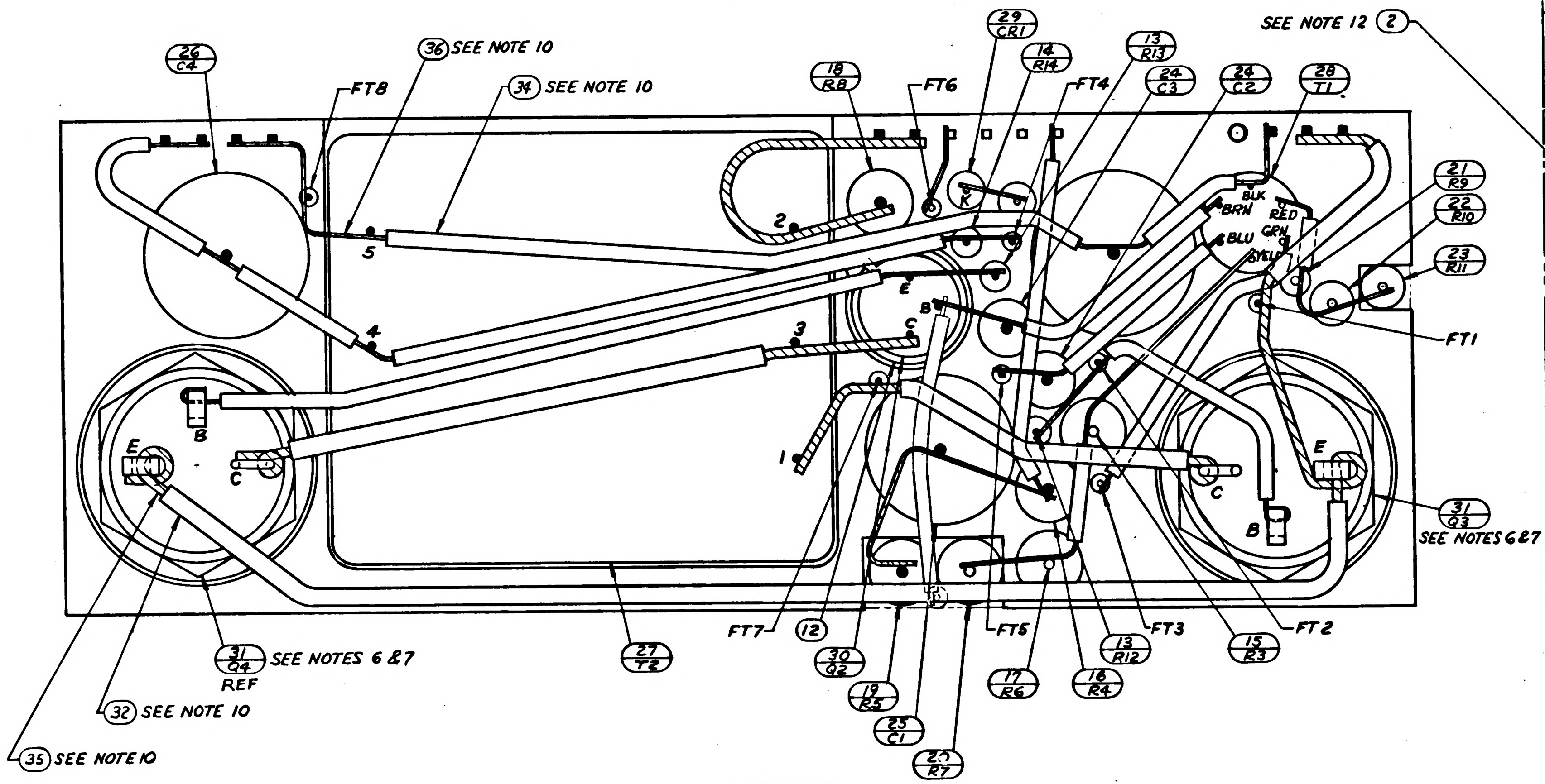
38 2 REQD
42 R15
1
A
A
34
39 ~~SEE NOTE 3~~
12
30 Q1
40 ~~SEE NOTE 3~~
29 CR2
26 C5
41 ~~SEE NOTE 3~~
B C E
K

VIEW A-A
BEFORE ENCAPSULATION



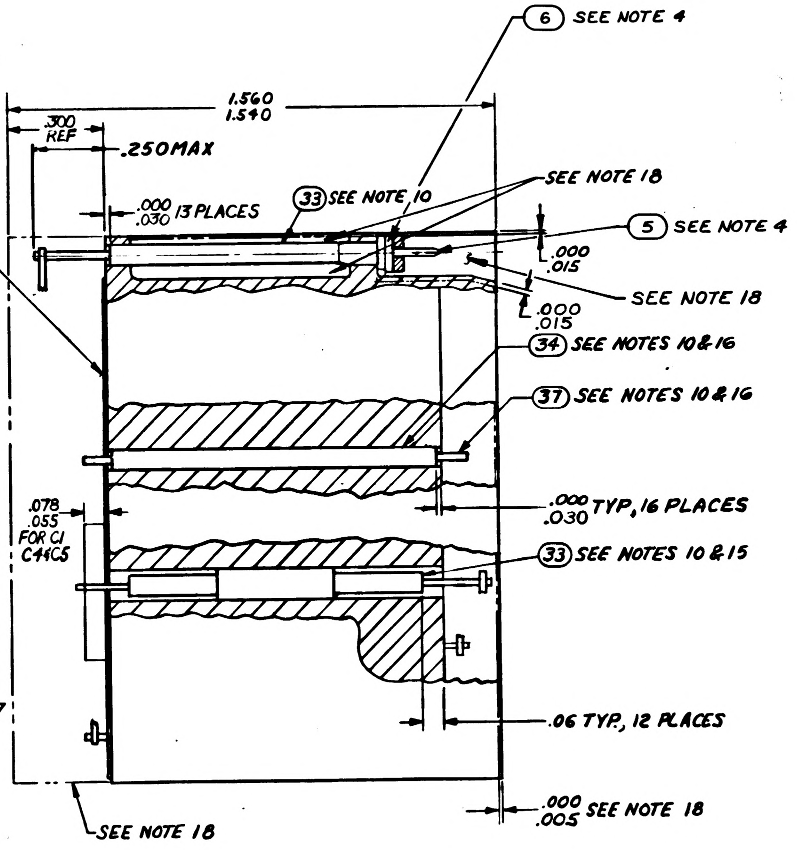
.12
.02
FILL PER ND1002117
10
9
11
8
7

PARTIAL SECTION A-A
2 PLACES



26 C4
FT8
36 SEE NOTE 10
34 SEE NOTE 10
18 R8
FT6
29 CR1
14 R14
FT4
13 R13
24 C3
26 C2
28 T1
SEE NOTE 12 2
21 R9
22 R10
23 R11
FT1
BLK RED BRN GRN BLU YEL
31 Q3
SEE NOTES 6&7
1 2 3 4 5
E B C
K
FT7
12
30 Q2
19 R5
25 C1
20 R7
FT5
17 R6
16 R4
13 R12
FT3
15 R3
FT2
27 T2
31 Q4
SEE NOTES 6 & 7
REF
32 SEE NOTE 10
35 SEE NOTE 10

VIEW B-B
BEFORE ENCAPSULATION



6 SEE NOTE 4
1.560
1.540
.300 REF
.250 MAX
.000
.030 13 PLACES
33 SEE NOTE 10
SEE NOTE 18
5 SEE NOTE 4
.000
.015
SEE NOTE 18
.000
.015
34 SEE NOTES 10 & 16
37 SEE NOTES 10 & 16
.078
.055
FOR C1
C4 C5
.000 TYP, 16 PLACES
.030
33 SEE NOTES 10 & 15
.06 TYP, 12 PLACES
.000
.005 SEE NOTE 18
SEE NOTE 18

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
+	XX ±.02	+—
−	XXX ±.005	−—

DO NOT SCALE THIS DRAWING

MATERIAL —

CONTRACT NAS 9-497

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN A. J. Olson DATE 14 AUG 64
CHECKED J. J. Ryan 20 AUG 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

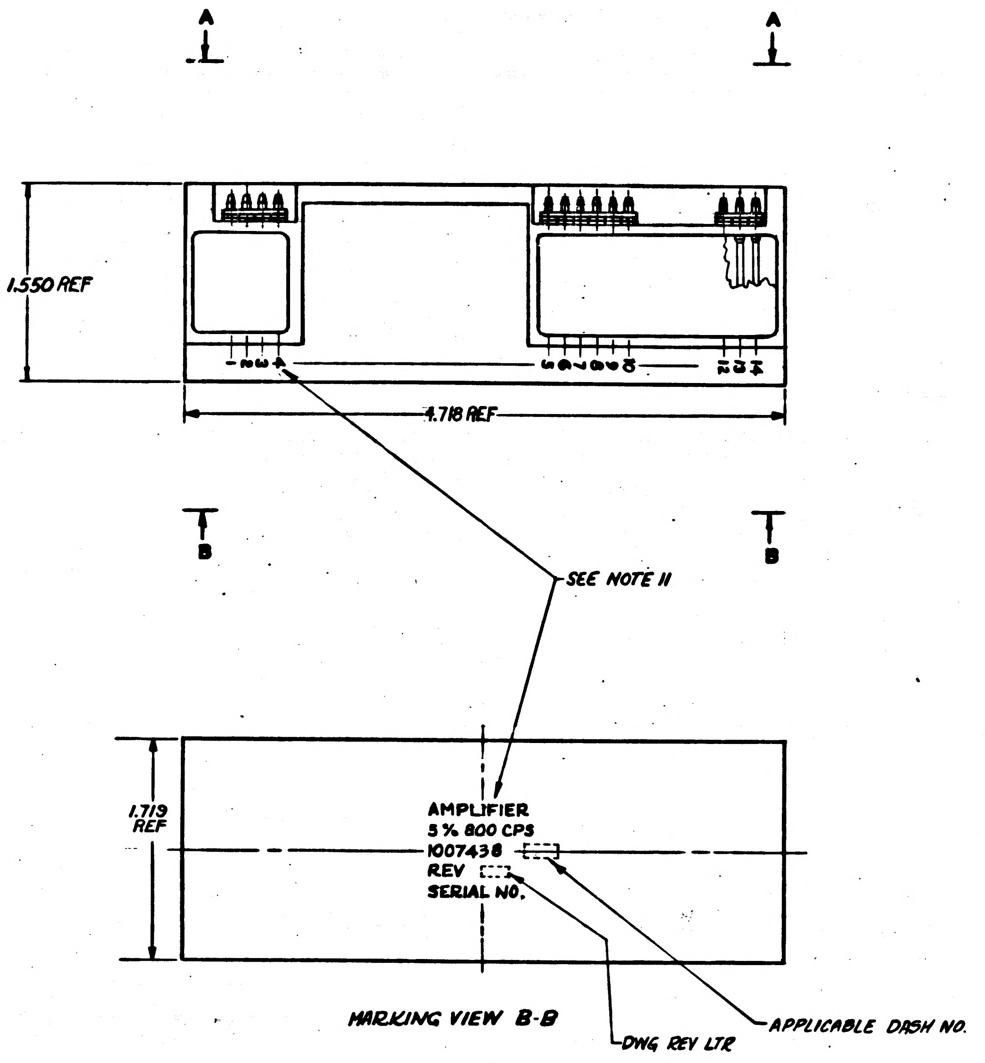
AMPLIFIER, 5% 800 CPS
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007438
SCALE 5/1
SHEET 2 OF 2

REVISIONS 13403					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. COMPONENTS TO BE CENTRALIZED & CEMENTED IN PLACE PER ND 1002009. METHOD C
3. BOND (39) (40) AND (41) TO (6) PER ND 1002237.
4. ASSEMBLE PER ND 1002136.
5. UNLESS OTHERWISE SPECIFIED:
   a. WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
   b. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005.
6. MOUNTING TORQUE 24 INCH POUNDS ± 2 IN LBS.
7. SOLDER PER ND 1002071.
8. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.
9. PROCURE PER PS 1007048.
10. AR DENOTES AS REQUIRED
11. MARK PIN NUMBERS .060/.100 HIGH (WHITE) ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
12. ON (2) AND (3):
    BROKEN PATHS INDICATE INSULATION SLEEVING.
    K INDICATES CATHODE SIDE OF DIODE.
    FT( ) INDICATES FEED THRU.
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
    C INDICATES COLLECTOR LEAD OF TRANSISTOR.
    B ↓ BASE ↓ ↓ ↓
    C ↓ EMITTER
13. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
14. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
15. TYPICAL SLEEVING FOR CR1, CR2, R9, R12, R13 AND R14.
16. TYPICAL WIRE AND SLEEVING FOR FT1 THRU FT8.
17. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007048 PART TO BE SELECTED FROM CHART
18. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.



MARKING VIEW B-B

SELECTION CHART FOR R5		SELECTION CHART FOR R7		SELECTION CHART FOR R11	
PART NUMBER	VALUE Ω	PART NUMBER	VALUE Ω	PART NUMBER	VALUE Ω
1010389-96	2800	1010389-60	1500	1010364-195	511
67	3000	61	1600	203	562
68	3300	62	1800	211	619
69	3600	63	2000	219	681
70	3900	64	2200	227	750
97	4100	107	2300	235	825
71	4300	65	2400	243	909
98	4500	95	2600	251	1000
110	4900	96	2800	259	1100
73	5100	67	3000	267	1210
99	5300	108	3100	273	1300
74	5600	68	3300	279	1400
100	5800	109	3500	285	1500
101	6100	69	3600		
102	6300	70	3900		
103	6600	97	4100		
104	6900	71	4300		
105	7200	98	4500		
77	7500				
106	7800				

	QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
	☒		REF	1010046	SCHEMATIC, ELECTRICAL
	1		41	↑ -3	↑
	1		40	-6	
	1		39	1008540-4	GASKET, CONNECTOR MINIATURE
	2		38	1000093-13	SCREW
	AR		37	1006757-8	↑ .020 DIA
	AR		36	1006757-1	.020 × .010
	AR		35	1006757-9	WIRE .032 DIA
	AR		34	1006776-22	↑
	AR		33	1006776-21	
	AR		32	1006776-20	INSULATION
	1		31	1010273-2	TRANSISTOR (MATCHED PAIR)
	1		30	1010398-4	TRANSISTOR (MATCHED PAIR)
	2		29	1010385	SEMICONDUCTOR DEVICE, DIODE
	1		28	1010407	TRANSFORMER
	1		27	1010308	TRANSFORMER
	2		26	↑ 37	↑
	1		25	35	
	2		24	1010264-1	CAPACITOR
SEE NOTE 17	1		23	SEE TABLE	↑
	1		22	1010364-251	
	1		21	1006750-12	
SEE NOTE 17	1		20	SEE TABLE	
SEE NOTE 17	1		19	SEE TABLE	
	1		18	↑ 65	
	1		17	56	
	1		16	53	
	1		15	1010389-43	
	1		14	1006750-73	
	2		13	1006750-20	RESISTOR, FIXED
	2		12	1008025-2	INSULATOR, BUSHING
	2		11	1008024-4	WASHER, INSULATOR
	2		10	1008024-3	WASHER, INSULATOR
	2		9	1008021-2	BUSHING, INSULATOR
	2		8	1008071-5	WASHER, FLAT
	2		7	MS20341-416B	NUT
	13		6	1006775	INSULATOR
	13		5	1006782-5	CONTACT, WRAPOST-MALE
	1		4		
	1		3	1015730	INSULATOR
	1		2	1015729	INSULATOR
	1		1	1015703	HEATSINK

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007458		
1001572		
1007460		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX ±.02 XXX ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN DATE 14 AUG 64
CHECKED 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL 10-14-64
MIT APPROVAL

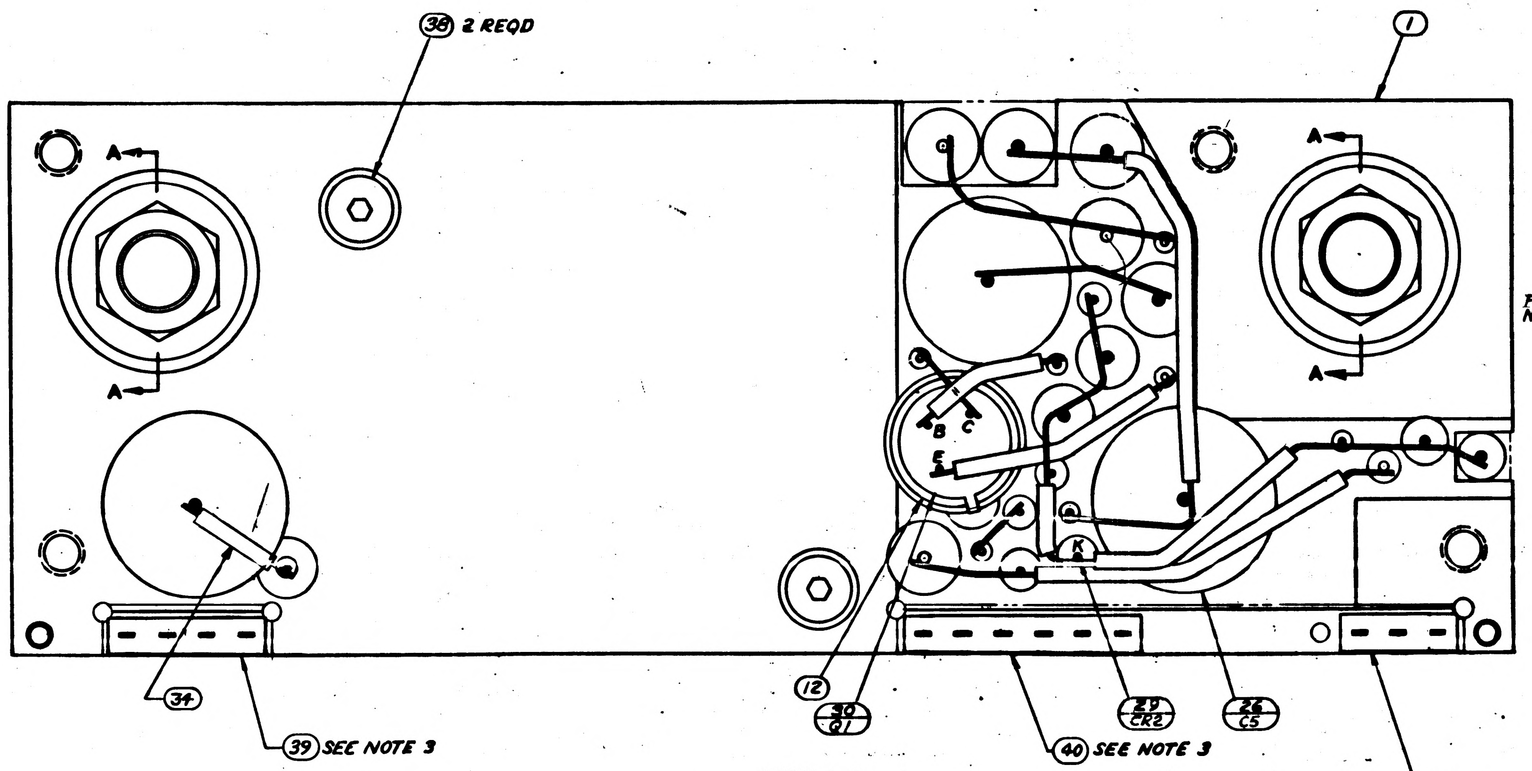
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AMPLIFIER, 5% 800 CPS
MODULE ASSEMBLY

CODE IDENT NO.
SIZE E
1007438
SCALE 2/1
SHEET 1 OF 2

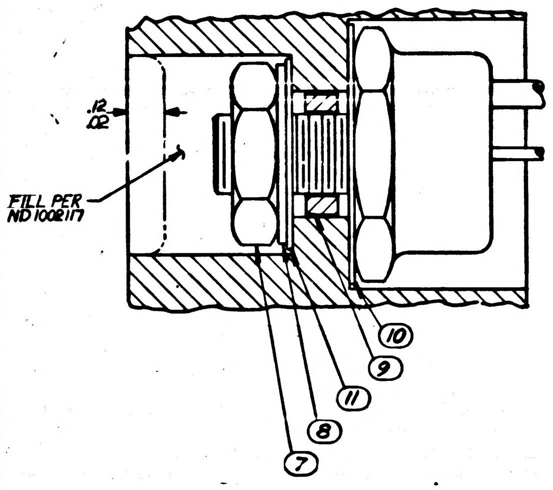
REVISIONS 13403

SYM	ZONE	DESCRIPTION	DATE	APPD.
		CHG NO.		



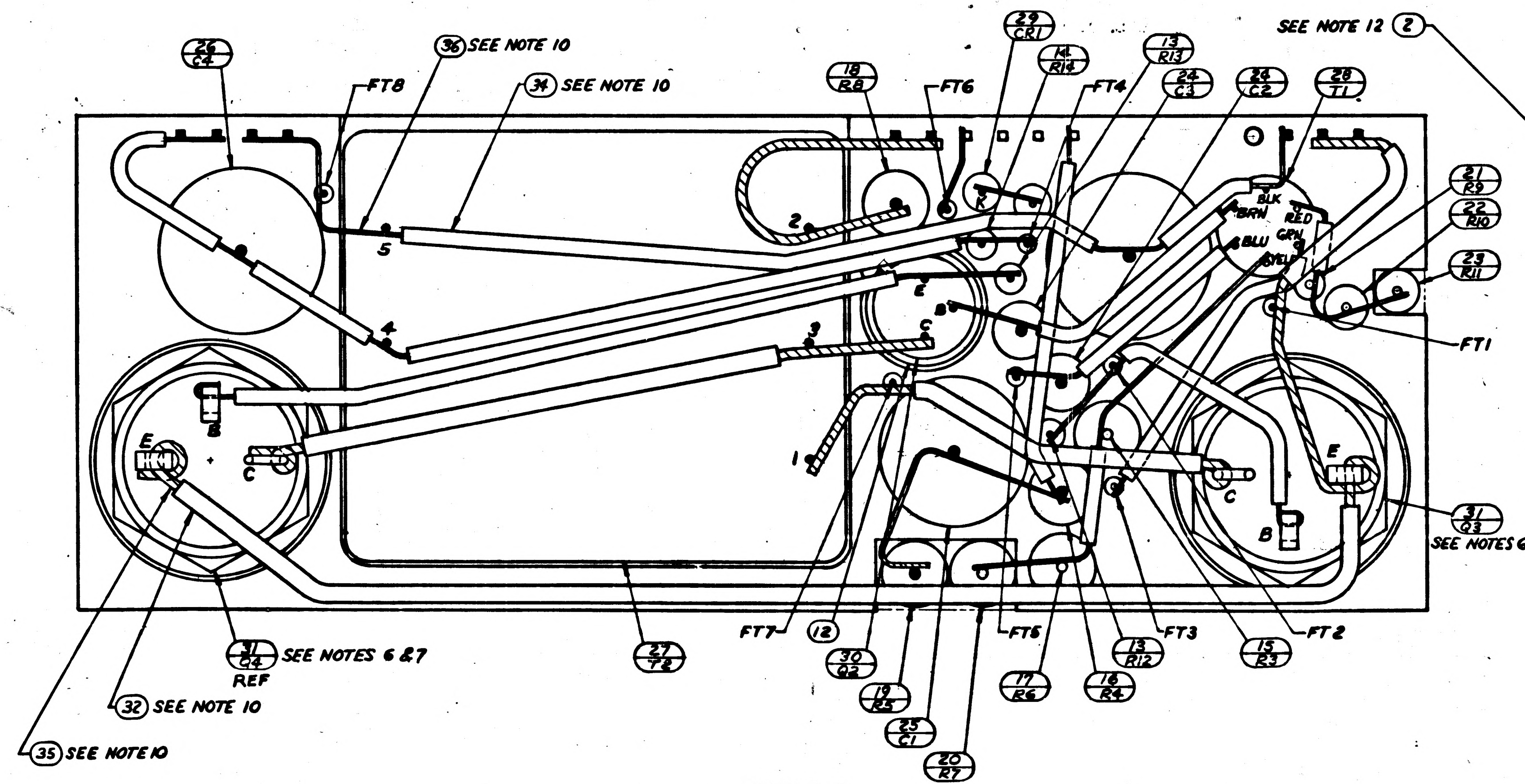
(38) 2 REQD
(1)
A
A
A
A
B
C
E
K
(34)
(39) SEE NOTE 3
(12)
30 / Q1
(40) SEE NOTE 3
29 / CR2
26 / C5
(41) SEE NOTE 3

VIEW A-A
BEFORE ENCAPSULATION



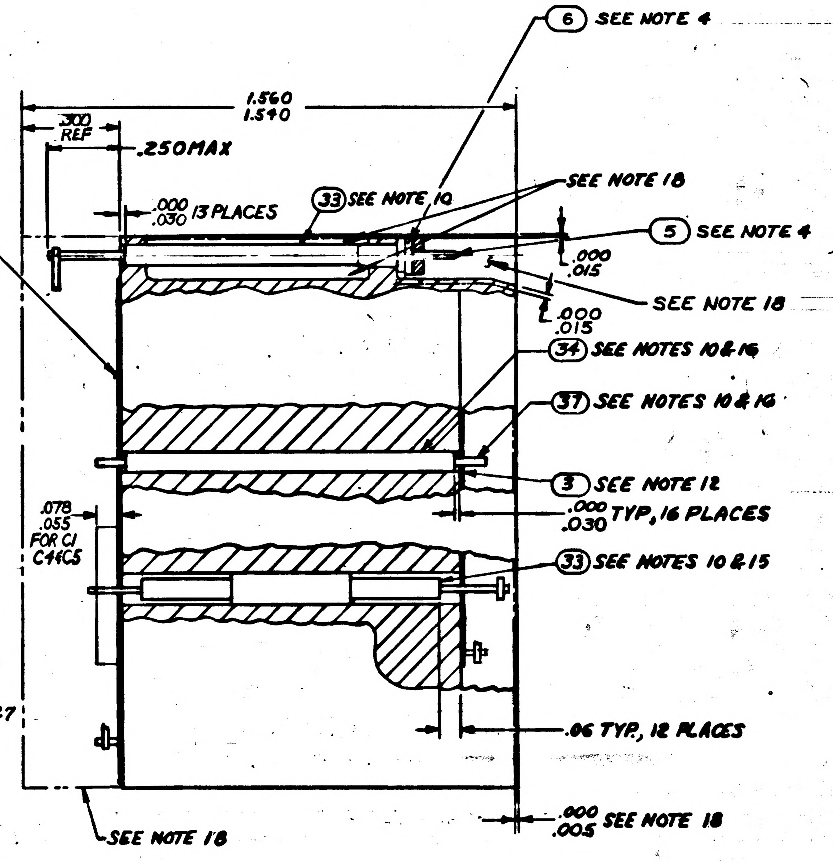
.12
.02
FILL PER ND1002117
(7)
(8)
(11)
(9)
(10)

PARTIAL SECTION A-A
2 PLACES



26 / C4
(36) SEE NOTE 10
FT8
(34) SEE NOTE 10
18 / R8
FT6
29 / CR1
14 / R14
FT4
13 / R13
24 / C3
24 / C2
28 / T1
SEE NOTE 12 (2)
21 / R9
22 / R10
23 / R11
FT1
BLK
BRN
RED
GRN
BLU
YEL
1
2
3
4
5
E
B
C
K
31 / Q3
SEE NOTES 6 & 7
FT7
(12)
30 / Q2
19 / R5
25 / C1
20 / R7
FT5
17 / R6
16 / R4
13 / R12
FT3
15 / R3
FT2
31 / Q4 REF
SEE NOTES 6 & 7
27 / T2
(32) SEE NOTE 10
(35) SEE NOTE 10

VIEW B-B
BEFORE ENCAPSULATION

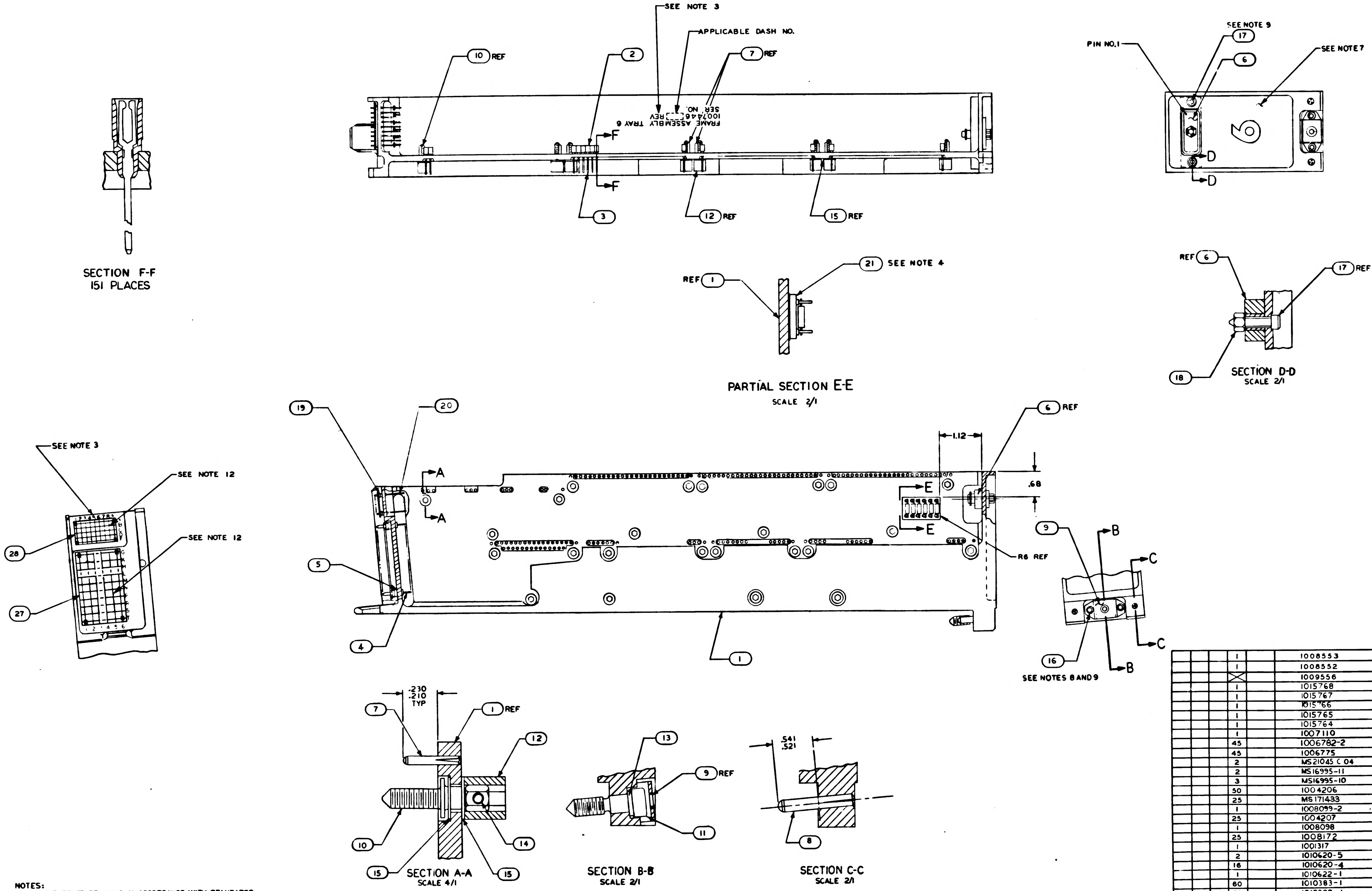


(6) SEE NOTE 4
1.560
1.540
.300 REF
.250 MAX
SEE NOTE 18
.000
.030 13 PLACES
(33) SEE NOTE 10
(5) SEE NOTE 4
.000
.015
SEE NOTE 18
.000
.015
(34) SEE NOTES 10 & 16
(37) SEE NOTES 10 & 16
(3) SEE NOTE 12
.000
.030 TYP, 16 PLACES
.078
.055
FOR C1 C4 & C5
(33) SEE NOTES 10 & 15
.06 TYP, 12 PLACES
SEE NOTE 18
.000
.005 SEE NOTE 18

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON	AC SPARK PLUG DIVISION, GMC MILWAUKEE, WISCONSIN	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
FRACTIONS DECIMALS ANGLES + XX ±.02 +— − XXX ±.005 —	ACSP PN DRAWN A.J. Alion DATE 14 AUG 64 CHECKED 20 AUG 64 APPROVAL APPROVAL D.R. 10-8-64	AMPLIFIER, 5% 800 CPS MODULE ASSEMBLY
DO NOT SCALE THIS DRAWING		
MATERIAL —	NASA APPROVAL W. J. 10-14-64	CODE IDENT NO. — SIZE E — 1007438
CONTRACT NAS 9-497	MIT APPROVAL	SCALE 5/1 — SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER [illegible] 3	[illegible]	[illegible]


SEE NOTE 3
APPLICABLE DASH NO.
10 REF
2
7 REF
FRAME ASSEMBLY TRAY 6
1007446-__REV
SER. NO.
F
F
3
12 REF
15 REF
SECTION F-F
151 PLACES
PIN NO.1
SEE NOTE 9
17
6
SEE NOTE 7
D
D
REF 1
21 SEE NOTE 4
PARTIAL SECTION E-E
SCALE 2/1
REF 6
17 REF
18
SECTION D-D
SCALE 2/1
SEE NOTE 3
SEE NOTE 12
SEE NOTE 12
28
27
19
20
A
A
5
4
1
1.12
.68
6 REF
E
E
R6 REF
9
B
C
C
B
16
SEE NOTES 8 AND 9
.230
.210
TYP
7
1 REF
12
10
14
15
15
SECTION A-A
SCALE 4/1
13
9 REF
11
SECTION B-B
SCALE 2/1
.541
.521
8
SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,19 AND 20 PER ND 1002136
3. MARK PER ND 1002019 (BLACK).100/.140 HIGH & SERIALIZE PER ND1002023
4. BOND FIND NO.21 TO FIND NO.1 PER ND 1002004 USING FLEXIBLE FORMULATION PER NASA DRAWING 1010657 AND NASA DRAWING 1010686
5. BOND FIND NOS 22,23,24,25,& 26 TO FIND NO.1 PER ND1002004 TYPE I AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM).010 ABOVE TO .010 BELOW PERIPHERAL SURFACES OF THE TRAY FRAME UNLESS OTHERWISE SPECIFIED.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
8. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE POR FIND NUMBERS 16 AND 17 TO FIND NO.1 TO BE 5.0–5.5 IN LB.
10. PROCURE PER PS1007146.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071 ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. BOND FIND NOS 27 AND 28 TO FIND NOS 5 AND 19 PER ND1002237

			1		1008553	GASKET, CONNECTOR MIN. TRAY	28
			1		1008552	GASKET, CONNECTOR TRAY	27
			X		1009556	WIRING DIAGRAM	REF
			1		1015768	WIRE LIST AA	26
			1		1015767	WIRING HARNESS D	25
			1		1015766	WIRING HARNESS C	24
			1		1015765	WIRING HARNESS B	23
			1		1015764	WIRING HARNESS A	22
			1		1007110	BUFFER RESISTORS ASSEMBLY	21
			45		1006782-2	CONTACT, WHAPOST, MALE MIN	20
			45		1006775	INSULATOR, WRAPOST, MALE MIN	19
			2		MS21045 C 04	NUT, SELF-LOCKING HEX	18
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	17
			3		MS16995-10	SCREW, CAP, SOCKET HEAD	16
			50		1004206	WASHER, THRUST	15
			25		MS171433	PIN, SPRING	14
			1		1008099-2	WASHER,	13
			25		1004207	DRIVE CYLINDER	12
			1		1008098	SCREW, SOCKET HEAD	11
			25		1008172	SCREW, JACK	10
			1		1001317	RETAINER, JACK SCREW	9
			2		1010620-5	PIN, GUIDE	8
			16		1010620-4	PIN, GUIDE	7
			1		1010622-1	CONNECTOR, RECEPTACLE	6
			60		1010383-1	INSULATOR, WRAPOST MALE	5
			60		1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
			151		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			151		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008426	FRAME	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF MATERIALS		

1007456		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± # DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL #
HEAT TREATMENT #
FINAL FINISH #

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN E. [illegible] DATE 29 SEP 64
CHECKED [illegible] 6 OCT 64
APPROVAL [illegible] 8 OCT 64
APPROVAL [illegible] 10-29-64
NASA APPROVAL W [illegible] 11-4-64
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007446
SCALE 1/1
WT
SHEET 1 OF 2

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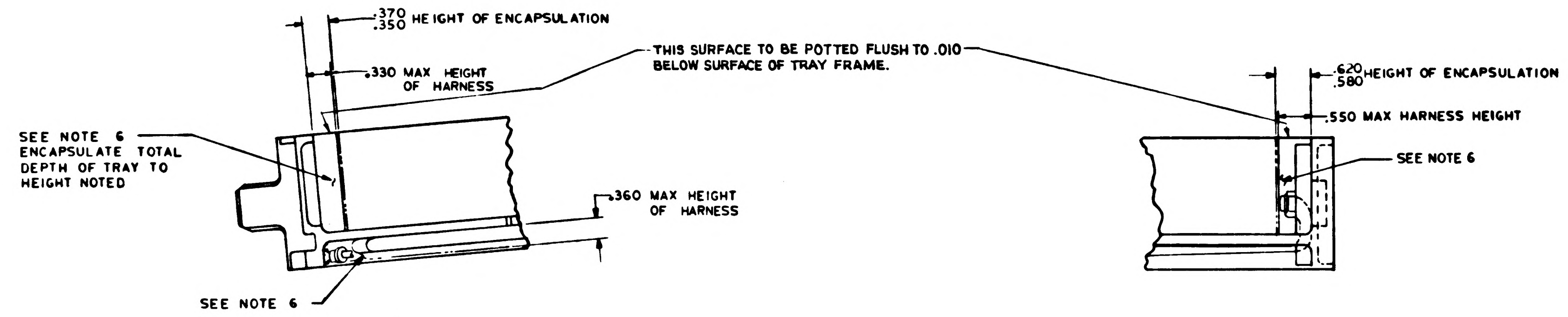
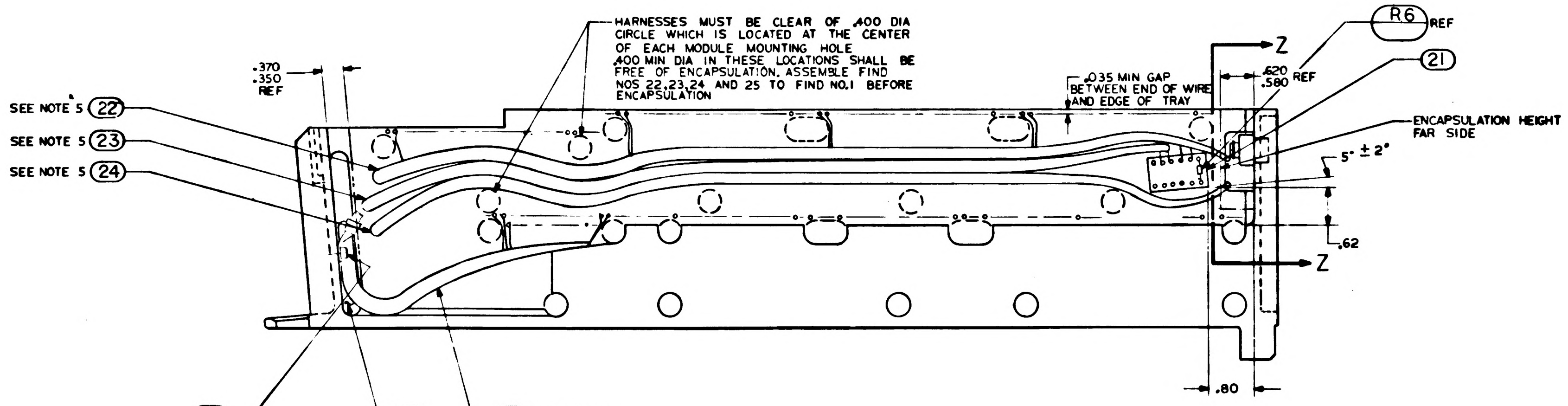
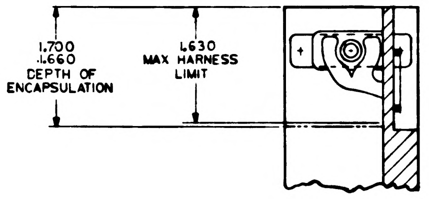
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17613	—	25 MAR 65	


.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6
.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
SEE NOTE 6


HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
.370
.350
REF
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
Z
.620
.580 REF
R6 REF
21
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
.80
16
SEE NOTES 8 & 9
26
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
25 SEE NOTE 5

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10


1.700
1.660
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — DECIMALS XX ±.02 — ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN DATE 30 SEP 64
CHECKED 6 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL 4 Nov 64

MANNED-SPACECRAFT CENTER
HOUSTON, TEXAS

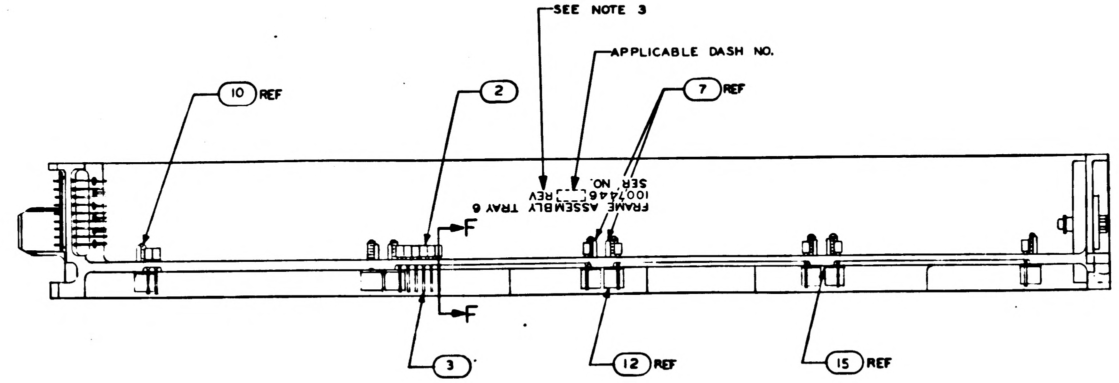
FRAME ASSEMBLY
TRAY 6

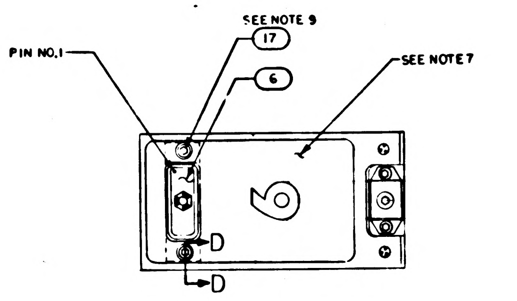
CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007446
SCALE 1/1
WT
SHEET 2 OF 2

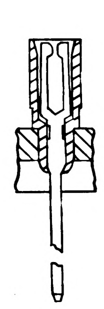
1007446 A

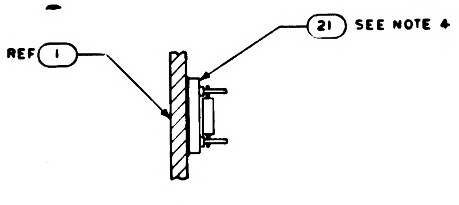
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	25 MAR 65	WD
B	REVISED PER TDRR 18695	7 MAY 65	CP

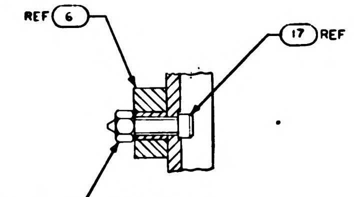




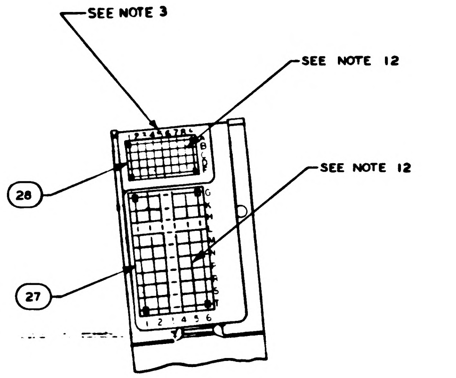

SECTION F-F
151 PLACES

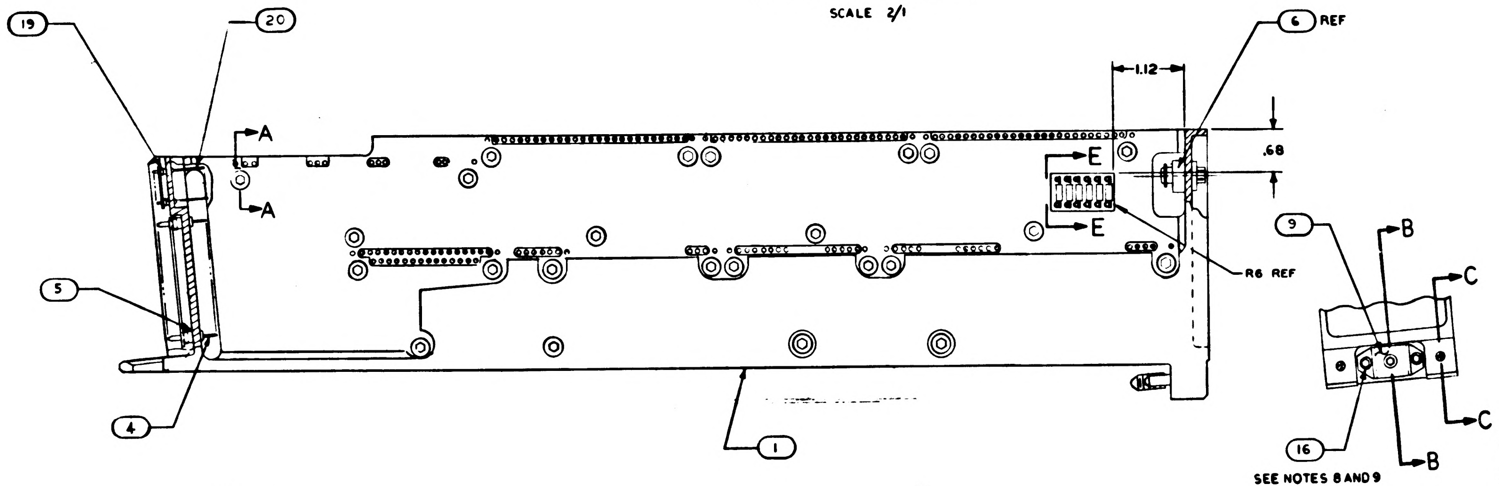


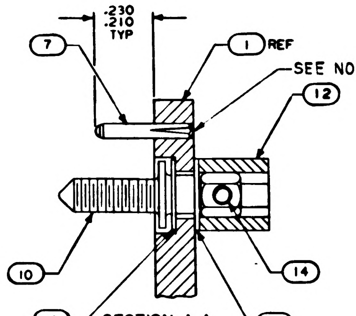
PARTIAL SECTION E-E
SCALE 2/1



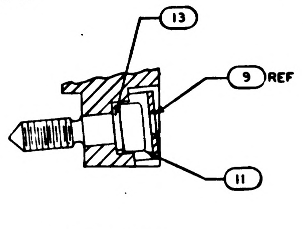
SECTION D-D
SCALE 2/1



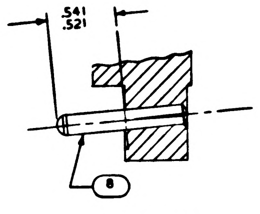




SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,19 AND 20 PER ND 1002136
3. MARK PER ND 1002019 (BLACK),.100/.140 HIGH & SERIALIZE PER ND1002023
4. BOND FIND NO.21 TO FIND NO.1 PER ND 1002004 USING FLEXIBLE FORMULATION PER NASA DRAWING 1010657 AND NASA DRAWING 1010686
5. BOND FIND NOS 22,23,24,25, & 26 TO FIND NO.1 PER ND1002004 TYPE I AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM).010 ABOVE TO .010 BELOW PERIPHERAL SURFACES OF THE TRAY FRAME UNLESS OTHERWISE SPECIFIED.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
8. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 AND 17 TO FIND NO.1 TO BE 5.0-5.5 IN LB.
10. PROCURE PER PS1007146.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071 ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. BOND FIND NOS 27 AND 28 TO FIND NOS 5 AND 19 PER ND1002237
13. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			011				
			1		1008553	GASKET, CONNECTOR MIN. TRAY	28
			1		1008552	GASKET, CONNECTOR TRAY	27
			X		1009556	WIRING DIAGRAM	REF
			1		1015768	WIRE LIST AA	26
			1		1015767	WIRING HARNESS D	25
			1		1015766	WIRING HARNESS C	24
			1		1015765	WIRING HARNESS B	23
			1		1015764	WIRING HARNESS A	22
			1		1007110	BUFFER RESISTORS ASSEMBLY	21
			45		1006782-2	CONTACT, WRAPOST, MALE MIN	20
			45		1006775	INSULATOR, WRAPOST, MALE MIN	19
			2		MS21045 C 04	NUT, SELF-LOCKING HEX	18
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	17
			3		MS16995-10	SCREW, CAP, SOCKET HEAD	16
			50		1004206	WASHER, THRUST	15
			25		MS171433	PIN, SPRING	14
			1		1008099-2	WASHER,	13
			25		1004207	DRIVE CYLINDER	12
			1		1008098	SCREW, SOCKET HEAD	11
			25		1008172	SCREW, JACK	10
			1		1001317	RETAINER, JACK SCREW	9
			2		1010620-5	PIN, GUIDE	8
			16		1010620-4	PIN, GUIDE	7
			1		1010622-1	CONNECTOR, RECEPTACLE	6
			60		1010383-1	INSULATOR, WRAPOST MALE	5
			60		1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
			151		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			151		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008426	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS ±.02
ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497.
DRAWN DATE 29 SEP 64
CHECKED 6 OCT 64
APPROVAL 8 OCT 64
APPROVAL 10-29-64
NASA APPROVAL 11-4-64
MIT APPROVAL 4 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

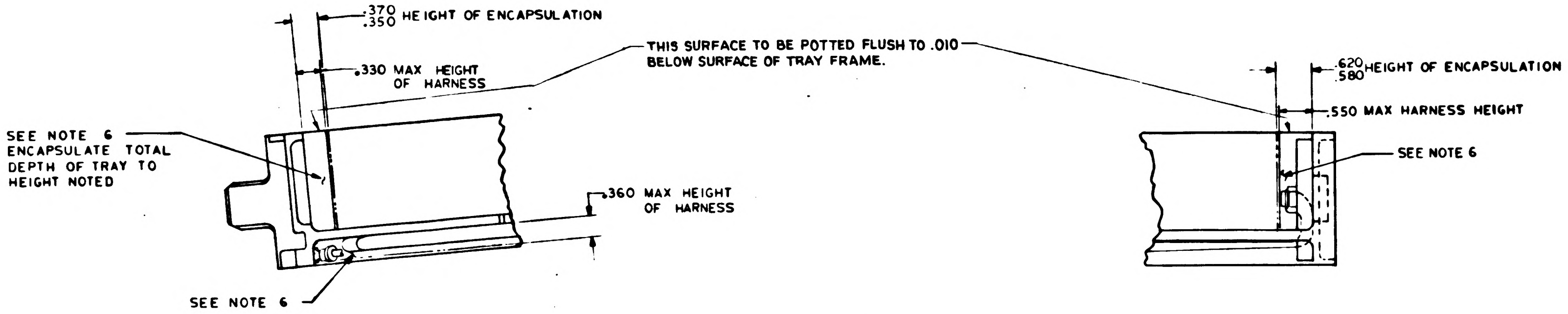
FRAME ASSEMBLY
TRAY 6

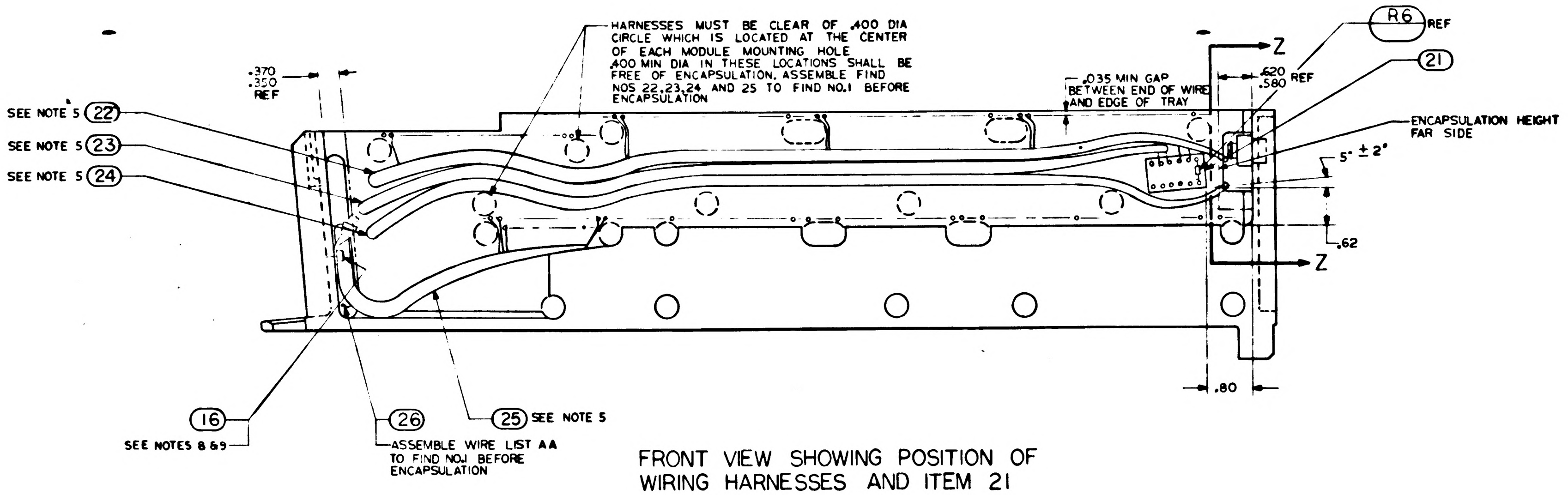
CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 1007446
SCALE 1/1
WT
SHEET 1 OF 2

1007446 B

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

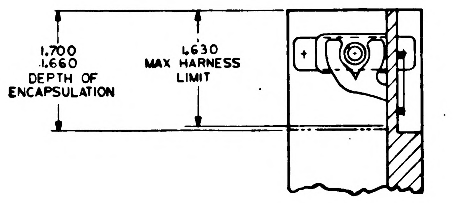
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17613	—	25 MAR 65	J J J / WE
B		REVISED PER TDRR 18695	—	7 MAY 65	J J J / CP


.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6
.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
SEE NOTE 6


HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
.370
.350
REF
SEE NOTE 5 (22)
SEE NOTE 5 (23)
SEE NOTE 5 (24)
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
R6 REF
(21)
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
Z
.80
(16)
SEE NOTES 8 & 9
(26)
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
(25) SEE NOTE 5

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10


1.700
1.660
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — DECIMALS XX ± .02 — ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

M I T
INSTRUMENTATION LAB
Cambridge Mass
Contract NAS 9-497
DRAWN E. Leonik Jr. DATE 30 SEP 64
CHECKED 6 OCT 64
APPROVAL 2 OCT 64
M.B. APPROVAL
NASA APPROVAL W. J. 11-4-64
MIT APPROVAL W. Kupfer 4 Nov 64

MANNED-SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

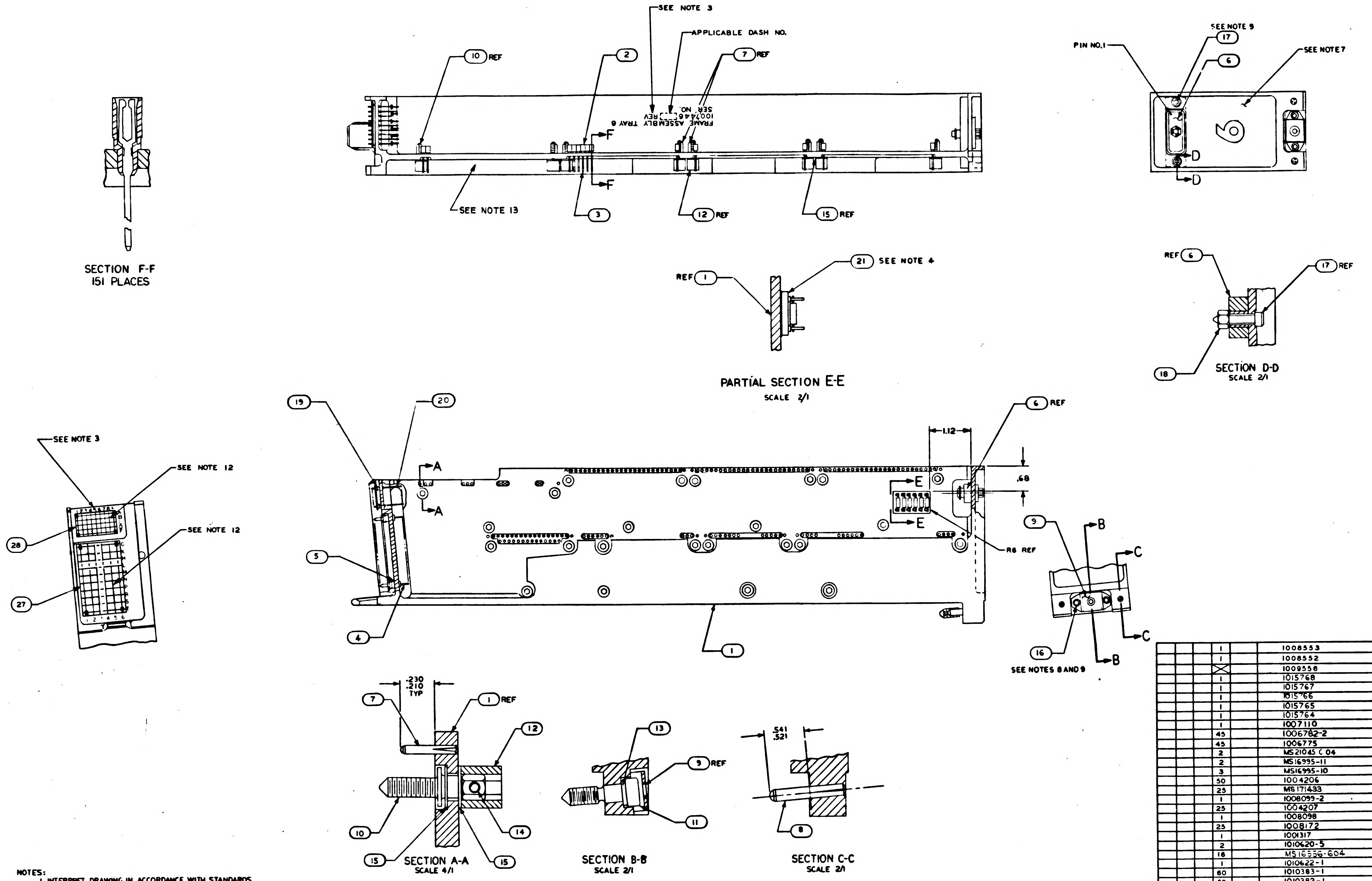
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007446
SCALE 1/1
WT
SHEET 2 OF 2

1007446 B

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS /3572

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	25 MAR 65	JJJ WD
B	REVISED PER TDRR 18695	7 MAY 65	JJJ CP
C	REVISED PER TDRR 18693	10 MAY 65	JJJ RJ


SEE NOTE 3
APPLICABLE DASH NO.
10 REF
2
7 REF
FRAME ASSEMBLY TRAY 6
1007446-__ REV
SER. NO.
F
F
SEE NOTE 13
3
12 REF
15 REF
SECTION F-F
151 PLACES
SEE NOTE 9
17
6
PIN NO.1
SEE NOTE 7
D
D
REF 1
21 SEE NOTE 4
PARTIAL SECTION E-E
SCALE 2/1
REF 6
17 REF
18
SECTION D-D
SCALE 2/1
SEE NOTE 3
SEE NOTE 12
SEE NOTE 12
28
27
19
20
A
A
5
4
1
1.12
.68
6 REF
E
E
R6 REF
9
B
B
C
C
16
SEE NOTES 8 AND 9
.230
.210
TYP
7
1 REF
12
10
14
15
15
SECTION A-A
SCALE 4/1
13
9 REF
11
SECTION B-B
SCALE 2/1
.541
.521
8
SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,19 AND 20 PER ND 1002136
3. MARK PER ND 1002019 (BLACK).100/.140 HIGH & SERIALIZE PER ND1002023
4. BOND FIND NO.21 TO FIND NO.1 PER ND 1002004 USING FLEXIBLE FORMULATION PER NASA DRAWING 1010657 AND NASA DRAWING 1010686
5. BOND FIND NOS 22,23,24,25,& 26 TO FIND NO.1 PER ND 1002004 TYPE I AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM).010 ABOVE TO .010 BELOW PERIPHERAL SURFACES OF THE TRAY FRAME UNLESS OTHERWISE SPECIFIED.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
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9. MOUNTING TORQUE FOR FIND NUMBERS 16 AND 17 TO FIND NO.1 TO BE 5.0–5.5 IN LB.
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12. BOND FIND NOS 27 AND 28 TO FIND NOS 5 AND 19 PER ND1002237
13. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.

QUANTITY REQUIRED				EFFECTIVITY	- PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			011				
			1		1008553	GASKET, CONNECTOR MIN. TRAY	28
			1		1008552	GASKET, CONNECTOR TRAY	27
			X		1009556	WIRING DIAGRAM	REF
			1		1015768	WIRE LIST AA	26
			1		1015767	WIRING HARNESS D	25
			1		1015766	WIRING HARNESS C	24
			1		1015765	WIRING HARNESS B	23
			1		1015764	WIRING HARNESS A	22
			1		1007110	BUFFER RESISTORS ASSEMBLY	21
			45		1006782-2	CONTACT, WRAPOST, MALE MIN	20
			45		1006775	INSULATOR, WRAPOST, MALE MIN	19
			2		MS21045 C 04	NUT, SELF-LOCKING HEX	18
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	17
			3		MS16995-10	SCREW, CAP, SOCKET HEAD	16
			50		1004206	WASHER, THRUST	15
			25		MS171433	PIN, SPRING	14
			1		1008099-2	WASHER,	13
			25		1004207	DRIVE CYLINDER	12
			1		1008098	SCREW, SOCKET HEAD	11
			25		1008172	SCREW, JACK	10
			1		1001317	RETAINER, JACK SCREW	9
			2		1010620-5	PIN, GUIDE	8
			16		MS16556-604	PIN, GUIDE	7
			1		1010622-1	CONNECTOR, RECEPTACLE	6
			60		1010383-1	INSULATOR, WRAPOST MALE	5
			60		1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
			151		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			151		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008426	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN [illegible] DATE 29 SEP 64
CHECKED [illegible] 6 OCT 64
APPROVAL [illegible] 8 OCT 64
APPROVAL [illegible] 10-29-64
NASA APPROVAL WJRh 11-4-64
MIT APPROVAL [illegible] 4 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

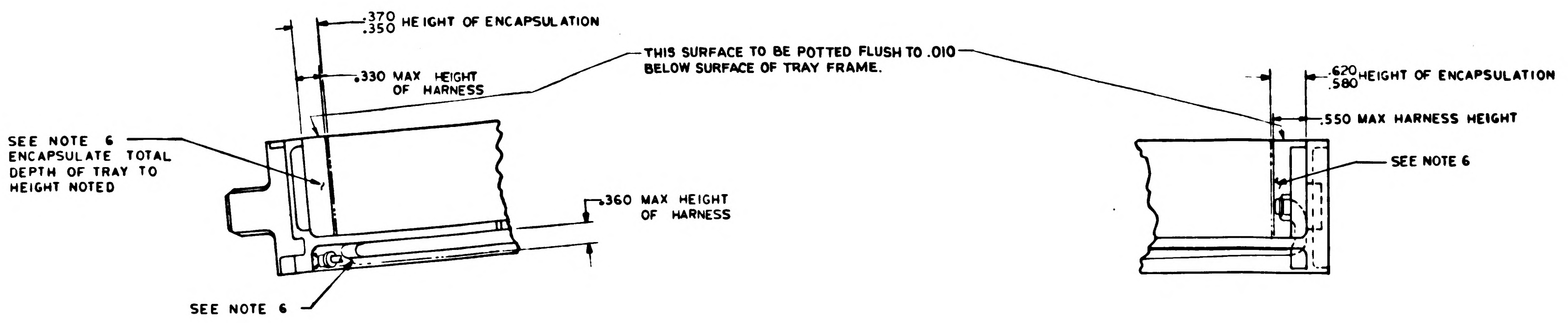
FRAME ASSEMBLY
TRAY 6

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007446
SCALE 1/1
WT -
SHEET 1 OF 2

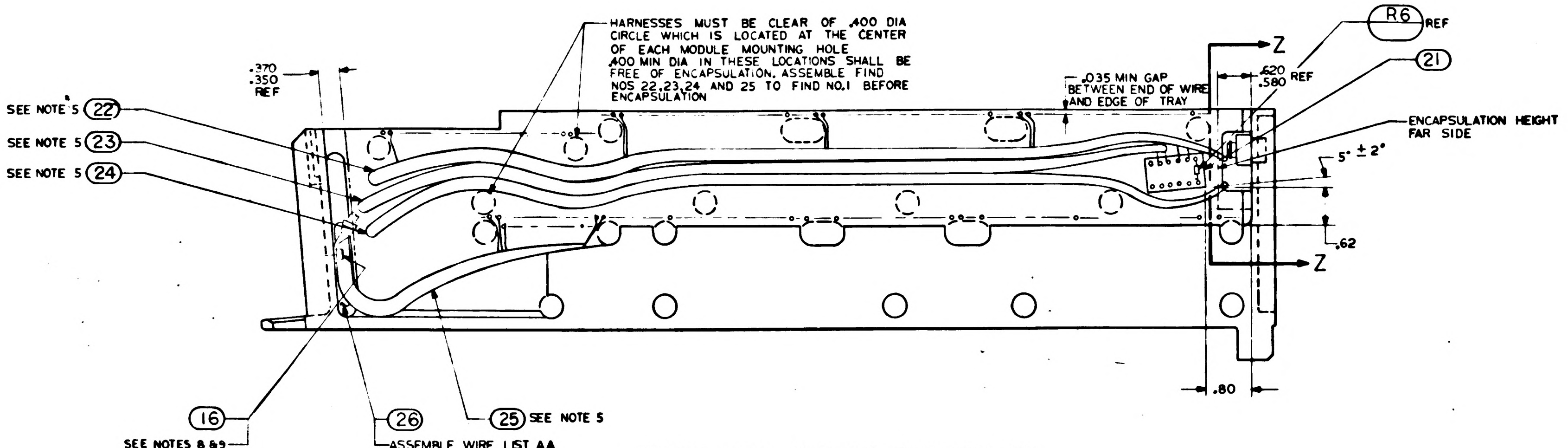
1007446 C

NOTICE – [illegible]

SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17613	—	25 MAR 65	J J J / WD
B		REVISED PER TDRR 18695	—	7 MAY 65	J J J / CP
C		REVISED PER TDRR 18693	—	10 MAY 65	J J J



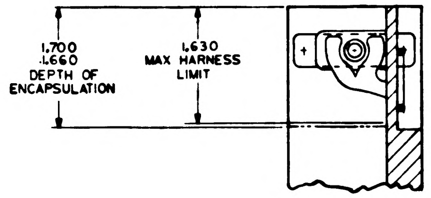
.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6
.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
SEE NOTE 6



HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
.370
.350
REF
R6 REF
21
Z
Z
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
.80
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
16
SEE NOTES 8 & 9
26
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
25 SEE NOTE 5

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10



1.700
1.660
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — DECIMALS XX ±.02 — ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
Cambridge Mass
Contract NAS 9-497

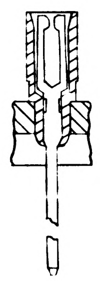
DRAWN E Leonik Jr DATE 30 SEP 64
CHECKED 6 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL W J R 11-4-64
MIT APPROVAL W Kupfer 4 Nov 64

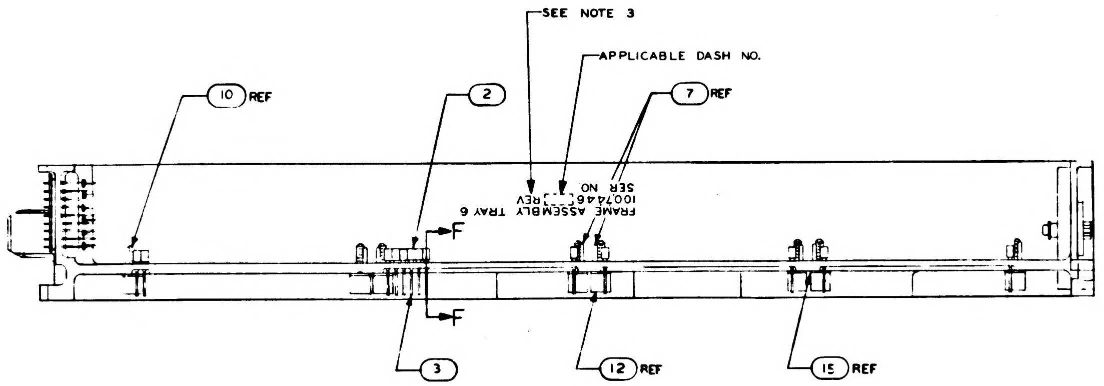
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

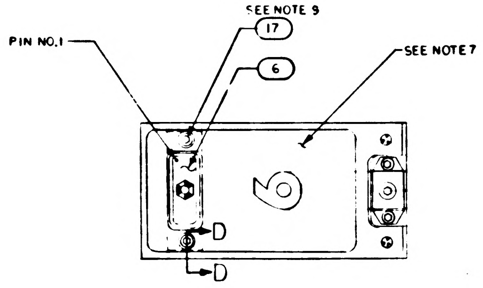
FRAME ASSEMBLY
TRAY 6

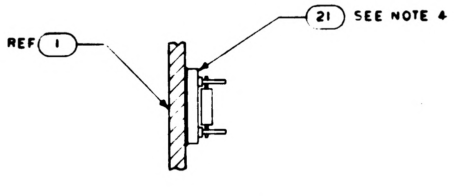
CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 1007446
SCALE 1/1
WT
SHEET 2 OF 2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR [illegible]	[illegible]	
B	REVISED PER TDRR 18695	[illegible]	Cf
C	REVISED PER TDRR 18633	[illegible]	
D	REVISED PER TDRR 18694	2 [illegible]	

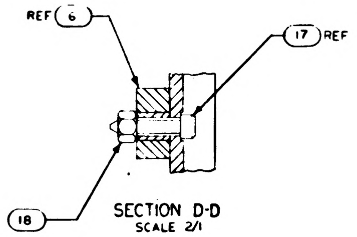




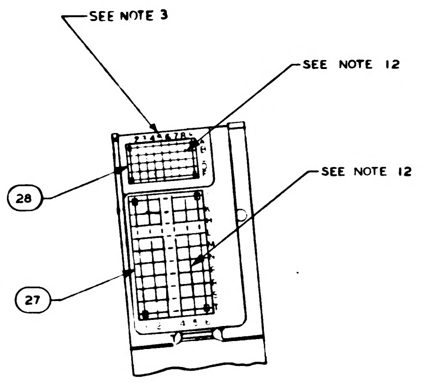


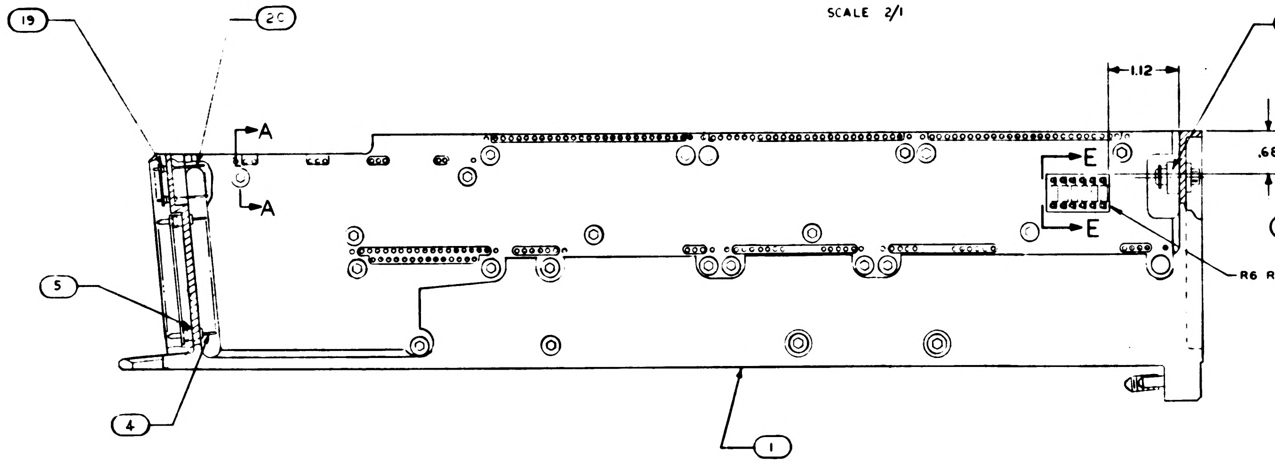


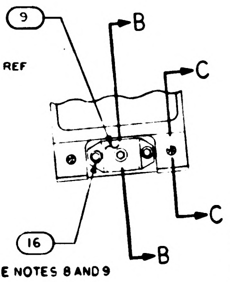
PARTIAL SECTION E-E
SCALE 2/1



SECTION D-D
SCALE 2/1



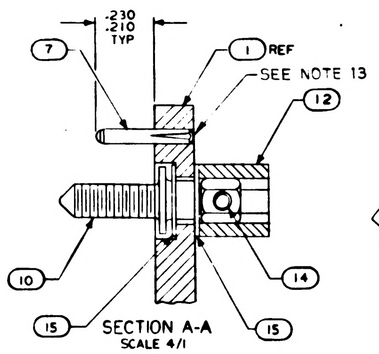




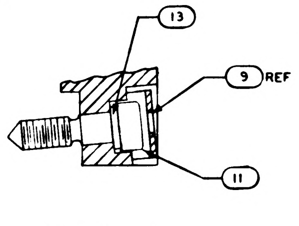
SEE NOTES 8 AND 9

NOTES:

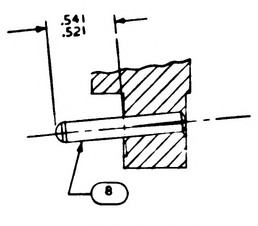
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 19 AND 20 PER ND 1002136
3. MARK PER ND 1002019 (BLACK) .100/.140 HIGH AND SERIALIZE PER ND 1002023
4. BOND FIND NO. 21 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION PER NASA DWG 1010657 AND NASA DWG 1010686
5. BOND FIND NO'S. 22, 23, 24, 25, AND 26 TO FIND NO. 1 PER ND 1002004 TYPE I AS NECESSARY
6. ENCAPSULATE PER ND 1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAMES AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
8. COAT THREADS OF FIND NO. 16 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 AND 17 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB.
10. PROCURE PER PS 1007146
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND 1002071. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS
12. BOND FIND NO'S. 27 AND 28 TO FIND NO'S. 5 AND 19 PER ND 1002237
13. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.
14. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND 1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND 1002004 TYPE I



SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

			1		1008553	GASKET, CONNECTOR MIN. TRAY	28
			1		1008552	GASKET, CONNECTOR TRAY	27
			X		1009556	WIRING DIAGRAM	REF
			1		1015768	WIRE LIST AA	26
			1		1015767	WIRING HARNESS D	25
			1		1015766	WIRING HARNESS C	24
			1		1015765	WIRING HARNESS B	23
			1		1015764	WIRING HARNESS A	22
			1		1007110	BUFFER RESISTORS ASSEMBLY	21
			45		1006782-2	CONTACT, WRAPOST, MALE MIN	20
			45		1006775	INSULATOR, WRAPOST, MALE MIN	19
			2		MS21045 L 04	NUT, SELF-LOCKING HEX	18
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	17
			3		MS16995-10	SCREW, CAP, SOCKET HEAD	16
			50		1004206	WASHER, THRUST	15
			25		MS171433	PIN, SPRING	14
			1		1008099-2	WASHER,	13
			25		1004207	DRIVE CYLINDER	12
			1		1008098	SCREW, SOCKET HEAD	11
			25		1008172	SCREW, JACK	10
			1		1001317	RETAINER, JACK SCREW	9
			2		1010620-5	PIN, GUIDE	8
			16		[illegible]	PIN, GUIDE	7
			1		1010622-1	CONNECTOR, RECEPTACLE	6
			60		1010383-1	INSULATOR, WRAPOST MALE	5
			60		1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
			151		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			151		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008426	FRAME	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF MATERIALS		

1007456		
NEXT ASSY	USED ON	APPLICABLE DASH NO
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN E Levrite Jr DATE 29 SEP 64
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

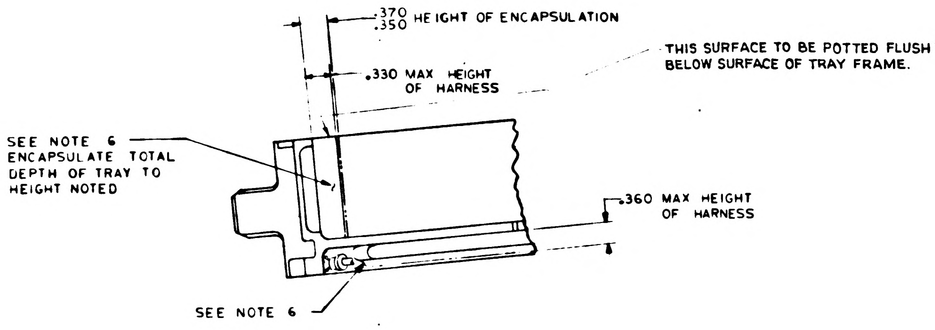
FRAME ASSEMBLY
TRAY 6

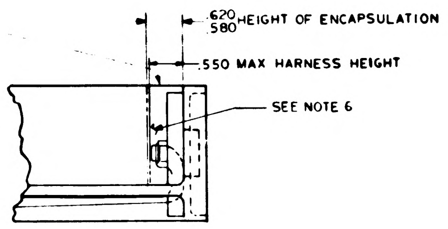
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007446
SCALE 1/1
WT
SHEET 1 OF 2

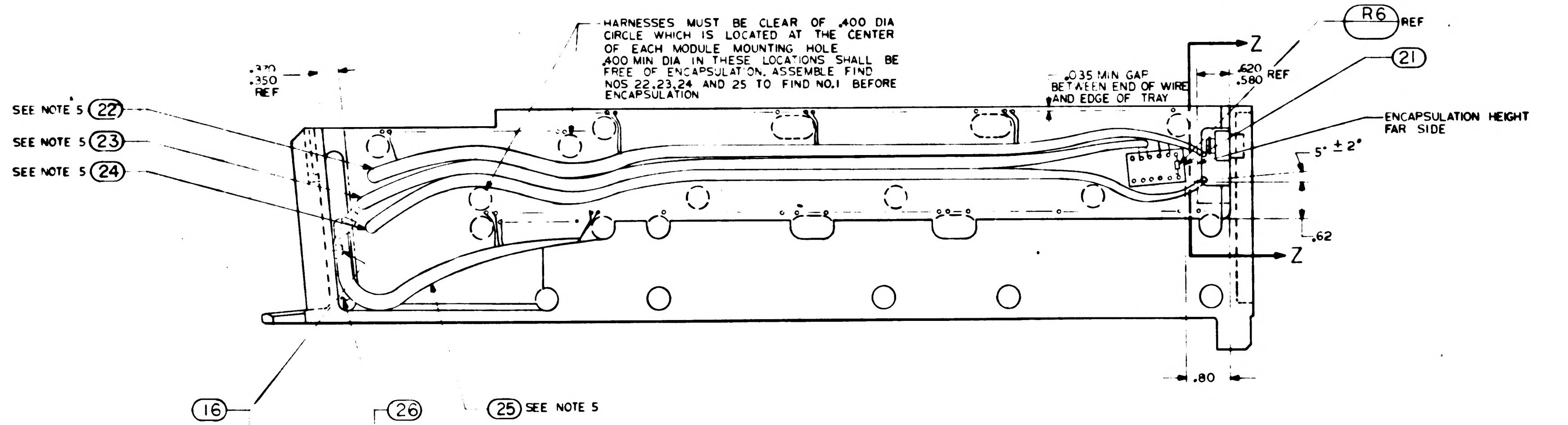
1007446

NOTICE [illegible]

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 17613	—	25 MAR 65	JJJ
B		REVISED PER TDRR 18695	—	7 MAY 65	JJJ
C		REVISED PER TDRR 18693	—	10 MAY 65	JJJ
D		REVISED PER TDRR 18694	—	12 MAY 65	JJJ

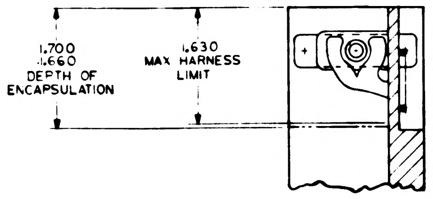

.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
SEE NOTE 6


HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
.370
.350
REF
SEE NOTE 5 (22)
SEE NOTE 5 (23)
SEE NOTE 5 (24)
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
R6 REF
(21)
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
Z
.80
(16)
SEE NOTES 8 & 9
(26)
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
(25) SEE NOTE 5

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10


.700
.660
DEPTH OF ENCAPSULATION
.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — DECIMALS XX ± .02 — ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497

DRAWN E. Kesnik Jr DATE 30 SEP 64
CHECKED
APPROVAL
R E APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRAME ASSEMBLY
TRAY 6

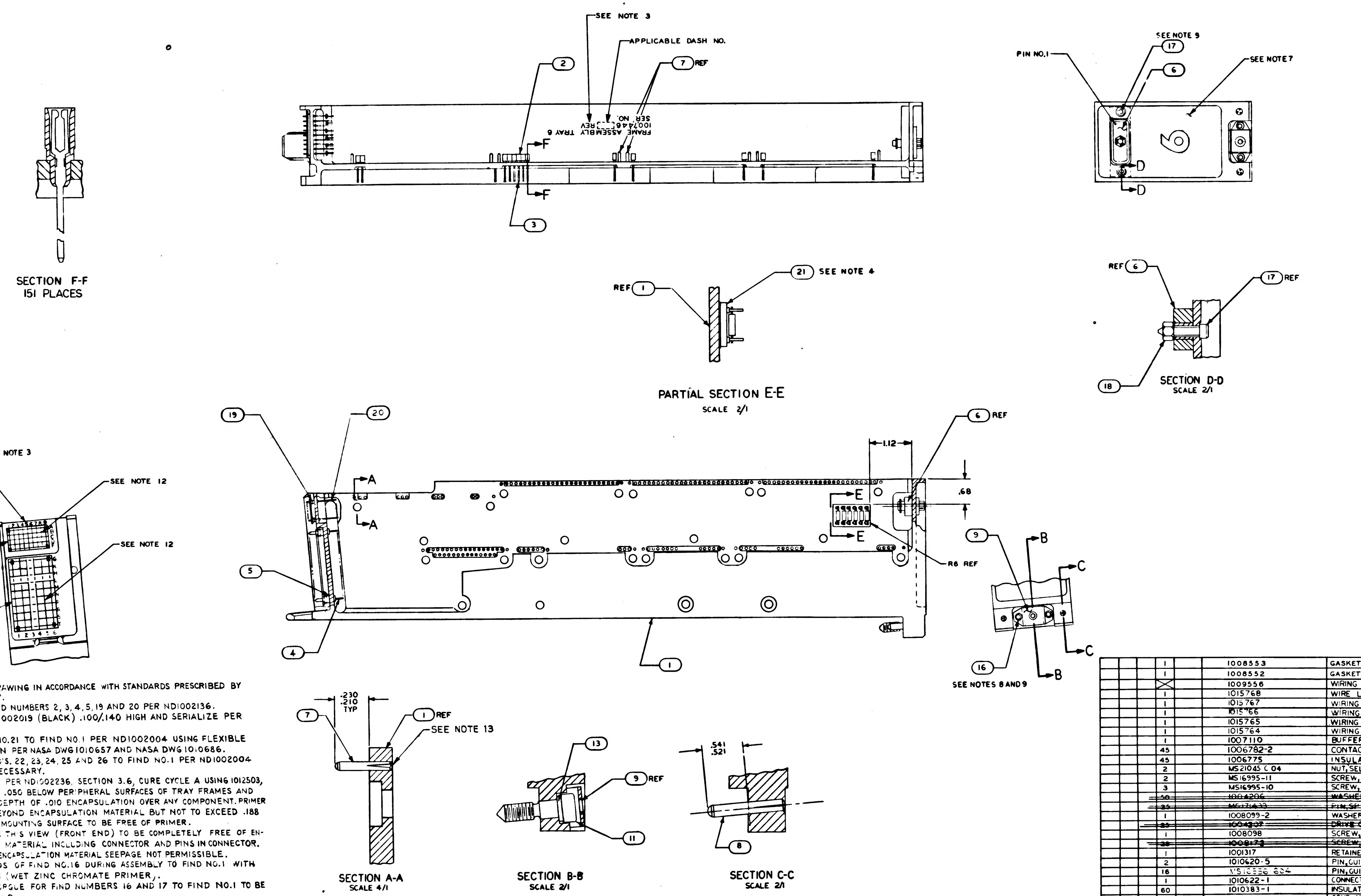
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007446
SCALE 1/1
WT
SHEET 2 OF 2

1007446 D

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR [illegible]	[illegible]	[illegible]
B	REVISED PER TDRR 18695	[illegible]	CF
C	REVISED PER TDRR 18693	[illegible]	[illegible]
D	REVISED PER TDRR 18694	[illegible]	[illegible]
E	REVISED PER TDRR 20119	[illegible]	[illegible]



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 19 AND 20 PER ND1002136.
3. MARK PER ND1002019 (BLACK) .100/.140 HIGH AND SERIALIZE PER ND1002023.
4. BOND FIND NO.21 TO FIND NO.1 PER ND1002004 USING FLEXIBLE FORMULATION PER NASA DWG 1010657 AND NASA DWG 1010686.
5. BOND FIND NO'S. 22, 23, 24, 25 AND 26 TO FIND NO.1 PER ND1002004 TYPE I AS NECESSARY.
6. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAMES AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
8. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
9. MOUNTING TORQUE FOR FIND NUMBERS 16 AND 17 TO FIND NO.1 TO BE 5.0 - 5.5 IN. LB.
10. PROCURE PER PS1007146.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. BOND FIND NO'S. 27 AND 28 TO FIND NO'S. 5 AND 19 PER ND1002237.
13. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
14. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004 TYPE I.

QUANTITY REQUIRED							
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			1		1008553	GASKET, CONNECTOR MIN. TRAY	28
			1		1008552	GASKET, CONNECTOR TRAY	27
			☒		1009556	WIRING DIAGRAM	REF
			1		1015768	WIRE LIST AA	26
			1		1015767	WIRING HARNESS D	25
			1		1015766	WIRING HARNESS C	24
			1		1015765	WIRING HARNESS B	23
			1		1015764	WIRING HARNESS A	22
			1		1007110	BUFFER RESISTORS ASSEMBLY	21
			45		1006782-2	CONTACT, WRAPOST, MALE MIN	20
			45		1006775	INSULATOR, WRAPOST, MALE MIN	19
			2		MS21045 C 04	NUT, SELF-LOCKING HEX	18
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	17
			3		MS16995-10	SCREW, CAP, SOCKET HEAD	16
			~~50~~		~~1004206~~	~~WASHER, THRUST~~	15
			~~25~~		~~MS171433~~	~~PIN, SPRING~~	14
			1		1008099-2	WASHER,	13
			~~25~~		~~1004207~~	~~DRIVE CYLINDER~~	12
			1		1008098	SCREW, SOCKET HEAD	11
			~~28~~		~~1008173~~	~~SCREW, JACK~~	10
			1		1001317	RETAINER, JACK SCREW	9
			2		1010620-5	PIN, GUIDE	8
			16		MS16556-604	PIN, GUIDE	7
			1		1010622-1	CONNECTOR, RECEPTACLE	6
			60		1010383-1	INSULATOR, WRAPOST MALE	5
			60		1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
			151		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			151		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008426	FRAME	1

LIST OF MATERIALS

1007456		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± # DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL #
HEAT TREATMENT #
FINAL FINISH #

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497

DRAWN [illegible] DATE 29 SEP 64
CHECKED [illegible] 6 OCT 64
APPROVAL [illegible] 8 OCT 64
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 1007446
SCALE 1/1
WT
SHEET 1 OF 2

1007446

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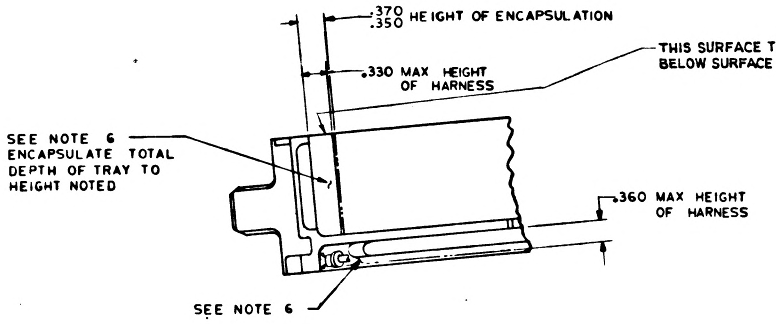
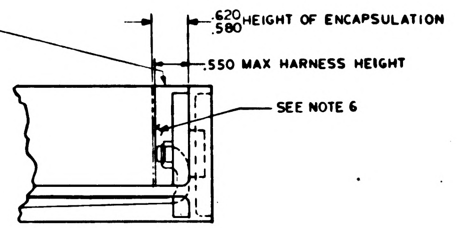
REVISIONS

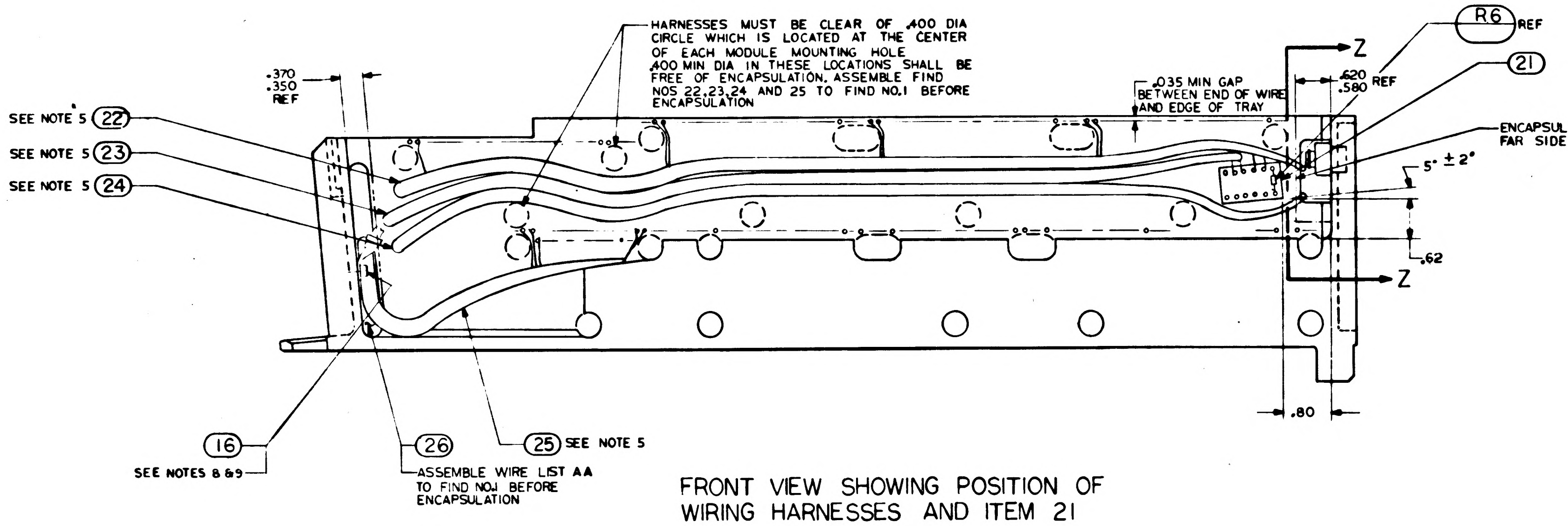
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17613		25 AR 65	
B		REVISED PER TDRR 18695	—	7 MAY 65	
C		REVISED PER TDRR 18693	—	10 MAY 65	
D		REVISED PER TDRR 18694	—	12 MAY 65	
E		REVISION STATUS CHANGE PER TDRR 20119	—	18 JUN 65	



.370 .350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6
THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.



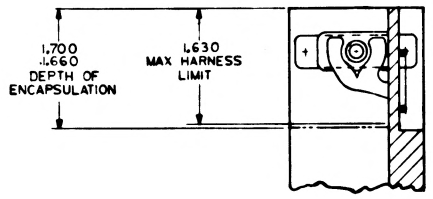
.620 .580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
SEE NOTE 6



HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
.370 .350 REF
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620 .580 REF
R6 REF
21
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
Z
.80
16
SEE NOTES 8 & 9
26
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
25 SEE NOTE 5

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10



1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ± .02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
Cambridge Mass
Contract NAS 9-497
DRAWN E. Leonik Jr DATE 30 SEP 64
CHECKED 6 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL W Kayler 4 Nov

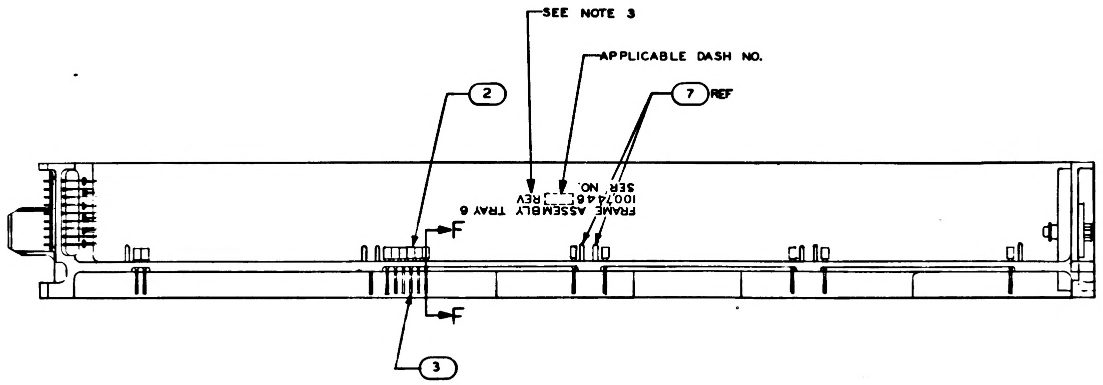
MANNED-SPACECRAFT CENTER
HOUSTON, TEXAS

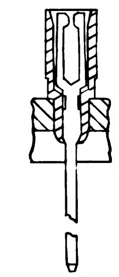
FRAME ASSEMBLY
TRAY 6

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 1007446
SCALE 1/1
WT
SHEET 2 OF 2

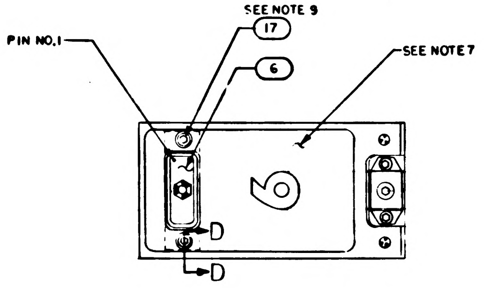
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

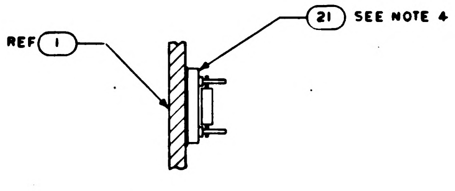
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	[illegible] 65	
B	REVISED PER TDRR 18695	7 MAY 65	CF
C	REVISED PER TDRR 18693	10 MAY 65	
D	REVISED PER TDRR 18694	12 MAY 65	
E	REVISED PER TDRR 20119	19 [illegible]	
F	REVISED PER TDRR 20795	2 [illegible]	RWH



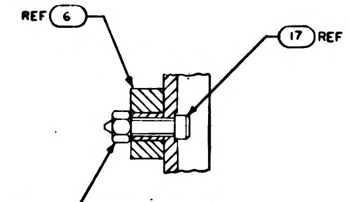


SECTION F-F
151 PLACES

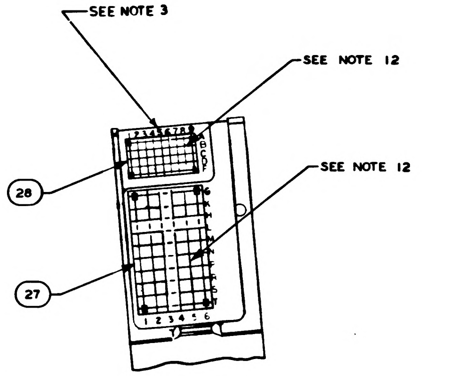


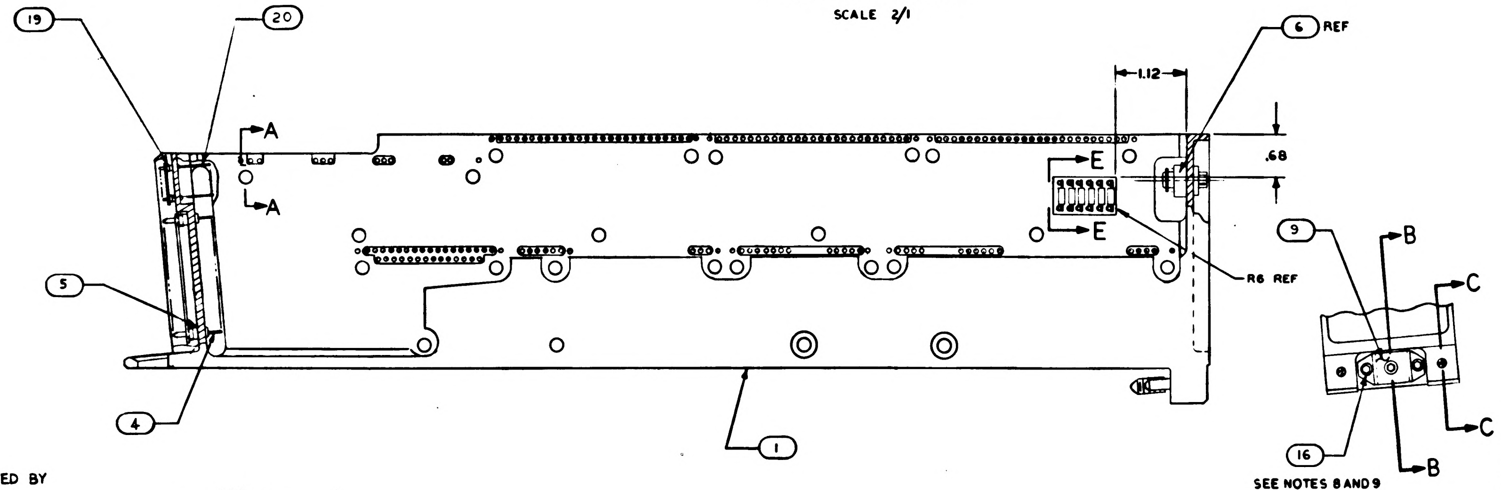


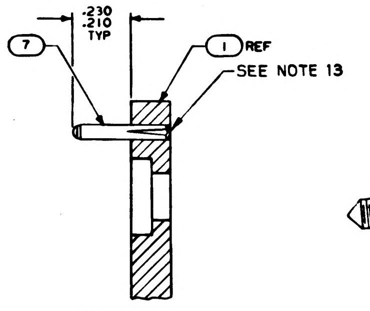
PARTIAL SECTION E-E
SCALE 2/1



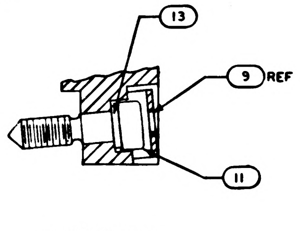
SECTION D-D
SCALE 2/1



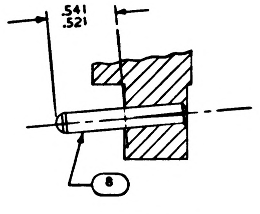




SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 19 AND 20 PER ND1002136.
3. MARK PER ND1002019 (BLACK) .100/.140 HIGH AND SERIALIZE PER ND1002023.
4. BOND FIND NO.21 TO FIND NO.1 PER ND1002004 USING FLEXIBLE FORMULATION PER NASA DWG 1010657 AND NASA DWG 1010686.
5. BOND FIND NO'S. 22, 23, 24, 25 AND 26 TO FIND NO.1 PER ND1002004 TYPE I AS NECESSARY.
6. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAMES AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
8. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
9. MOUNTING TORQUE FOR FIND NUMBERS 16 AND 17 TO FIND NO.1 TO BE 5.0 - 5.5 IN. LB.
10. PROCURE PER PS1007146.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. BOND FIND NO'S. 27 AND 28 TO FIND NO'S. 5 AND 19 PER ND1002237.
13. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
14. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH A FORMULATION CONSISTING OF 40 PARTS BY WT. 1010959-1, 100 PARTS BY WT. 1010959-2, AND 7 PARTS BY WT. 1006277 AND CURE AT ROOM TEMPERATURE FOR THREE HOURS OR ONE HOUR AT 140°F. LIMITED AMOUNT ALLOWED TO CONTACT TRAY FRAME. SEAL OPENING BETWEEN FRAME AND CONNECTOR USING ND1002004, TYPE I.

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			011				
			1		1008553	GASKET, CONNECTOR MIN. TRAY	28
			1		1008552	GASKET, CONNECTOR TRAY	27
			☒		1009556	WIRING DIAGRAM	REF
			1		1015768	WIRE LIST AA	26
			1		1015767	WIRING HARNESS D	25
			1		1015766	WIRING HARNESS C	24
			1		1015765	WIRING HARNESS B	23
			1		1015764	WIRING HARNESS A	22
			1		1007110	BUFFER RESISTORS ASSEMBLY	21
			45		1006782-2	CONTACT, WRAPOST, MALE MIN	20
			45		1006775	INSULATOR, WRAPOST, MALE MIN	19
			2		MS21045 C 04	NUT, SELF-LOCKING HEX	18
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	17
			3		MS16995-10	SCREW, CAP, SOCKET HEAD	16
			~~50~~		~~1004206~~	~~WASHER, THRUST~~	15
			~~25~~		~~MS171433~~	~~PIN, SPRING~~	14
			1		1008099-2	WASHER,	13
			~~25~~		~~1004207~~	~~DRIVE CYLINDER~~	12
			1		1008098	SCREW, SOCKET HEAD	11
			~~20~~		~~1008173~~	~~SCREW, JACK~~	10
			1		1001317	RETAINER, JACK SCREW	9
			2		1010620-5	PIN, GUIDE	8
			16		MS16556-604	PIN, GUIDE	7
			1		1010622-1	CONNECTOR, RECEPTACLE	6
			60		1010383-1	INSULATOR, WRAPOST MALE	5
			60		1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
			151		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			151		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008426	FRAME	1

LIST OF MATERIALS

1007456		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497

DRAWN DATE 29 SEP 64
CHECKED 6 OCT 64
APPROVAL 8 OCT 64
APPROVAL 10-29-64
NASA APPROVAL
MIT APPROVAL

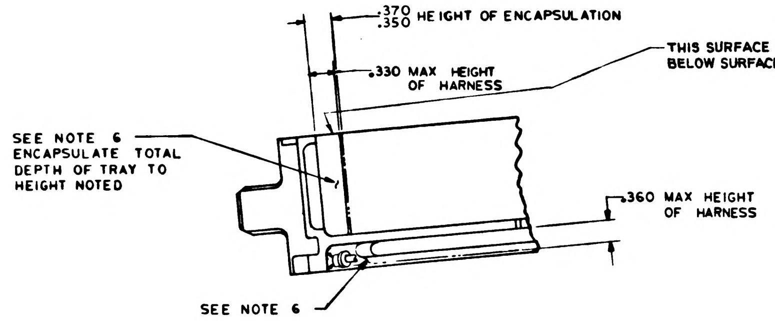
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

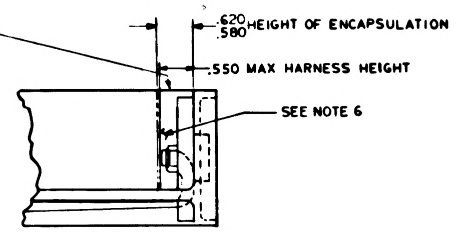
FRAME ASSEMBLY
TRAY 6

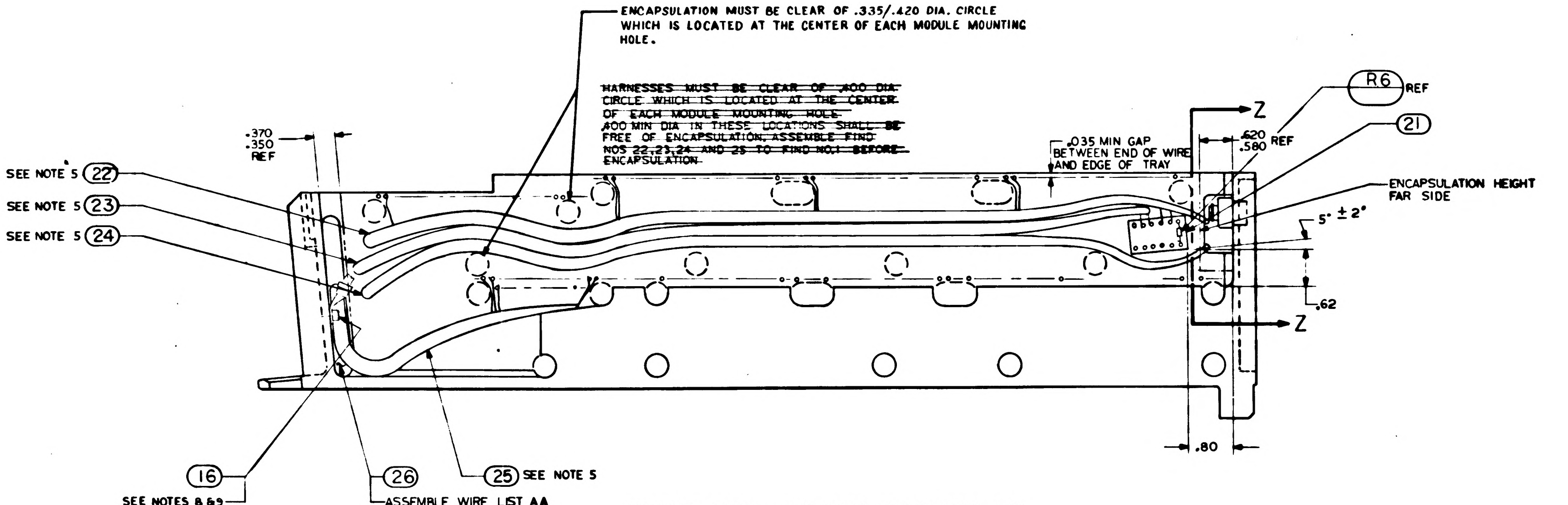
CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 1007446
SCALE 1/1
WT
SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17613	—	25 MAR 65	J J J
B		REVISED PER TDRR 18695	—	7 MAY 65	J J J CP
C		REVISED PER TDRR 18693	—	10 MAY 65	J J J
D		REVISED PER TDRR 18694	—	12 MAY 65	J J J
E		REVISION STATUS CHANGED PER TDRR 20119	—	19 JUN 65	
F		REVISED PER TDRR 20785		2 [illegible]	

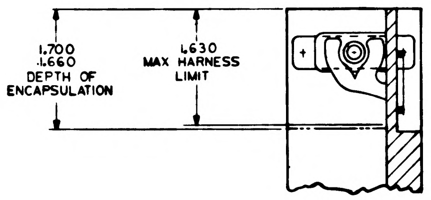

.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
SEE NOTE 6


ENCAPSULATION MUST BE CLEAR OF .335/.420 DIA. CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE.
~~HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE~~
~~.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION~~
R6 REF
Z
21
.370
.350
REF
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
Z
SEE NOTE 5 22
SEE NOTE 5 23
SEE NOTE 5 24
.80
16
SEE NOTES 8 & 9
26
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
25 SEE NOTE 5

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10


1.700
1.660
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ~~ DECIMALS XX ±.02 ANGLES ± DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB Cambridge Mass Contract NAS 9-497	MANNED-SPACECRAFT CENTER HOUSTON, TEXAS
MATERIAL ~~	DRAWN E Leonik Jr DATE 30 SEP 64 CHECKED [illegible] 6 OCT 64 APPROVAL [illegible] 8 OCT 64 M E APPROVAL [illegible]	FRAME ASSEMBLY TRAY 6
HEAT TREATMENT ~~	NASA APPROVAL [illegible] 6-4-64	CODE IDENT NO 80230 · SIZE E · NASA DRAWING NO 1007446
FINAL FINISH ~~	MIT APPROVAL W Kyle 4 Nov 64	SCALE 1/1 · WT · SHEET 2 OF 2

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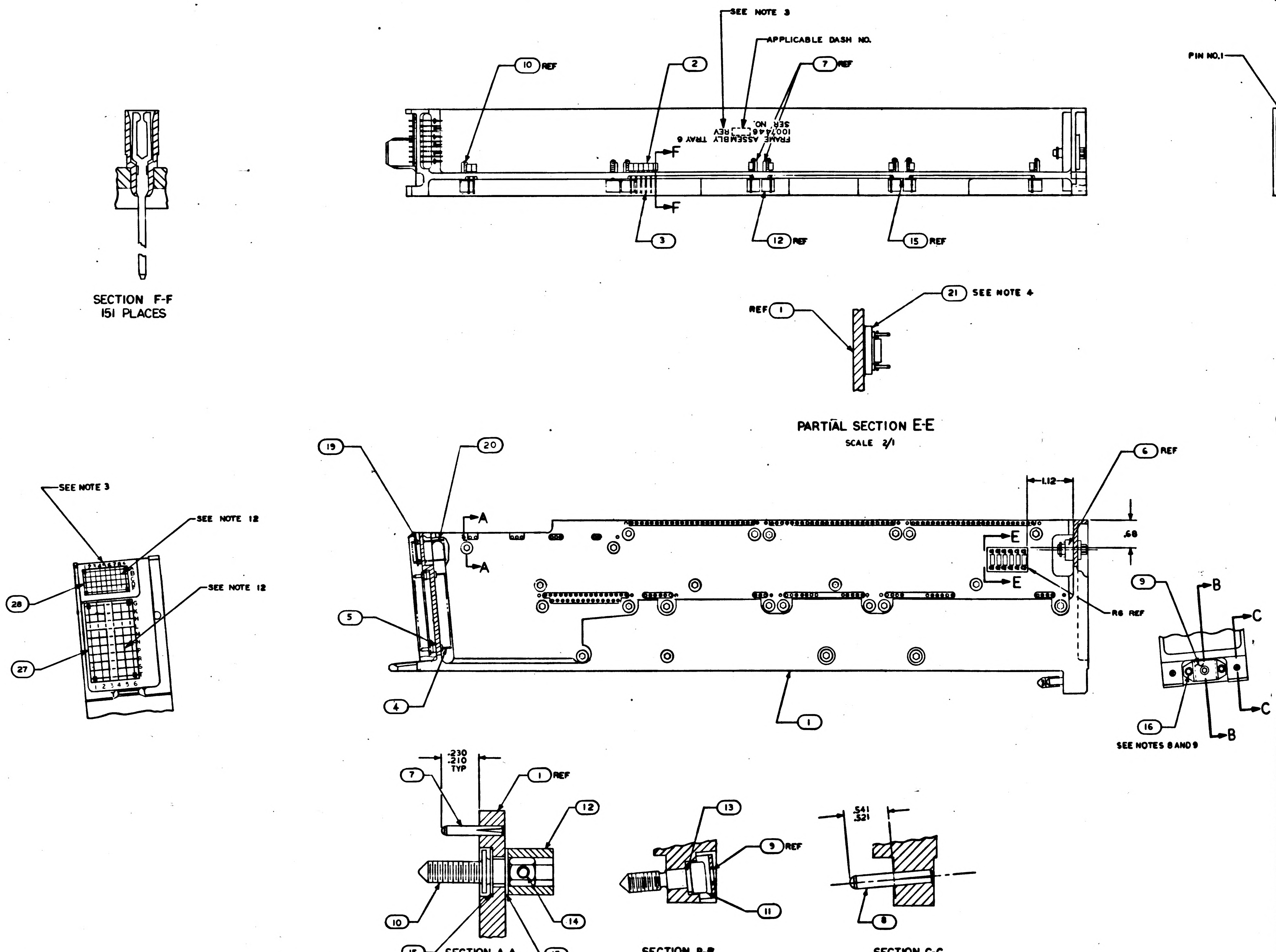
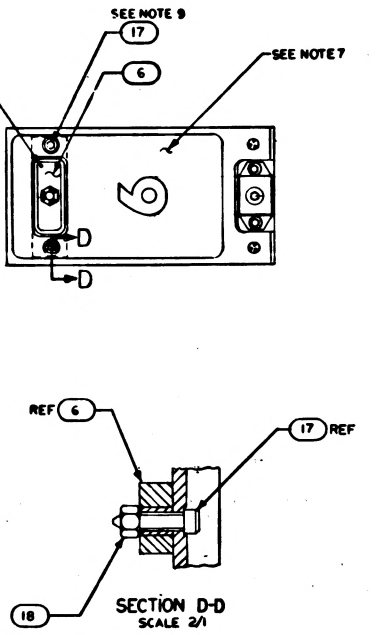
REVISIONS 13522			
SYM	DESCRIPTION	DATE	APPROVAL



SECTION A-A
SCALE 4/1

SECTION B-B
SCALE 2/1

SECTION C-C
SCALE 2/1



SECTION D-D
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,19 AND 20 PER ND 1002136
3. MARK PER ND 1002019 (BLACK).100/.140 HIGH & SERIALIZE PER ND1002023
4. BOND FIND NO.21 TO FIND NO.1 PER ND 1002004 USING FLEXIBLE FORMULATION PER NASA DRAWING 1010657 AND NASA DRAWING 1010686
5. BOND FIND NOS 22,23,24,25,& 26 TO FIND NO.1 PER ND1002004 TYPE I AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
8. COAT THREADS OF FIND NO.16 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
9. MOUNTING TORQUE FOR FIND NUMBERS 16 AND 17 TO FIND NO.1 TO BE 5.0–5.5 IN LB.
10. PROCURE PER PS1007146.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005.
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. BOND FIND NOS 27 AND 28 TO FIND NOS 5 AND 19 PER ND1002237

			ON	EFFEC-TIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			1		1008553	GASKET, CONNECTOR MIN. TRAY	28
			1		1008552	GASKET, CONNECTOR TRAY	27
			X		1009556	WIRING DIAGRAM	REF
			1		1015768	WIRE LIST A A	26
			1		1015767	WIRING HARNESS D	25
			1		1015766	WIRING HARNESS C	24
			1		1015765	WIRING HARNESS B	23
			1		1015764	WIRING HARNESS A	22
			1		1007110	BUFFER RESISTORS ASSEMBLY	21
			45		1006782-2	CONTACT, WRAPOST, MALE MIN	20
			45		1006775	INSULATOR, WRAPOST, MALE MIN	19
			2		MS21045 C 04	NUT, SELF-LOCKING HEX	18
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	17
			3		MS16995-10	SCREW, CAP, SOCKET HEAD	16
			50		1004206	WASHER, THRUST	15
			25		MS171433	PIN, SPRING	14
			1		1008099-2	WASHER,	13
			25		1004207	DRIVE CYLINDER	12
			1		1008098	SCREW, SOCKET HEAD	11
			25		1008172	SCREW, JACK	10
			1		1001317	RETAINER, JACK SCREW	9
			2		1010620-5	PIN, GUIDE	8
			16		1010620-4	PIN, GUIDE	7
			1		1010622-1	CONNECTOR, RECEPTACLE	6
			60		1010383-1	INSULATOR, WRAPOST MALE	5
			60		1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
			151		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			151		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008426	FRAME	1

QUANTITY REQUIRED

LIST OF MATERIALS

1007456		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± # DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL #
HEAT TREATMENT #
FINAL FINISH #

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-4??
DRAWN DATE 29 SEP 64
CHECKED 6 OCT 64
APPROVAL 8 OCT 64
APPROVAL 10-21-64
NASA APPROVAL W J R 11-4-64
MIT APPROVAL 4 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007446
SCALE 1/1
WT
SHEET 1 OF 2

1007446

MASTER

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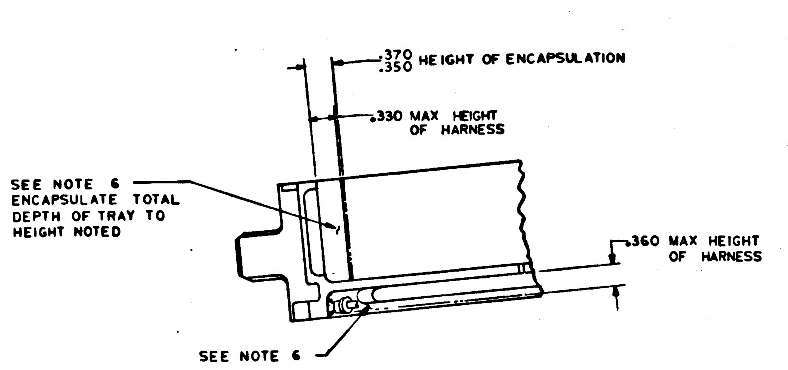
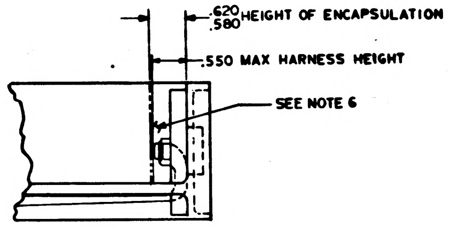
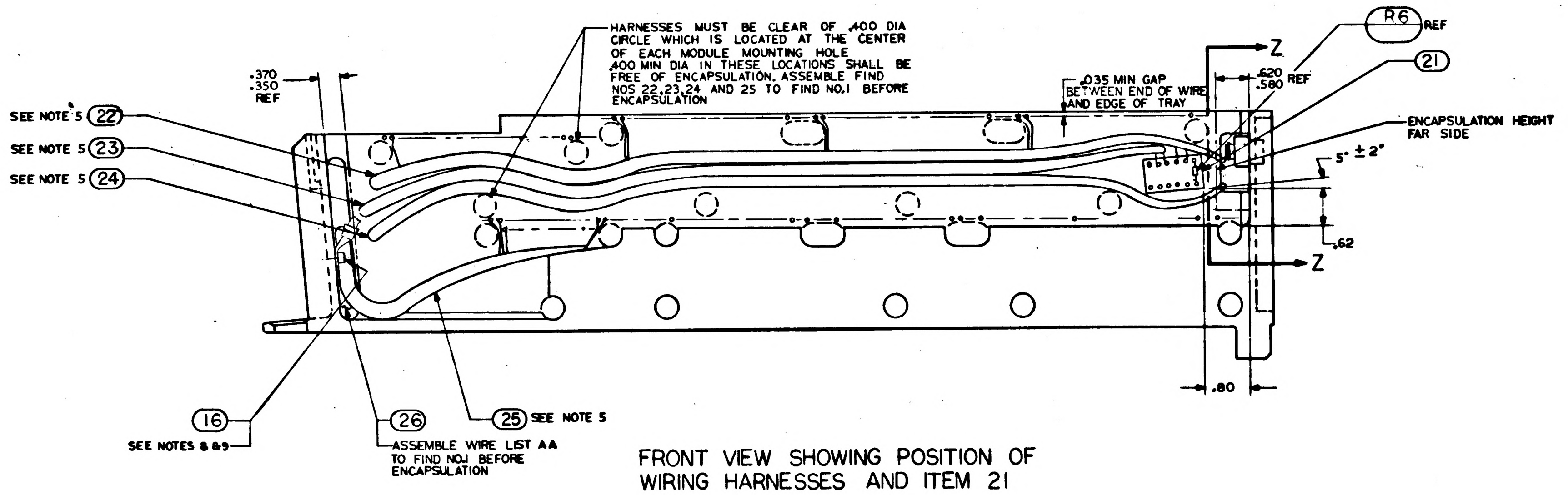
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD

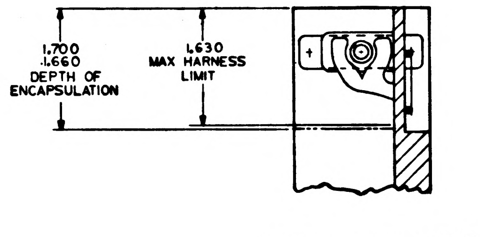

.370
.350 HEIGHT OF ENCAPSULATION
.330 MAX HEIGHT OF HARNESS
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HEIGHT OF HARNESS
SEE NOTE 6


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
SEE NOTE 6


HARNESSES MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 22,23,24 AND 25 TO FIND NO.1 BEFORE ENCAPSULATION
.370
.350
REF
SEE NOTE 5 (22)
SEE NOTE 5 (23)
SEE NOTE 5 (24)
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
R6 REF
(21)
ENCAPSULATION HEIGHT FAR SIDE
5° ± 2°
.62
Z
.80
(16)
SEE NOTES 8 & 9
(26)
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
(25) SEE NOTE 5

FRONT VIEW SHOWING POSITION OF WIRING HARNESSES AND ITEM 21

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 10


1.700
1.660
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

PARTIAL SECTION Z-Z

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
Cambridge, Mass
Contract NAS 9-497
DRAWN E. Leonik Jr. DATE 30 SEP 64
CHECKED 6 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL W. J. 11-4-64
MIT APPROVAL

MANNED-SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 6

CODE IDENT NO. SIZE E NASA DRAWING NO. 1007446
SCALE 1/1 WT SHEET 2 OF 2

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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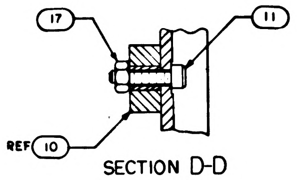
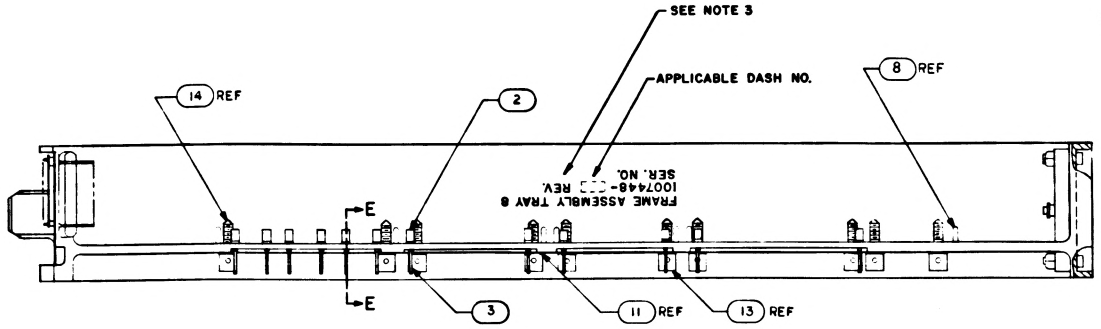
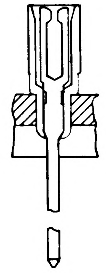
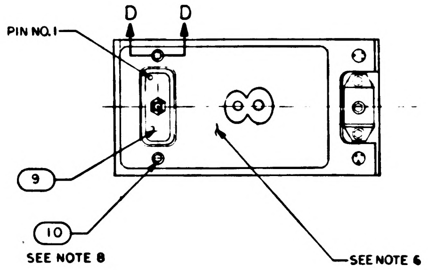


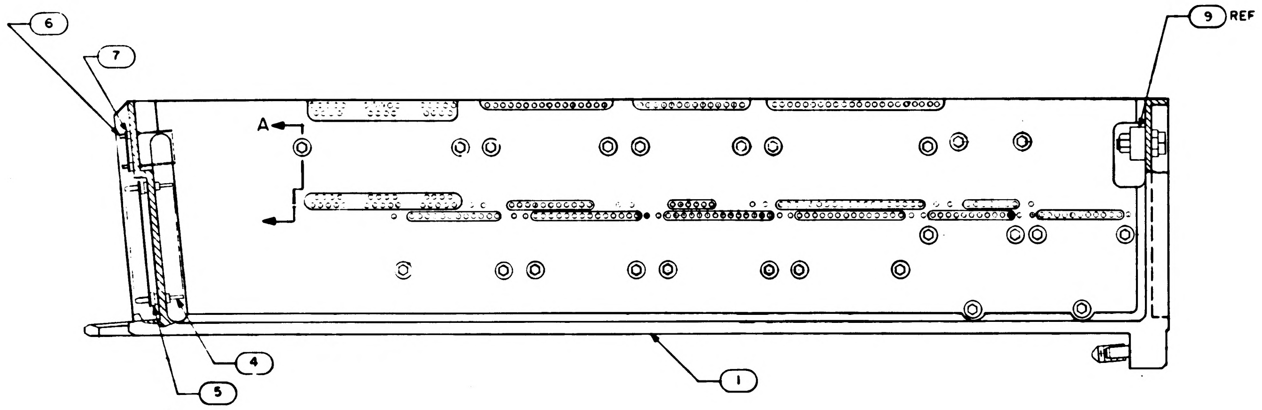
SECTION D-D
SCALE 2/1

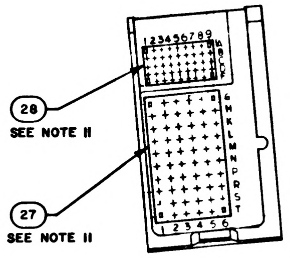


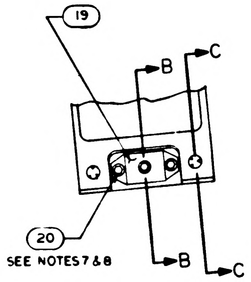


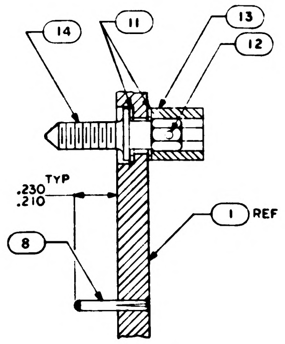
PARTIAL SECTION E-E
226 PLACES



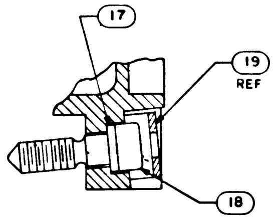




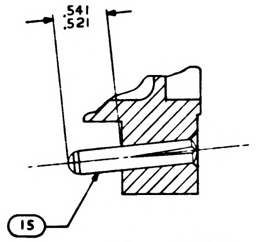




SECTION A-A
SCALE 3/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019, (BLACK) .100/.140 HIGH & SERIALIZE PER ND 1002023.
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND 1002004 TYPE I AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) .010 ABOVE TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME UNLESS OTHERWISE SPECIFIED.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 20 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO. 10 AND 20 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005.
   ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND 1002071
   ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.
10. PROCURE PER PS 1007148.
11. BOND FIND NO'S. 27 AND 28 TO FIND NO'S. 5 AND 7 PER ND 1002237.

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			011				
			☒		1009558	WIRING DIAGRAM	REF
			1		1008553	GASKET, CONNECTOR MIN. TRAY	28
			1		1008552	GASKET CONNECTOR TRAY	27
			1		1015748	WIRE LIST A A	26
			1		1015747	WIRING HARNESS E	25
			1		1015746	WIRING HARNESS D	24
			1		1015745	WIRING HARNESS C	23
			1		1015744	WIRING HARNESS B	22
			1		1015743	WIRING HARNESS A	21
			3		MS16995-10	SCREW CAP SOCKET HEAD	20
			1		1001317	RETAINER, JACK SCREW	19
			1		1008098	SCREW, SOCKET HEAD	18
			1		1008099-2	WASHER	17
			2		MS 21045 C 04	NUT SELF-LOCKING HEX	16
			2		1010620-5	PIN, GUIDE	15
			24		1008172	SCREW, JACK	14
			24		1004207	DRIVE CYLINDER	13
			24		MS171433	PIN SPRING	12
			48		1004206	WASHER, THRUST	11
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	10
			1		1010622-1	CONNECTOR RECEPTACLE	9
			22		1010620-4	PIN GUIDE	8
			45		1006775	INSULATOR, WRAPOST MALE MIN	7
			45		1006782-2	CONTACT WRAPOST MALE MIN	6
			60		1010383-1	INSULATOR, WRAPOST, MALE	5
			60		1010382-1	CONTACT BLADE EDGE CONN	4
			226		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			226		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008408	FRAME	1

LIST OF MATERIALS

1007458		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497

DRAWN DATE 30 SEP 64
CHECKED 5 OCT 64
APPROVAL C.A. Blummer 8 OCT 64
APPROVAL
NASA APPROVAL W. J. 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 8

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007448
SCALE 1/1
WT
SHEET 1 OF 2

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

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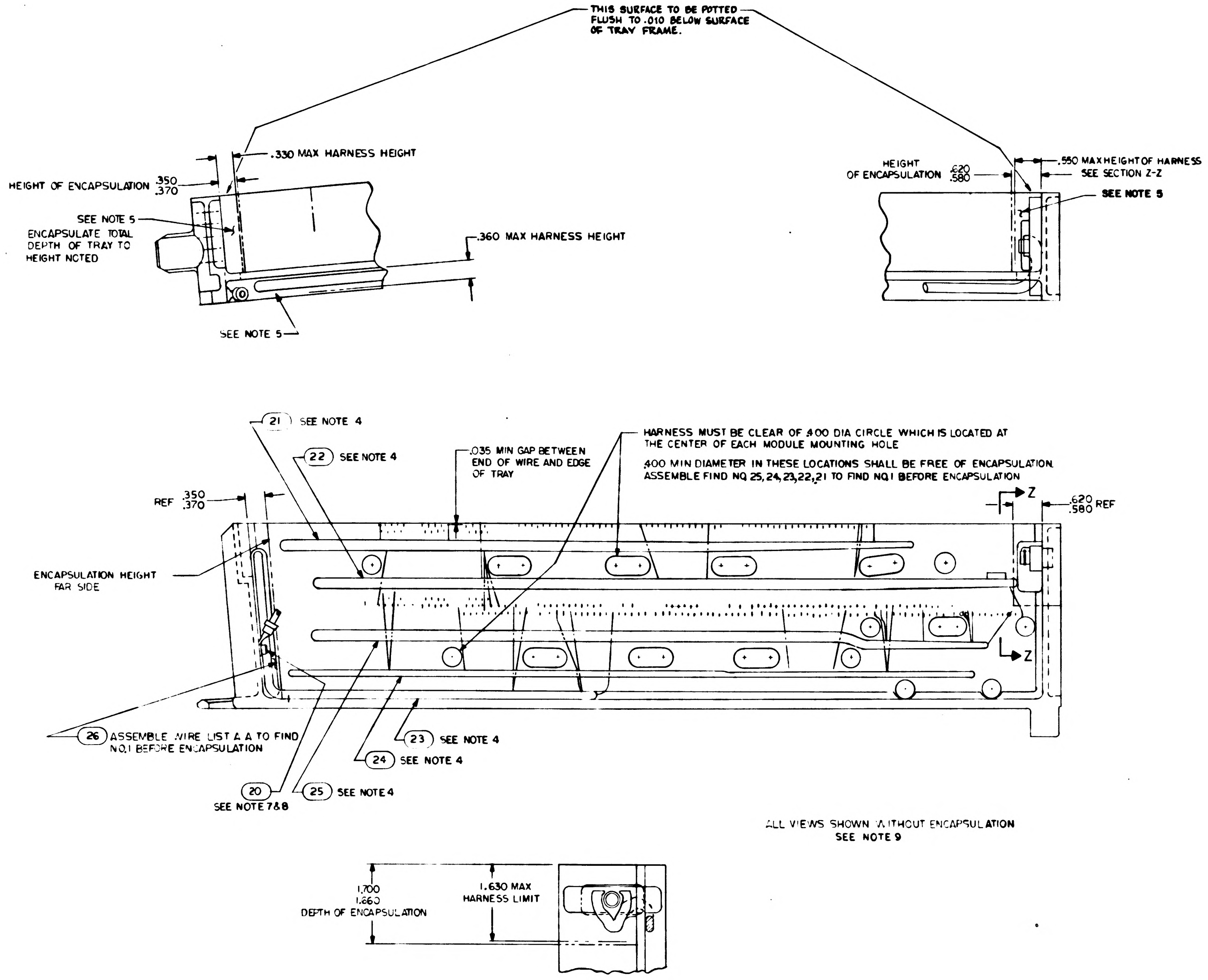
A		REVISED PER TDRP. 17613		25 MAR 65	RJJ



THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5
HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z
SEE NOTE 5
21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION.
ASSEMBLE FIND NO. 25,24,23,22,21 TO FIND NO.1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO.1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4
1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9

PARTIAL SECTION Z - Z

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS — ANGLES —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN [illegible] DATE 30 SEP 64
CHECKED [illegible] 6 OCT 64
APPROVAL [illegible] 8 OCT 64
APPROVAL [illegible]
NASA APPROVAL [illegible] 11-4-64
MIT APPROVAL [illegible]

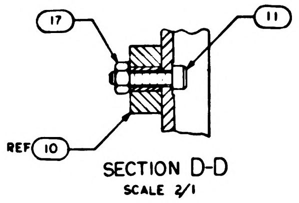
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

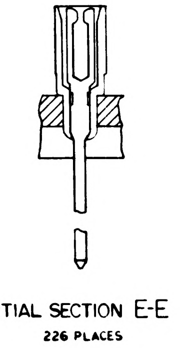
FRAME ASSEMBLY
TRAY 8

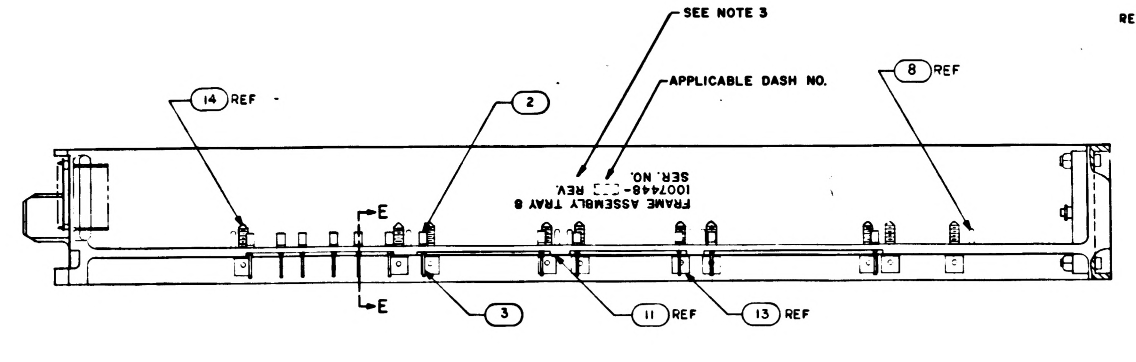
CODE IDENT NO
SIZE E
NASA DRAWING NO 1007448
SCALE 1/1
WT
SHEET 2 OF 2

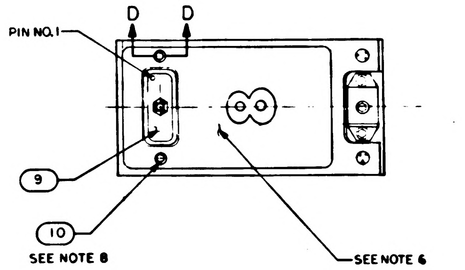
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	25 MAR 65	RW
B	REVISED PER TDRR 18695	7 MAY 65	CP

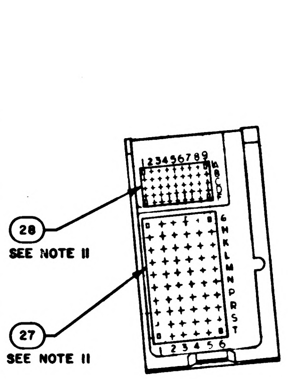
REVISIONS 13922

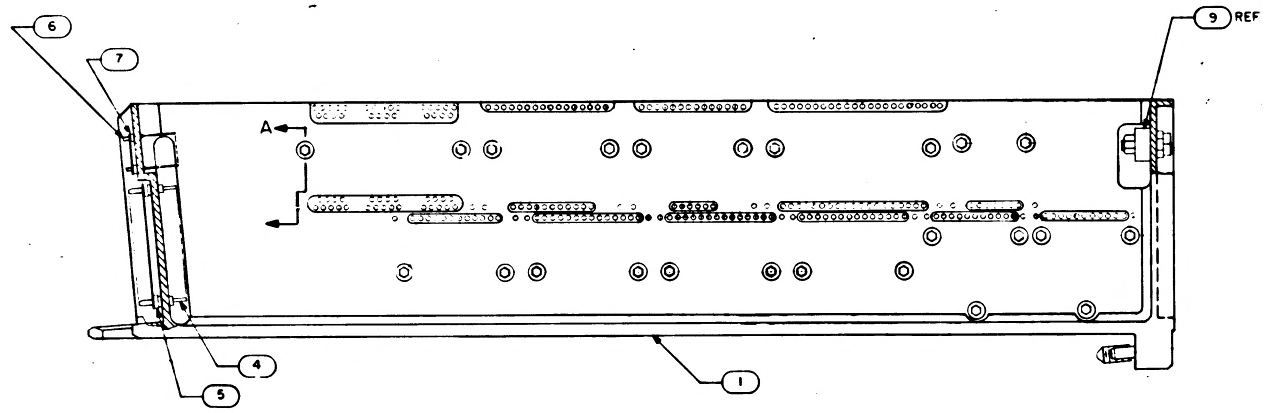


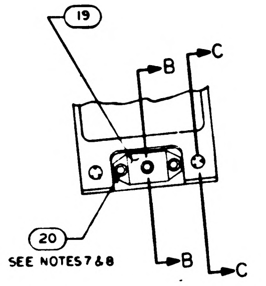


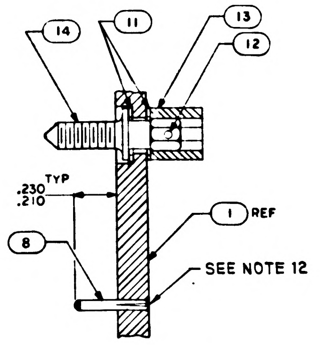




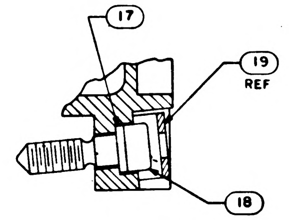




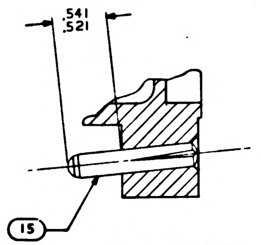




SECTION A-A
SCALE 3/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019, (BLACK).100/.140 HIGH & SERIALIZE PER ND 1002023.
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND 1002004 TYPE I AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) .010 ABOVE TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME UNLESS OTHERWISE SPECIFIED.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 20 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO. 10 AND 20 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND 1002071 ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.
10. PROCURE PER PS 1007148.
11. BOND FIND NO'S. 27 AND 28 TO FIND NO'S. 5 AND 7 PER ND 1002237.
12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.

QUANTITY REQUIRED							
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			☒		1009558	WIRING DIAGRAM	REF
			1		1008553	GASKET, CONNECTOR MIN. TRAY	28
			1		1008552	GASKET, CONNECTOR TRAY	27
			1		1015748	WIRE LIST A A	26
			1		1015747	WIRING HARNESS E	25
			1		1015746	WIRING HARNESS D	24
			1		1015745	WIRING HARNESS C	23
			1		1015744	WIRING HARNESS B	22
			1		1015743	WIRING HARNESS A	21
			3		MS16995-10	SCREW CAP SOCKET HEAD	20
			1		1001317	RETAINER, JACK SCREW	19
			1		1008098	SCREW, SOCKET HEAD	18
			1		1008099-2	WASHER	17
			2		MS 21045 C 04	NUT SELF-LOCKING HEX	16
			2		1010620-5	PIN, GUIDE	15
			24		1008172	SCREW, JACK	14
			24		1004207	DRIVE CYLINDER	13
			24		MS171433	PIN SPRING	12
			48		1004206	WASHER, THRUST	11
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	10
			1		1010622-1	CONNECTOR RECEPTACLE	9
			22		1010620-4	PIN GUIDE	8
			45		1006775	INSULATOR, WRAPOST MALE MIN	7
			45		1006782-2	CONTACT WRAPOST MALE MIN	6
			60		1010383-1	INSULATOR, WRAPOST, MALE	5
			60		1010382-1	CONTACT BLADE EDGE CONN	4
			226		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			226		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008408	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007458		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS ±.02
ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN DATE 30 SEP 64
CHECKED 5 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL W. J. Rhine 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 8

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 1007448
SCALE 1/1
WT
SHEET 1 OF 2

B 1007448

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REVISIONS 3527

SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
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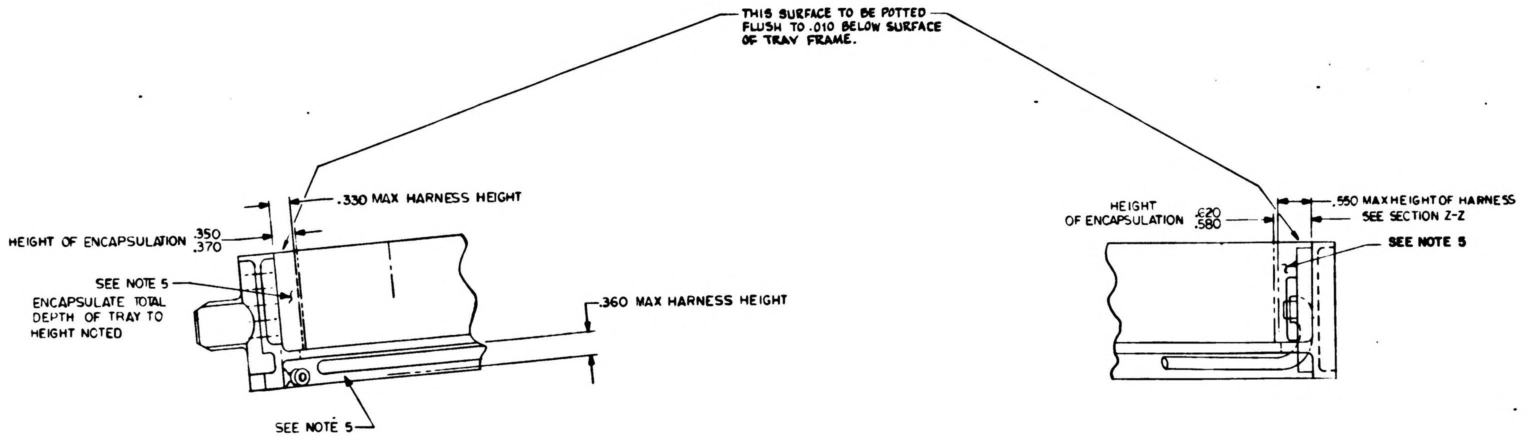
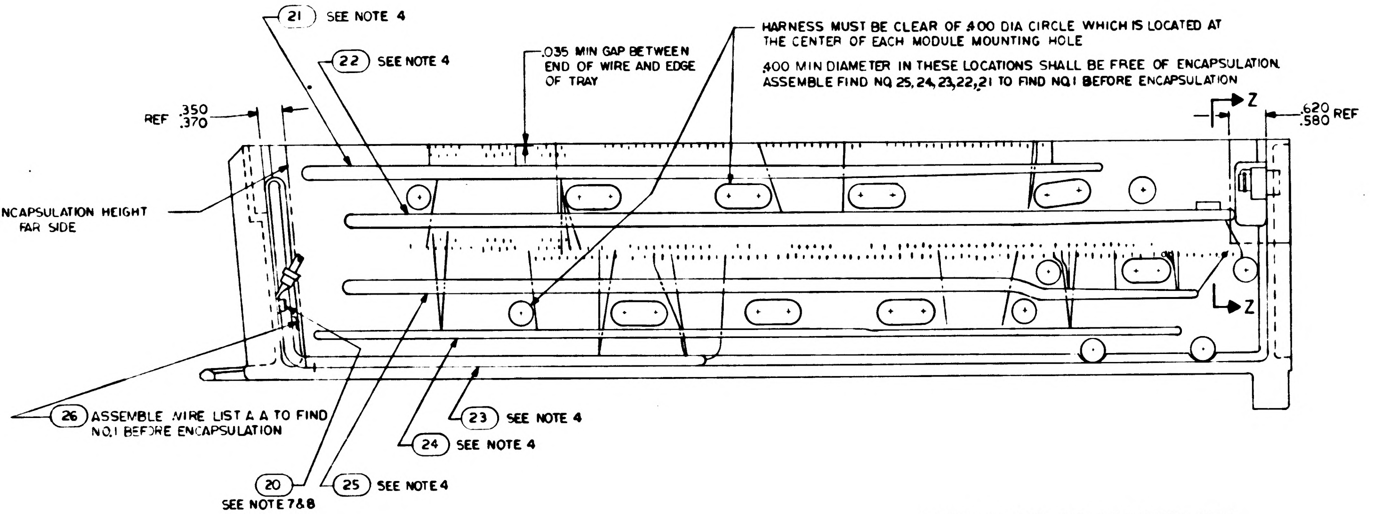
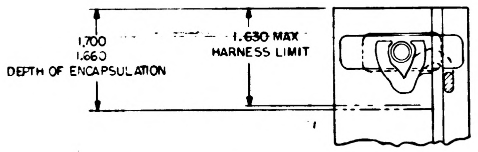
B		REVISED PER TDRR 18695	—	7 MAY 65	JJJ / CP


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5
HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z
SEE NOTE 5


21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION.
ASSEMBLE FIND NO. 25, 24, 23, 22, 21 TO FIND NO.1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO.1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN DATE 30 SEPT 64
CHECKED 6 OCT 64
APPROVAL CA Plummer 8 OCT 64
APPROVAL 10-20-64
NASA APPROVAL W J Rhine 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

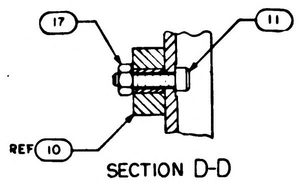
FRAME ASSEMBLY
TRAY 8

CODE IDENT NO	SIZE	NASA DRAWING NO
80230	E	1007448

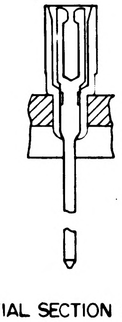
SCALE 1/1 WT SHEET 2 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

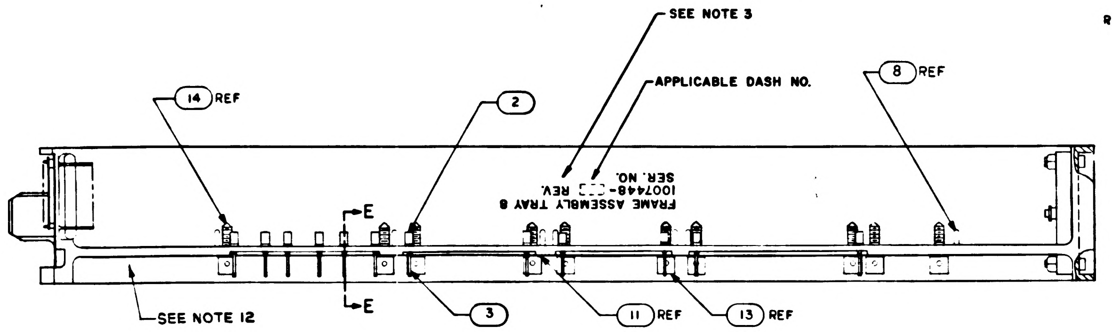
REVISIONS 3922			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	29 MAR 65	RJJ
B	REVISED PER TDRR 18695	7 MAY 65	JJJ CP
C	REVISED PER TDRR 18693	10 MAY 65	JJJ

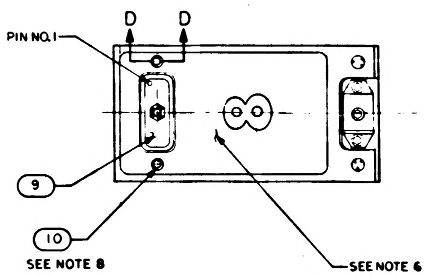


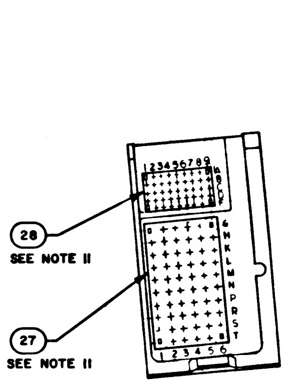
SECTION D-D
SCALE 2/1

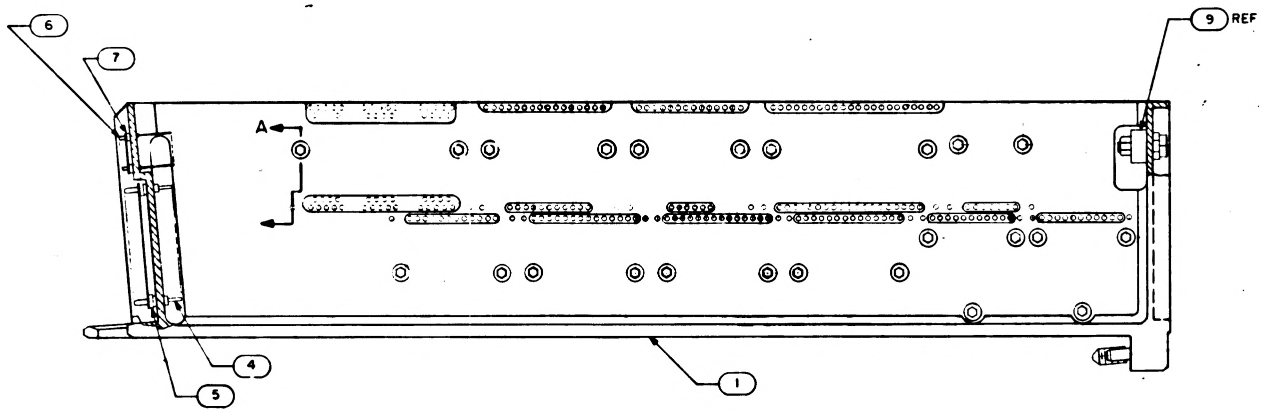


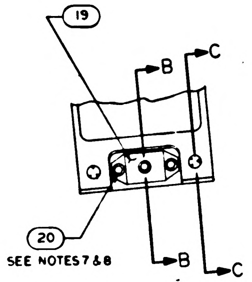
PARTIAL SECTION E-E
226 PLACES

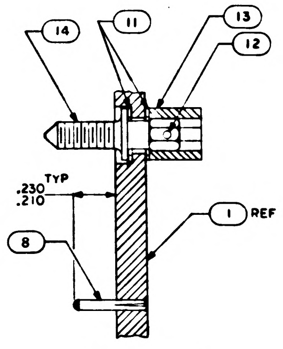




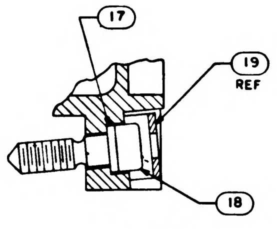




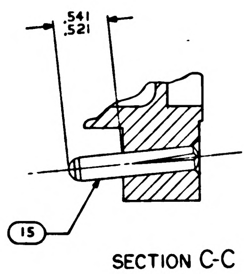




SECTION A-A
SCALE 3/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019, (BLACK) .100/.140 HIGH & SERIALIZE PER ND 1002023.
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND 1002004 TYPE I AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) .010 ABOVE TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME UNLESS OTHERWISE SPECIFIED.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 20 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO. 10 AND 20 TO FIND NO. 1 TO BE 5.0–5.5 IN.LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005.
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND 1002071
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.
10. PROCURE PER PS 1007148.
11. BOND FIND NO'S. 27 AND 28 TO FIND NO'S. 5 AND 7 PER ND 1002237.
12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.

			☒		1009558	WIRING DIAGRAM	REF
			1		1008553	GASKET, CONNECTOR MIN. TRAY	28
			1		1008552	GASKET, CONNECTOR TRAY	27
			1		1015748	WIRE LIST A A	26
			1		1015747	WIRING HARNESS E	25
			1		1015746	WIRING HARNESS D	24
			1		1015745	WIRING HARNESS C	23
			1		1015744	WIRING HARNESS B	22
			1		1015743	WIRING HARNESS A	21
			3		MS16995-10	SCREW CAP SOCKET HEAD	20
			1		1001317	RETAINER, JACK SCREW	19
			1		1008098	SCREW, SOCKET HEAD	18
			1		1008099-2	WASHER	17
			2		MS 21045 C 04	NUT SELF-LOCKING HEX	16
			2		1010620-5	PIN, GUIDE	15
			24		1008172	SCREW, JACK	14
			24		1004207	DRIVE CYLINDER	13
			24		MS171433	PIN SPRING	12
			48		1004206	WASHER, THRUST	11
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	10
			1		1010622-1	CONNECTOR RECEPTACLE	9
			22		MS16556-604	PIN GUIDE	8
			45		1006775	INSULATOR, WRAPOST MALE MIN	7
			45		1006782-2	CONTACT WRAPOST MALE MIN	6
			60		1010383-1	INSULATOR, WRAPOST, MALE	5
			60		1010382-1	CONTACT BLADE EDGE CONN	4
			226		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			226		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008408	FRAME	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF MATERIALS		

1007458		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN DATE 30 SEP 64
CHECKED 5 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

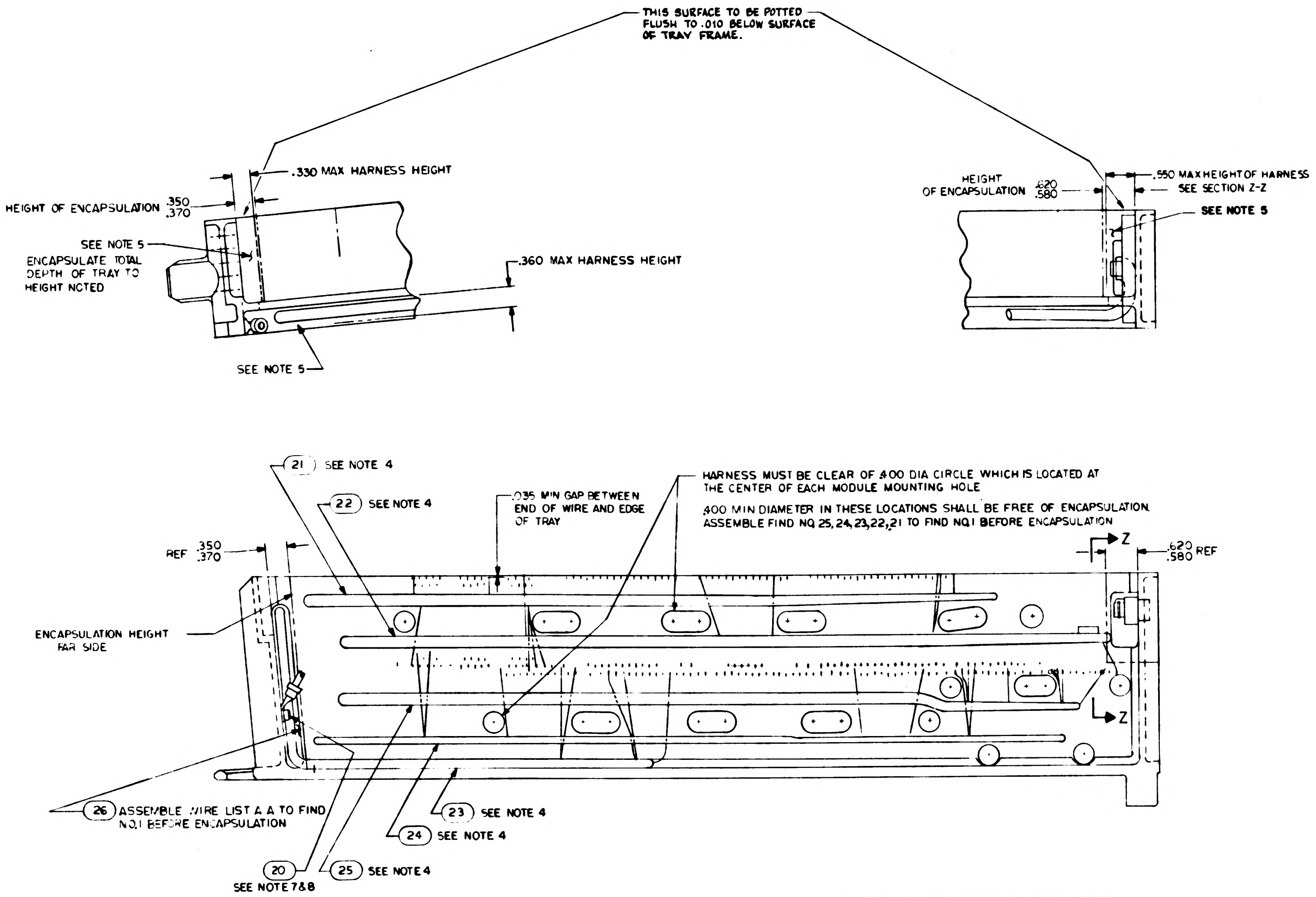
FRAME ASSEMBLY
TRAY 8

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007448
SCALE 1/1
WT
SHEET 1 OF 2

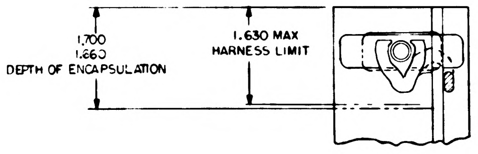
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 17613		25 MAR 65	RJJ WT
B		REVISED PER TDRR 18695	—	9 MAY 65	JJJ CP
C		REVISED PER TDRR 18693	—	10 MAY 65	JJJ


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5
HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z
SEE NOTE 5
21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION.
ASSEMBLE FIND NO 25, 24, 23, 22, 21 TO FIND NO.1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO.1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


1.700
1.660
DEPTH OF ENCAPSULATION
1.630 MAX
HARNESS LIMIT

PARTIAL SECTION Z - Z

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — DECIMALS — ANGLES —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

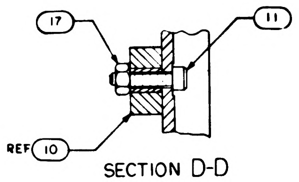
M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DWG NO
DRAWN DATE 30 SEP 64
CHECKED 6 OCT 64
APPROVAL C.A. Plummer 8 OCT 64
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

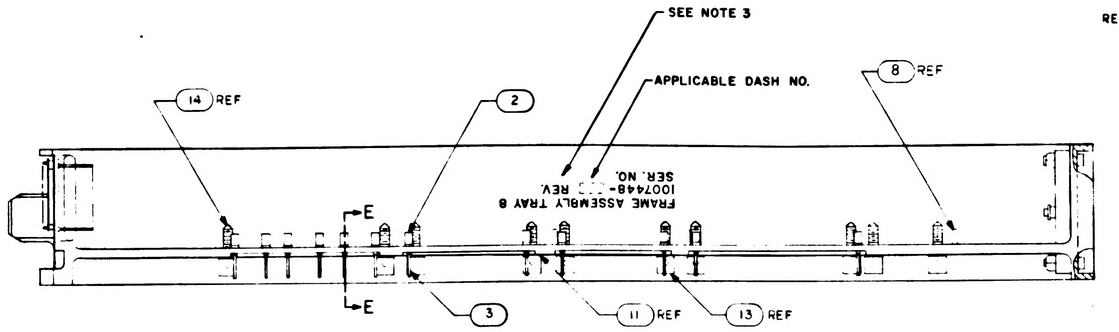
FRAME ASSEMBLY
TRAY 8

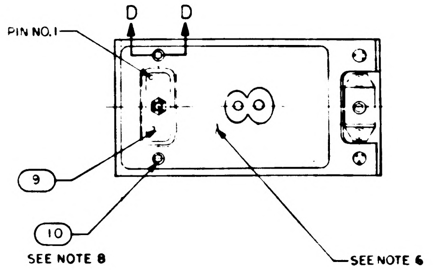
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007448
SCALE 1/1
WT
SHEET 2 OF 2

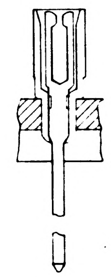
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	29 MAR 65	RJJ
B	REVISED PER TDPR 18695	9 MAY 65	CF
C	REVISED PER TDRR 18693	10 MAY 65	JJJ
D	REVISED PER TDPR 18694	12 MAY 65	JJJ W.T



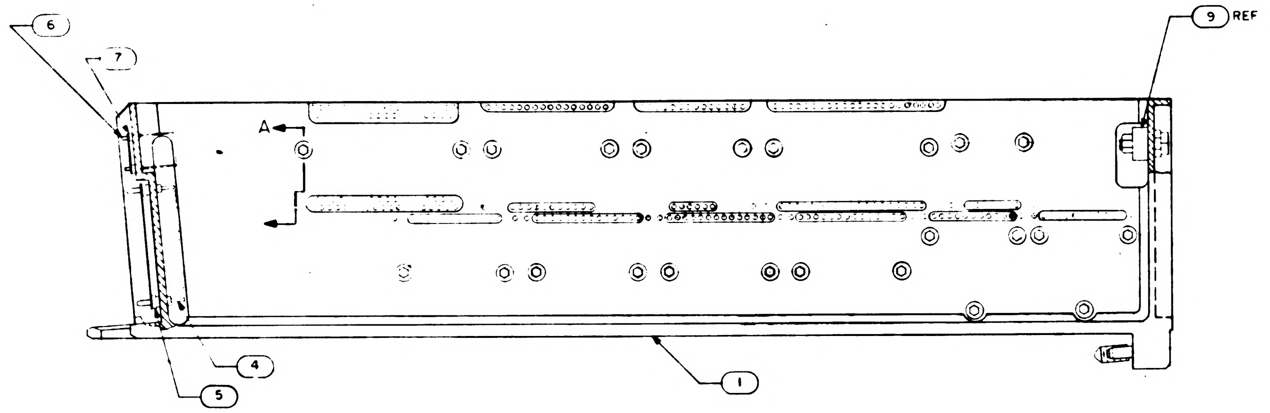
SECTION D-D
SCALE 2/1

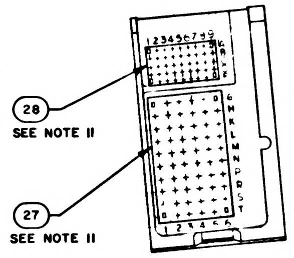


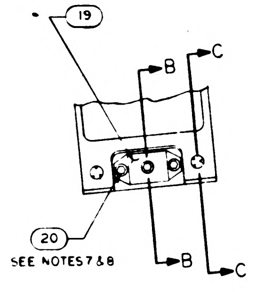




PARTIAL SECTION E-E
226 PLACES

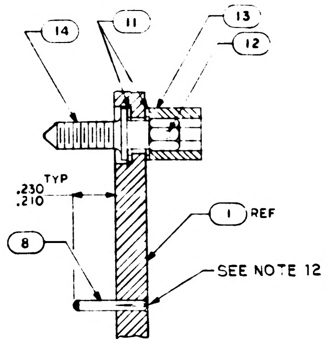




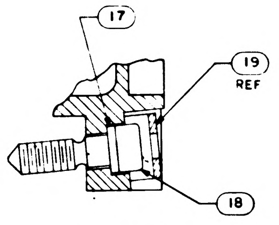


NOTES:

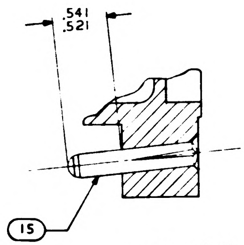
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019, (BLACK) .100/.140 HIGH AND SERIALIZE PER ND 1002023
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND 1002004 TYPE I AS NECESSARY
5. ENCAPSULATE PER ND 1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAMES AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 20 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO. 10 AND 20 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND 1002071. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.
10. PROCURE PER PS 1007148
11. BOND FIND NO'S. 27 AND 28 TO FIND NO'S. 5 AND 7 PER ND 1002237
12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.
13. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND 1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND 1002004 TYPE I.



SECTION A-A
SCALE 3/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

			☒		1009558	WIRING DIAGRAM	REF
			1		1008553	GASKET CONNECTOR MIN. TRAY	28
			1		1008552	GASKET CONNECTOR TRAY	27
			1		1015748	WIRE LIST A A	26
			1		1015747	WIRING HARNESS E	25
			1		1015746	WIRING HARNESS D	24
			1		1015745	WIRING HARNESS C	23
			1		1015744	WIRING HARNESS B	22
			1		1015743	WIRING HARNESS A	21
			3		MS16995-10	SCREW CAP SOCKET HEAD	20
			1		1001317	RETAINER, JACK SCREW	19
			1		1008098	SCREW, SOCKET HEAD	18
			1		1008099-2	WASHER	17
			2		MS21045C04	NUT SELF-LOCKING HEX	16
			2		1010620-5	PIN, GUIDE	15
			24		1008172	SCREW, JACK	14
			24		1004207	DRIVE CYLINDER	13
			24		MS171433	PIN SPRING	12
			48		1004206	WASHER, THRUST	11
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	10
			1		1010622-1	CONNECTOR RECEPTACLE	9
			22		MS16556-604	PIN GUIDE	8
			45		1006775	INSULATOR WRAPOST MALE MIN	7
			45		1006782-2	CONTACT WRAPOST MALE MIN	6
			60		1010383-1	INSULATOR, WRAPOST, MALE	5
			60		1010382-1	CONTACT BLADE EDGE CONN	4
			226		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			226		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008408	FRAME	1
QUANTITY REQUIRED			011	EFFECTIVITY	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
					LIST OF MATERIALS		

1007458		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497

DRAWN DATE 30
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

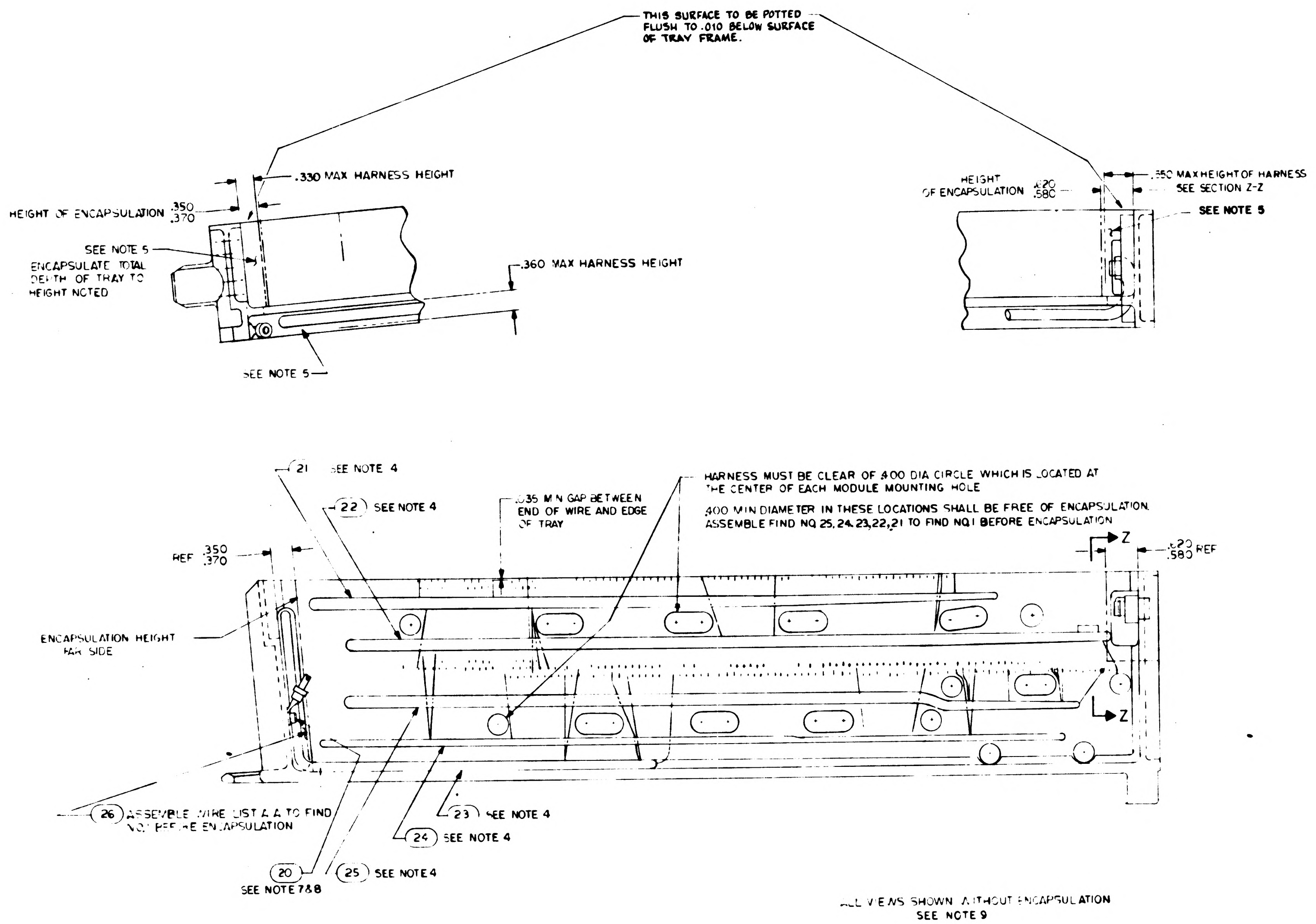
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

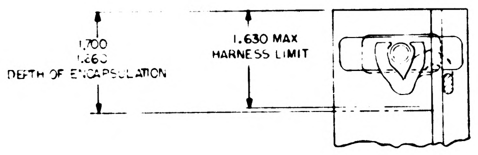
FRAME ASSEMBLY
TRAY 8

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007448
SCALE 1/1
WT
SHEET 1 OF 2

1007448 D

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 17613		25 MAR 65	RJJ
B		REVISED PER TDRR 18635	—	7 MAY 65	
C		REVISED PER TDRR 18633	—	10 MAY 65	JJJ
D		REVISED PER TDRR 18694	—	12 MAY 65	JJJ


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5
HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z
SEE NOTE 5
21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION.
ASSEMBLE FIND NO. 25, 24, 23, 22, 21 TO FIND NO. 1 BEFORE ENCAPSULATION
Z
.620 .580 REF
REF .350 .370
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4
ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


1.700
1.260
DEPTH OF ENCAPSULATION
1.630 MAX
HARNESS LIMIT

PARTIAL SECTION Z - Z

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
Cambridge Mass
Contract NAS 9-497
DRAWN DATE 30 SEP 64
CHECKED OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL
MIT APPROVAL

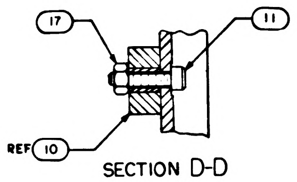
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRAME ASSEMBLY
TRAY 8

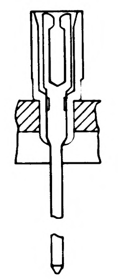
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007448
SCALE 1/1
WT
SHEET 2 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

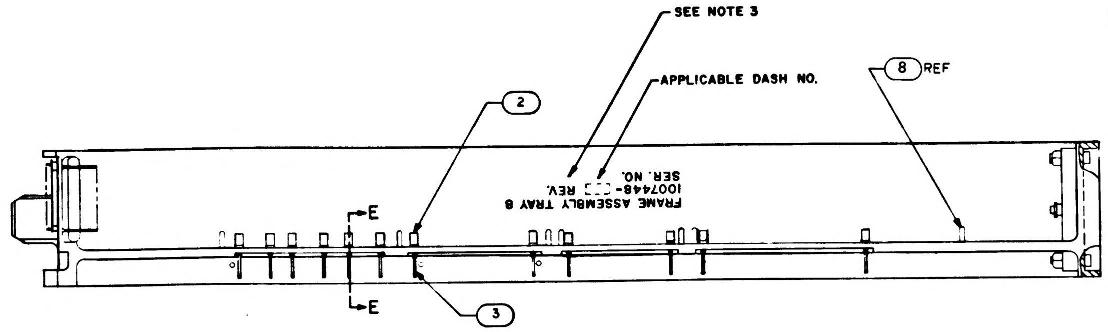
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	29 MAR 65	RJJ
B	REVISED PER TDRR 18695	7 MAY 65	
C	REVISED PER TDRR 18693	10 MAY 65	
D	REVISED PER TDRR 18694	12 MAY 65	
E	REVISED PER TDRR 20119	19 JUN 65	

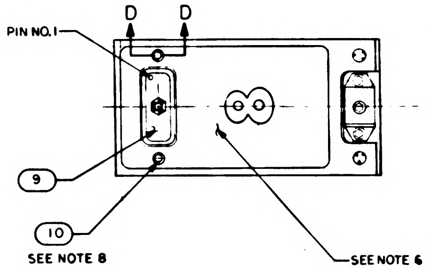


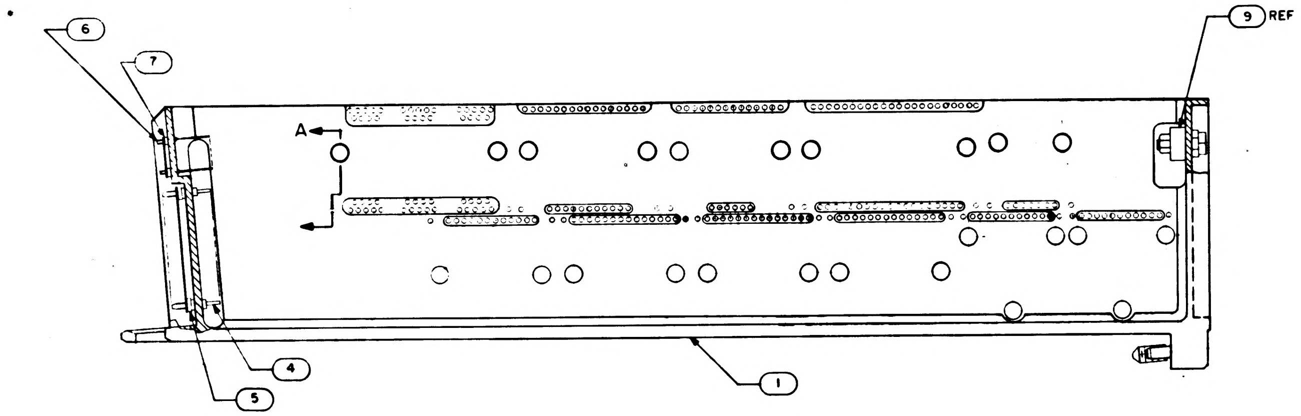
SECTION D-D
SCALE 2/1

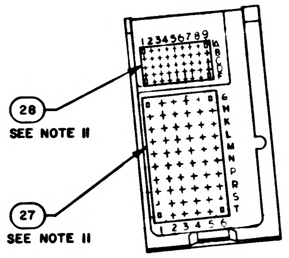


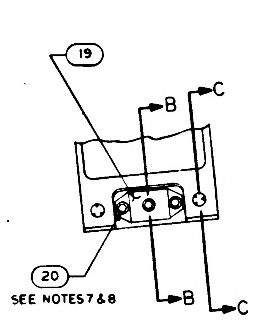
PARTIAL SECTION E-E
226 PLACES





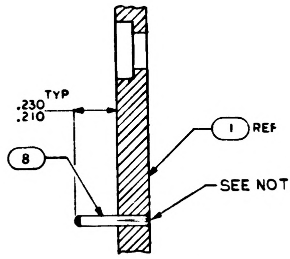




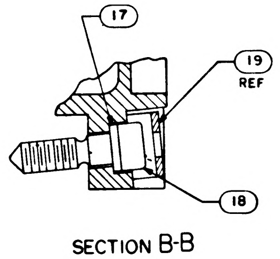


NOTES:

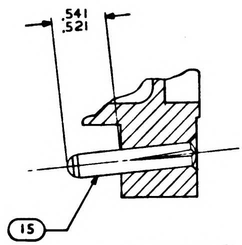
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6 AND 7 PER ND 1002136.
3. MARK PER ND1002019, (BLACK) .100/.140 HIGH AND SERIALIZE PER ND1002023.
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND1002004 TYPE I AS NECESSARY.
5. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAMES AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX MODULE MOUNTING SURFACE TO BE FREE OF PRIMER
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 20 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
8. MOUNTING TORQUE FOR FIND NO. 10 AND 20 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.
10. PROCURE PER PS1007148.
11. BOND FIND NO'S 27 AND 28 TO FIND NO'S 5 AND 7 PER ND1002237.
12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
13. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004 TYPE I.



SECTION A-A
SCALE 3/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			☒		1009558	WIRING DIAGRAM	REF
			1		1008553	GASKET, CONNECTOR MIN. TRAY	28
			1		1008552	GASKET, CONNECTOR TRAY	27
			1		1015748	WIRE LIST A A	26
			1		1015747	WIRING HARNESS E	25
			1		1015746	WIRING HARNESS D	24
			1		1015745	WIRING HARNESS C	23
			1		1015744	WIRING HARNESS B	22
			1		1015743	WIRING HARNESS A	21
			3		MS16995-10	SCREW CAP SOCKET HEAD	20
			1		1001317	RETAINER, JACK SCREW	19
			1		1008098	SCREW, SOCKET HEAD	18
			1		1008099-2	WASHER	17
			2		MS21045C04	NUT SELF-LOCKING HEX	16
			2		1010620-5	PIN, GUIDE	15
			~~24~~		~~1008172~~	~~SCREW, JACK~~	14
			~~24~~		~~1004207~~	~~DRIVE CYLINDER~~	13
			24		MS171433	PIN SPRING	12
			~~48~~		~~1004206~~	~~WASHER, THRUST~~	11
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	10
			1		1010622-1	CONNECTOR RECEPTACLE	9
			22		MS 3356-604	PIN GUIDE	8
			45		1006775	INSULATOR WRAPOST MALE MIN	7
			45		1006782-2	CONTACT WRAPOST MALE MIN	6
			60		1010383-1	INSULATOR, WRAPOST, MALE	5
			60		1010382-1	CONTACT BLADE EDGE CONN	4
			226		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			226		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008408	FRAME	1

QUANTITY REQUIRED — LIST OF MATERIALS

1007458		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497

DRAWN DATE 30 SEP 64
CHECKED 5 OCT 64
APPROVAL 8 OCT 64
APPROVAL 10-24-64
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

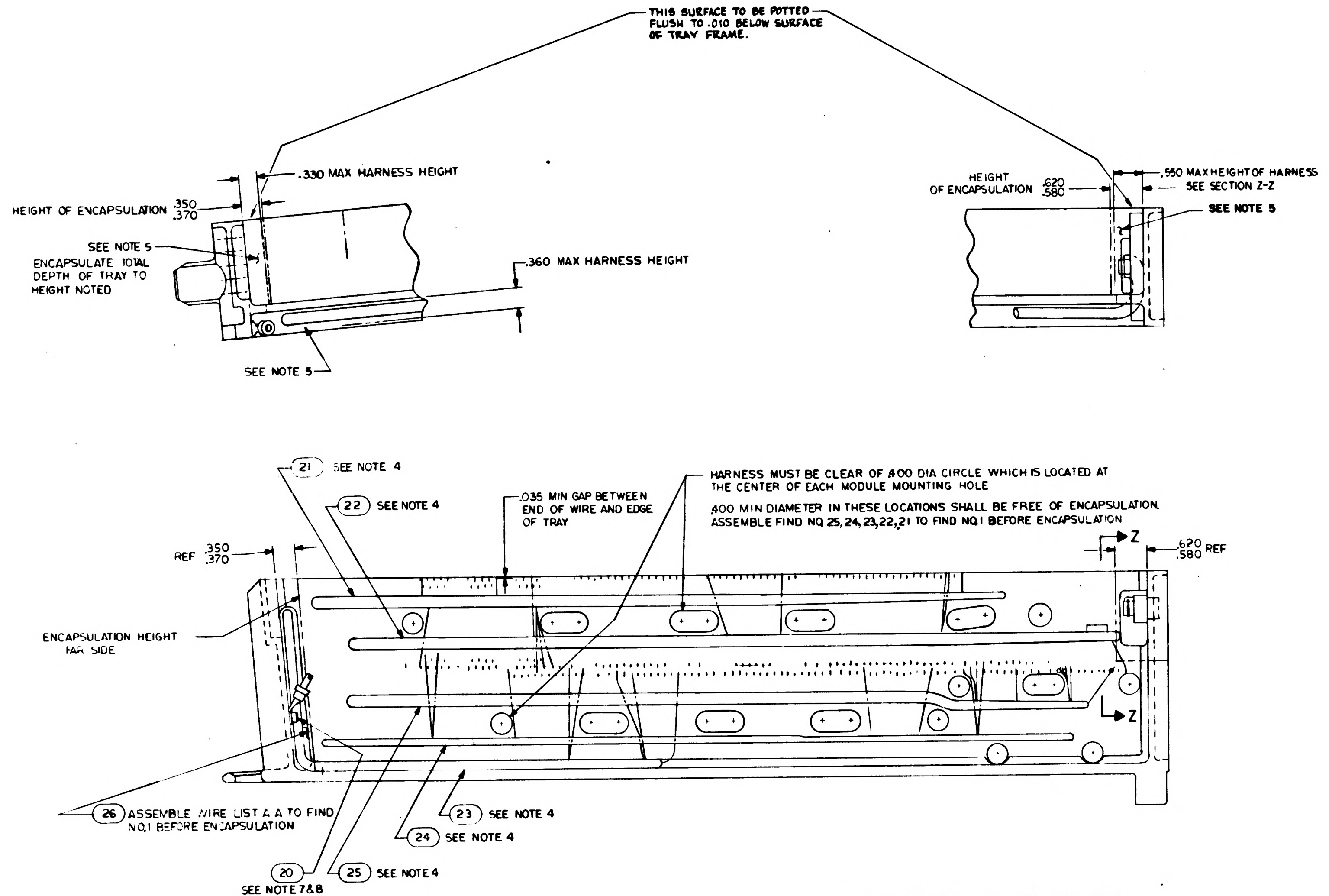
FRAME ASSEMBLY
TRAY 8

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007448
SCALE 1/1
WT
SHEET 1 OF 2

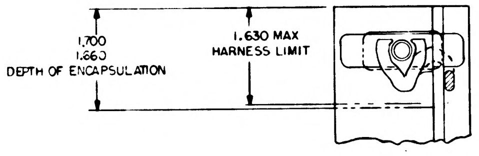
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17613		25 MAR 65	RJJ
B		REVISED PER TDRR 18695	—	7 MAY 65	JJ
C		REVISED PER TDRR 18693	—	10 MAY 65	JJ
D		REVISED PER TDRR 18694	—	2 MAY 65	JJ
E		REVISED PER TDRR 20[illegible]9	—	9 JUN 65	RS


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5
HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z
SEE NOTE 5
21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION.
ASSEMBLE FIND NO. 25, 24, 23, 22, 21 TO FIND NO. 1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


1.700
1.660
DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS — ANGLES —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
Contract NAS 9-497
DRAWN DATE 30 SEP 64
CHECKED 6 OCT 64
APPROVAL 8 OCT 64
W C APPROVAL 10-28-64
NASA APPROVAL 11-4-64
MIT APPROVAL 64 Nov

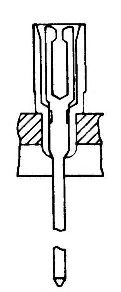
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 8

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007448
SCALE 1/1
WT
SHEET 2 OF 2

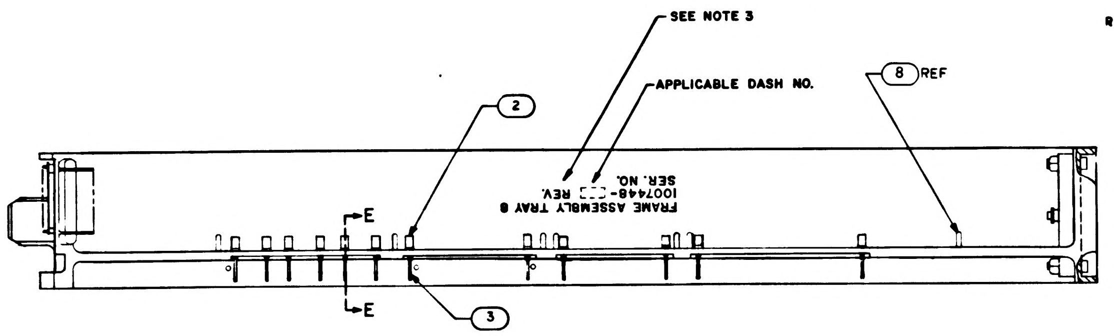
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

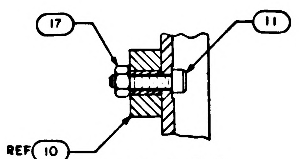
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	29 MAR 65	KJJ
B	REVISED PER TDRR 18695	MAY 65	
C	REVISED PER TDRR 18693	10 MAY 65	JJJ
D	REVISED PER TDRR 18694	12 MAY 65	
E	REVISED PER TDRR 2[illegible]9	19 JUN 65	
F	REVISED PER TDRR 20785	21 JUL 65	



PARTIAL SECTION E-E

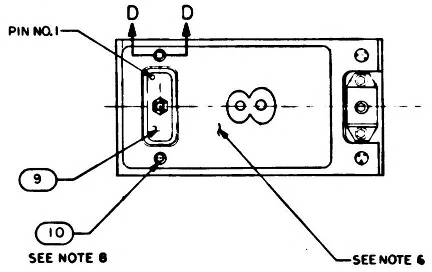
226 PLACES

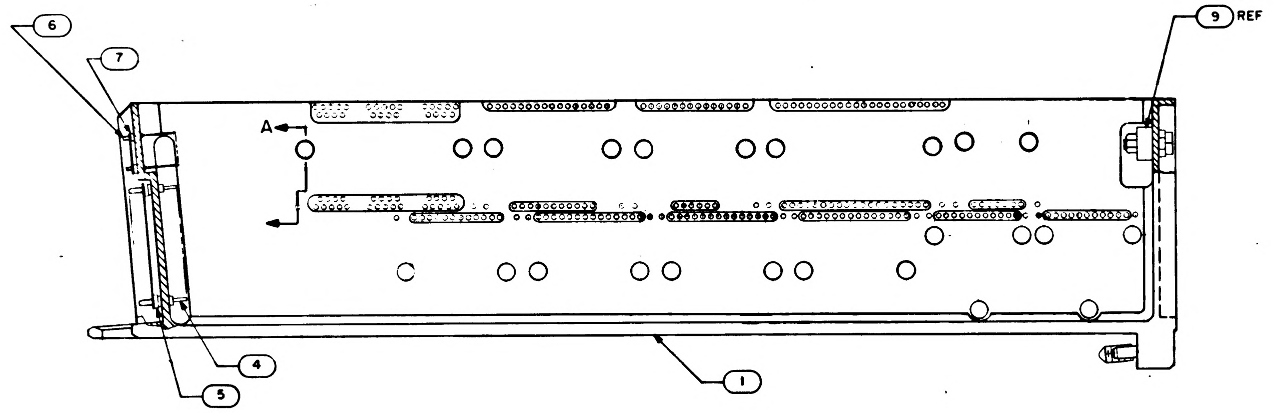


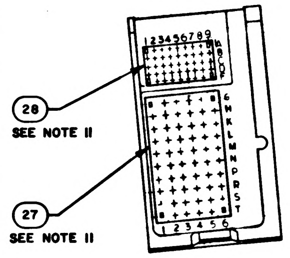


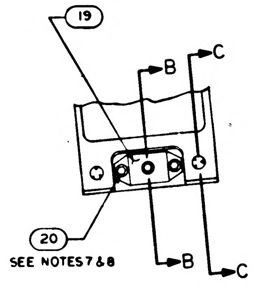
SECTION D-D

SCALE 2/1



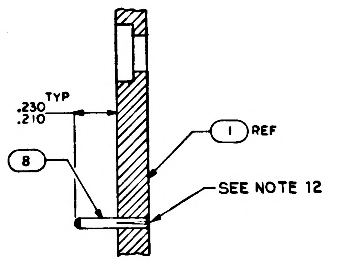






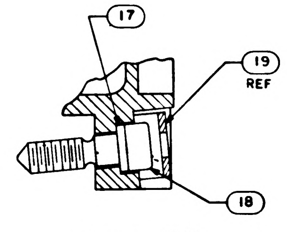
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6 AND 7 PER ND 1002136.
3. MARK PER ND1002019, (BLACK) .100/.140 HIGH AND SERIALIZE PER ND1002023.
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND1002004 TYPE I AS NECESSARY.
5. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAMES AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX MODULE MOUNTING SURFACE TO BE FREE OF PRIMER
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 20 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
8. MOUNTING TORQUE FOR FIND NO. 10 AND 20 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.
10. PROCURE PER PS1007148.
11. BOND FIND NO'S 27 AND 28 TO FIND NO'S 5 AND 7 PER ND1002237.
12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
13. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH A FORMULATION CONSISTING OF 40 PARTS BY WT. 1010959-1, 100 PARTS BY WT. 1010959-2, AND 7 PARTS BY WT. 1006277 AND CURE AT ROOM TEMPERATURE FOR THREE HOURS OR ONE HOUR AT 140°F. LIMITED AMOUNT ALLOWED TO CONTACT TRAY FRAME. SEAL OPENING BETWEEN FRAME AND CONNECTOR USING ND 1002004, TYPE I.



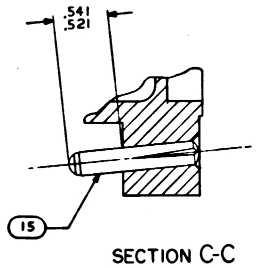
SECTION A-A

SCALE 3/1



SECTION B-B

SCALE 2/1



SECTION C-C

SCALE 2/1

			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			☒		1009558	WIRING DIAGRAM	REF
			1		1008553	GASKET, CONNECTOR MIN. TRAY	28
			1		1008552	GASKET, CONNECTOR TRAY	27
			1		1015748	WIRE LIST A A	26
			1		1015747	WIRING HARNESS E	25
			1		1015746	WIRING HARNESS D	24
			1		1015745	WIRING HARNESS C	23
			1		1015744	WIRING HARNESS B	22
			1		1015743	WIRING HARNESS A	21
			3		MS16995-10	SCREW CAP SOCKET HEAD	20
			1		1001317	RETAINER, JACK SCREW	19
			1		1008098	SCREW, SOCKET HEAD	18
			1		1008099-2	WASHER	17
			2		MS 21045 C04	NUT SELF-LOCKING HEX	16
			2		1010620-5	PIN, GUIDE	15
			~~24~~		~~1008172~~	~~SCREW, JACK~~	14
			~~24~~		~~1004207~~	~~DRIVE CYLINDER~~	13
			24		MS171433	PIN SPRING	12
			~~48~~		~~1004206~~	~~WASHER, THRUST~~	11
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	10
			1		1010622-1	CONNECTOR RECEPTACLE	9
			22		MS 3556-604	PIN GUIDE	8
			45		1006775	INSULATOR, WRAPOST MALE MIN	7
			45		1006782-2	CONTACT WRAPOST MALE MIN	6
			60		1010383-1	INSULATOR, WRAPOST. MALE	5
			60		1010382-1	CONTACT BLADE EDGE CONN	4
			226		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			226		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008408	FRAME	1

QUANTITY REQUIRED

LIST OF MATERIALS

1007458		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN DATE 30 SEP 64
CHECKED 5 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

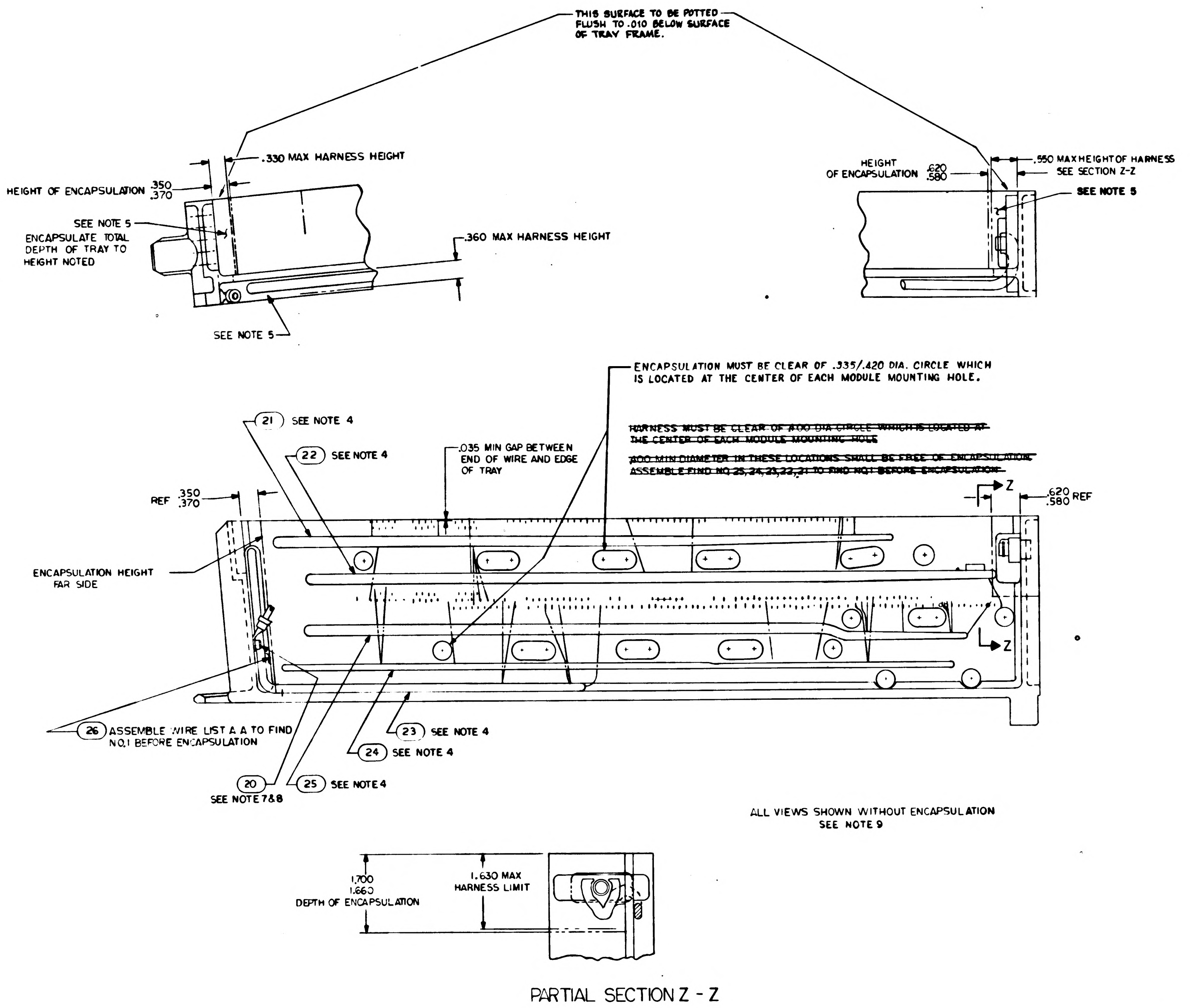
FRAME ASSEMBLY
TRAY 8

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 1007448
SCALE 1/1
WT
SHEET 1 OF 2

1007448 F

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17613		25 MAR 65	RJJ
B		REVISED PER TDRR 18695	—	7 MAY 65	JJJ
C		REVISED PER TDRR 18693	—	10 MAY 65	JJJ
D		REVISED PER TDRR 18694	—	12 MAY 65	JJJ
E		REVISED PER TDRR 20119	—	19 JUN 65	RS
F		REVISED PER TDRR 20785		2 [illegible] 65	WJR


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5
HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z
SEE NOTE 5
ENCAPSULATION MUST BE CLEAR OF .335/.420 DIA. CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE.
~~HARNESS MUST BE CLEAR OF .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE~~
~~.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION~~
~~ASSEMBLE FIND NO 25,24,23,22,21 TO FIND NO 1 BEFORE ENCAPSULATION~~
21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO.1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4
1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT
PARTIAL SECTION Z - Z

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

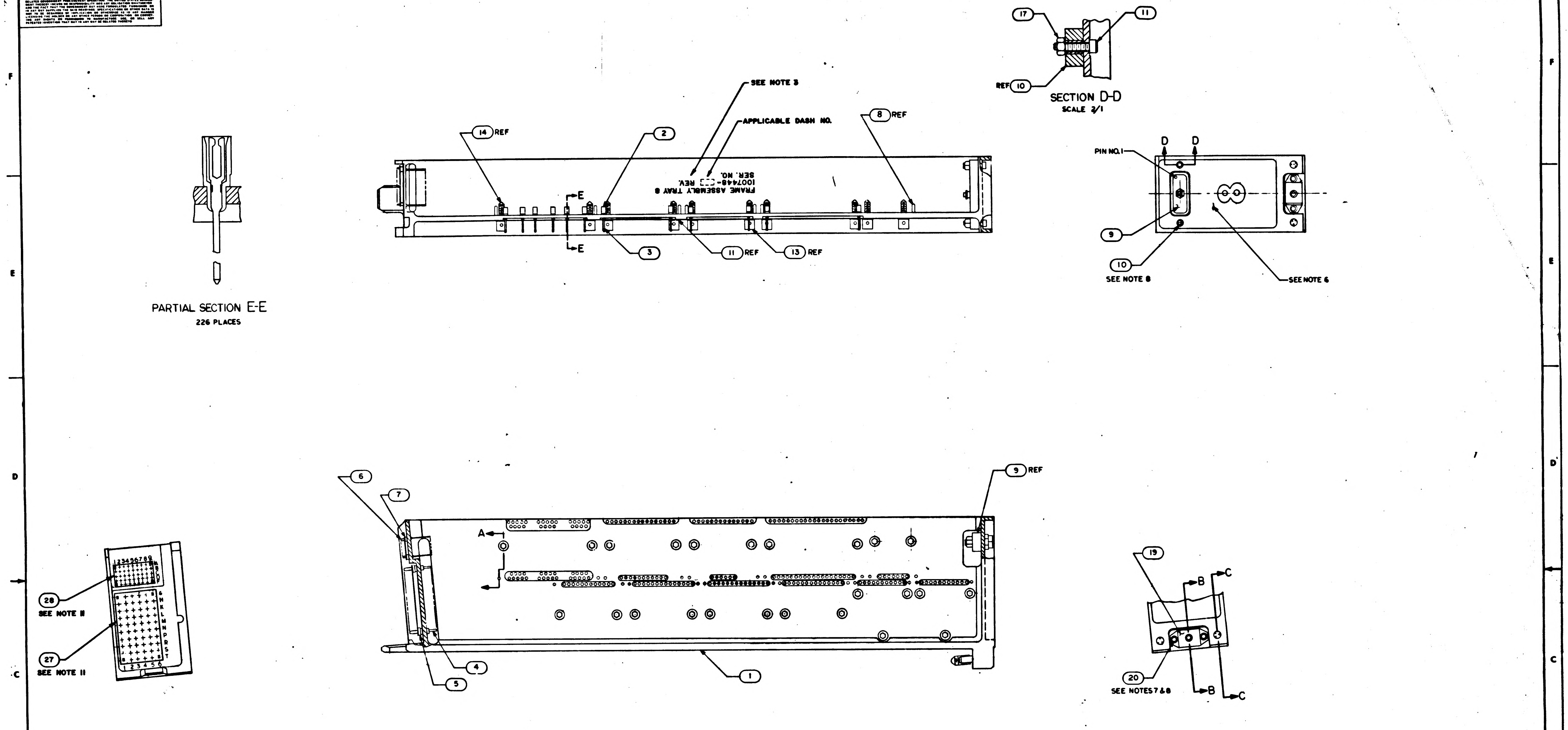
LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS — ANGLES — DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB Cambridge Mass Contract NAS 9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
MATERIAL —	DRAWN [illegible] DATE 30 SEP 64 CHECKED [illegible] 6 OCT 64 APPROVAL [illegible] 8 OCT 64 APPROVAL [illegible]	FRAME ASSEMBLY TRAY 8	
HEAT TREATMENT —	NASA APPROVAL [illegible] 11-4-64	CODE IDENT NO 80230	SIZE E
FINAL FINISH —	MIT APPROVAL [illegible] 64 Nov	SCALE 1/1	NASA DRAWING NO 1007448
		WT	SHEET 2 OF 2

1007448

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

SYM	DESCRIPTION	DATE	APPROVAL



17
11
REF 10
SECTION D-D
SCALE 2/1
SEE NOTE 3
APPLICABLE DASH NO.
FRAME ASSEMBLY TRAY 8
1007448-☐ REV.
SER. NO.
14 REF
2
8 REF
E
E
3
11 REF
13 REF
PARTIAL SECTION E-E
226 PLACES
PIN NO.1
D
D
9
10
SEE NOTE 8
SEE NOTE 6
6
7
9 REF
A
28
SEE NOTE 11
27
SEE NOTE 11
123456789
A B C D E F H J K L M N P R S T
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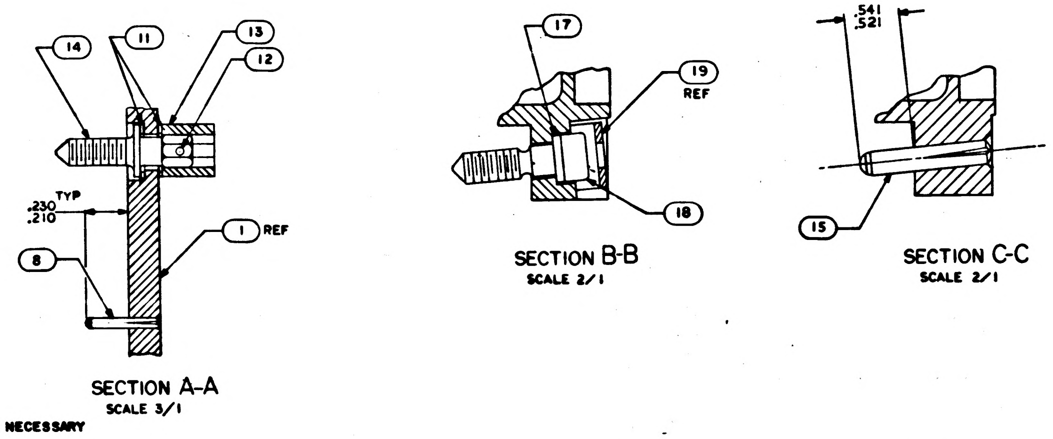
4
5
1
19
B
C
20
SEE NOTES 7 & 8
B
C



14
11
13
12
TYP
.230
.210
8
1 REF
SECTION A-A
SCALE 3/1
17
19 REF
18
SECTION B-B
SCALE 2/1
.541
.521
15
SECTION C-C
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019, (BLACK) .100/.140 HIGH & SERIALIZE PER ND 1002023.
4. BOND FIND NO. 21, 22, 23, 24, 25 AND 26 TO FIND NO. 1 PER ND 1002004 TYPE I AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR, EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO. 20 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO. 10 AND 20 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005.
   ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND 1002071
   ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINT.
10. PROCURE PER PS 1007148.
11. BOND FIND NO'S. 27 AND 28 TO FIND NO'S. 5 AND 7 PER ND 1002237.

							REF
			☒		1009558	WIRING DIAGRAM	REF
			1		1008553	GASKET, CONNECTOR MIN. TRAY	28
			1		1008552	GASKET, CONNECTOR TRAY	27
			1		1015748	WIRE LIST A A	26
			1		1015747	WIRING HARNESS E	25
			1		1015746	WIRING HARNESS D	24
			1		1015745	WIRING HARNESS C	23
			1		1015744	WIRING HARNESS B	22
			1		1015743	WIRING HARNESS A	21
			3		MS16995-10	SCREW CAP SOCKET HEAD	20
			1		1001317	RETAINER, JACK SCREW	19
			1		1008098	SCREW, SOCKET HEAD	18
			1		1008099-2	WASHER	17
			2		MS 21045 C 04	NUT SELF-LOCKING HEX	16
			2		1010620-5	PIN, GUIDE	15
			24		1008172	SCREW, JACK	14
			24		1004207	DRIVE CYLINDER	13
			24		MS171433	PIN SPRING	12
			48		1004206	WASHER, THRUST	11
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	10
			1		1010622-1	CONNECTOR RECEPTACLE	9
			22		1010620-4	PIN GUIDE	8
			45		1006775	INSULATOR, WRAPOST MALE MIN	7
			45		1006782-2	CONTACT WRAPOST MALE MIN	6
			60		1010383-1	INSULATOR, WRAPOST, MALE	5
			60		1010382-1	CONTACT BLADE EDGE CONN	4
			226		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			226		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008408	FRAME	1
QUANTITY REQUIRED			ON	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
					LIST OF MATERIALS		

1007458		
NEXT ASSY	USED ON	APPLICABLE DASH NO
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497
DRAWN DATE 30 SEP 64
CHECKED 5 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

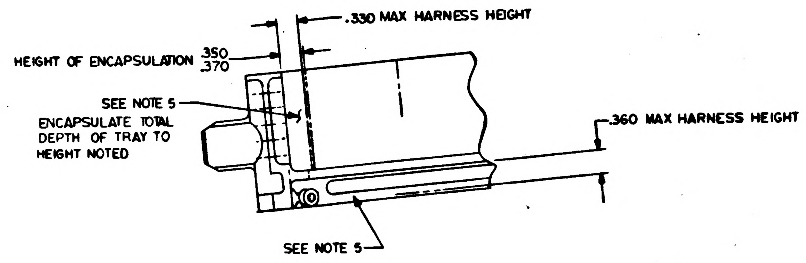
FRAME ASSEMBLY
TRAY 8

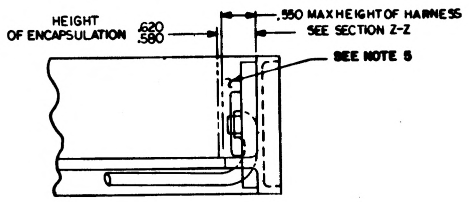
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007448
SCALE 1/1
WT
SHEET 1 OF 2

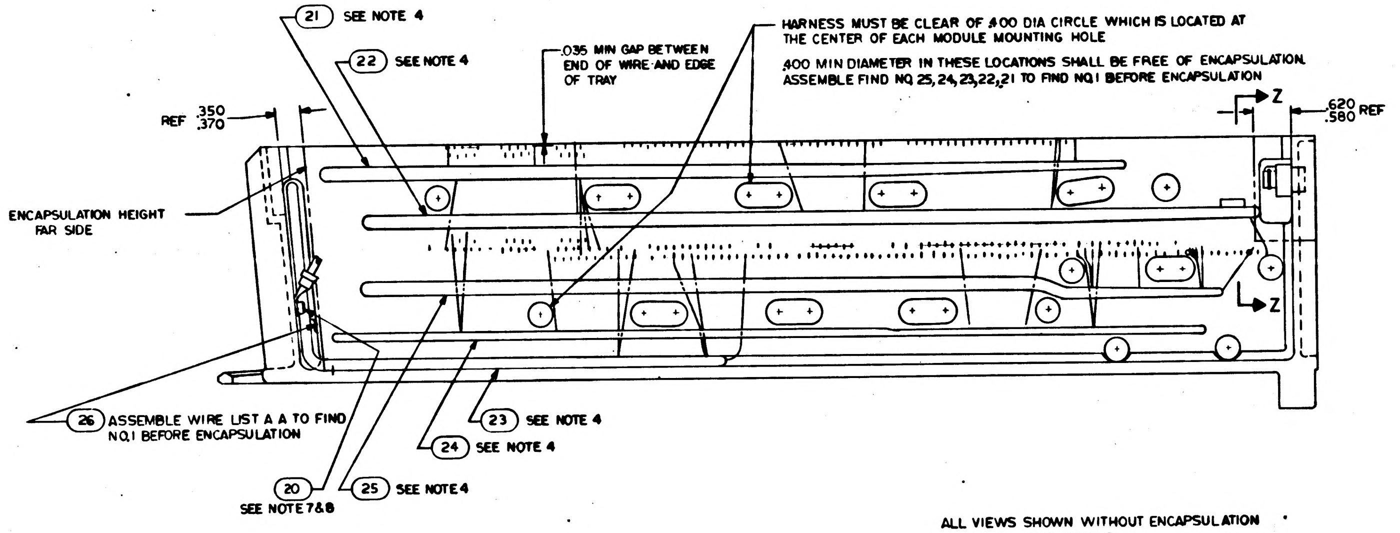
1007448

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

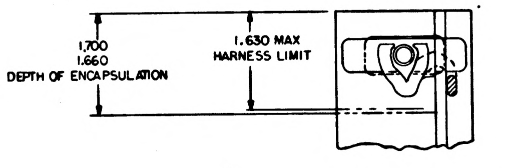
REVISIONS 3577					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD


.330 MAX HARNESS HEIGHT
HEIGHT OF ENCAPSULATION .350 .370
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5


HEIGHT OF ENCAPSULATION .620 .580
.550 MAX HEIGHT OF HARNESS SEE SECTION Z-Z
SEE NOTE 5


21 SEE NOTE 4
22 SEE NOTE 4
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
HARNESS MUST BE CLEAR OF .600 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NO. 25, 24, 23, 22, 21 TO FIND NO. 1 BEFORE ENCAPSULATION
REF .350 .370
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
Z
26 ASSEMBLE WIRE LIST A A TO FIND NO. 1 BEFORE ENCAPSULATION
23 SEE NOTE 4
24 SEE NOTE 4
20 SEE NOTE 7&8
25 SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


1.700 1.660 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

PARTIAL SECTION Z - Z

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS — ANGLES —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DWG. NO.
DRAWN DATE 30 SEP 64
CHECKED 6 OCT 64
APPROVAL 8 OCT 64
APPROVAL 10-20-64
NASA APPROVAL W. J. Rhine 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 8

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007448
SCALE 1/1
WT
SHEET 2 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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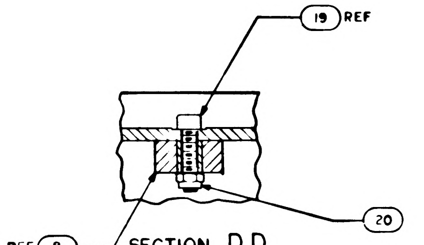
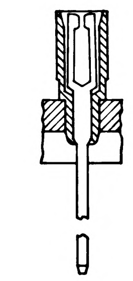
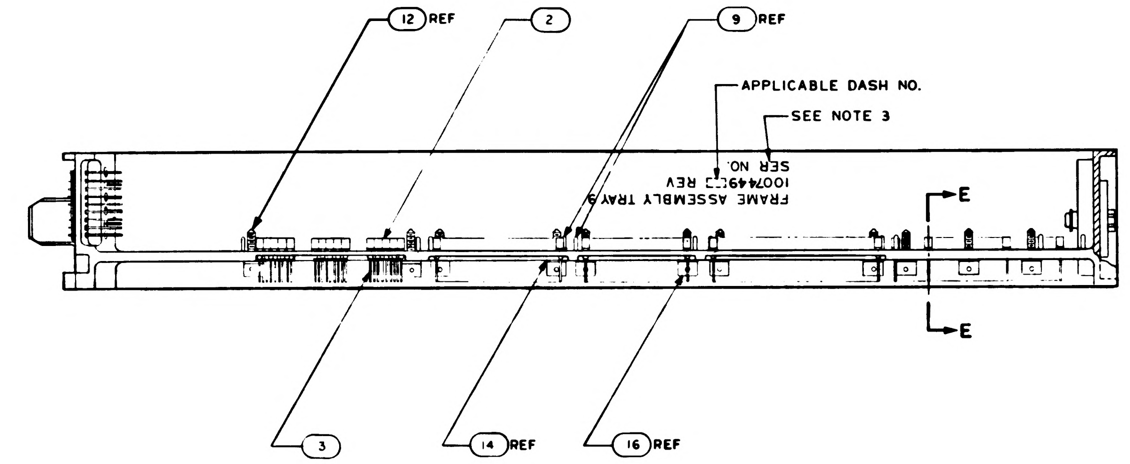
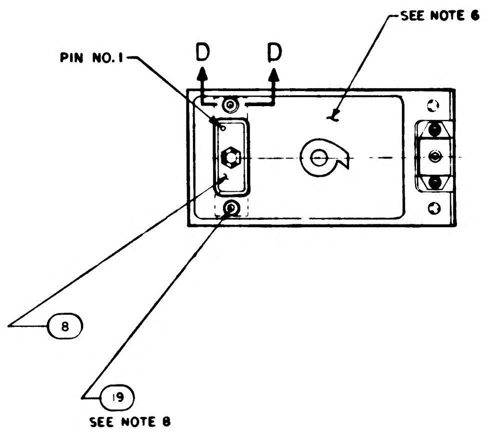


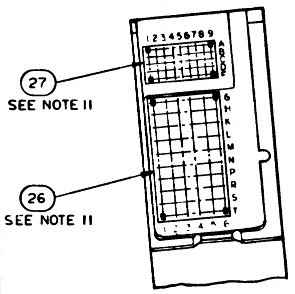
SECTION D D
SCALE 2/1

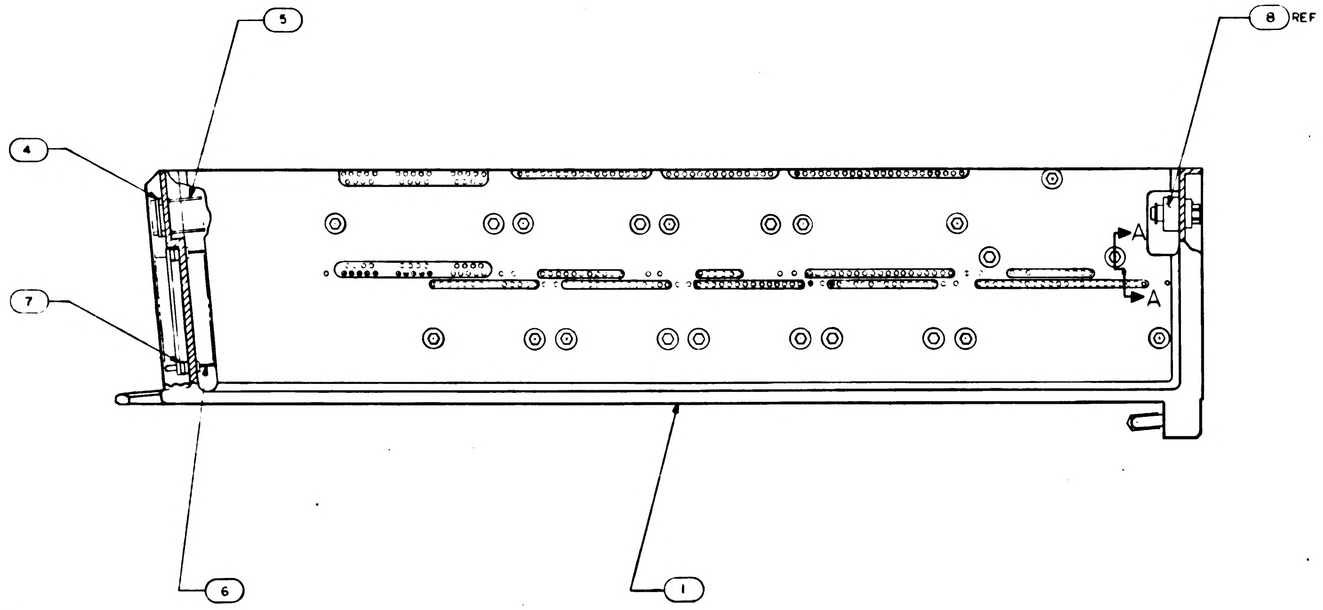


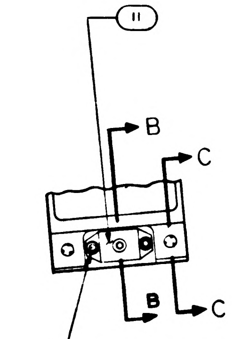
PARTIAL SECTION E-E
232 PLACES





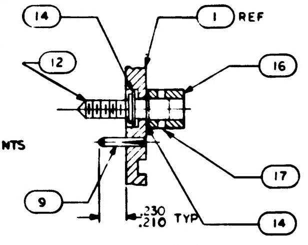




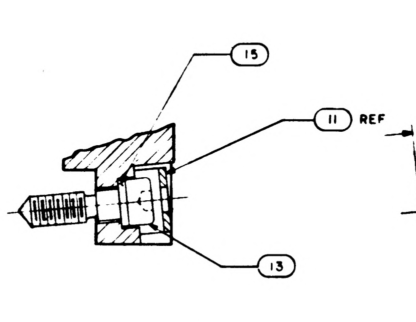


NOTES:

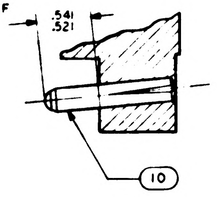
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 (BLACK) .100/.140 HIGH & SERIALIZE PER ND1002023
4. BOND FIND NOS 21,22,23,24 AND 25 TO FIND NO.1 PER ND 1002004 TYPE I AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) .010 ABOVE TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME UNLESS OTHERWISE SPECIFED.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO.18 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS. 18 & 19 TO FIND NO.1 TO BE 5.0–5.5IN LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071
   ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS
10. PROCURE PER PS1007149.
11. BOND FIND NOS. 26 AND 27 TO FIND NOS. 7 AND 4 PER ND1002237



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

					PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			1		1008553	GASKET, CONNECTOR, MIN TRAY	27
			☒		1009559	WIRING DIAGRAM	REF
			1		1008552	GASKET, CONNECTOR, TRAY	26
			1		1008265	WIRE LIST A A	25
			1		1008264	WIRING HARNESS D	24
			1		1008263	WIRING HARNESS C	23
			1		1015761	WIRING HARNESS B	22
			1		1008261	WIRING HARNESS A	21
			2		MS 21045 C 04	NUT, SELF LOCKING HEX	20
			2		MS 16995-11	SCREW, CAP, SOCKET HEAD	19
			3		MS 16995-10	SCREW, CAP, SOCKET HEAD	18
			21		MS 171433	PIN SPRING	17
			21		1004207	DRIVE CYLINDER	16
			1		1008099-2	WASHER	15
			42		1004206	WASHER THRUST	14
			1		1008098	SCREW, SOCKET HEAD	13
			21		1008172	SCREW, JACK	12
			1		1001317	RETAINER, JACK SCREW	11
			2		1010620-5	PIN, GUIDE	10
			20		1010620-4	PIN, GUIDE	9
			1		1010622-1	CONNECTOR, RECEPTACLE	8
			60		1010383	INSULATOR, WRAPOST MALE	7
			60		1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
			45		1006782-2	CONTACT, WRAPOST MALE_ MIN	5
			45		1006775	INSULATOR, WRAPOST MALE MIN	4
			232		1006781-2	CONTACT, WRAPOST FEMALE MIN	3
			232		1006774	INSULATOR, WRAPOST FEMALE MIN	2
			1		1008179	FRAME	1
			011	EFFEC-TIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF MATERIALS		

1007459		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Geschke DATE 30 SEP 64
CHECKED [illegible] 7 OCT 64
APPROVAL [illegible] 8 OCT 64
APPROVAL [illegible]
NASA APPROVAL W. J. [illegible] 01-4-64
MIT APPROVAL [illegible] 4 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

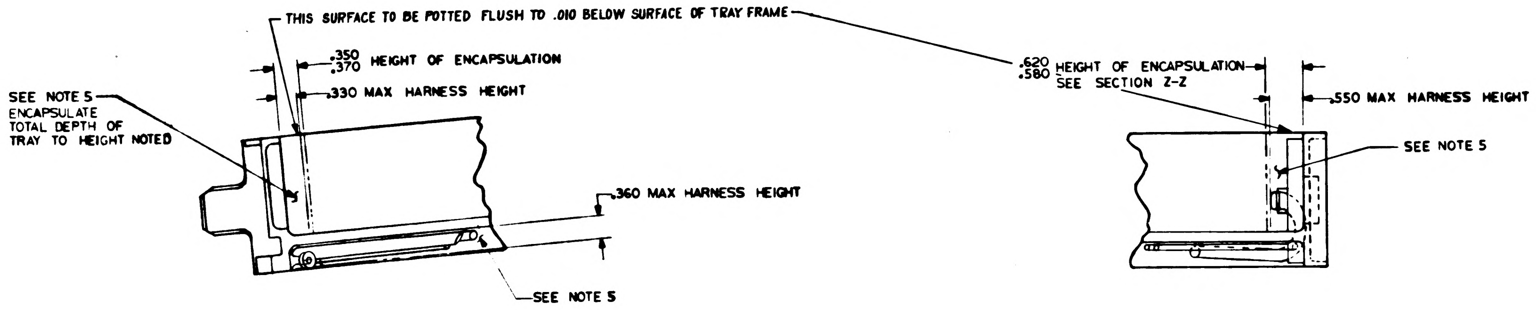
FRAME ASSEMBLY
TRAY 9

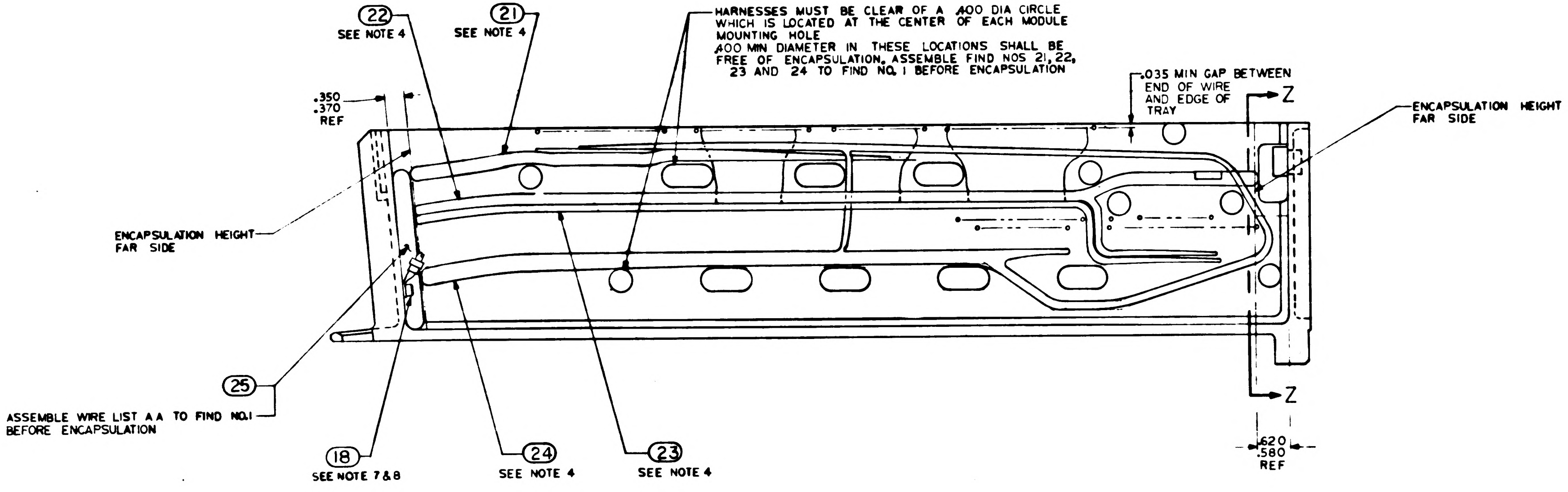
CODE IDENT NO
SIZE E
NASA DRAWING NO 1007449
SCALE 1/1
WT
SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

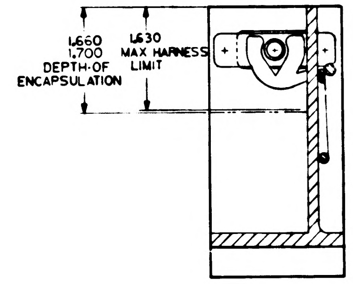
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 176.3	-5	

(M)


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME
.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5
.620 .580 HEIGHT OF ENCAPSULATION SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT
SEE NOTE 5


22
SEE NOTE 4
21
SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.350 .370 REF
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
18
SEE NOTE 7 & 8
24
SEE NOTE 4
23
SEE NOTE 4
Z
.620 .580 REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


1.660 1.700 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN Geschke DATE 30SEP64
CHECKED 7OCT64
APPROVAL 8OC164
APPROVAL 10-29-64
NASA APPROVAL W J 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

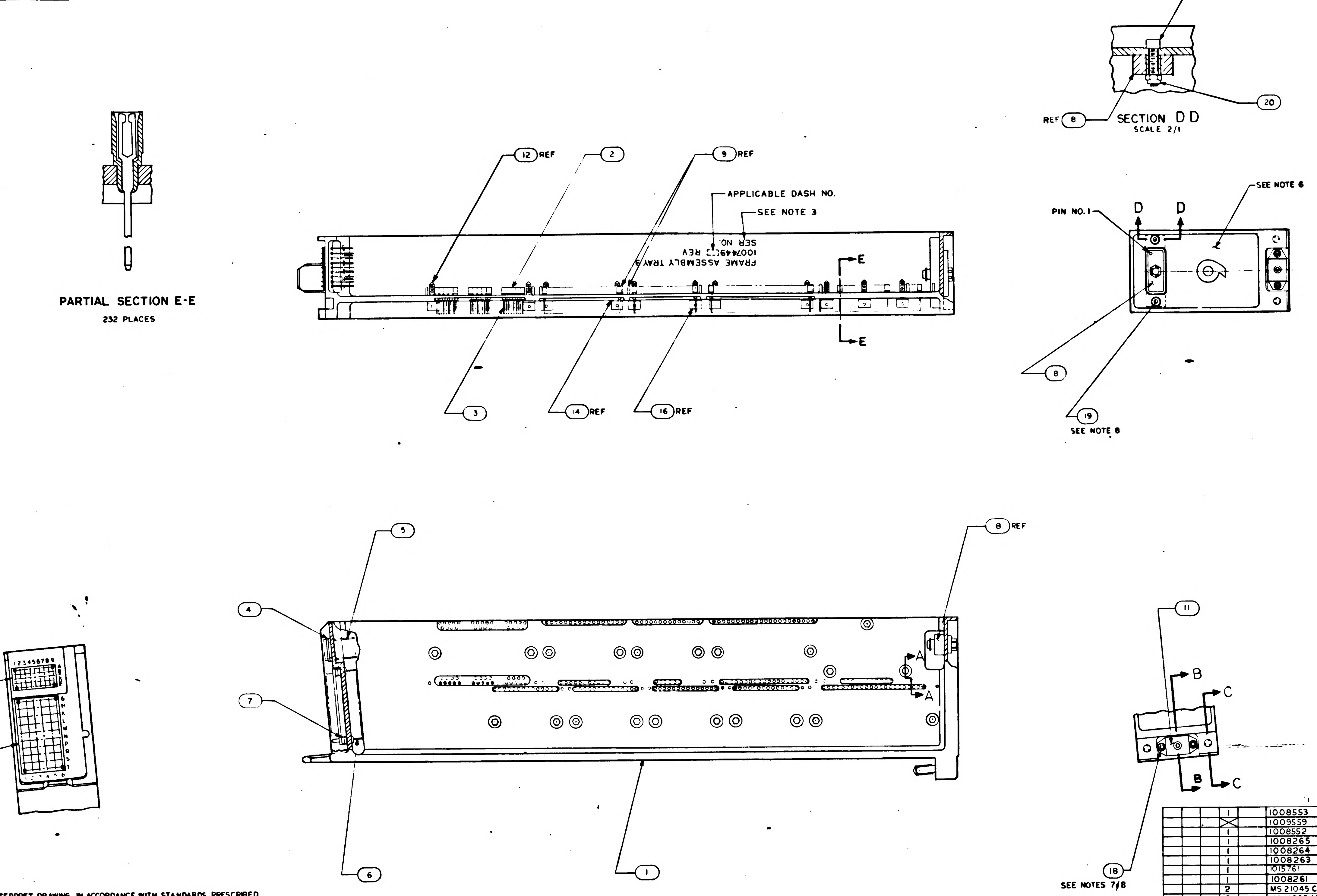
FRAME ASSEMBLY
TRAY 9

CODE IDENT NO | SIZE E | NASA DRAWING NO 1007449
SCALE 1/1 | WT | SHEET 2 OF 2

1007449 A

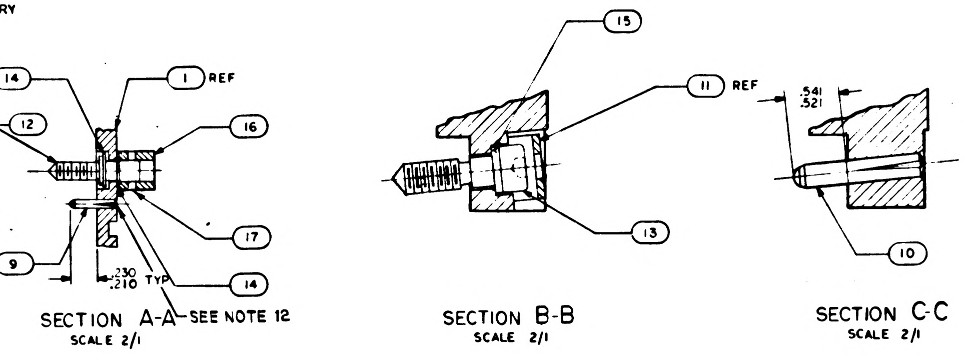
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	2? MAR 65	J.K. / J.D.
B	REVISED PER TDRR 18695	7 MAY 65	JJJ / CP



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 (BLACK) .100/.140 HIGH ∮ SERIALIZE PER ND 1002023
4. BOND FIND NOS 21,22,23,24 AND 25 TO FIND NO. 1 PER ND 1002004 TYPE I AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) .010 ABOVE TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME UNLESS OTHERWISE SPECIFED.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO. 18 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS. 18 & 19 TO FIND NO. 1 TO BE 5.0-5.5 IN LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071
   ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS
10. PROCURE PER PS1007149.
11. BOND FIND NOS. 26 AND 27 TO FIND NOS. 7 AND 4 PER ND 1002237
12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.



					PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
			1		1008553	GASKET, CONNECTOR, MIN TRAY	27
			╳		1009559	WIRING DIAGRAM -	REF
			1		1008552	GASKET, CONNECTOR, TRAY	26
			1		1008265	WIRE LIST AA	25
			1		1008264	WIRING HARNESS D	24
			1		1008263	WIRING HARNESS C	23
			1		1015761	WIRING HARNESS B	22
			1		1008261	WIRING HARNESS A	21
			2		MS 21045 C 04	NUT, SELF LOCKING HEX	20
			2		MS 16995-11	SCREW, CAP, SOCKET HEAD	19
			3		MS 16995-10	SCREW, CAP, SOCKET HEAD	18
			21		MS 171433	PIN SPRING	17
			21		1004207	DRIVE CYLINDER	16
			1		1008099-2	WASHER	15
			42		1004206	WASHER THRUST	14
			1		1008098	SCREW, SOCKET HEAD	13
			21		1008172	SCREW, JACK	12
			1		1001317	RETAINER, JACK SCREW	11
			2		1010620-5	PIN, GUIDE	10
			20		1010620-4	PIN, GUIDE	9
			1		1010622-1	CONNECTOR, RECEPTACLE	8
			60		1010383	INSULATOR, WRAPOST MALE	7
			60		1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
			45		1006782-2	CONTACT, WRAPOST MALE MIN	5
			45		1006775	INSULATOR, WRAPOST MALE MIN	4
			232		1006781-2	CONTACT, WRAPOST FEMALE MIN	3
			232		1006774	INSULATOR, WRAPOST FEMALE MIN	2
			1		1008179	FRAME	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF MATERIALS		

1007459		
NEXT ASSY	USED ON	APPLICABLE DASH NO
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS · — DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN Geschke DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL W. J. Rhine 11-4-64
MIT APPROVAL 4 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 1007449
SCALE 1/1
WT
SHEET 1 OF 2

1007449 B

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
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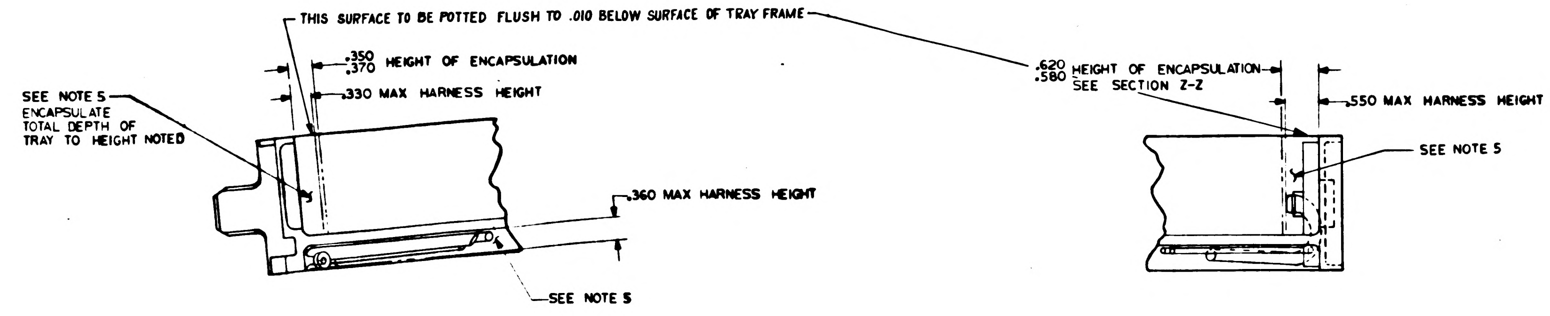
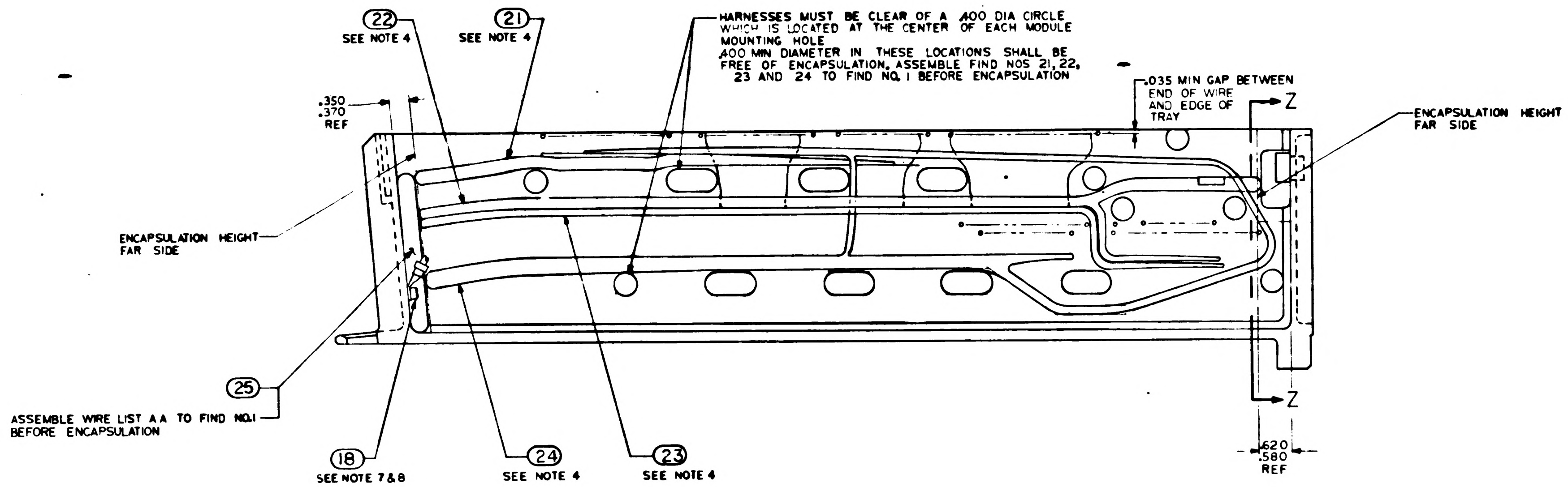
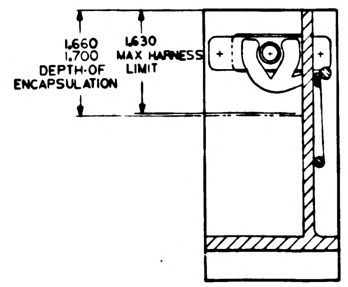
B	REVISED PER TDRR 18695	7 MAY 65	JJJ CP


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME
.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5
.620 .580 HEIGHT OF ENCAPSULATION SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT
SEE NOTE 5


(22) SEE NOTE 4
(21) SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
.350 .370 REF
ENCAPSULATION HEIGHT FAR SIDE
(25)
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
(18) SEE NOTE 7&8
(24) SEE NOTE 4
(23) SEE NOTE 4
Z
.620 .580 REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


1.660 1.700 DEPTH-OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z

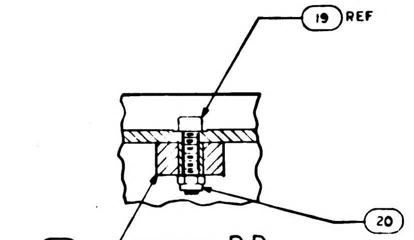
QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

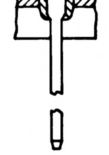
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ± — ANGLES ± — DO NOT SCALE THIS DRAWING	M I T INSTRUMENTATION LAB CAMBRIDGE MASS Contract NAS 9-497	MANNED SPACECRAFT CENTER HOUSTON TEXAS
MATERIAL —	DRAWN DATE 30SEP64 CHECKED 7OCT64 APPROVAL 8OCT64 APPROVAL 10-28-64	FRAME ASSEMBLY TRAY 9
HEAT TREATMENT —	NASA APPROVAL 11-4-64	CODE IDENT NO 80230 | SIZE E | NASA DRAWING NO 1007449
FINAL FINISH —	MIT APPROVAL	SCALE 1/1 | WT | SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

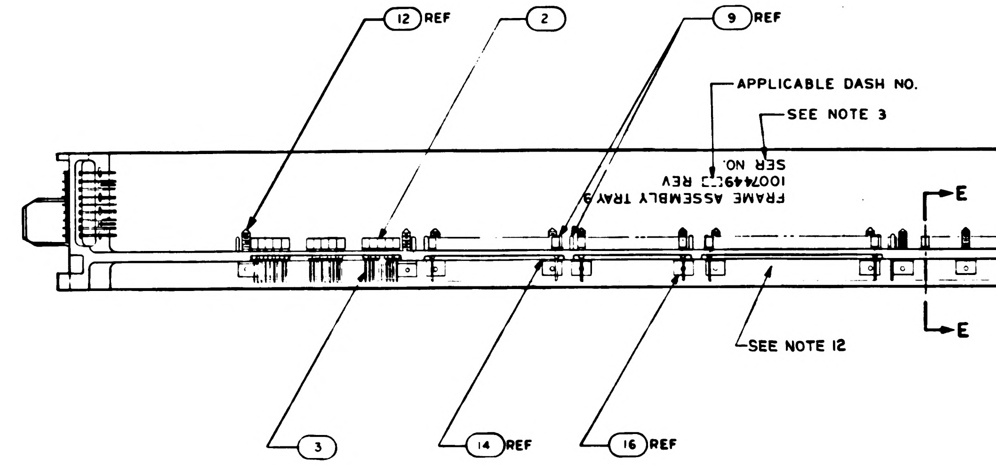
REVISIONS 12922			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	25 MAR 65	J.K. / J.D.
B	REVISED PER TDRR 18695	7 MAY 65	JJJ / CP
C	REVISED PER TDRR 18693	10 MAY 65	JJJ / PJ

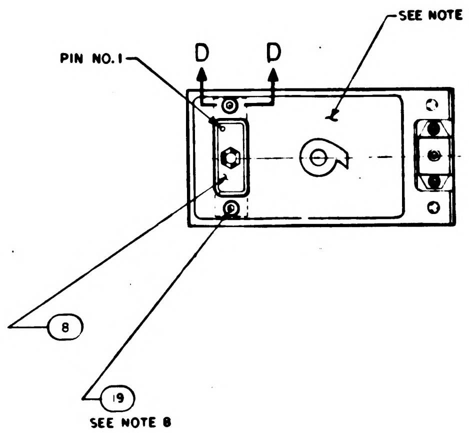


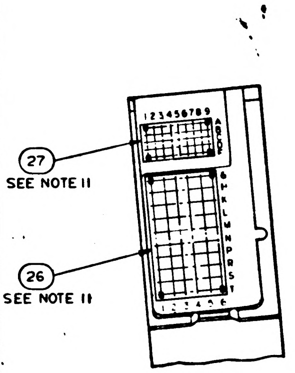
SECTION D D
SCALE 2/1

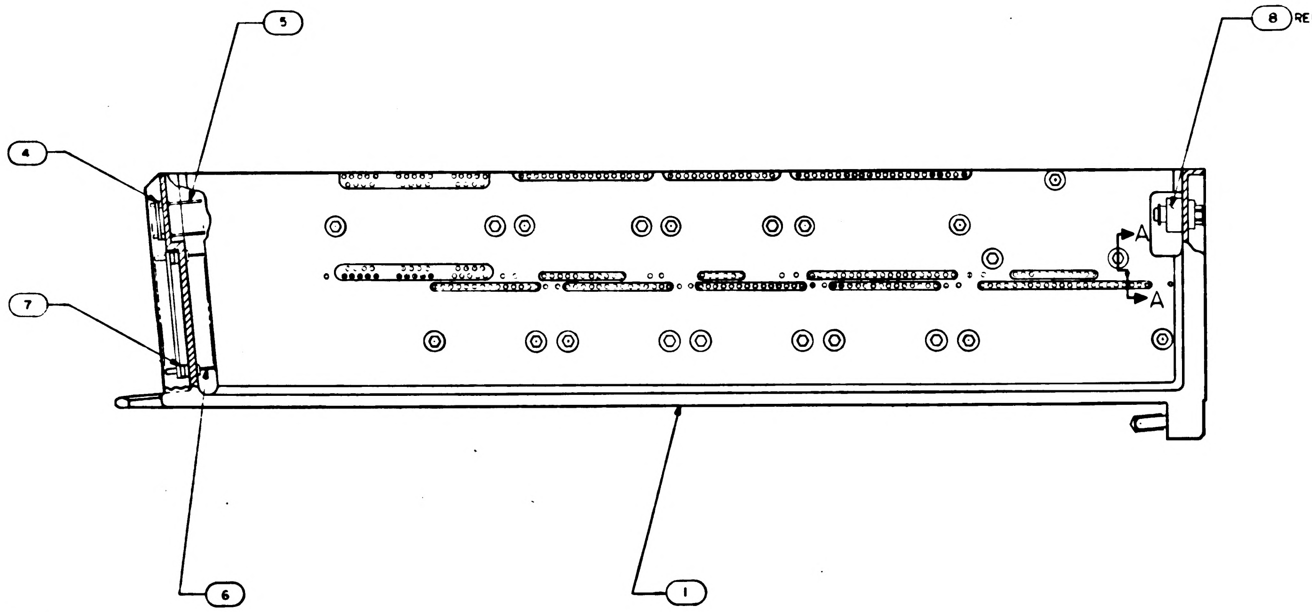


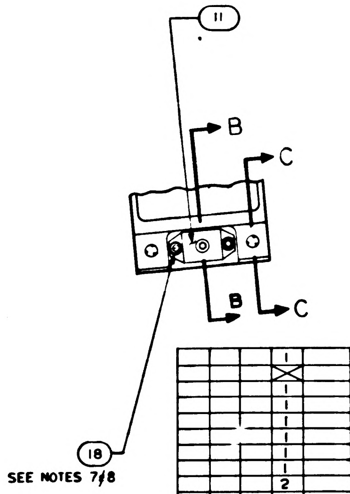
PARTIAL SECTION E-E
232 PLACES



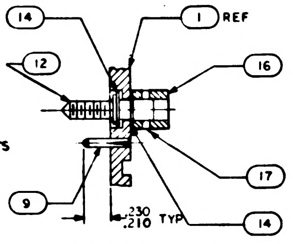




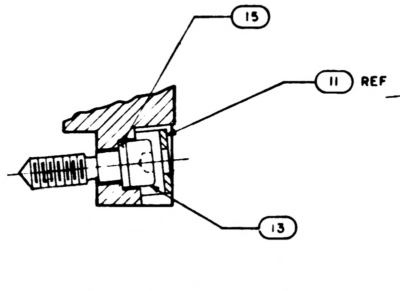




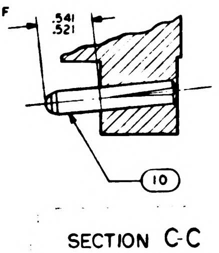
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 (BLACK) .100/.140 HIGH & SERIALIZE PER ND 1002023
4. BOND FIND NOS 21,22,23,24 AND 25 TO FIND NO.1 PER ND 1002004 TYPE I AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) .010 ABOVE TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME UNLESS OTHERWISE SPECIFED.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO.18 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS. 18 & 19 TO FIND NO.1 TO BE 5.0-5.5 IN LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND 1002071
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS
10. PROCURE PER PS1007149.
11. BOND FIND NOS. 26 AND 27 TO FIND NOS. 7 AND 4 PER ND 1002237
12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

			1		1008553	GASKET, CONNECTOR, MIN TRAY	27
			X		1009559	WIRING DIAGRAM	REF
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			1		1008265	WIRE LIST A A	25
			1		1008264	WIRING HARNESS D	24
			1		1008263	WIRING HARNESS C	23
			1		1015761	WIRING HARNESS B	22
			1		1008261	WIRING HARNESS A	21
			2		MS 21045 C 04	NUT. SELF LOCKING HEX	20
			2		MS 16995-11	SCREW, CAP, SOCKET HEAD	19
			3		MS 16995-10	SCREW, CAP, SOCKET HEAD	18
			21		MS 171433	PIN SPRING	17
			21		1004207	DRIVE CYLINDER	16
			1		1008099-2	WASHER	15
			42		1004206	WASHER THRUST	14
			1		1008098	SCREW, SOCKET HEAD	13
			21		1008172	SCREW, JACK	12
			1		1001317	RETAINER, JACK SCREW	11
			2		1010620-5	PIN, GUIDE	10
			20		MS16556-604	PIN, GUIDE	9
			1		1010622-1	CONNECTOR, RECEPTACLE	8
			60		1010383	INSULATOR, WRAPOST MALE	7
			60		1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
			45		1006782-2	CONTACT, WRAPOST MALE MIN	5
			45		1006775	INSULATOR, WRAPOST MALE MIN	4
			232		1006781-2	CONTACT, WRAPOST FEMALE MIN	3
			232		1006774	INSULATOR, WRAPOST FEMALE MIN	2
			1		1008179	FRAME	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF MATERIALS		

1007459		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Geschke DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL W. J. 01-4-64
MIT APPROVAL 4 NOV 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

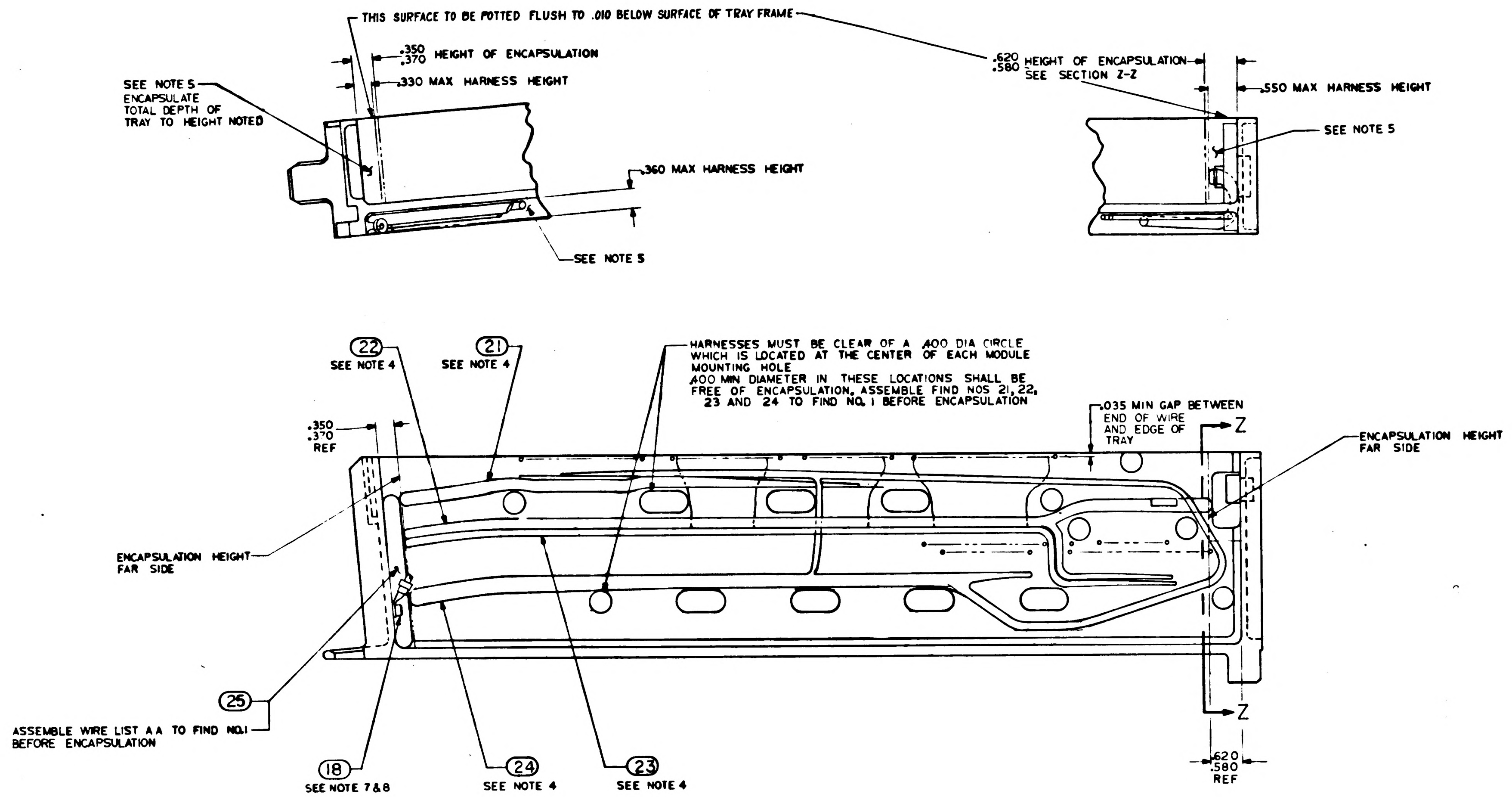
FRAME ASSEMBLY
TRAY 9

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 1007449
SCALE 1/1
WT
SHEET 1 OF 2

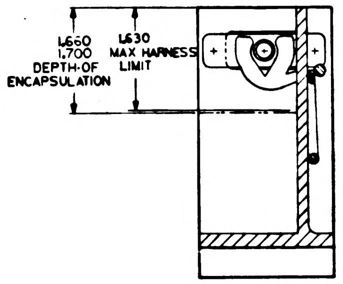
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	5 MAR 65	WD
B	REVISED PER TDRR 18695	7 MAY 65	JJJ CP
C	REVISED PER TDRR 18693	10 MAY 65	JJJ


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME
.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5
.620 .580 HEIGHT OF ENCAPSULATION SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT
SEE NOTE 5
22 SEE NOTE 4
21 SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
.350 .370 REF
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
18 SEE NOTE 7&8
24 SEE NOTE 4
23 SEE NOTE 4
Z
.620 .580 REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


1.660 1.700 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN Geschke DATE 30 SEP 64
CHECKED Albrizio 7 OCT 64
APPROVAL Hopkins 8 OCT 64
APPROVAL 3 OCT 10-29-64
NASA APPROVAL W J 11-4-64
MIT APPROVAL

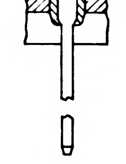
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007449
SCALE 1/1
WT
SHEET 2 OF 2

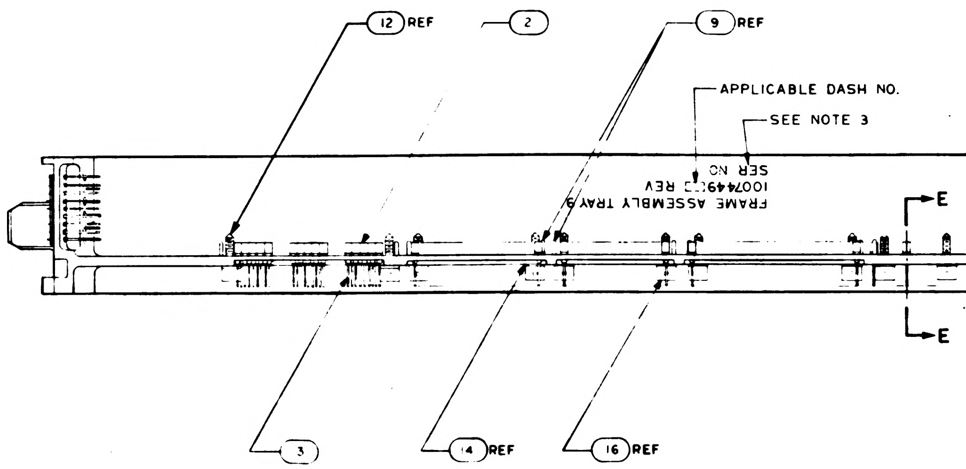
NOTICE [illegible]

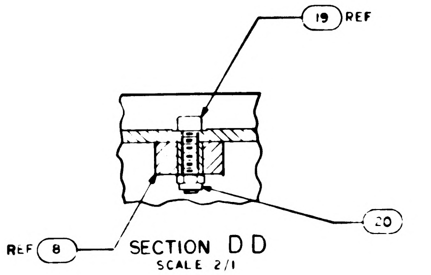
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17615	[illegible]	[illegible]
B	REVISED PER TDRR 8695	7 [illegible] 65	[illegible]
C	REVISED PER TDRR 18693	[illegible] 65	[illegible]
D	REVISED PER TDRR 18694	2 [illegible] 65	[illegible]



PARTIAL SECTION E-E

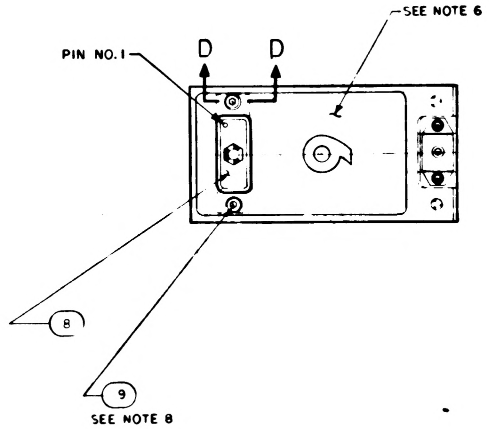
232 PLACES

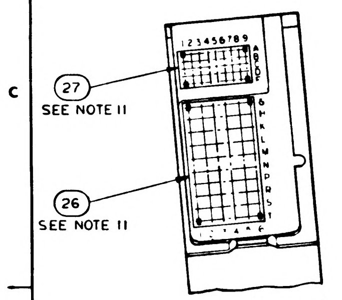


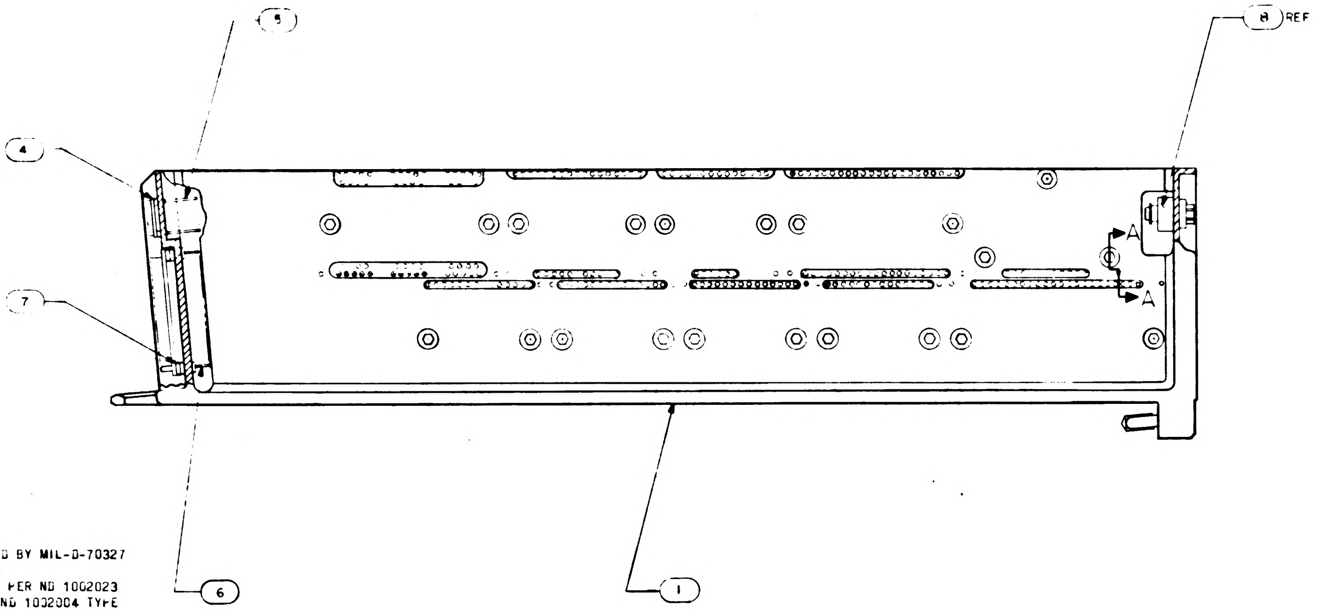


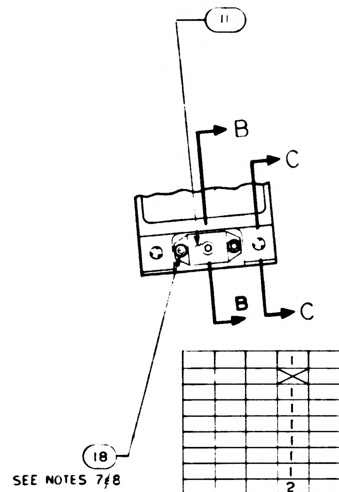
SECTION D D

SCALE 2/1



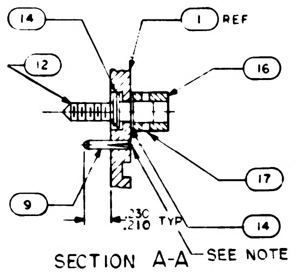






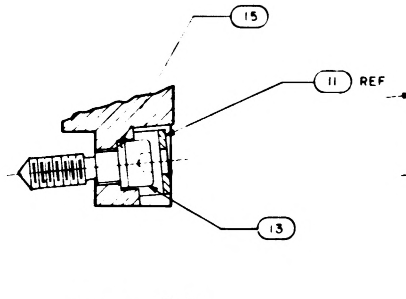
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 (BLACK) .100/.140 HIGH AND SERIALIZE PER ND 1002023
4. BOND FIND NO'S. 21, 22, 23, 24 AND 25 TO FIND NO. 1 PER ND 1002004 TYPE I AS NECESSARY
5. ENCAPSULATE PER ND 1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAMES AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO. 18 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NO'S. 18 AND 19 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND 1002071. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS
10. PROCURE PER PS 1007149
11. BOND FIND NO'S. 26 AND 27 TO FIND NO'S. 7 AND 4 PER ND 1002237
12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY
13. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND 1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND 1002004 TYPE I.



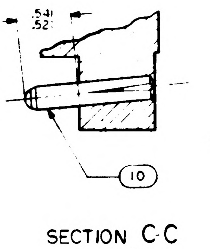
SECTION A-A

SCALE 2/1



SECTION B-B

SCALE 2/1



SECTION C-C

SCALE 2/1

QUANTITY REQUIRED					PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
			011	EFFECTIVITY	LIST OF MATERIALS		
			1		1008553	GASKET, CONNECTOR, MIN TRAY	27
			☒		1009559	WIRING DIAGRAM	REF
			1		1008552	GASKET, CONNECTOR, TRAY	26
			1		1008265	WIRE LIST A A	25
			1		1008264	WIRING HARNESS D	24
			1		1008263	WIRING HARNESS C	23
			1		[illegible]	WIRING HARNESS B	22
			1		1008261	WIRING HARNESS A	21
			2		MS21045C04	NUT, SELF LOCKING HEX	20
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	19
			3		MS16995-10	SCREW, CAP, SOCKET HEAD	18
			21		MS171433	PIN SPRING	17
			21		1004207	DRIVE CYLINDER	16
			1		[illegible]99-2	WASHER	15
			42		1004206	WASHER THRUST	14
			1		1009098	SCREW, SOCKET HEAD	13
			21		1008172	SCREW, JACK	12
			1		1001317	RETAINER, JACK SCREW	11
			2		1010620-5	PIN, GUIDE	10
			20		MS16556-604	PIN, GUIDE	9
			1		1010622-1	CONNECTOR, RECEPTACLE	8
			60		[illegible]383	INSULATOR, WRAPOST MALE	7
			60		1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
			45		1006782-2	CONTACT, WRAPOST MALE MIN	5
			45		1006775	INSULATOR, WRAPOST MALE MIN	4
			232		1006781-2	CONTACT, WRAPOST FEMALE MIN	3
			232		1006774	INSULATOR, WRAPOST FEMALE MIN	2
			1		1008179	FRAME	1

1007449 D

NEXT ASSY	USED ON	APPLICABLE DASH NO
1007459		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497

DRAWN Geschke DATE 30 SEP 64
CHECKED [illegible] 7 OCT 64
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

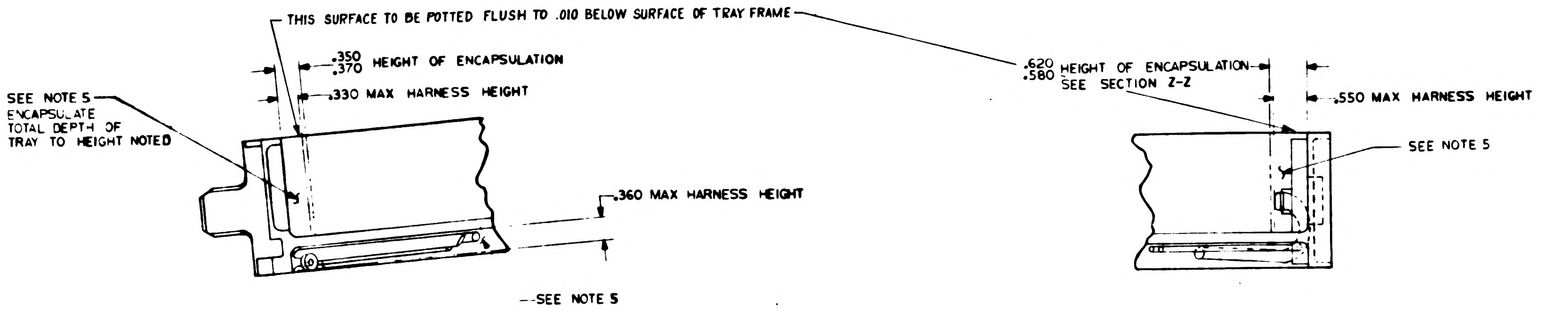
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

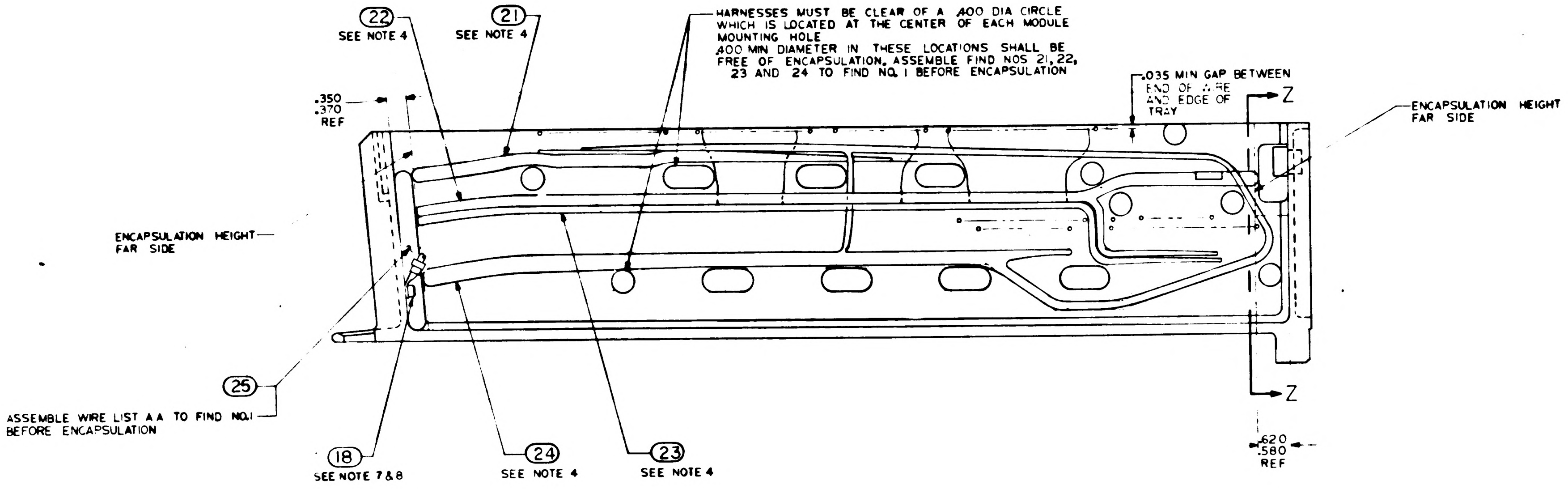
FRAME ASSEMBLY - TRAY 9

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007449
SCALE 1/1
WT
SHEET 1 OF 2

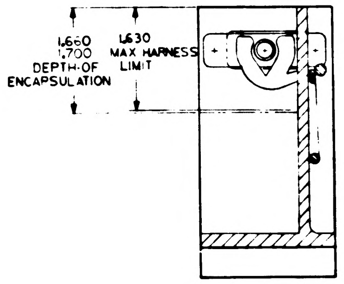
NOTICE [illegible]

SYM	DESCRIPTION	DATE	APPROVAL
A	[illegible]	[illegible]	[illegible]
B	REVISED PER TDRR 18695	7 MAY 65	CP
C	REVISED PER TDRR 18693	10 MAY 65	[illegible]
D	REVISED PER TDRR 18694	12 MAY 65	[illegible]


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME
.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5
.620 .580 HEIGHT OF ENCAPSULATION SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT
SEE NOTE 5


22
SEE NOTE 4
21
SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.350 .370 REF
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
18
SEE NOTE 7 & 8
24
SEE NOTE 4
23
SEE NOTE 4
Z
.620 .580 REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


1.660 1.700 DEPTH OF ENCAPSULATION
1.630 MAX HARNESS LIMIT

SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN [illegible] DATE 30 SEP 64
CHECKED [illegible] 1 OCT 64
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

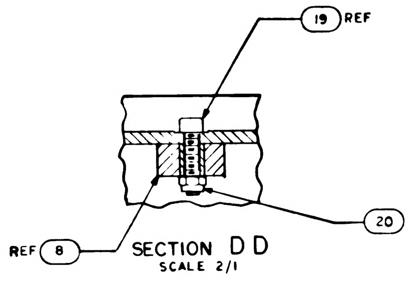
FRAME ASSEMBLY
TRAY 9

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007449
SCALE 1/1
WT
SHEET 2 OF 2

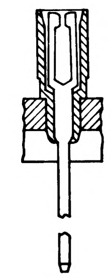
1007449 D

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

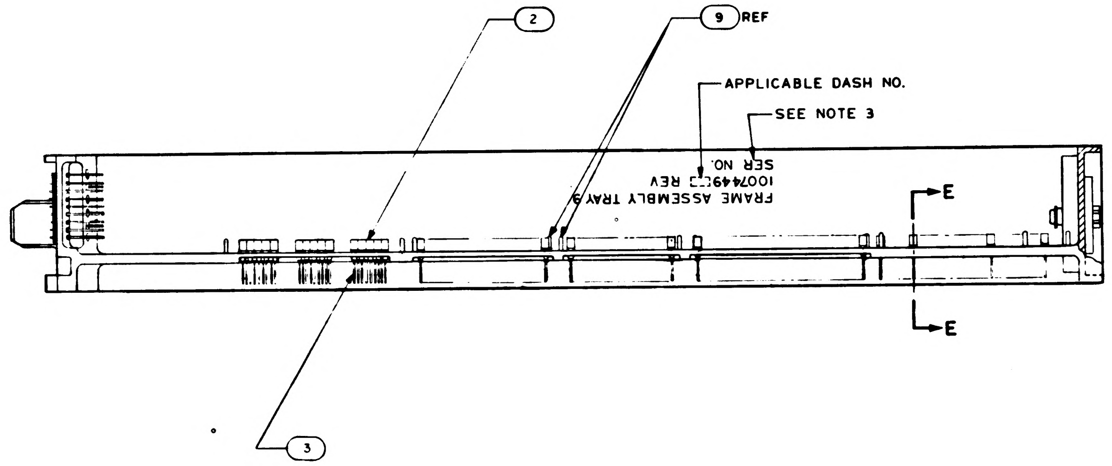
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613		
B	REVISED PER TDRR 8695	7 MAY 65	
C	REVISED PER TDRR 18693	6 MAY 65	
D	REVISED PER TDRR 18694	2 MAY 65	
E	REVISED PER TDRR 20 9	2 65	RS

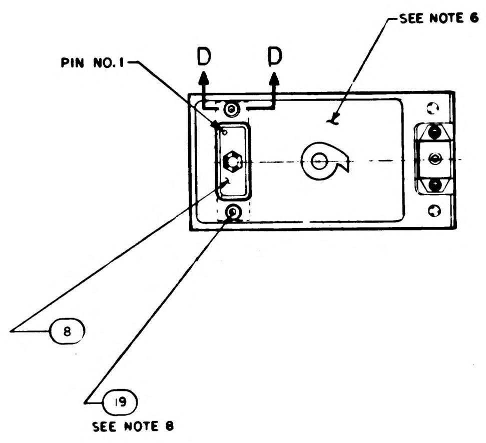


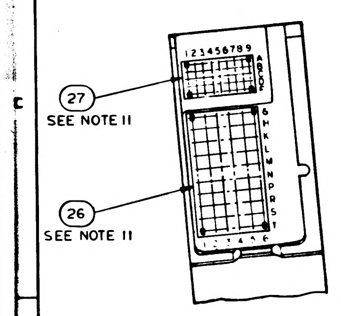
SECTION D D
SCALE 2/1

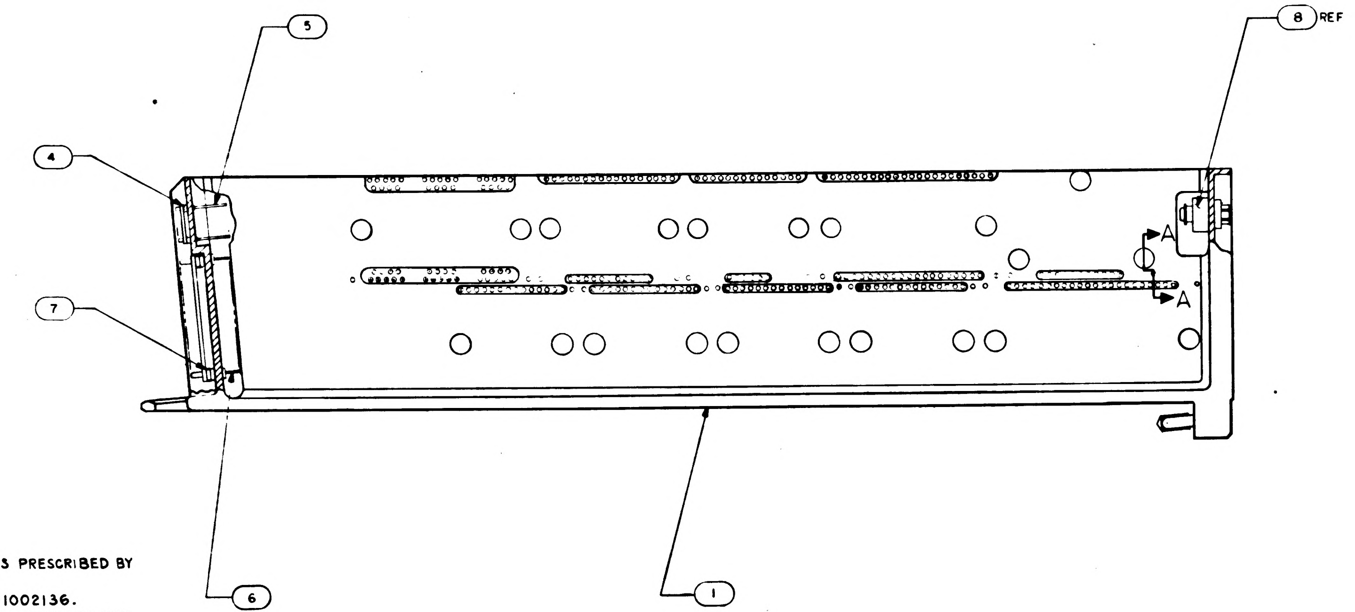


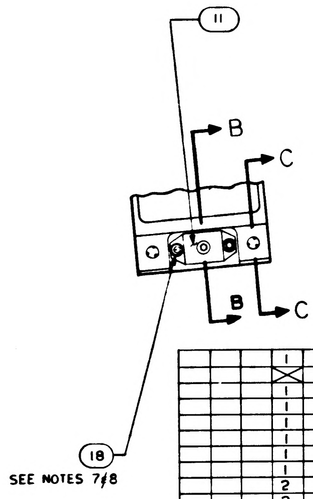
PARTIAL SECTION E-E
232 PLACES



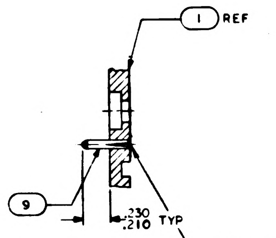




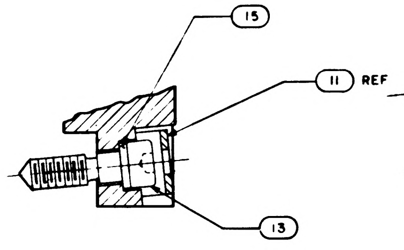




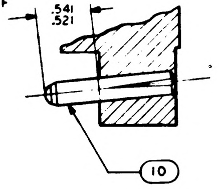
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6, AND 7 PER ND1002136.
3. MARK PER ND1002019 (BLACK) .100/.140 HIGH AND SERIALIZE PER ND1002023.
4. BOND FIND NUMBERS 21, 22, 23, 24, AND 25 TO FIND NO. 1 PER ND 1002004 TYPE I AS NECESSARY.
5. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAMES AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO. 18 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
8. MOUNTING TORQUE FOR FIND NUMBERS 18 AND 19 TO FIND NO. 1 TO BE 5.0/5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
10. PROCURE PER PS1007149.
11. BOND FIND NUMBERS 26 AND 27 TO FIND NUMBERS 7 AND 4 PER ND 1002237.
12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
13. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND1002004 TYPE I.



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			011				
			1		1008553	GASKET, CONNECTOR, MIN TRAY	27
			☒		1009559	WIRING DIAGRAM	REF
			1		1008552	GASKET, CONNECTOR, TRAY	26
			1		1008265	WIRE LIST AA	25
			1		1008264	WIRING HARNESS D	24
			1		1008263	WIRING HARNESS C	23
			1		1015761	WIRING HARNESS B	22
			1		1008261	WIRING HARNESS A	21
			2		MS21045C04	NUT, SELF LOCKING HEX	20
			2		MS16995-11	SCREW, CAP, SOCKET HEAD	19
			3		MS16995-10	SCREW, CAP, SOCKET HEAD	18
			~~21~~		~~MS171433~~	~~PIN, SPRING~~	17
			~~21~~		~~1004207~~	~~DRIVE CYLINDER~~	16
			1		1008099-2	WASHER	15
			~~42~~		~~1004206~~	~~WASHER THRUST~~	14
			1		1008098	SCREW, SOCKET HEAD	13
			~~21~~		~~1008172~~	~~SCREW, JACK~~	12
			1		1001317	RETAINER, JACK SCREW	11
			2		1010620-5	PIN, GUIDE	10
			20		MS16556-604	PIN, GUIDE	9
			1		1010622-1	CONNECTOR, RECEPTACLE	8
			60		1010383	INSULATOR, WRAPOST MALE	7
			60		1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
			45		1006782-2	CONTACT, WRAPOST MALE MIN	5
			45		1006775	INSULATOR, WRAPOST MALE MIN	4
			232		1006781-2	CONTACT, WRAPOST FEMALE MIN	3
			232		1006774	INSULATOR, WRAPOST FEMALE MIN	2
			1		1008179	FRAME	1

LIST OF MATERIALS

1007459		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN Geschke DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

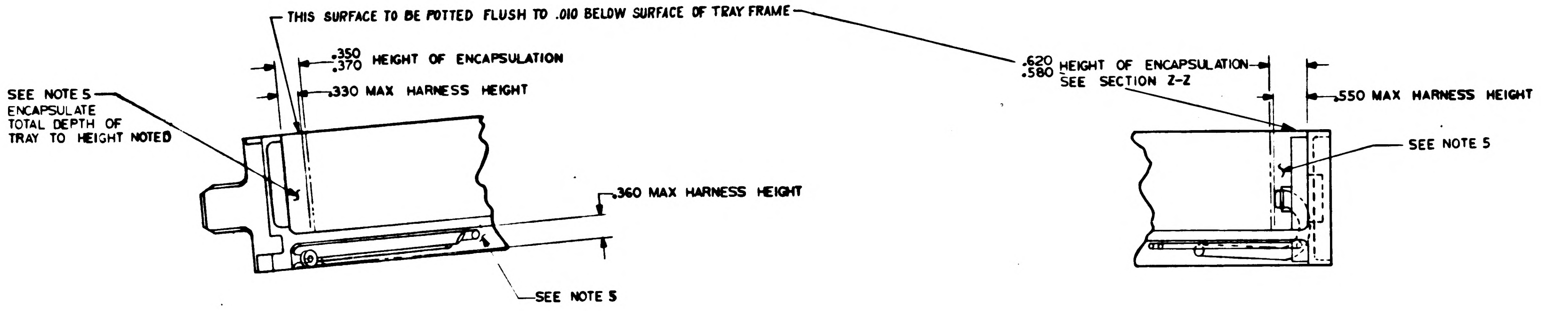
FRAME ASSEMBLY
TRAY 9

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 1007449
SCALE 1/1
WT
SHEET 1 OF 2

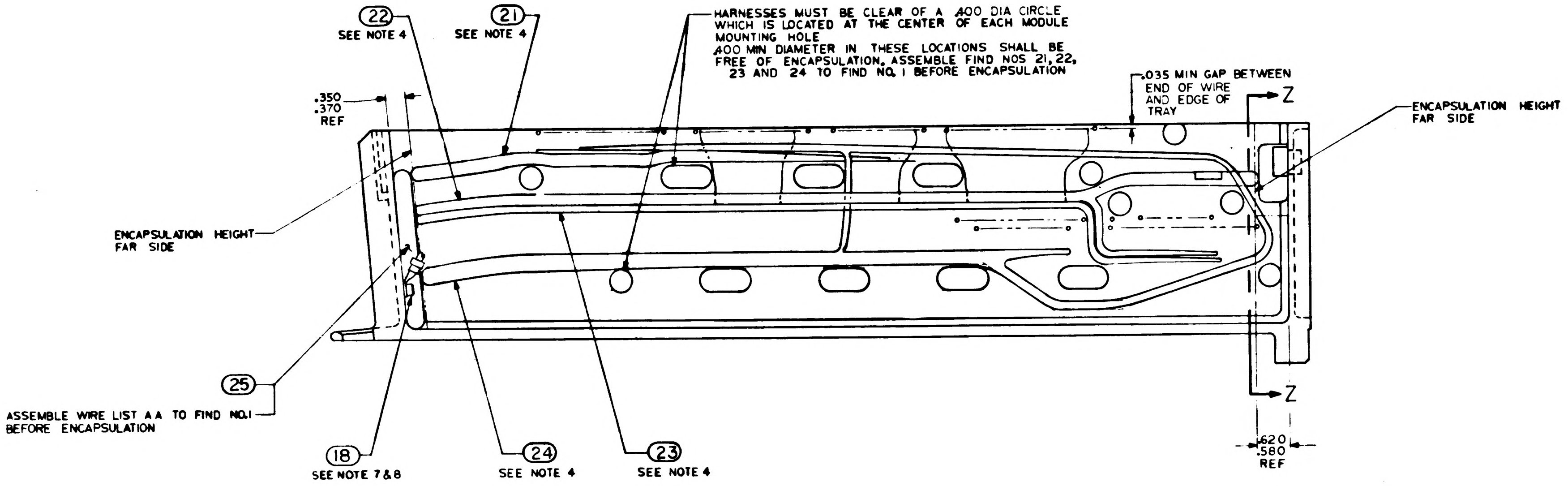
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR [illegible]	[illegible]	
B	REVISED PER TDRR 18695	7 MAY 65	JJJ
C	REVISED PER TDRR 18693	10 MAY 65	JJJ
D	REVISED PER TDRR 18694	12 MAY 65	JJJ
E	SYMBOL STATUS CHANGED	2 JUN 65	RS

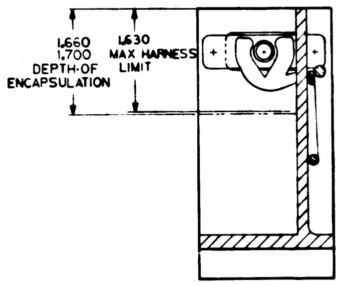


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME
.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5
.620
.580 HEIGHT OF ENCAPSULATION
SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT
SEE NOTE 5



22
SEE NOTE 4
21
SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
.350
.370
REF
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
18
SEE NOTE 7 & 8
24
SEE NOTE 4
23
SEE NOTE 4
Z
.620
.580
REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9



1.660
1.700
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN Geschke DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL W J 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

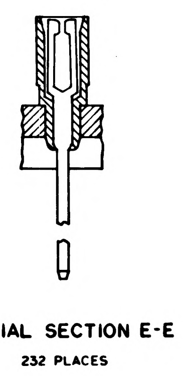
FRAME ASSEMBLY
TRAY 9

CODE IDENT NO	SIZE	NASA DRAWING NO
80230	E	1007449

SCALE 1/1 WT SHEET 2 OF 2

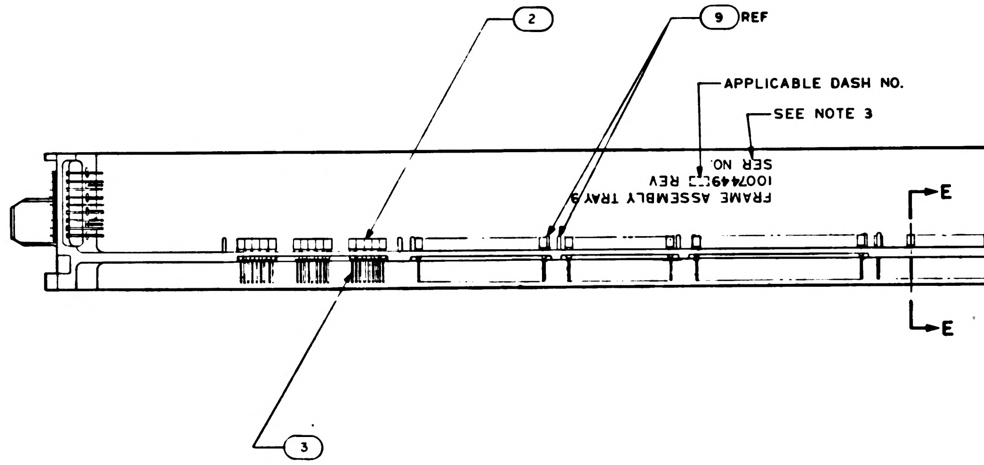
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

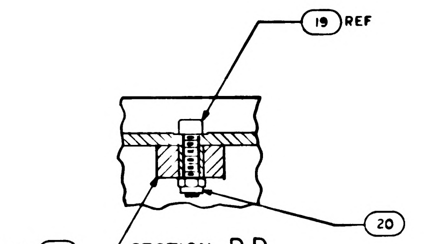
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	25 MAR 65	
B	REVISED PER TDRR 18695	7 MAY 65	JJJ
C	REVISED PER TDRR 18693	10 MAY 65	JJJ
D	REVISED PER TDRR 18694	12 MAY 65	JJJ
E	REVISED PER TDRR 20119	21 JUN 65	RS
F	REVISED PER TDRR 20785	2 JUL 65	WJR Rw



PARTIAL SECTION E-E

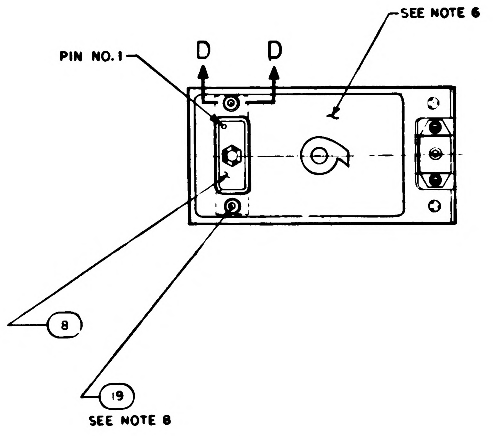
232 PLACES

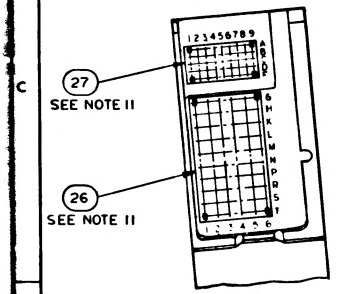


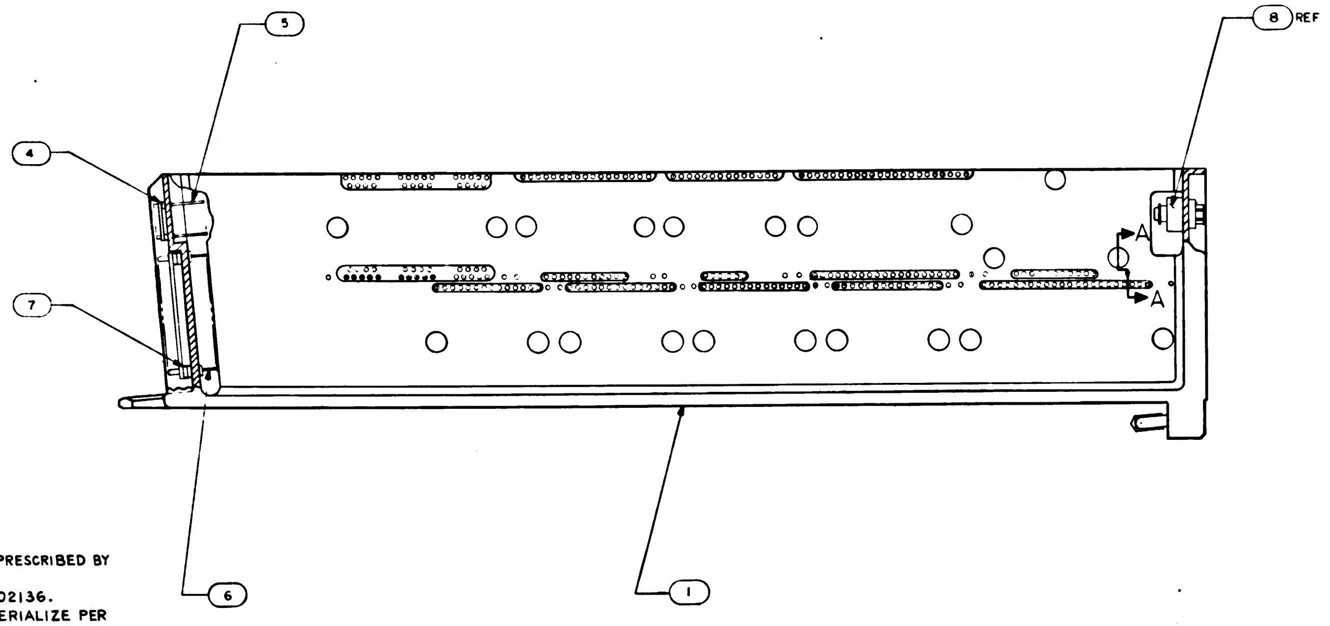


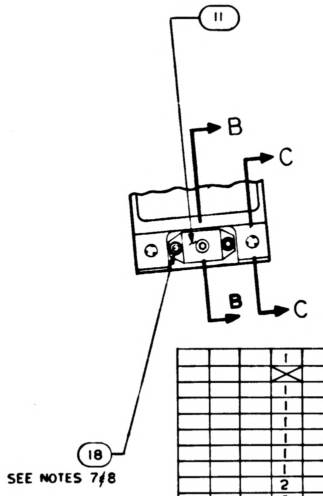
SECTION D D

SCALE 2/1









NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ASSEMBLE FIND NUMBERS 2, 3, 4, 5, 6, AND 7 PER ND1002136.
3. MARK PER ND1002019 (BLACK) .100/.140 HIGH AND SERIALIZE PER ND1002023.
4. BOND FIND NUMBERS 21, 22, 23, 24, AND 25 TO FIND NO.1 PER ND 1002004 TYPE I AS NECESSARY.
5. ENCAPSULATE PER ND1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAMES AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
7. COAT THREADS OF FIND NO.18 DURING ASSEMBLY TO FIND NO.1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
8. MOUNTING TORQUE FOR FIND NUMBERS 18 AND 19 TO FIND NO.1 TO BE 5.0/5.5 IN. LB.
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
10. PROCURE PER PS1007149.
11. BOND FIND NUMBERS 26 AND 27 TO FIND NUMBERS 7 AND 4 PER ND 1002237.
12. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND1002004, POTTING SIDE ONLY.
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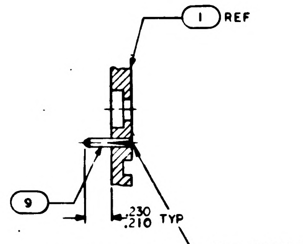
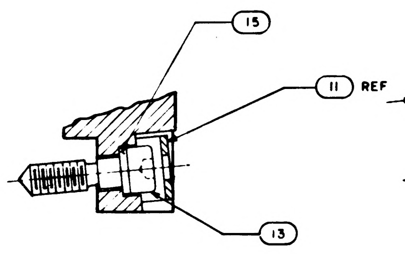


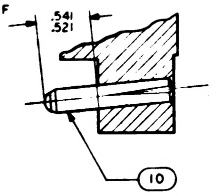
SECTION A-A

SCALE 2/1



SECTION B-B

SCALE 2/1



SECTION C-C

SCALE 2/1

13. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH A FORMULATION CONSISTING OF 40 PARTS BY WT. 1010959-1, 100 PARTS BY WT. 1010959-2, AND 7 PARTS BY WT. 1006277 AND CURE AT ROOM TEMPERATURE FOR THREE HOURS OR ONE HOUR AT 140°F. LIMITED AMOUNT ALLOWED TO CONTACT TRAY FRAME. SEAL OPENING BETWEEN FRAME AND CONNECTOR USING ND1002004, TYPE I.

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			1		1008553	GASKET, CONNECTOR, MIN TRAY	27
			X		1009559	WIRING DIAGRAM	REF
			1		1008552	GASKET, CONNECTOR, TRAY	26
			1		1008265	WIRE LIST A A	25
			1		1008264	WIRING HARNESS D	24
			1		1008263	WIRING HARNESS C	23
			1		1015761	WIRING HARNESS B	22
			1		1008261	WIRING HARNESS A	21
			2		MS 21045 C 04	NUT, SELF LOCKING HEX	20
			2		MS 16995-11	SCREW, CAP, SOCKET HEAD	19
			3		MS 16995-10	SCREW, CAP, SOCKET HEAD	18
			~~21~~		~~MS 171433~~	~~PIN, SPRING~~	17
			~~21~~		~~1004207~~	~~DRIVE CYLINDER~~	16
			1		1008099-2	WASHER	15
			~~42~~		~~1004206~~	~~WASHER THRUST~~	14
			1		1008098	SCREW, SOCKET HEAD	13
			~~21~~		~~1008172~~	~~SCREW, JACK~~	12
			1		1001317	RETAINER, JACK SCREW	11
			2		1010620-5	PIN, GUIDE	10
			20		MS16556-604	PIN, GUIDE	9
			1		1010622-1	CONNECTOR, RECEPTACLE	8
			60		1010383	INSULATOR, WRAPOST MALE	7
			60		1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
			45		1006782-2	CONTACT, WRAPOST MALE MIN	5
			45		1006775	INSULATOR, WRAPOST MALE MIN	4
			232		1006781-2	CONTACT, WRAPOST FEMALE MIN	3
			232		1006774	INSULATOR, WRAPOST FEMALE MIN	2
			1		1008179	FRAME	1
			011				

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
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MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007449
SCALE 1/1
WT
SHEET 1 OF 2

1007449 F

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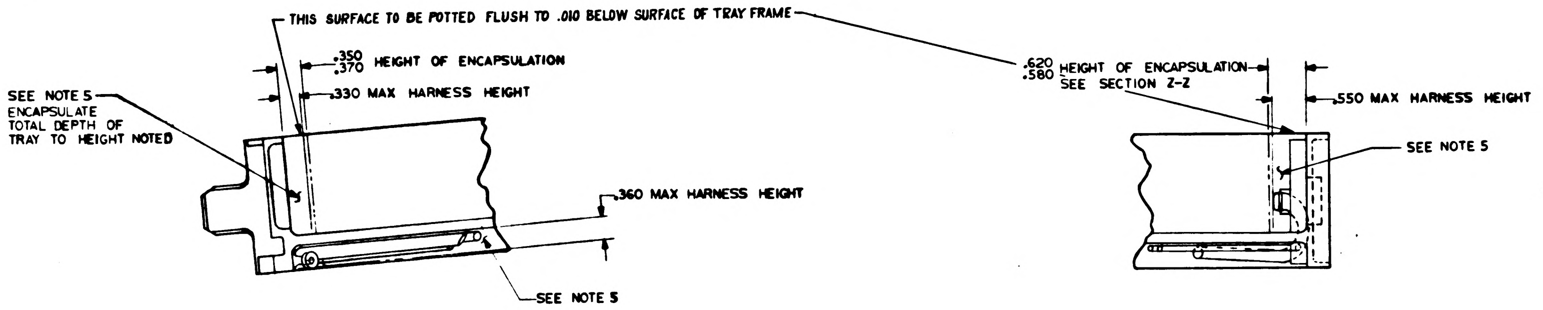
REVISIONS

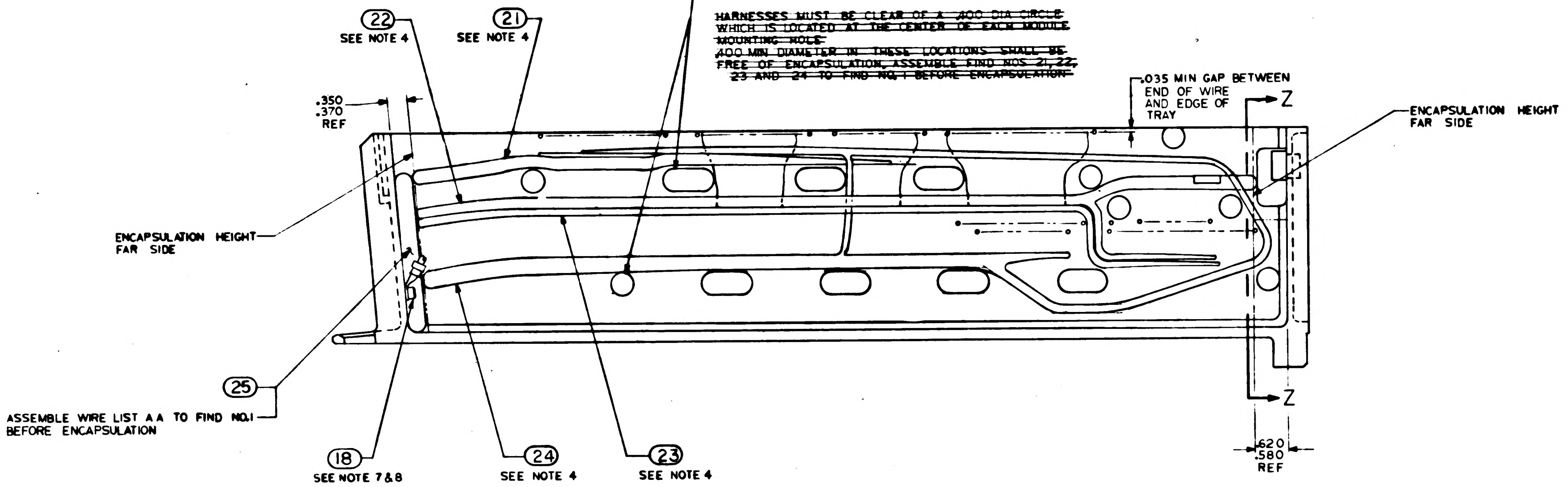
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 176 3	[illegible] 65	[illegible]
B	REVISED PER TDRR 18695	7 MAY 65	JJJ CP
C	REVISED PER TDRR 18693	10 MAY 65	JJJ
D	REVISED PER TDRR 18694	12 MAY 65	JJJ
E	SYMBOL STATUS CHANGED	21 JUN 65	CS
F	REVISED PER TDRR 20785	2 JULY 65	WJR RWH


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME
.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE
TOTAL DEPTH OF
TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5
.620
.580 HEIGHT OF ENCAPSULATION
SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT
SEE NOTE 5

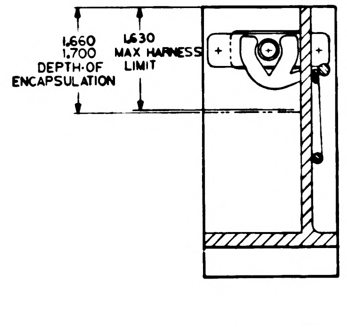
ENCAPSULATION MUST BE CLEAR OF .335/.420 DIA. CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE.

~~HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE~~

~~.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION, ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION~~


22
SEE NOTE 4
21
SEE NOTE 4
.350
.370
REF
.035 MIN GAP BETWEEN
END OF WIRE
AND EDGE OF
TRAY
Z
ENCAPSULATION HEIGHT
FAR SIDE
ENCAPSULATION HEIGHT
FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1
BEFORE ENCAPSULATION
Z
.620
.580
REF
18
SEE NOTE 7&8
24
SEE NOTE 4
23
SEE NOTE 4

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


1.660
1.700
DEPTH OF
ENCAPSULATION
1.630
MAX HARNESS
LIMIT

SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN Geschke DATE 30 SEP 64
CHECKED [illegible] 7 OCT 64
APPROVAL [illegible] 8 OCT 64
APPROVAL [illegible] 10-29-64
NASA APPROVAL [illegible] 11-4-64
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007449
SCALE 1/1
WT
SHEET 2 OF 2

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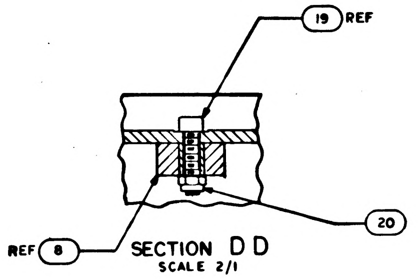
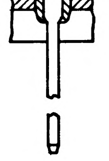
SYM	DESCRIPTION	DATE	APPROVAL

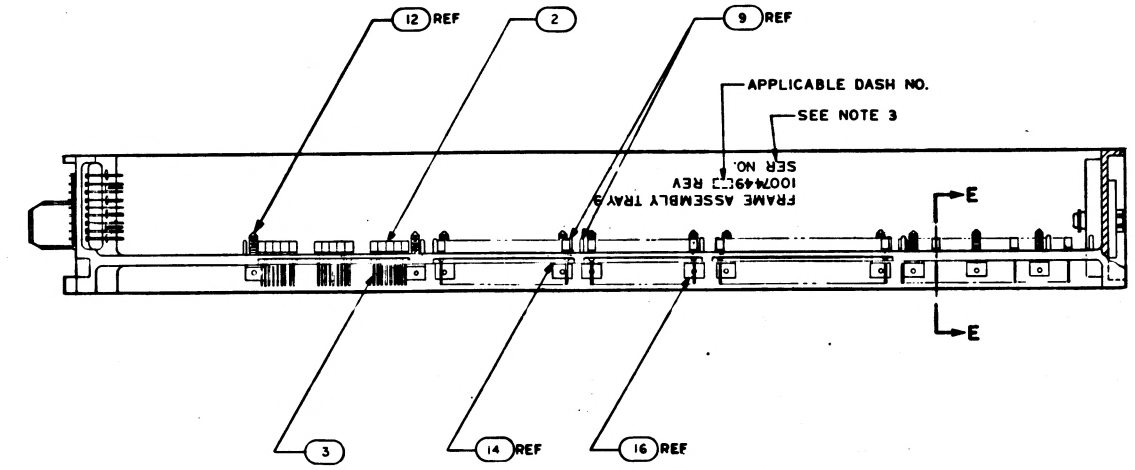
REVISIONS 13722

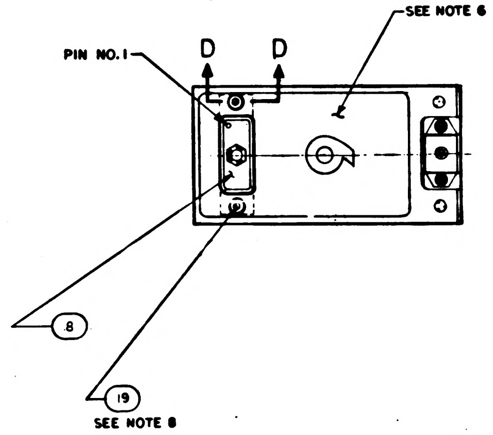


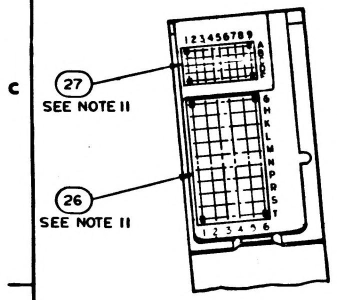
SECTION D D
SCALE 2/1

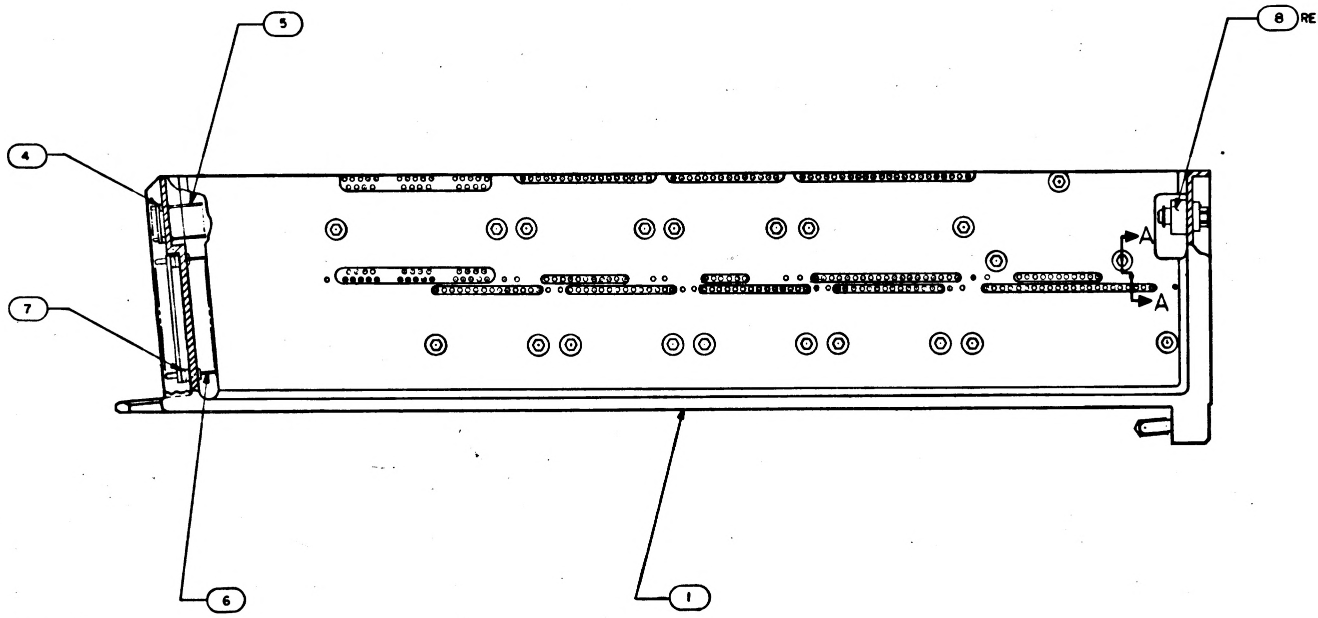


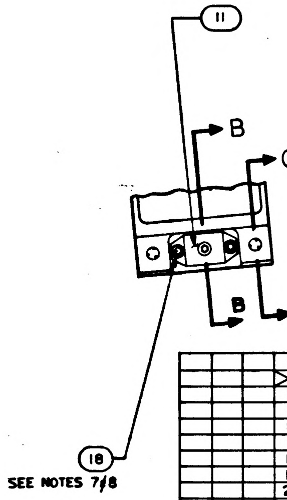
PARTIAL SECTION E-E
232 PLACES





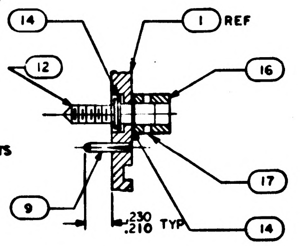




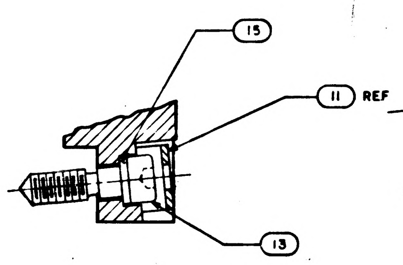


NOTES:

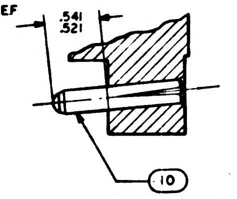
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NUMBERS 2,3,4,5,6 AND 7 PER ND 1002136
3. MARK PER ND 1002019 (BLACK) .100/.140 HIGH & SERIALIZE PER ND 1002023
4. BOND FIND NOS 21,22,23,24 AND 25 TO FIND NO. 1 PER ND 1002004 TYPE I AS NECESSARY
5. ENCAPSULATE PER ND 1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
6. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE
7. COAT THREADS OF FIND NO. 18 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
8. MOUNTING TORQUE FOR FIND NOS. 18 & 19 TO FIND NO. 1 TO BE 5.0-5.5 IN LB
9. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071
   ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS
10. PROCURE PER PS1007149.
11. BOND FIND NOS. 26 AND 27 TO FIND NOS. 7 AND 4 PER ND1002237.



SECTION A-A
SCALE 2/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

MASTER

QUANTITY REQUIRED			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			1		1008553	GASKET, CONNECTOR, MIN TRAY	27
			X		1009559	WIRING DIAGRAM	REF
			1		1008552	GASKET, CONNECTOR, TRAY	26
			1		1008265	WIRE LIST A A	25
			1		1008264	WIRING HARNESS D	24
			1		1008263	WIRING HARNESS C	23
			1		1015761	WIRING HARNESS B	22
			1		1008261	WIRING HARNESS A	21
			2		MS 21045 C 04	NUT, SELF LOCKING HEX	20
			2		MS 16995-11	SCREW, CAP, SOCKET HEAD	19
			3		MS 16995-10	SCREW, CAP, SOCKET HEAD	18
			21		MS 171433	PIN SPRING	17
			21		1004207	DRIVE CYLINDER	16
			1		1008099-2	WASHER	15
			42		1004206	WASHER THRUST	14
			1		1008098	SCREW, SOCKET HEAD	13
			21		1008172	SCREW, JACK	12
			1		1001317	RETAINER, JACK SCREW	11
			2		1010620-5	PIN, GUIDE	10
			20		1010620-4	PIN, GUIDE	9
			1		1010622-1	CONNECTOR, RECEPTACLE	8
			60		1010383	INSULATOR, WRAPOST MALE	7
			60		1010382-1	CONTACT, BLADE EDGE CONNECTOR	6
			45		1006782-2	CONTACT, WRAPOST MALE - MIN	5
			45		1006775	INSULATOR, WRAPOST MALE MIN	4
			232		1006781-2	CONTACT, WRAPOST FEMALE MIN	3
			232		1006774	INSULATOR, WRAPOST FEMALE MIN	2
			1		1008179	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497
DRAWN DATE
CHECKED 7 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL 4 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO. SIZE E NASA DRAWING NO 1007449
SCALE 1/1 WT SHEET 1 OF 2

1007449

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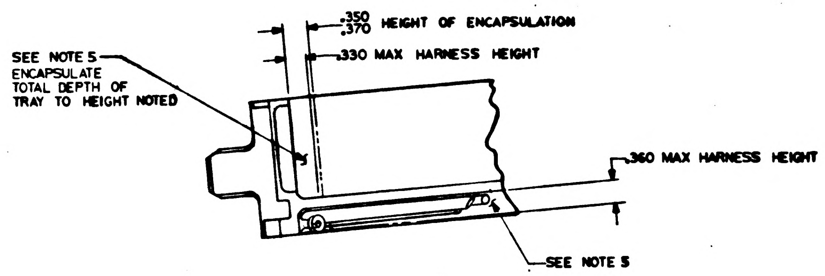
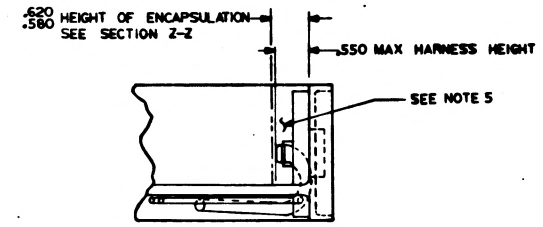
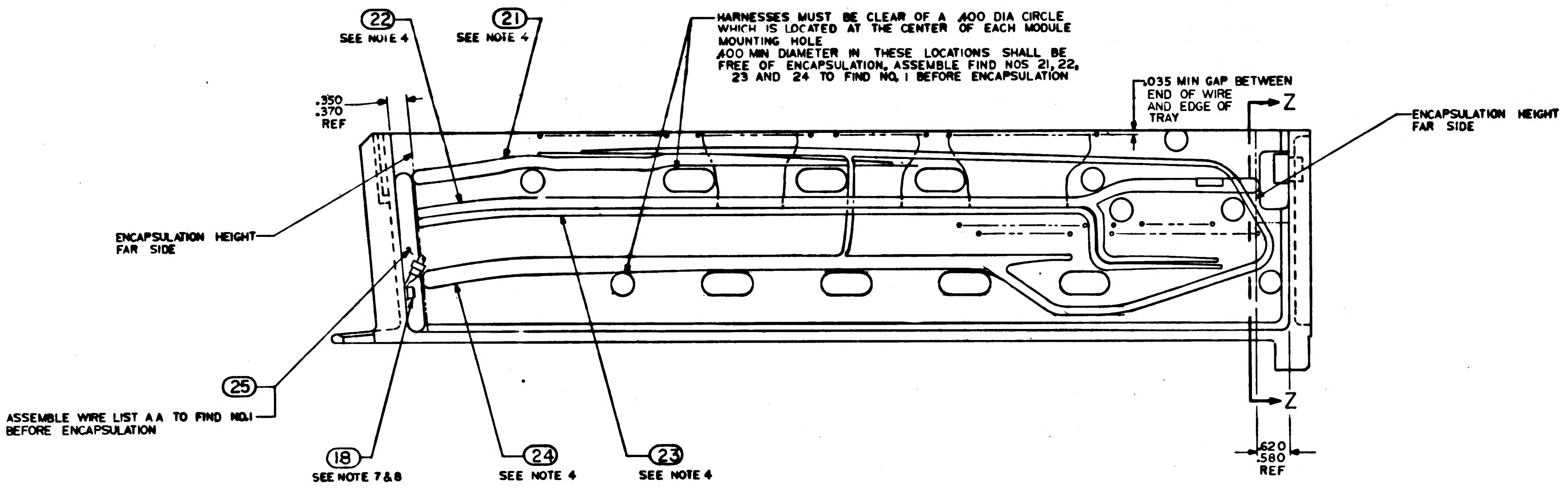
SYM	DESCRIPTION	DATE	APPROVAL

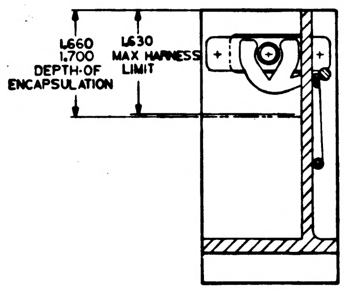
REVISIONS


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 5
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 5


.620
.580 HEIGHT OF ENCAPSULATION
SEE SECTION Z-Z
.550 MAX HARNESS HEIGHT
SEE NOTE 5


22
SEE NOTE 4
21
SEE NOTE 4
HARNESSES MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIAMETER IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 21, 22, 23 AND 24 TO FIND NO. 1 BEFORE ENCAPSULATION
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
ENCAPSULATION HEIGHT FAR SIDE
.350
.370
REF
ENCAPSULATION HEIGHT FAR SIDE
25
ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
18
SEE NOTE 7 & 8
24
SEE NOTE 4
23
SEE NOTE 4
Z
.620
.580
REF

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 9


1.660
1.700
DEPTH OF ENCAPSULATION
1.630
MAX HARNESS LIMIT

SECTION Z-Z.

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN DATE
CHECKED 7 OCT 64
APPROVAL 8 OCT 64
APPROVAL 10-28-64
NASA APPROVAL W J 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRAME ASSEMBLY
TRAY 9

CODE IDENT NO. | SIZE E | NASA DRAWING NO. 1007449
SCALE 1/1 | WT | SHEET 2 OF 2

1007449

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REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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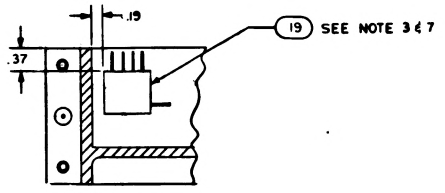
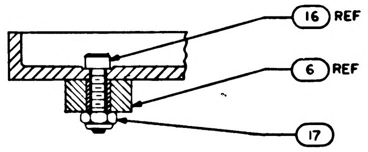
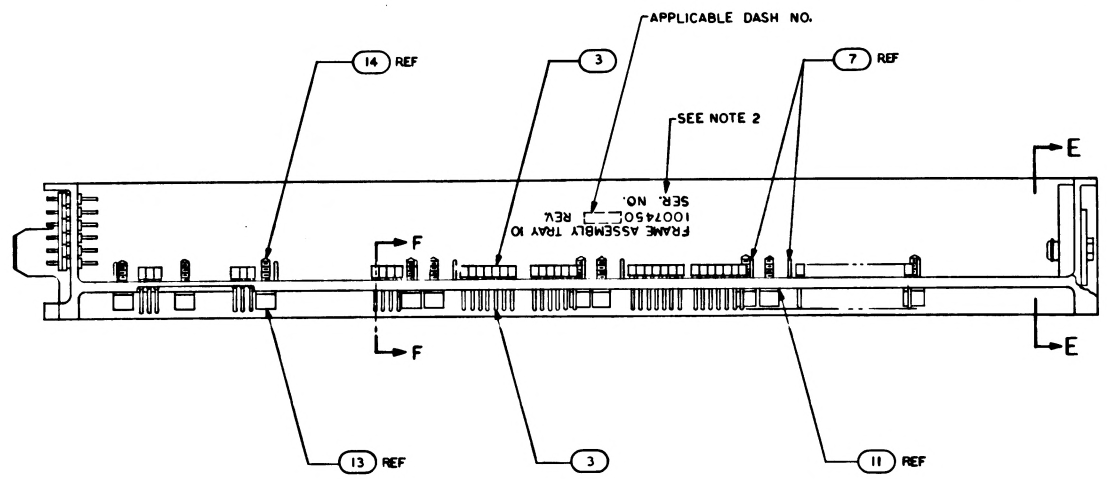
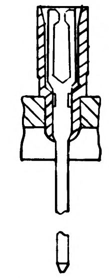


PARTIAL SECTION E-E

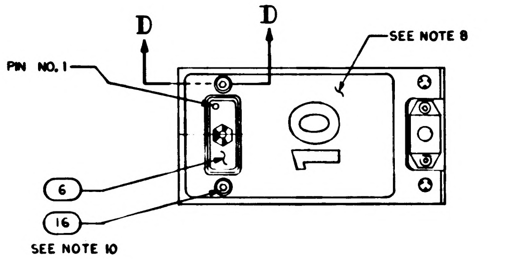


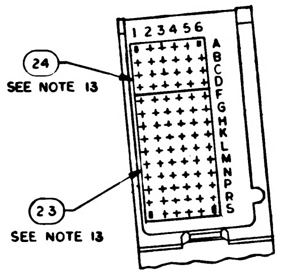
PARTIAL SECTION D-D
SCALE 2/1

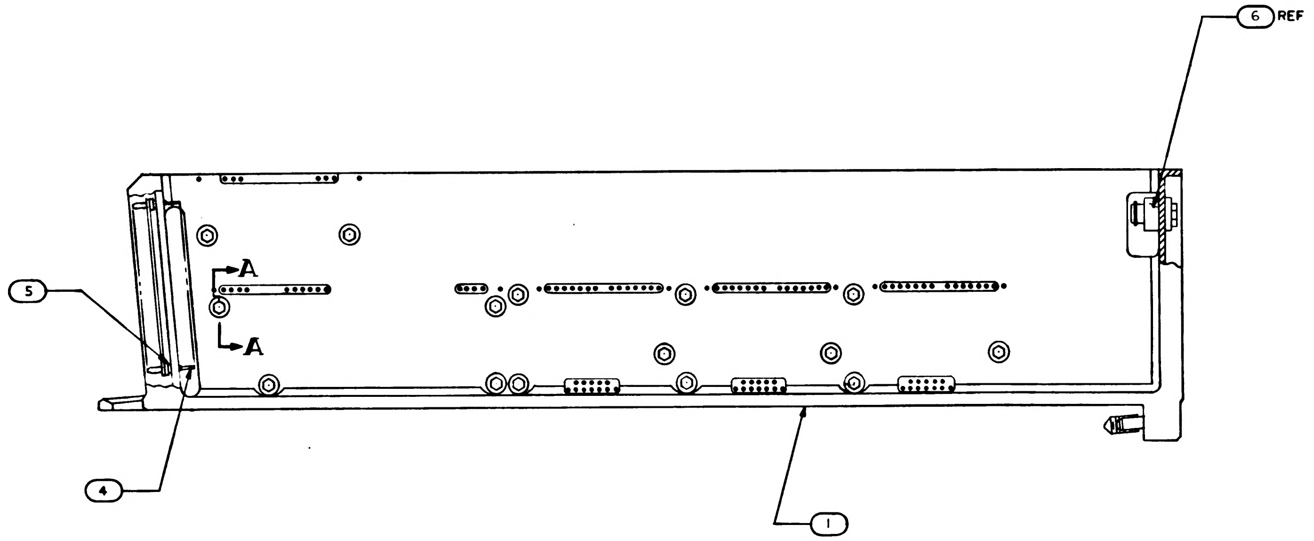


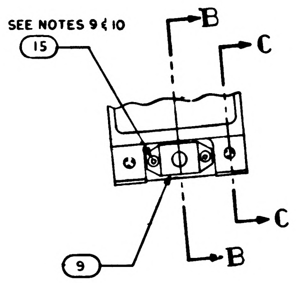


PARTIAL SECTION F-F
98 PLACES





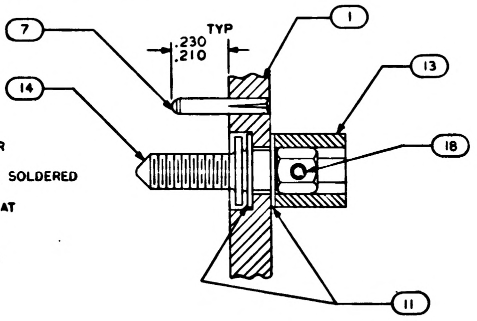




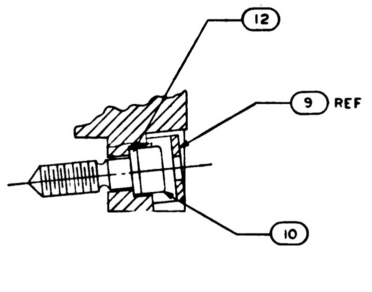
NOTES:

1 INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 (BLACK) .100/.140 HIGH & SERIALIZE PER ND1002023.
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND DWG 1010686
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136
5. BOND FIND NO. 20,21 AND 22 TO FIND NO. 1 PER ND1002004 TYPE I AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) .010 ABOVE TO .010 BELOW PERIPHERAL SURFACES OF THE TRAY FRAME UNLESS OTHERWISE SPECIFIED.
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO 15 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 15 AND 16 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005.
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007150.
13 BOND FIND NO'S. 23 AND 24 TO FIND NO. 5 PER ND 1002237.

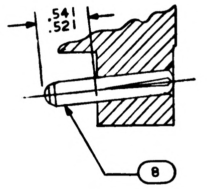
TERMINATION CHART	
FROM	TO
45A10E8	45A10J1-24
45A10E9	45A10J1-17
45A10E10	45A10J1-32
45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28



SECTION A A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

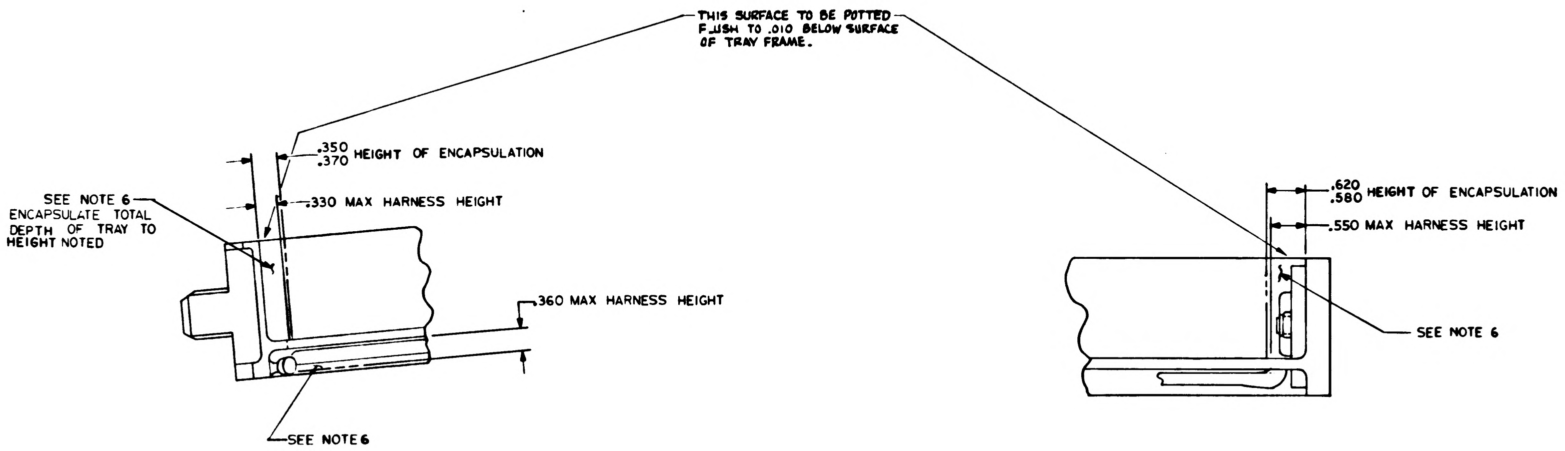
					1009560	WIRING DIAGRAM	REF
			1		1008551	GASKET, CONNECTOR, TRAY	24
			1		1008552	GASKET, CONNECTOR TRAY	23
			1		1015771	WIRE LIST A-A	22
			1		1015770	WIRING HARNESS B	21
			1		1015769	WIRING HARNESS A	20
			1		1007093	BUFFER RESISTORS MODULE ASSY	19
			15		MS 171433	PIN, SPRING	18
			2		MS 21045 C 04	NUT, SELF-LOCKING HEX	17
			2		MS 16995-11	SCREW, CAP SOCKET HEAD	16
			3		MS 16995-10	SCREW, CAP, SOCKET HEAD	15
			15		1008172	SCREW, JACK	14
			15		1004207	DRIVE CYLINDER	13
			1		1008099-2	WASHER	12
			30		1004206	WASHER, THRUST	11
			1		1008098	SCREW, SOCKET HEAD	10
			1		1001317	RETAINER, JACK SCREW	9
			2		1010620-5	PIN, GUIDE	8
			10		1010620-4	PIN, GUIDE	7
			1		1010622-1	CONNECTOR RECEPTACLE	6
			84		1010383-1	INSULATOR, WRAPOST, MALE	5
			84		1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
			98		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			98		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008110	FRAME	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF MATERIALS		

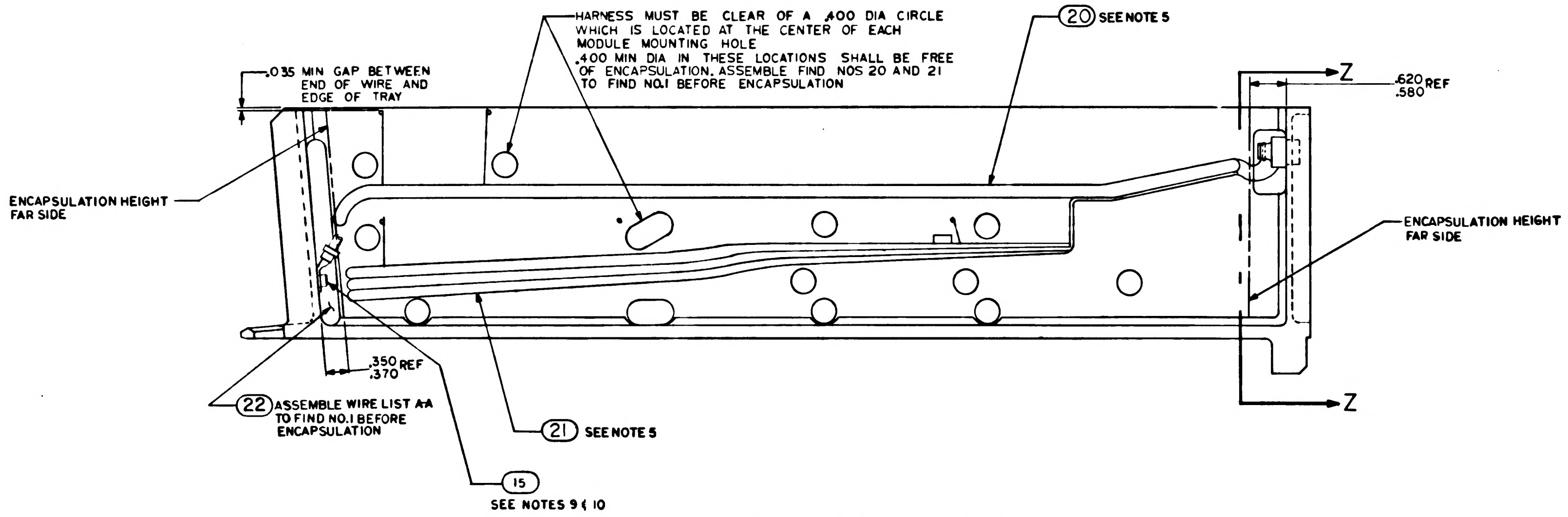
			UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ± .02 ANGLES ± 1° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS Contract NAS 9-497 DRAWN R J Foy DATE 30 SEP 64 CHECKED 7 OCT 64 APPROVAL 8 Oct 64 APPROVAL 29-64	MANNED SPACECRAFT CENTER HOUSTON, TEXAS FRAME ASSEMBLY TRAY 10
1007460			MATERIAL —		
NEXT ASSY	USED ON	APPLICABLE DASH NO.	HEAT TREATMENT —	NASA APPROVAL 11-4-64	CODE IDENT NO. SIZE E NASA DRAWING NO 1007450
APPLICATION					
THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES			FINAL FINISH —	MIT APPROVAL	SCALE 1/1 WT SHEET 1 OF 2

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

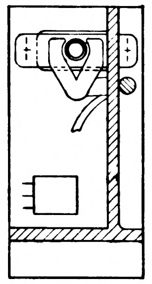
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	25 MAR 65	RJJ


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6
.620 .580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
SEE NOTE 6


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
20 SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350 .370 REF
22 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ENCAPSULATION
21 SEE NOTE 5
15 SEE NOTES 9 & 10
Z

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN R. J. Fox DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL 20 OCT 64
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

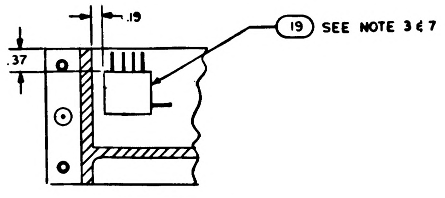
FRAME ASSEMBLY
TRAY 10

CODE IDENT NO. SIZE E NASA DRAWING NO 1007450
SCALE 1/1 WT SHEET 2 OF 2

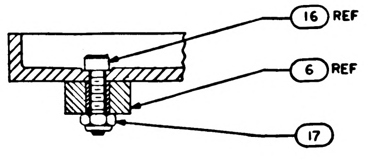
1007450 A

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

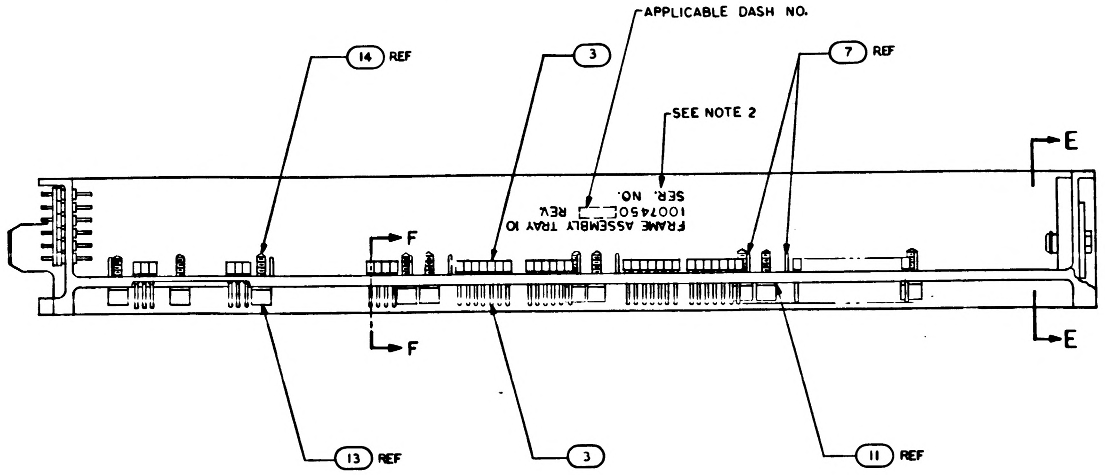
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	29 MAR 65	RJJ
B	REVISED PER TDRR 18695	7 MAY 65	JJJ CP

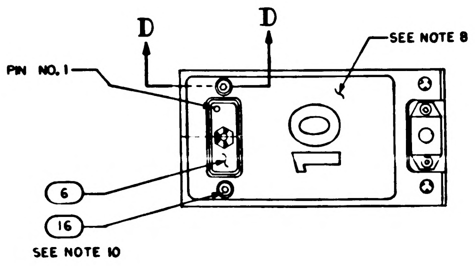


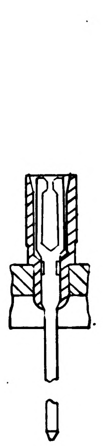
PARTIAL SECTION E-E



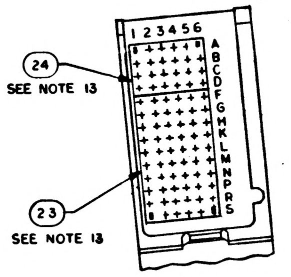
PARTIAL SECTION D-D
SCALE 2/1

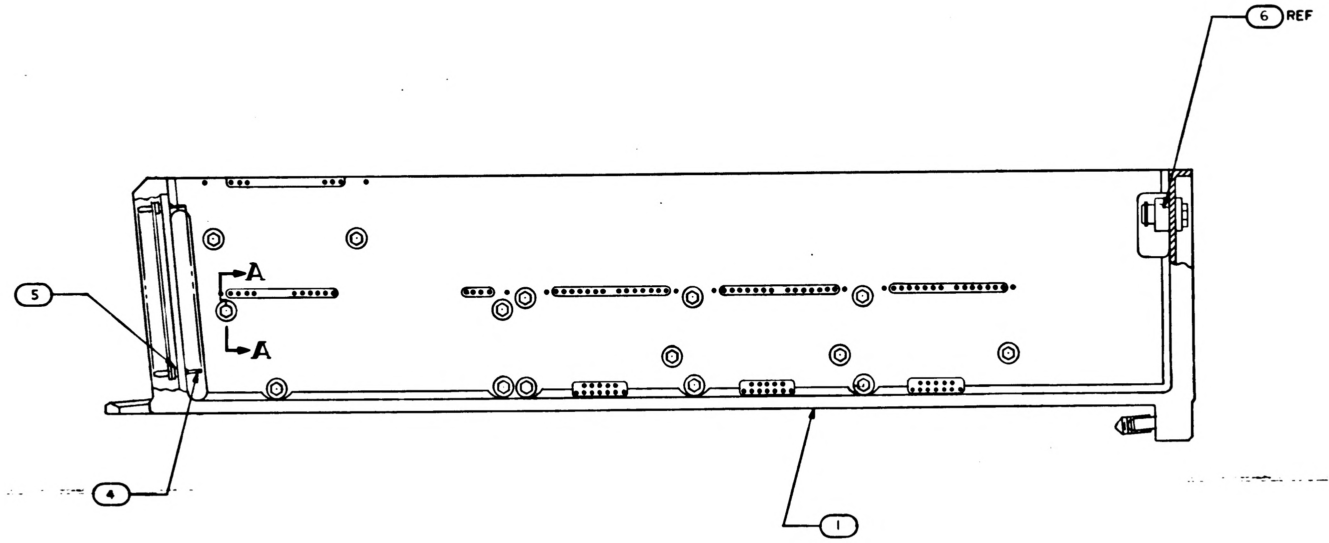


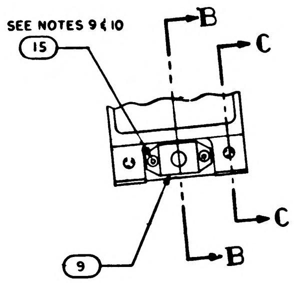




PARTIAL SECTION F-F
98 PLACES

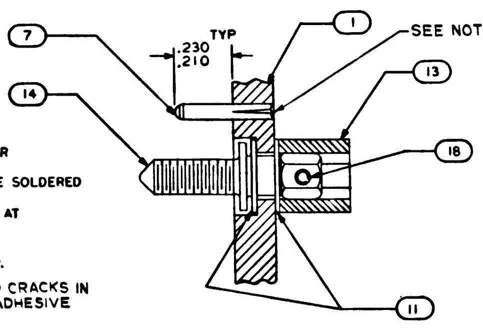




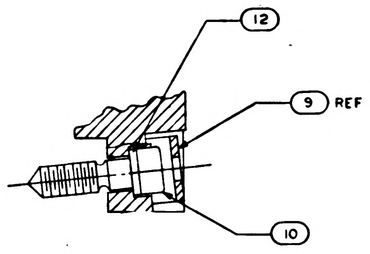


NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 (BLACK) .100/.140 HIGH & SERIALIZE PER ND1002023.
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND DWG 1010686
4. ASSEMBLE FIND NUMBERS 2, 3, 4 AND 5 PER ND1002136
5. BOND FIND NO. 20, 21 AND 22 TO FIND NO. 1 PER ND1002004 TYPE I AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) .010 ABOVE TO .010 BELOW PERIPHERAL SURFACES OF THE TRAY FRAME UNLESS OTHERWISE SPECIFIED.
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO 15 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 15 AND 16 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005.
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007150.
13. BOND FIND NO'S. 23 AND 24 TO FIND NO. 5 PER ND 1002237.
14. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.

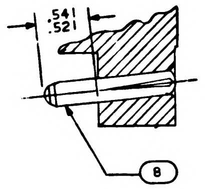
TERMINATION CHART	
FROM	TO
45A10E8	45A10J1-24
45A10E9	45A10J1-17
45A10E10	45A10J1-32
45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28



SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

QUANTITY REQUIRED							
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			X		1009560	WIRING DIAGRAM	REF
			1		1008551	GASKET, CONNECTOR, TRAY	24
			1		1008552	GASKET, CONNECTOR TRAY	23
			1		1015771	WIRE LIST A-A	22
			1		1015770	WIRING HARNESS B	21
			1		1015769	WIRING HARNESS A	20
			1		1007093	BUFFER RESISTORS MODULE ASSY	19
			15		MS 171433	PIN, SPRING	18
			2		MS 21045 C 04	NUT, SELF-LOCKING HEX	17
			2		MS 16995-11	SCREW, CAP, SOCKET HEAD	16
			3		MS 16995-10	SCREW, CAP, SOCKET HEAD	15
			15		1008172	SCREW, JACK	14
			15		1004207	DRIVE CYLINDER	13
			1		1008099-2	WASHER	12
			30		1004206	WASHER, THRUST	11
			1		1008098	SCREW, SOCKET HEAD	10
			1		1001317	RETAINER, JACK SCREW	9
			2		1010620-5	PIN, GUIDE	8
			10		1010620-4	PIN, GUIDE	7
			1		1010622-1	CONNECTOR RECEPTACLE	6
			84		1010383-1	INSULATOR, WRAPOST, MALE	5
			84		1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
			98		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			98		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008110	FRAME	1

LIST OF MATERIALS

1007450 B

1007460		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± .02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL ——
HEAT TREATMENT ——
FINAL FINISH ——

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN R J Fox DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL 8 OCT 64
APPROVAL 11-29-64
NASA APPROVAL 11-4-64
MIT APPROVAL 4 NOV 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

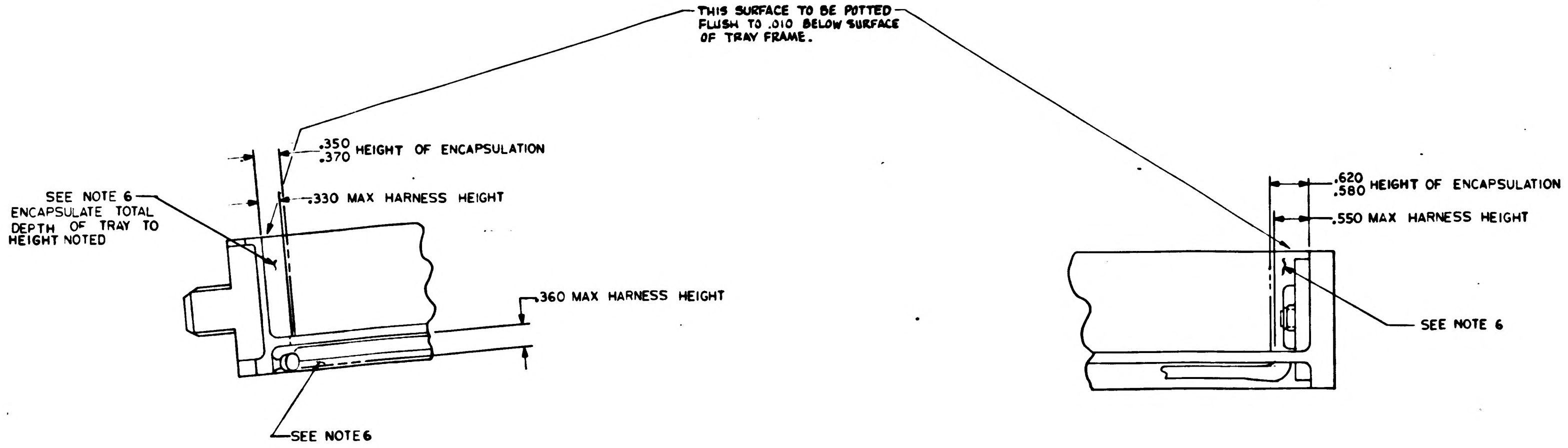
FRAME ASSEMBLY
TRAY 10

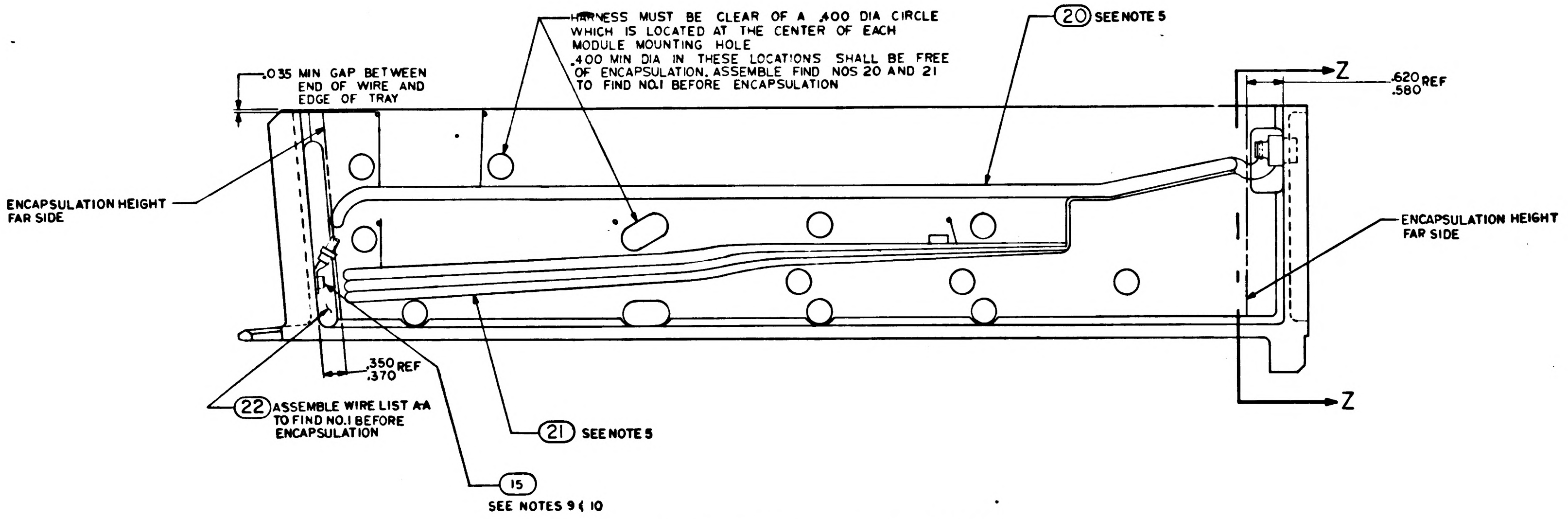
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007450
SCALE 1/1
WT
SHEET 1 OF 2

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

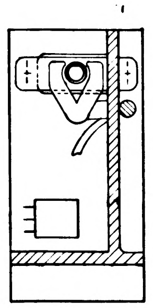
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	25 MAR 65	RJJ W.H.
B	REVISED PER TDRR 18695	7 MAY 65	JJJ CP


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6
.620 .580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
SEE NOTE 6


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE. .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
(20) SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350 .370 REF
(22) ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ENCAPSULATION
(21) SEE NOTE 5
(15) SEE NOTES 9 & 10
Z

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN R. J. Fox DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL W. Kupfer 4 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007450
SCALE 1/1
WT
SHEET 2 OF 2

1007450 B

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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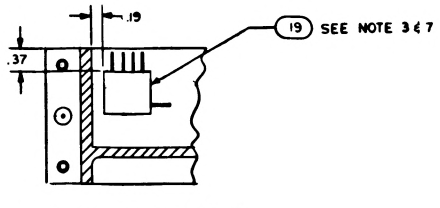
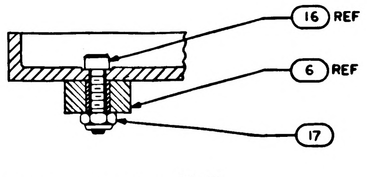
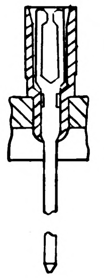
B	REVISED PER TDRR 18695	7 MAY 65	JJJ CP
C	REVISED PER TDRR 18693	10 MAY 65	JJJ



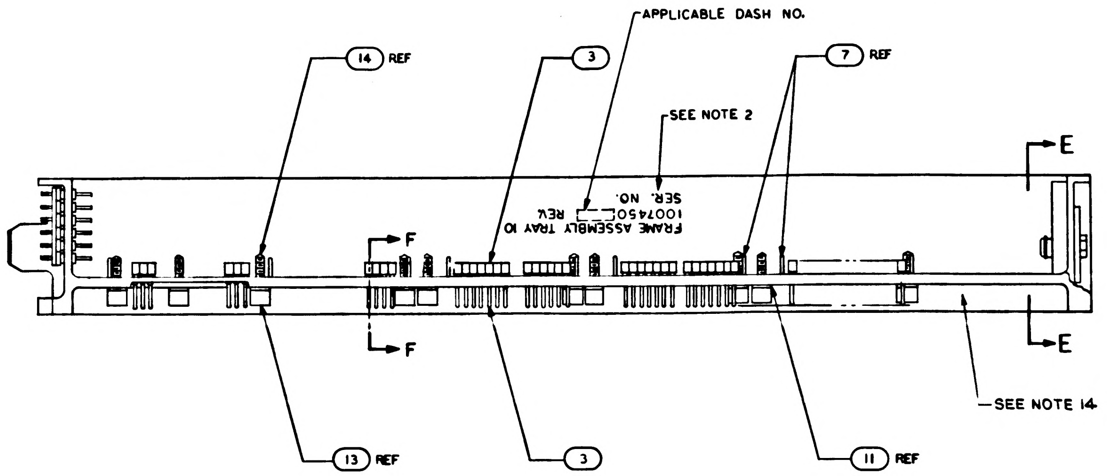
PARTIAL SECTION E-E

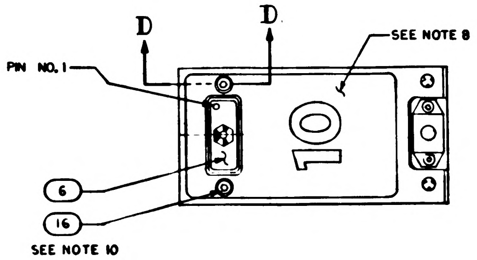


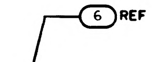
PARTIAL SECTION D-D
SCALE 2/1

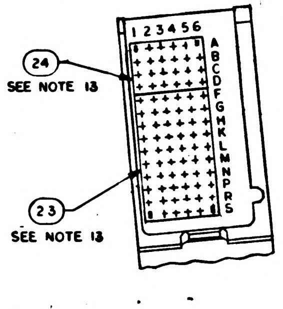


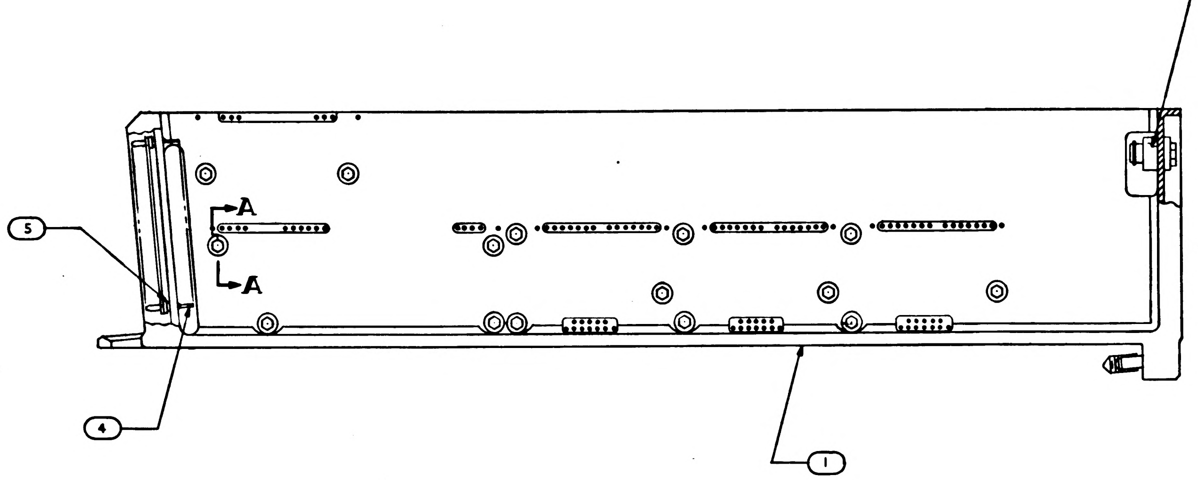
PARTIAL SECTION F-F
98 PLACES

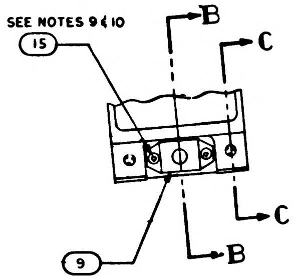






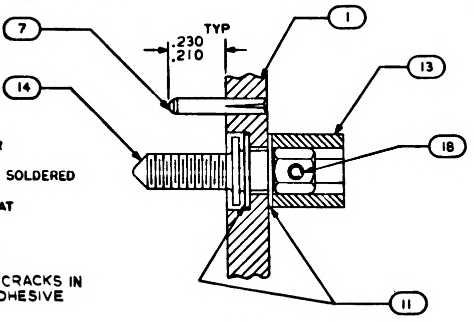




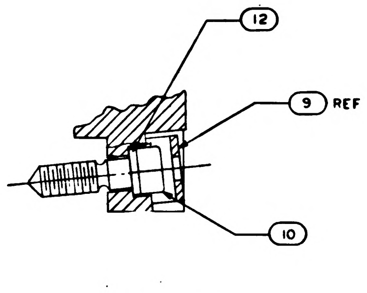


NOTES:

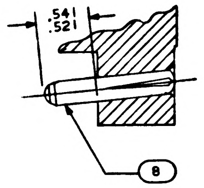
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 (BLACK) .10[illegible] HIGH & SERIALIZE PER ND1002023.
3. BOND FIND NO. 19 TO FIND NO. 1 PER N[illegible]002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND DWG 1010686
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136
5. BOND FIND NO. 20,21 AND 22 TO FIND NO. 1 PER ND1002004 TYPE I AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) .010 ABOVE TO .010 BELOW PERIPHERAL SURFACES OF THE TRAY FRAME UNLESS OTHERWISE SPECIFIED.
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO 15 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 15 AND 16 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005.
ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071
ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007150.
13. BOND FIND NO'S. 23 AND 24 TO FIND NO. 5 PER ND 1002237.
14. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.



SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A10E8	45A10J1-24
45A10E9	45A10J1-17
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45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28

			╳		1009560	WIRING DIAGRAM	REF
			1		1008551	GASKET, CONNECTOR, TRAY	24
			1		1008552	GASKET, CONNECTOR TRAY	23
			1		1015771	WIRE LIST A-A	22
			1		1015770	WIRING HARNESS B	21
			1		1015769	WIRING HARNESS A	20
			1		1007093	BUFFER RESISTORS MODULE ASSY	19
			15		MS 171433	PIN, SPRING	18
			2		MS 21045 C 04	NUT, SELF-LOCKING HEX	17
			2		MS 16995-11	SCREW, CAP, SOCKET HEAD	16
			3		MS 16995-10	SCREW, CAP, SOCKET HEAD	15
			15		1008172	SCREW, JACK	14
			15		1004207	DRIVE CYLINDER	13
			1		1008099-2	WASHER	12
			30		1004206	WASHER, THRUST	11
			1		1008098	SCREW, SOCKET HEAD	10
			1		1001317	RETAINER, JACK SCREW	9
			2		1010620-5	PIN, GUIDE	8
			10		MS16556-604	PIN, GUIDE	7
			1		1010622-1	CONNECTOR RECEPTACLE	6
			84		1010383-1	INSULATOR, WRAPOST, MALE	5
			84		1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
			98		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			98		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008110	FRAME	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF MATERIALS		

1007450 C

1007460		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± .02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN R J Fox DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL 8 OCT 64
APPROVAL 10-29-64
NASA APPROVAL W J Rhine 11-4-64
MIT APPROVAL 4 NOV 64

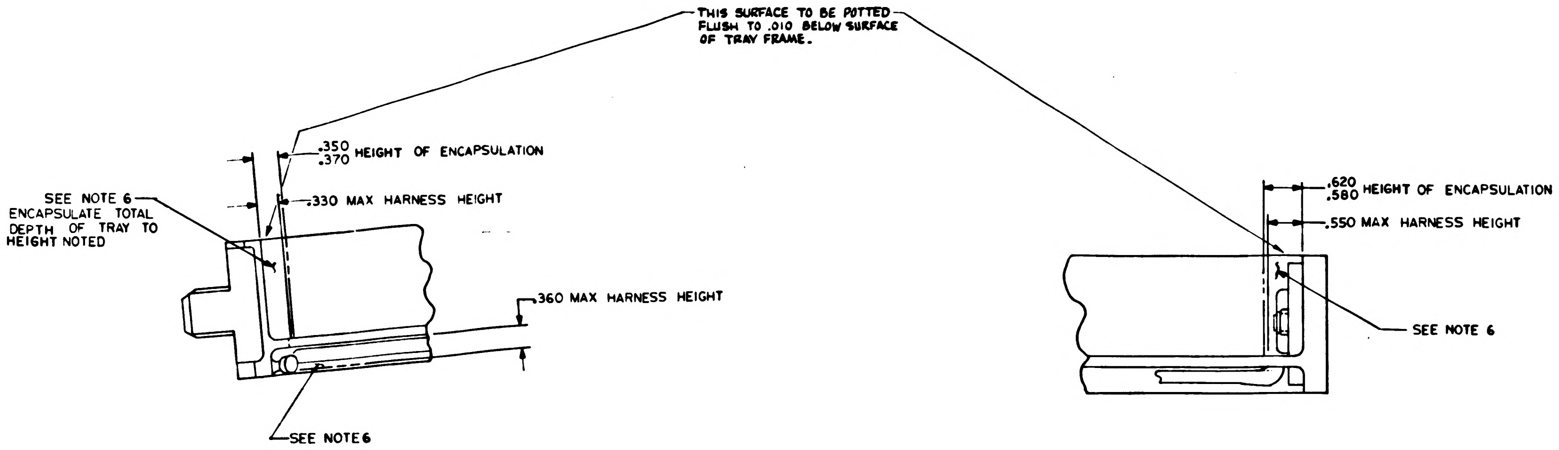
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

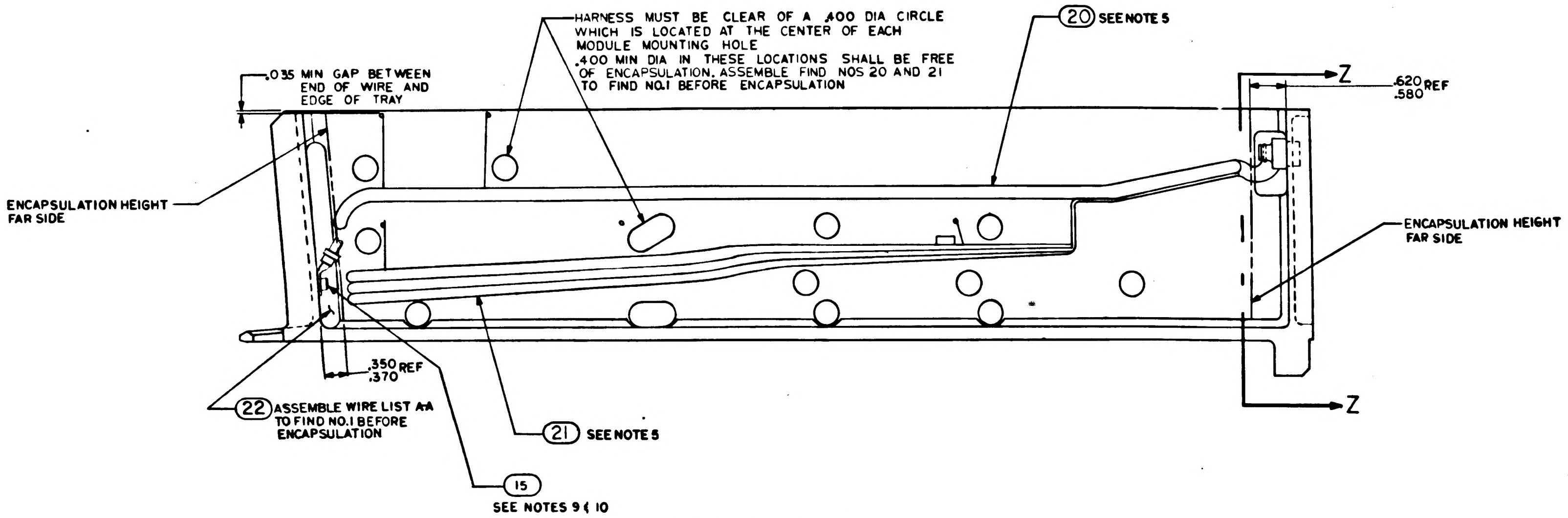
FRAME ASSEMBLY
TRAY 10

CODE IDENT NO. 80230 SIZE E NASA DRAWING NO. 1007450
SCALE 1/1 WT SHEET 1 OF 2

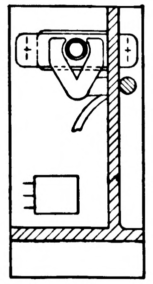
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 13922			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	25 MAR 65	RJJ W.D
B	REVISED PER TDRR 18695	7 MAY 65	JJJ CP
C	REVISED PER TDRR 18693	10 MAY 65	JJJ


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6
.620 .580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
SEE NOTE 6


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
(20) SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350 .370 REF
(22) ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
(21) SEE NOTE 5
(15) SEE NOTES 9 & 10
Z

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

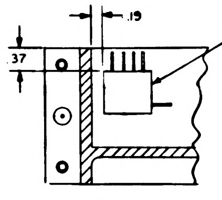
LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ± — ANGLES ± — DO NOT SCALE THIS DRAWING	M I T INSTRUMENTATION LAB CAMBRIDGE MASS Contract NAS 9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
MATERIAL —	DRAWN R. J. Fox DATE 30 SEP 64 CHECKED 7 OCT 64 APPROVAL 8 OCT 64 APPROVAL R. A. Frost 11-29-64	FRAME ASSEMBLY TRAY 10
HEAT TREATMENT —	NASA APPROVAL 11-4-64	CODE IDENT NO. 80230 / SIZE E / NASA DRAWING NO. 1007450
FINAL FINISH —	MIT APPROVAL 4 Nov 64	SCALE 1/1 / WT / SHEET 2 OF 2

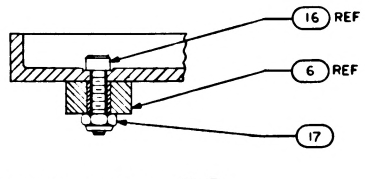
1007450 C

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

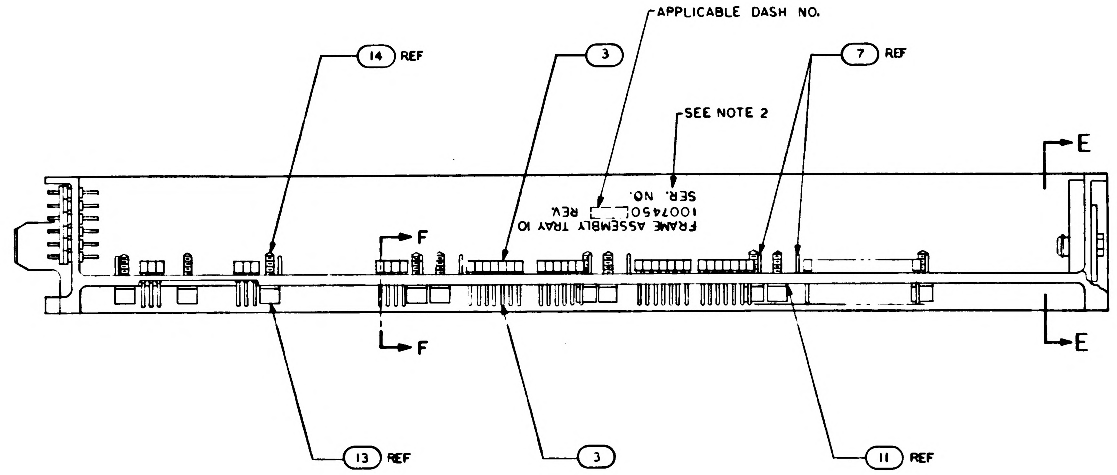
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	25 MAR 65	RJJ
B	REVISED PER TDRR 18695	7 MAY 65	JJ
C	REVISED PER TDRR 18693	10 MAY 65	JJJ
D	REVISED PER TDRR 18694	2 MAY 65	JJ

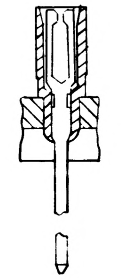


PARTIAL SECTION E-E

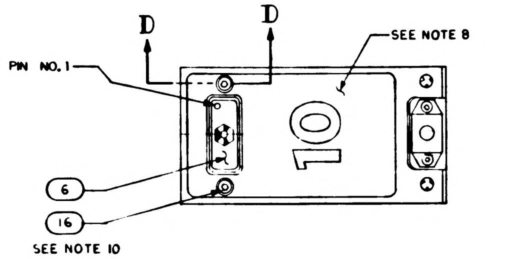


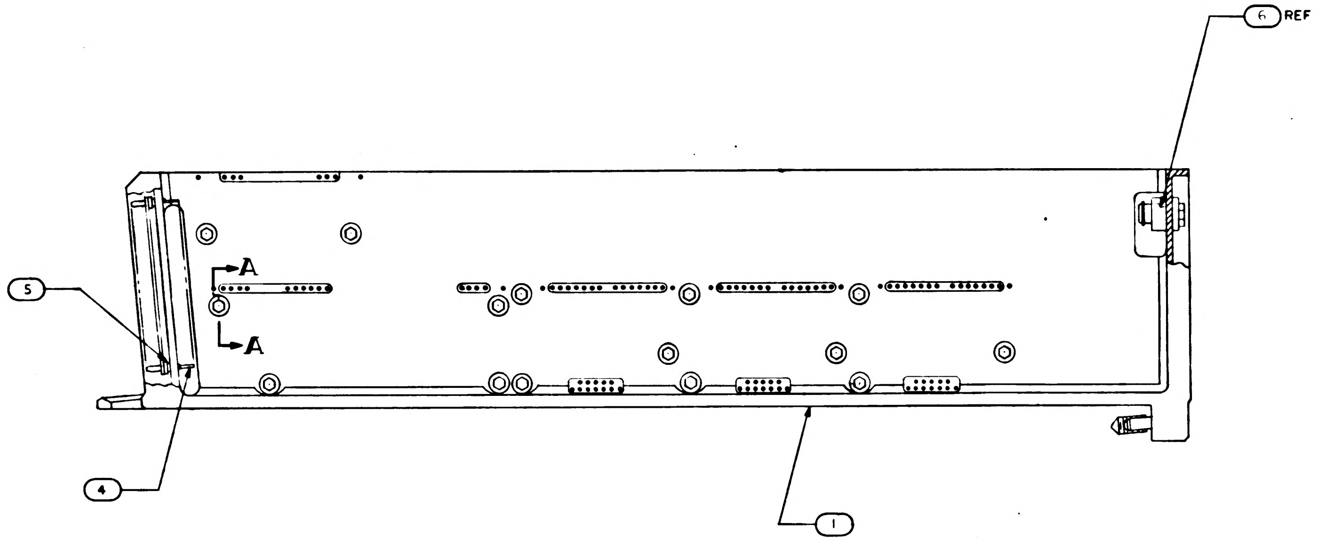
PARTIAL SECTION D-D
SCALE 2/1

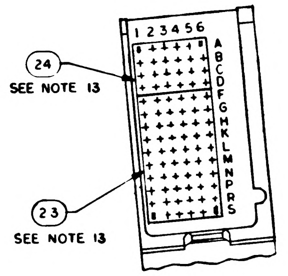


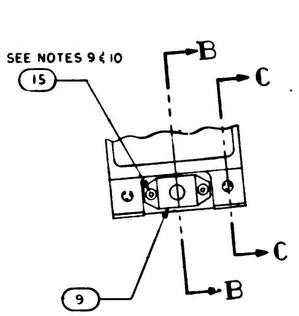


PARTIAL SECTION F-F
98 PLACES



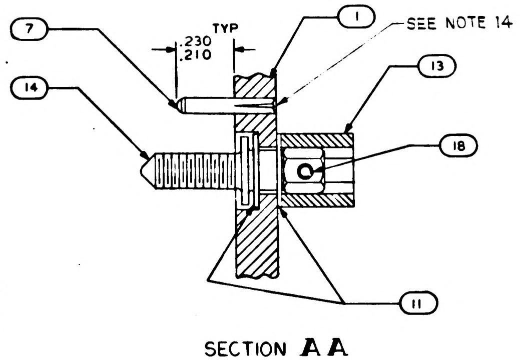




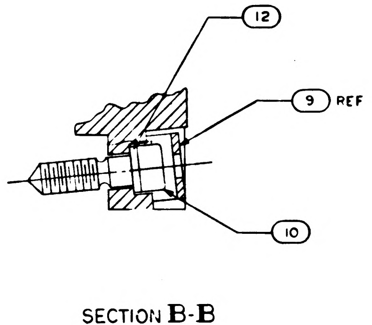


NOTES:

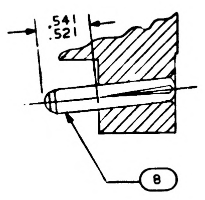
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND 1002019 (BLACK) .100/.140 HIGH AND SERIALIZE PER ND 1002023.
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND DWG 1010686
4. ASSEMBLE FIND NUMBERS 2, 3, 4 AND 5 PER ND 1002136
5. BOND FIND NO. 20, 21 AND 22 TO FIND NO. 1 PER ND 1002004 TYPE I AS NECESSARY
6. ENCAPSULATE PER ND 1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAMES AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19.
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO. 15 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 15 AND 16 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND 1002071. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007150.
13. BOND FIND NO'S. 23 AND 24 TO FIND NO. 5 PER ND 1002237.
14. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.
15. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND 1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND 1002004 TYPE I.



SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A10E8	45A10J1-24
45A10E9	45A10J1-17
45A10E10	45A10J1-32
45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
			011				
					1009560	WIRING DIAGRAM	REF
			1		1008551	GASKET, CONNECTOR, TRAY	24
			1		1008552	GASKET, CONNECTOR TRAY	23
			1		1015771	WIRE LIST A-A	22
			1		1015770	WIRING HARNESS B	21
			1		1015769	WIRING HARNESS A	20
			1		1007093	BUFFER RESISTORS MODULE ASSY	19
			15		MS 171433	PIN, SPRING	18
			2		MS 21045 C 04	NUT, SELF-LOCKING HEX	17
			2		MS 16995-11	SCREW, CAP, SOCKET HEAD	16
			3		MS 16995-10	SCREW, CAP, SOCKET HEAD	15
			15		1008172	SCREW, JACK	14
			15		1004207	DRIVE CYLINDER	13
			1		1008099-2	WASHER	12
			30		1004206	WASHER, THRUST	11
			1		1008098	SCREW, SOCKET HEAD	10
			1		1001317	RETAINER, JACK SCREW	9
			2		1010620-5	PIN, GUIDE	8
			10		[illegible]4	PIN, GUIDE	7
			1		1010622-1	CONNECTOR RECEPTACLE	6
			84		1010383-1	INSULATOR, WRAPOST, MALE	5
			84		1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
			98		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			98		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008110	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007460		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± .02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
Contract NAS 9-4065
DRAWN R J Foy DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

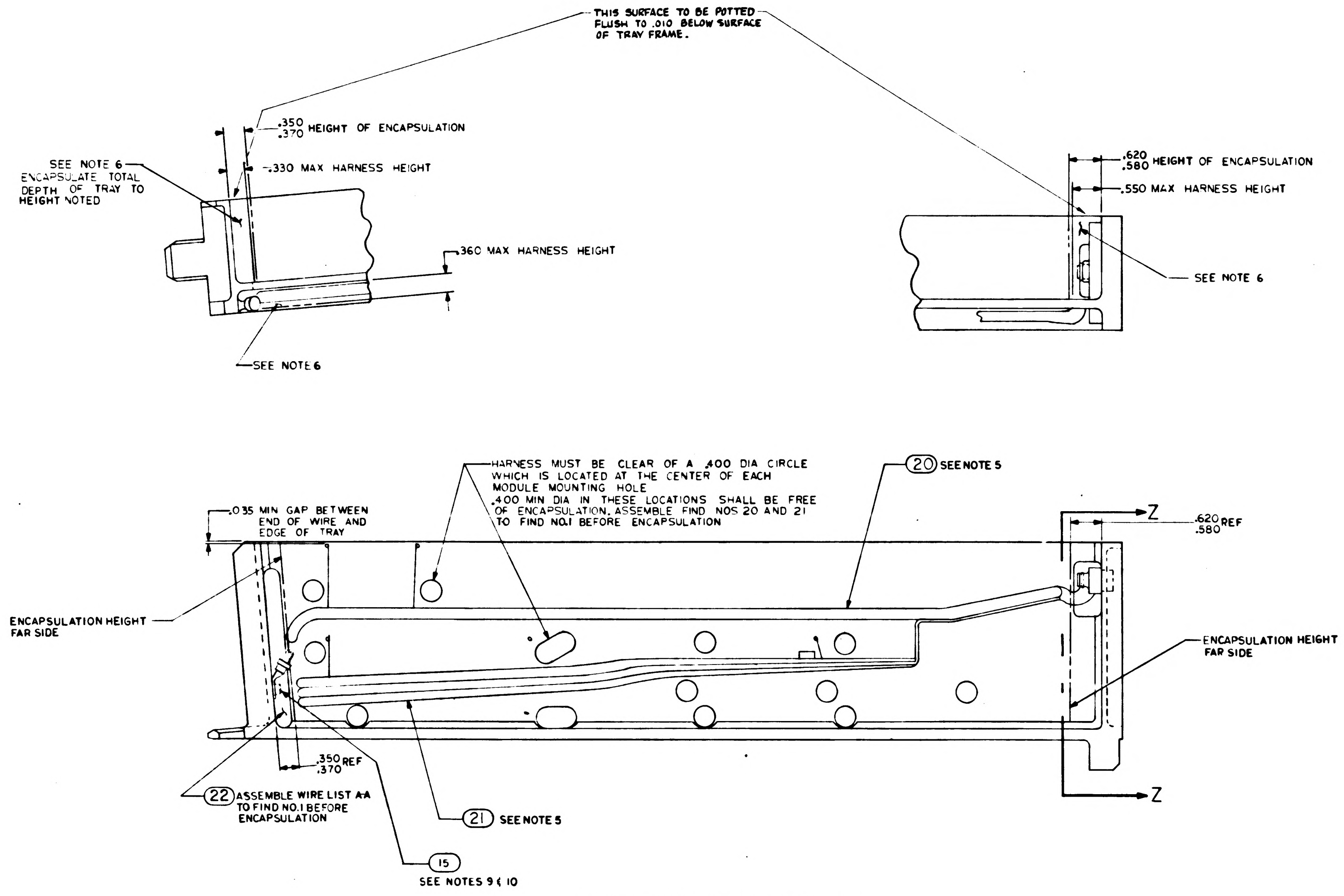
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007450
SCALE 1/1
WT
SHEET 1 OF 2

1007450 D

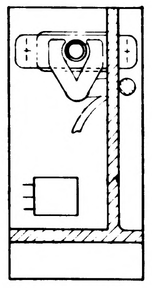
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	25 MAR 65	RJJ
B	REVISED PER TDRR 18695	7 MAY 65	CP
C	REVISED PER TDRR 18693	10 MAY 65	
D	REVISED PER TDRR 18694	2 MAY 65	


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6
.620 .580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
SEE NOTE 6
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
20 SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350 .370 REF
Z
22 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ENCAPSULATION
21 SEE NOTE 5
15 SEE NOTES 9 & 10

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS ± —
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN R J Fox DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

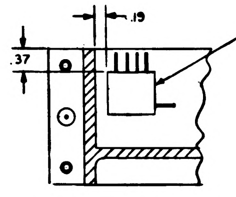
FRAME ASSEMBLY
TRAY 10

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007450
SCALE 1/1
WT
SHEET 2 OF 2

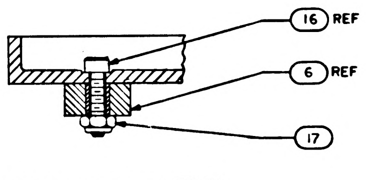
1007450 D

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

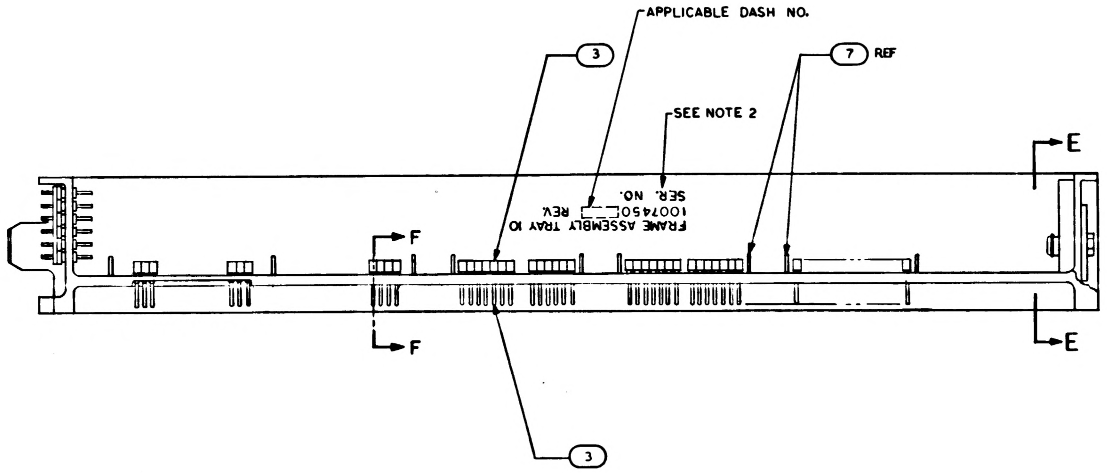
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TORR 17613	25 MAR 65	RJJ
B	REVISED PER TDRR 18695	MAY 65	JJ
C	REVISED PER TDRR 18693	MAY 65	JJ
D	REVISED PER TDRR 18694	3 MAY 65	JJ
E	REVISED PER TDRR 20110	JUN 65	

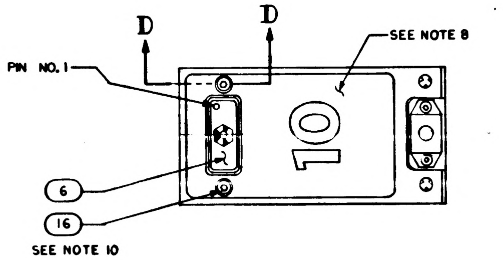


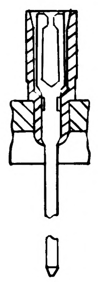
PARTIAL SECTION E-E



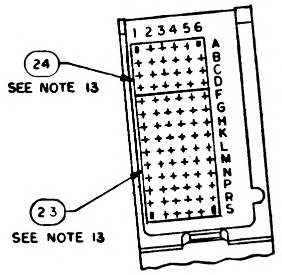
PARTIAL SECTION D-D
SCALE 2/1

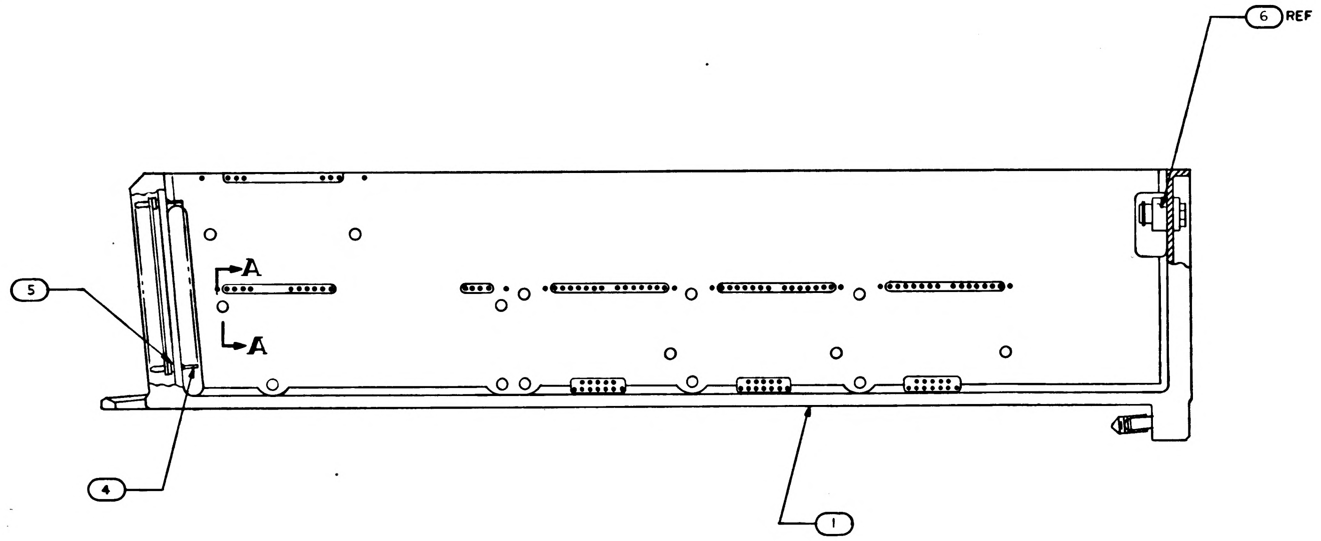


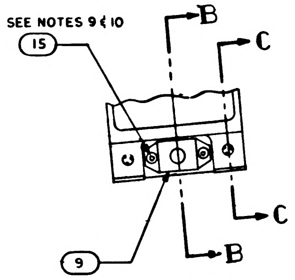




PARTIAL SECTION F-F
98 PLACES

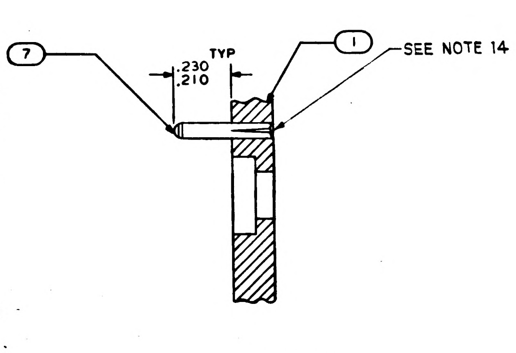




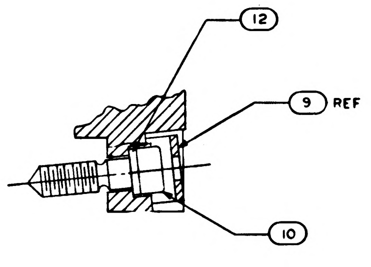


NOTES:

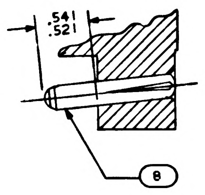
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK PER ND 1002019 (BLACK) .100/.140 HIGH AND SERIALIZE PER ND 1002023.
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND DWG 1010686
4. ASSEMBLE FIND NUMBERS 2, 3, 4 AND 5 PER ND 1002136
5. BOND FIND NO. 20, 21 AND 22 TO FIND NO. 1 PER ND 1002004 TYPE I AS NECESSARY.
6. ENCAPSULATE PER ND 1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAMES AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19.
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO. 15 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
10. MOUNTING TORQUE FOR FIND NUMBERS 15 AND 16 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND 1002071. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007150.
13. BOND FIND NO'S. 23 AND 24 TO FIND NO. 5 PER ND 1002237.
14. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.
15. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND 1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND 1002004 TYPE I.



SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A10E8	45A10J1-24
45A10E9	45A10J1-17
45A10E10	45A10J1-32
45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			011				
			╳		1009560	WIRING DIAGRAM	REF
			1		1008551	GASKET, CONNECTOR, TRAY	24
			1		1008552	GASKET, CONNECTOR TRAY	23
			1		1015771	WIRE LIST A-A	22
			1		1015770	WIRING HARNESS B	21
			1		1015769	WIRING HARNESS A	20
			1		1007093	BUFFER RESISTORS MODULE ASSY	19
			~~15~~		~~MS 171433~~	~~PIN, SPRING~~	18
			2		MS 21045 C 04	NUT, SELF-LOCKING HEX	17
			2		MS 16995-11	SCREW, CAP, SOCKET HEAD	16
			3		MS 16995-10	SCREW, CAP, SOCKET HEAD	15
			~~15~~		~~1008172~~	~~SCREW, JACK~~	14
			~~15~~		~~1004207~~	~~DRIVE CYLINDER~~	13
			1		1008099-2	WASHER	12
			~~30~~		~~1004206~~	~~WASHER, THRUST~~	11
			1		1008098	SCREW, SOCKET HEAD	10
			1		1001317	RETAINER, JACK SCREW	9
			2		1010620-5	PIN, GUIDE	8
			10		MS16556-604	PIN, GUIDE	7
			1		1010622-1	CONNECTOR RECEPTACLE	6
			84		1010383-1	INSULATOR, WRAPOST, MALE	5
			84		1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
			98		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			98		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008110	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007460		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± .02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN R. J. Foy DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL
APPROVAL 11-29-64
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

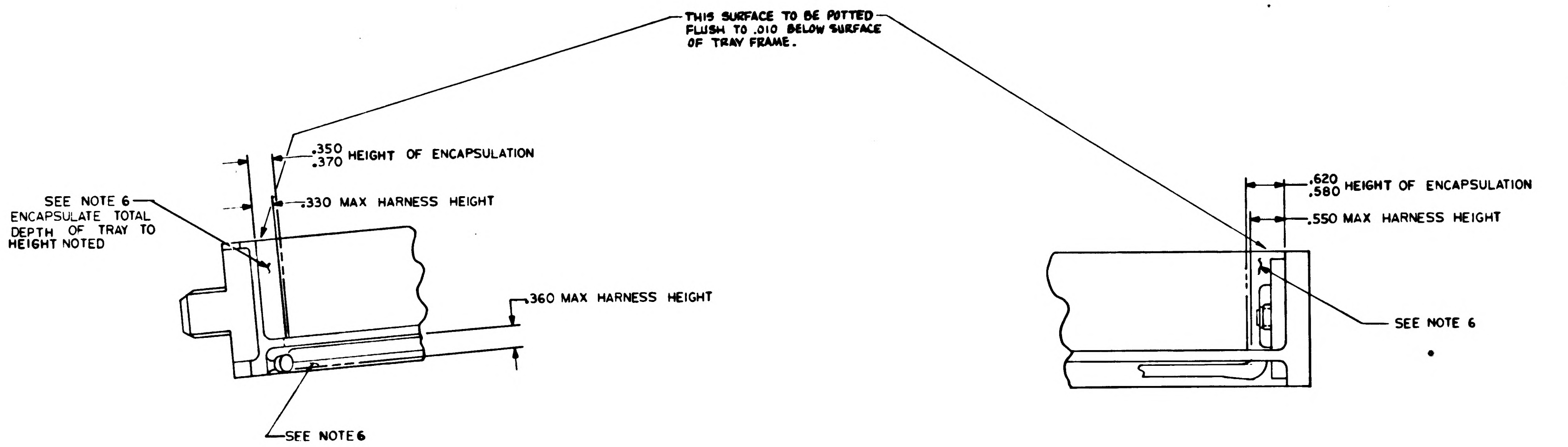
FRAME ASSEMBLY
TRAY 10

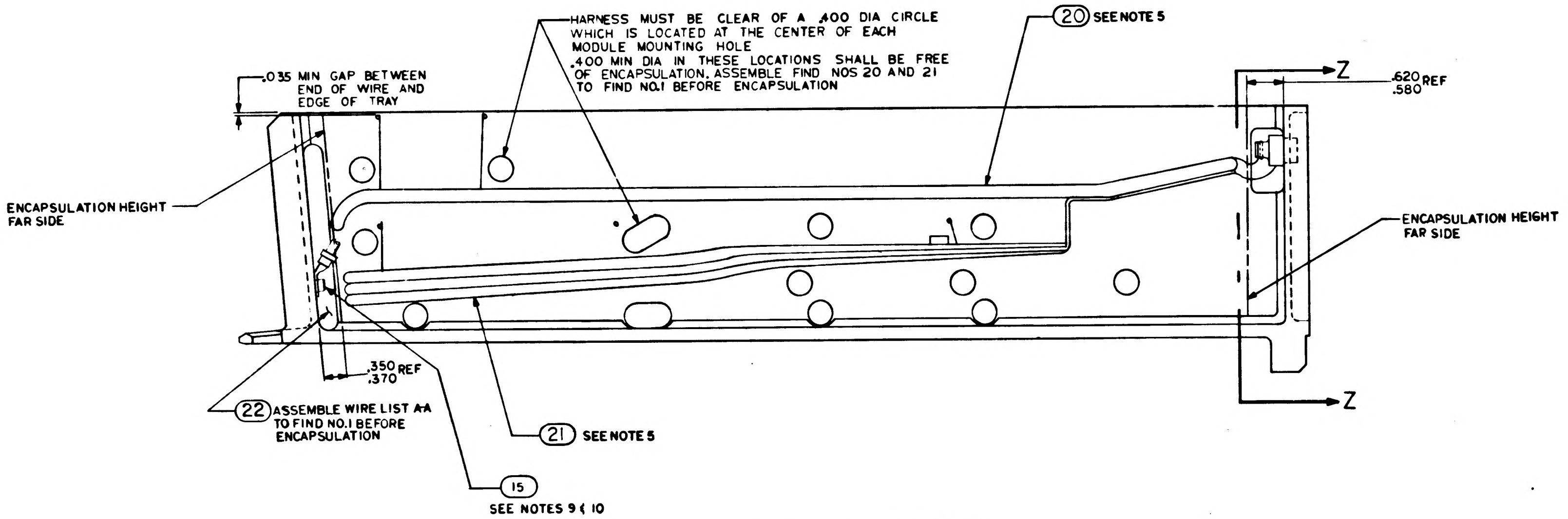
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007450
SCALE 1/1
WT
SHEET 1 OF 2

1007450 E

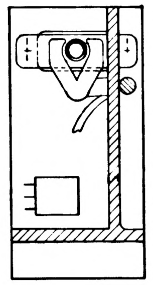
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	25 MAR 65	RJJ
B	REVISED PER TDRR 18695	7 MAY 65	
C	REVISED PER TDRR 18693	10 MAY 65	
D	REVISED PER TDRR 18694	2 MAY 65	
E	REVISION STATUS CHANGED	9 JUN 65	


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6
.620 .580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
SEE NOTE 6


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
20 SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350 .370 REF
Z
22 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ENCAPSULATION
21 SEE NOTE 5
15 SEE NOTES 9 & 10

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN R. J. Fox DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

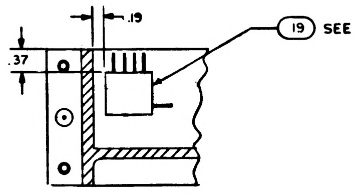
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

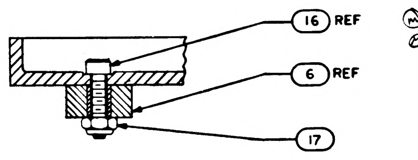
CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 1007450
SCALE 1/1
WT
SHEET 2 OF 2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

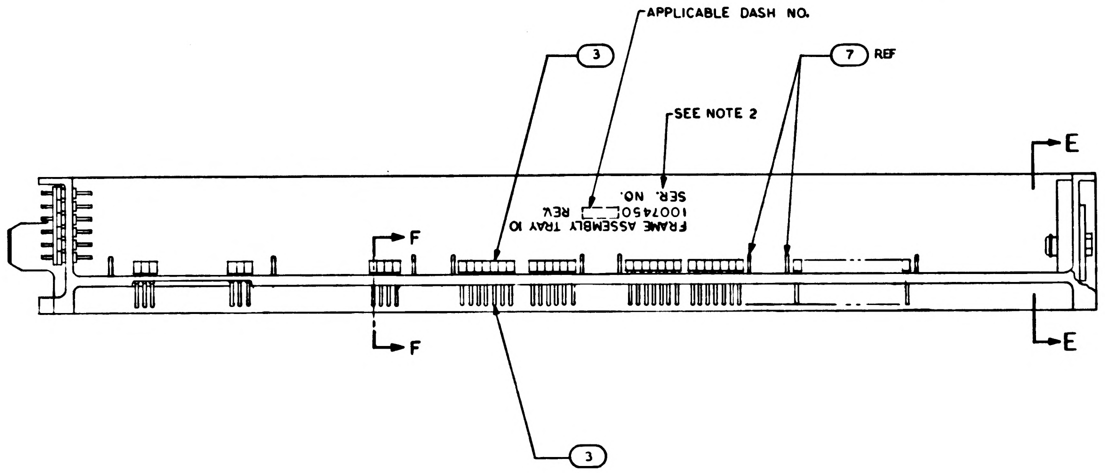
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	25 MAR 65	RJJ
B	REVISED PER TDRR 18695	MAY 65	JJ
C	REVISED PER TDRR 18693	MAY 65	JJ
D	REVISED PER TDRR 8694	3 MAY 65	JJ
E	REVISED PER TDRR 20119	2 JUN 65	
F	*REVISION STATUS CHANGED*	2 JUN 65	

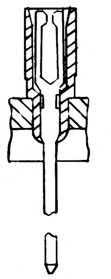


PARTIAL SECTION E-E

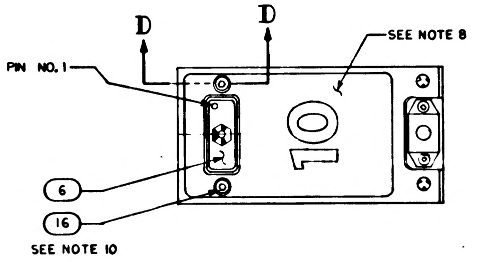


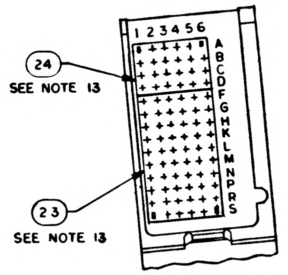
PARTIAL SECTION D-D
SCALE 2/1

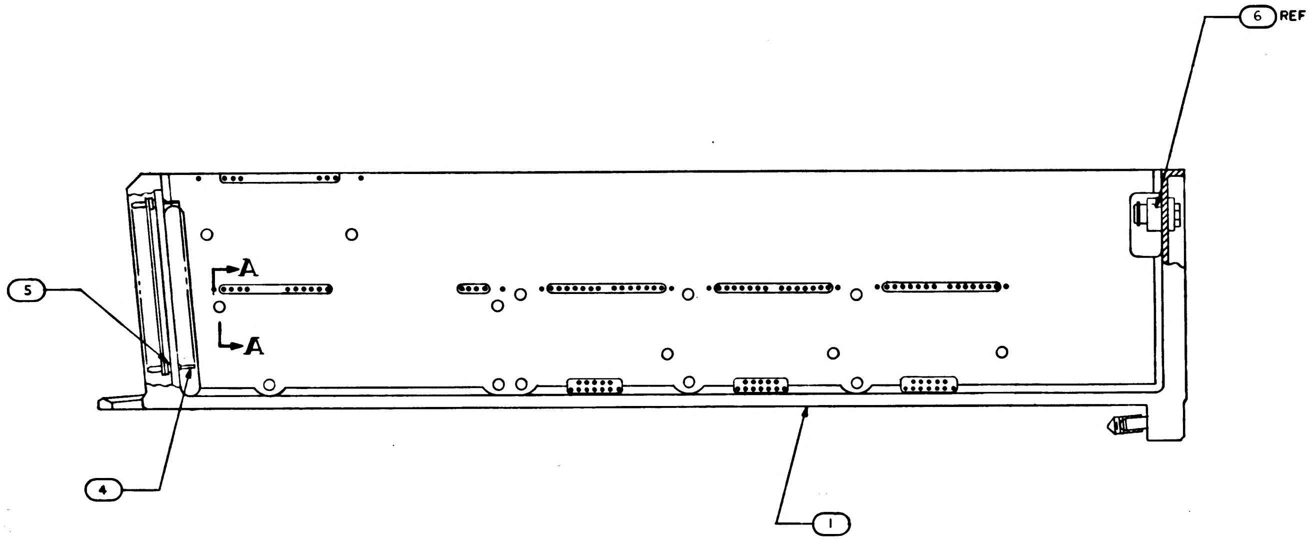


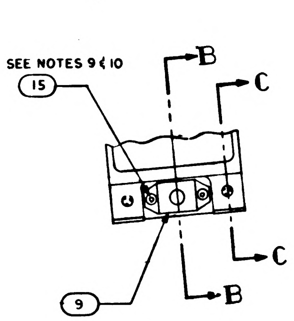


PARTIAL SECTION F-F
98 PLACES



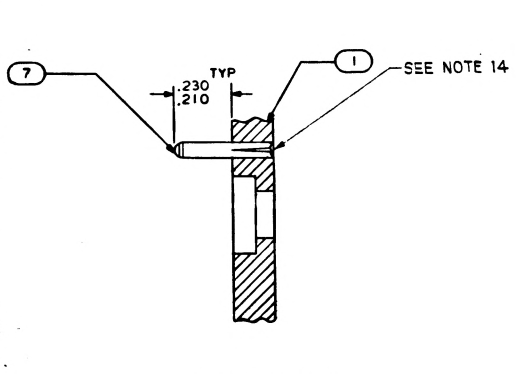




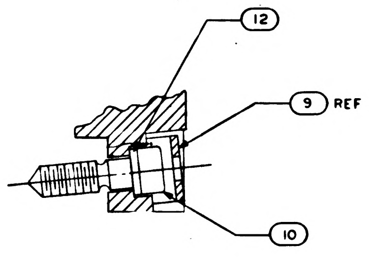


NOTES:

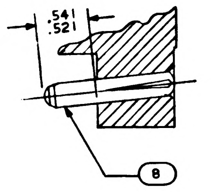
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MARK PER ND 1002019 (BLACK) .100/.140 HIGH AND SERIALIZE PER ND 1002023.
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND 1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND DWG 1010686
4. ASSEMBLE FIND NUMBERS 2, 3, 4 AND 5 PER ND 1002136
5. BOND FIND NO. 20, 21 AND 22 TO FIND NO. 1 PER ND 1002004 TYPE I AS NECESSARY.
6. ENCAPSULATE PER ND 1002236, SECTION 3.6, CURE CYCLE A USING 1012503, .010 ABOVE TO .050 BELOW PERIPHERAL SURFACES OF TRAY FRAMES AND A MINIMUM DEPTH OF .010 ENCAPSULATION OVER ANY COMPONENT. PRIMER TO EXTEND BEYOND ENCAPSULATION MATERIAL BUT NOT TO EXCEED .188 MAX. MODULE MOUNTING SURFACE TO BE FREE OF PRIMER.
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19.
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO. 15 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER).
10. MOUNTING TORQUE FOR FIND NUMBERS 15 AND 16 TO FIND NO. 1 TO BE 5.0-5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND 1002005. ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND 1002071. ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007150.
13. BOND FIND NO'S. 23 AND 24 TO FIND NO. 5 PER ND 1002237.
14. FILL MODULE GUIDE PIN HOLES AND ANY ASSOCIATED CRACKS IN PLATING (AFTER GUIDE PIN INSERTION) USING TYPE I ADHESIVE PER ND 1002004, POTTING SIDE ONLY.
15. COAT 1010622 OR 1010821 CONNECTOR SOCKET HOLES (WITH AND WITHOUT WIRES) WITH ND 1002009 METHOD D. SEAL OPENING BETWEEN FRAME AND CONNECTOR WITH ND 1002004 TYPE I.



SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A10E8	45A10J1-24
45A10E9	45A10J1-17
45A10E10	45A10J1-32
45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			011				
					1009560	WIRING DIAGRAM	REF
			1		1008551	GASKET, CONNECTOR, TRAY	24
			1		1008552	GASKET, CONNECTOR TRAY	23
			1		1015771	WIRE LIST A-A	22
			1		1015770	WIRING HARNESS B	21
			1		1015769	WIRING HARNESS A	20
			1		1007093	BUFFER RESISTORS MODULE ASSY	19
			~~15~~		~~MS 171433~~	~~PIN, SPRING~~	18
			2		MS 21045 C 04	NUT, SELF-LOCKING HEX	17
			2		MS 16995-11	SCREW, CAP, SOCKET HEAD	16
			3		MS 16995-10	SCREW, CAP, SOCKET HEAD	15
			~~15~~		~~1008172~~	~~SCREW, JACK~~	14
			~~15~~		~~1004207~~	~~DRIVE CYLINDER~~	13
			1		1008099-2	WASHER	12
			~~30~~		~~1004206~~	~~WASHER, THRUST~~	11
			1		1008098	SCREW, SOCKET HEAD	10
			1		1001317	RETAINER, JACK SCREW	9
			2		1010620-5	PIN, GUIDE	8
			10		MS 16555-204	PIN, GUIDE	7
			1		1010622-1	CONNECTOR RECEPTACLE	6
			84		1010383-1	INSULATOR, WRAPOST, MALE	5
			84		1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
			98		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			98		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008110	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007460		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± .02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
Cambridge Mass
Contract NAS 9-497
DRAWN R J Foy DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

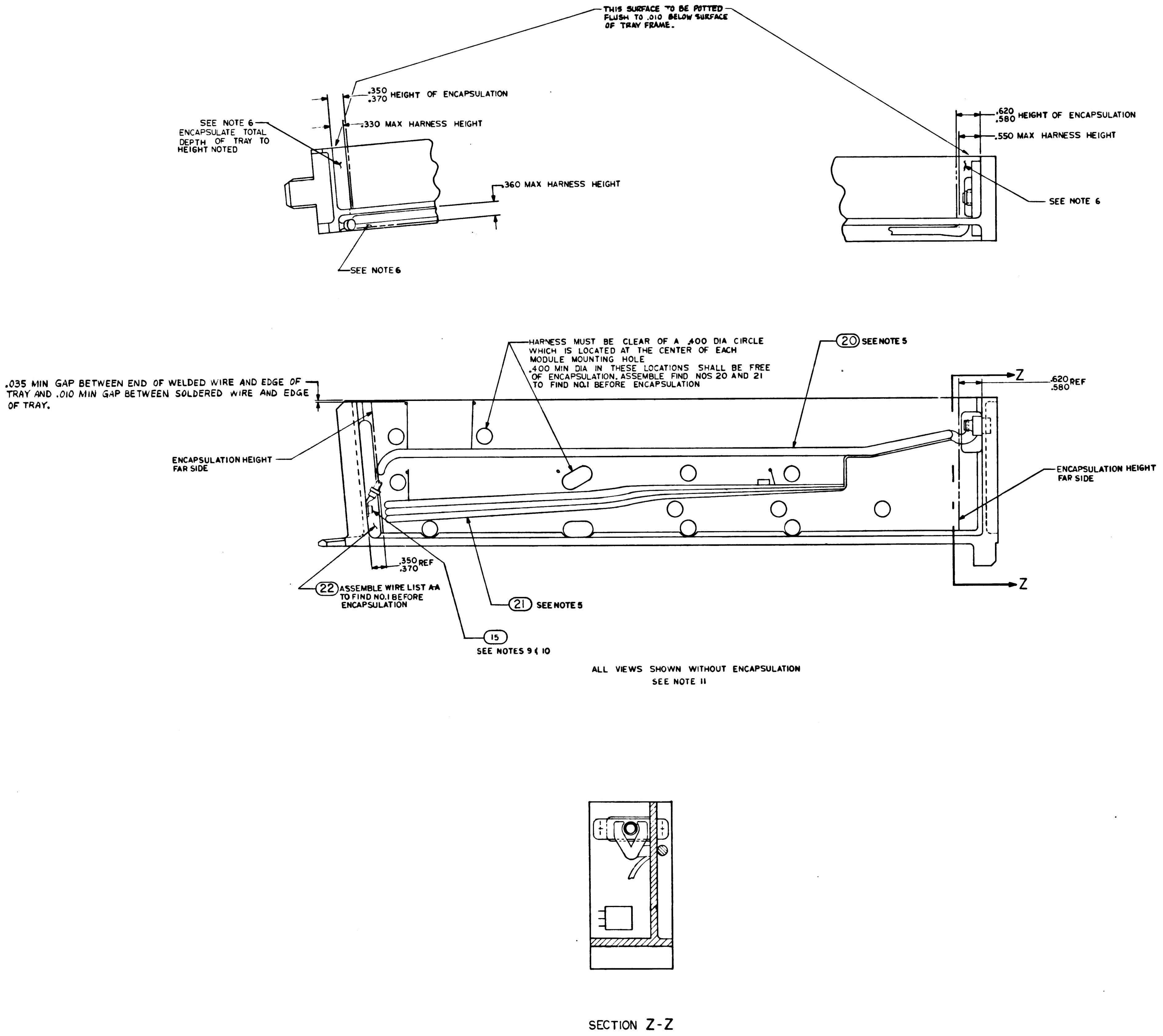
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 1007450
SCALE 1/1
WT
SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17613	25 MAR 65	RJJ
B	REVISED PER TDRR [illegible]	MAY 65	[illegible]
C	REVISED PER TDRR [illegible]	MAY 65	[illegible]
D	REVISED PER TDRR [illegible]	MAY 65	[illegible]
E	REVISION STATUS CHANGED	JUN 65	[illegible]
F	REVISED PER TDRR 20687	12 JUL 65	[illegible]


THIS SURFACE TO BE POTTED FLUSH TO .010 BELOW SURFACE OF TRAY FRAME.
.350 .370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6 ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6
.620 .580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
SEE NOTE 6
HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE. .400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
20 SEE NOTE 5
.035 MIN GAP BETWEEN END OF WELDED WIRE AND EDGE OF TRAY AND .010 MIN GAP BETWEEN SOLDERED WIRE AND EDGE OF TRAY.
Z
.620 .580 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350 .370 REF
Z
22 ASSEMBLE WIRE LIST AA TO FIND NO.1 BEFORE ENCAPSULATION
21 SEE NOTE 5
15 SEE NOTES 9 & 10
ALL VIEWS SHOWN WITHOUT ENCAPSULATION SEE NOTE 11
SECTION Z-Z

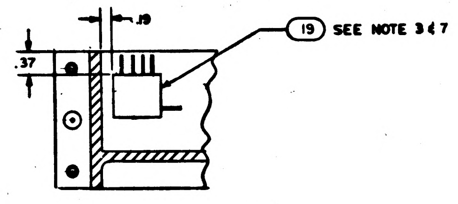
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

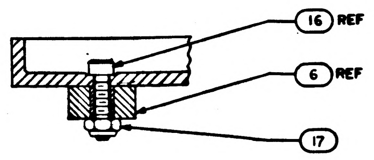
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ± — ANGLES ± — DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS Contract NAS 9-497	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
MATERIAL —	DRAWN R J Fox DATE 30 SEP 64 CHECKED 7 OCT 64 APPROVAL 8 OCT 64 APPROVAL	FRAME ASSEMBLY TRAY 10
HEAT TREATMENT —	NASA APPROVAL 11-4-64	CODE IDENT NO. 80230 SIZE E NASA DRAWING NO 1007450
FINAL FINISH —	MIT APPROVAL	SCALE 1/1 WT SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

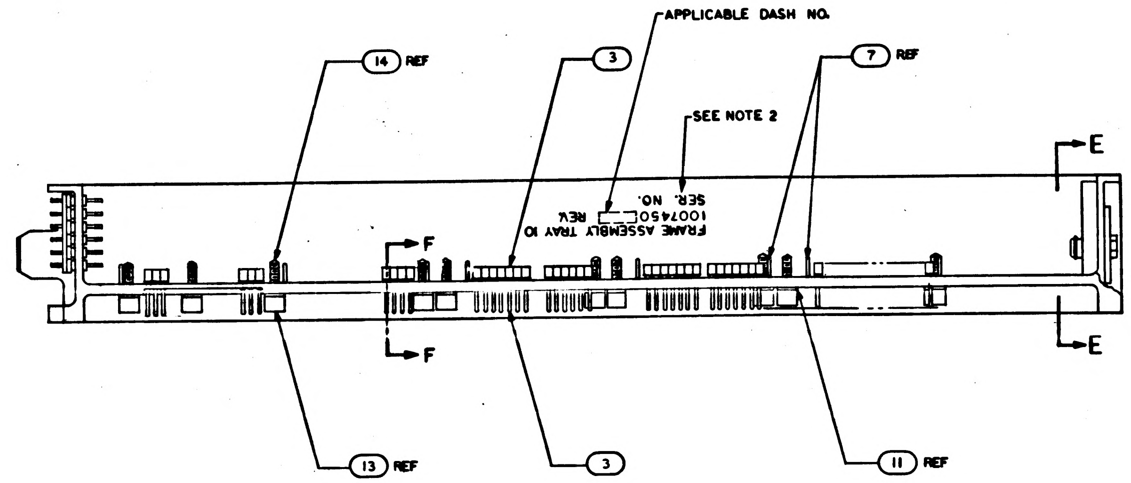
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL

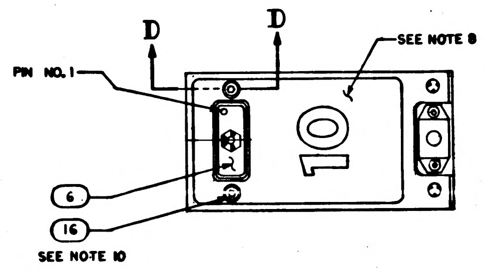


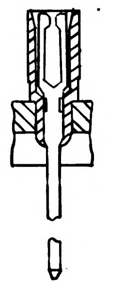
PARTIAL SECTION E-E



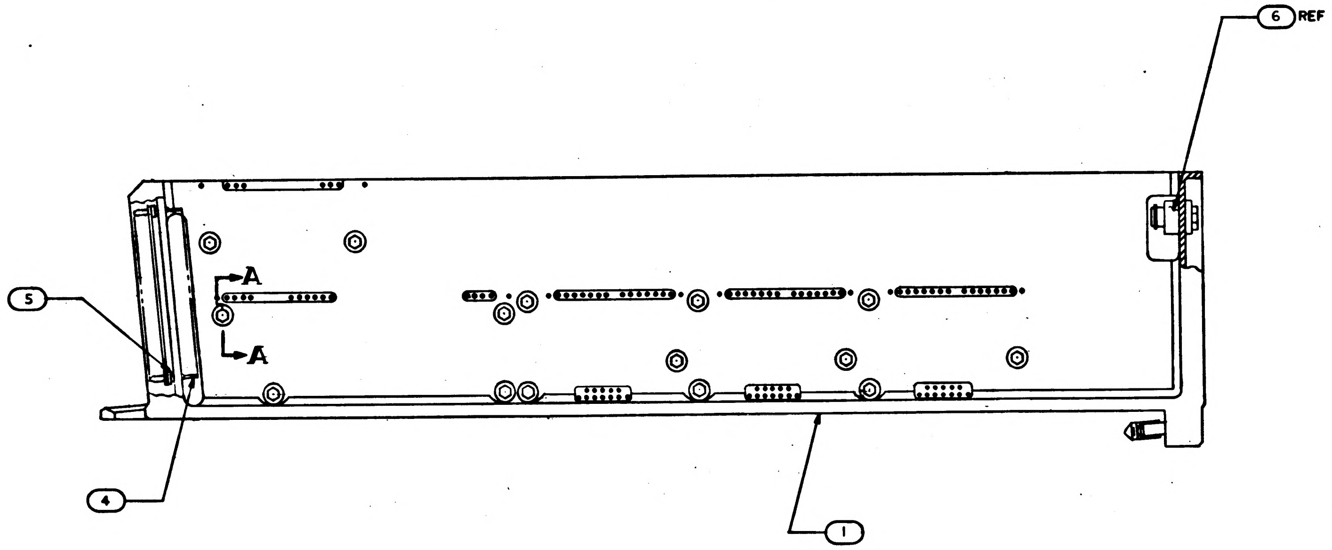
PARTIAL SECTION D-D
SCALE 2/1

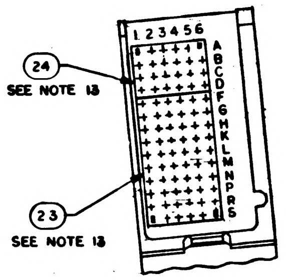


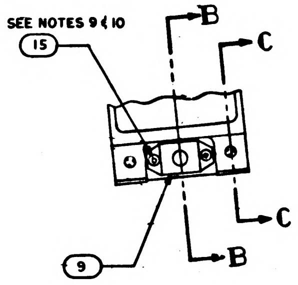




PARTIAL SECTION F-F
98 PLACES

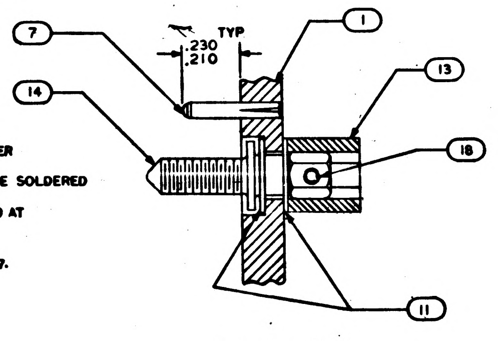




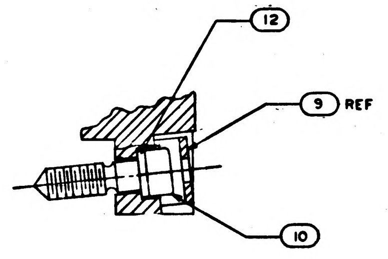


NOTES:

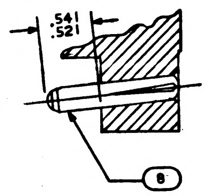
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK PER ND1002019 (BLACK) .100/.140 HIGH & SERIALIZE PER ND1002023.
3. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 USING FLEXIBLE FORMULATION OF NASA DWG 1010657 AND DWG 1010686
4. ASSEMBLE FIND NUMBERS 2,3,4 AND 5 PER ND1002136
5. BOND FIND NO. 20,21 AND 22 TO FIND NO. 1 PER ND1002004 TYPE I AS NECESSARY
6. ENCAPSULATE PER ND1002002 (BLACK POLYURETHANE FOAM) FLUSH TO .010 BELOW PERIPHERAL SURFACES OF TRAY FRAME
7. SEE CONDUCTOR TERMINATION CHART FOR FIND NO. 19
8. ALL AREAS IN THIS VIEW (FRONT END) TO BE COMPLETELY FREE OF ENCAPSULATION MATERIAL INCLUDING CONNECTOR AND PINS IN CONNECTOR. EVIDENCE OF ENCAPSULATION MATERIAL SEEPAGE NOT PERMISSIBLE.
9. COAT THREADS OF FIND NO 15 DURING ASSEMBLY TO FIND NO. 1 WITH MIL-P-8585 (WET ZINC CHROMATE PRIMER)
10. MOUNTING TORQUE FOR FIND NUMBERS 15 AND 16 TO FIND NO. 1 TO BE 5.0–5.5 IN. LB.
11. ALL NICKEL WIRE HARNESS TERMINATIONS TO BE WELDED PER ND1002005.
    ALL STRANDED COPPER WIRE HARNESS TERMINATIONS TO BE SOLDERED AS REQUIRED PER ND1002071
    ALL CRIMPED CONTACT PIN TERMINATIONS TO BE INSERTED AT TERMINATION POINTS.
12. PROCURE PER PS 1007150.
13. BOND FIND NO'S. 23 AND 24 TO FIND NO. 5 PER ND 1002237.



SECTION A-A
SCALE 4/1



SECTION B-B
SCALE 2/1



SECTION C-C
SCALE 2/1

TERMINATION CHART	
FROM	TO
45A10E8	45A10J1-24
45A10E9	45A10J1-17
45A10E10	45A10J1-32
45A10E11	45A10J1-2
45A10E12	45A10J1-10
45A10E13	45A10J1-11
45A10E16	45A10J1-27
45A10E17	45A10J1-28

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
						LIST OF MATERIALS	
			-01				
			☒		1009560	WIRING DIAGRAM	REF
			1		1008551	GASKET, CONNECTOR, TRAY	24
			1		1008552	GASKET, CONNECTOR TRAY	23
			1		1015771	WIRE LIST A-A	22
			1		1015770	WIRING HARNESS B	21
			1		1015769	WIRING HARNESS A	20
			1		1007093	BUFFER RESISTORS MODULE ASSY	19
			15		MS 171433	PIN, SPRING	18
			2		MS 21045 C 04	NUT, SELF-LOCKING HEX	17
			2		MS 16995-11	SCREW, CAP, SOCKET HEAD	16
			3		MS 16995-10	SCREW, CAP, SOCKET HEAD	15
			15		1008172	SCREW, JACK	14
			15		1004207	DRIVE CYLINDER	13
			1		1008099-2	WASHER	12
			30		1004206	WASHER, THRUST	11
			1		1008098	SCREW, SOCKET HEAD	10
			1		1001317	RETAINER, JACK SCREW	9
			2		1010620-5	PIN, GUIDE	8
			10		1010620-4	PIN, GUIDE	7
			1		1010622-1	CONNECTOR RECEPTACLE	6
			84		1010383-1	INSULATOR, WRAPOST, MALE	5
			84		1010382-1	CONTACT, BLADE EDGE CONNECTOR	4
			98		1006781-2	CONTACT, WRAPOST, FEMALE MIN	3
			98		1006774	INSULATOR, WRAPOST, FEMALE MIN	2
			1		1008110	FRAME	1

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007460		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± .02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN R. J. Frye DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL 8 OCT 64
APPROVAL 11-28-64
NASA APPROVAL W. J. 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007450
SCALE 1/1 WT
SHEET 1 OF 2

1007450

MASTER

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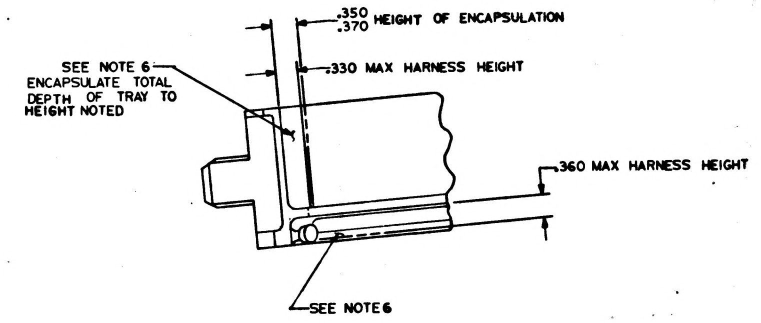
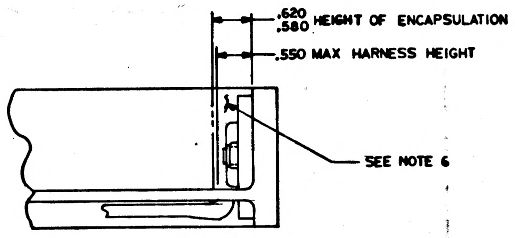
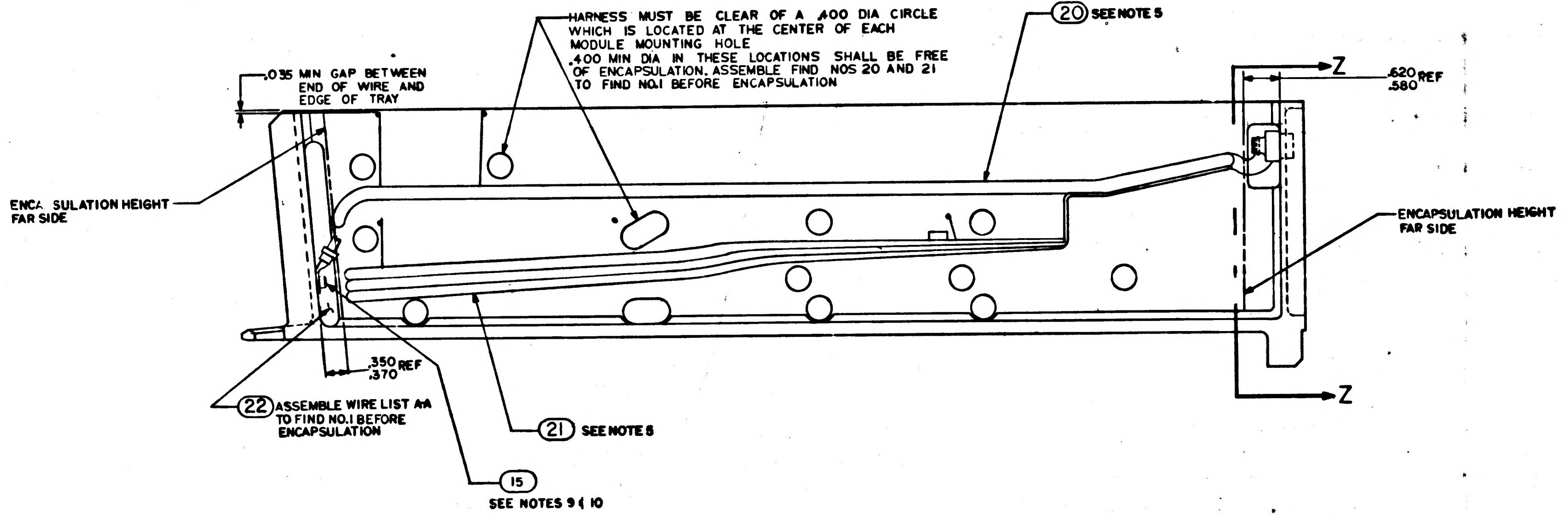
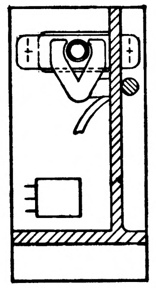
REVISIONS / 3923			
SYM	DESCRIPTION	DATE	APPROVAL


.350
.370 HEIGHT OF ENCAPSULATION
.330 MAX HARNESS HEIGHT
SEE NOTE 6
ENCAPSULATE TOTAL DEPTH OF TRAY TO HEIGHT NOTED
.360 MAX HARNESS HEIGHT
SEE NOTE 6


.620
.580 HEIGHT OF ENCAPSULATION
.550 MAX HARNESS HEIGHT
SEE NOTE 6


HARNESS MUST BE CLEAR OF A .400 DIA CIRCLE WHICH IS LOCATED AT THE CENTER OF EACH MODULE MOUNTING HOLE
.400 MIN DIA IN THESE LOCATIONS SHALL BE FREE OF ENCAPSULATION. ASSEMBLE FIND NOS 20 AND 21 TO FIND NO.1 BEFORE ENCAPSULATION
20 SEE NOTE 5
.035 MIN GAP BETWEEN END OF WIRE AND EDGE OF TRAY
Z
.620
.580 REF
ENCAPSULATION HEIGHT FAR SIDE
ENCAPSULATION HEIGHT FAR SIDE
.350
.370 REF
22 ASSEMBLE WIRE LIST A-A TO FIND NO.1 BEFORE ENCAPSULATION
21 SEE NOTE 5
15 SEE NOTES 9 & 10
Z

ALL VIEWS SHOWN WITHOUT ENCAPSULATION
SEE NOTE 11



SECTION Z-Z

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —//— DECIMALS ± —//— ANGLES ± —//—
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497
DRAWN R. J. Fox DATE 30 SEP 64
CHECKED 7 OCT 64
APPROVAL 8 OCT 64
APPROVAL 10-28-64
NASA APPROVAL W. J. Rhine 11-4-64
MIT APPROVAL 4 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME ASSEMBLY
TRAY 10.

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007450
SCALE 1/1
WT
SHEET 2 OF 2

1007450

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SYM	ZONE	REVISIONS 13060 DESCRIPTION	DR	CHK	DATE	APPROVED

		DASH NO. 011
PART NO.	DESCRIPTION	REQ'D.
1007540-011	Gimbal Servo Amplifier Module Assembly	3
1007541-011	Gimbal Coarse Align Amplifier Module Assembly	3
1007542-011	Power Supply, -28VDC Module Assembly	1
1007543-011	Auto-Amplitude Controller and Multivibrator (3200 CPS) Module Ass'y.	1
1007402-011	Amplifier, 1% (3200 CPS) Module Assembly	1
1007545-011	Temperature Controller Power Supply (3200 CPS, 20V) Module Ass'y.	1
1007531-011	Frame Assembly, Tray 1	1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007400	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
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CAMBRIDGE, MASS.

DRAWN	B Rigazio	9-25-64
CHECKED		
APPROVED		
APPROVED	D. B. Test	9/29/64
APPROVED MIT	W Kupfer	29/Sep/64
APPROVED MSC	W J Rhine	9-29-64
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

GIMBAL SERVO
ELECTRONICS ASSEMBLY
TRAY 1 (50 SERIES)

CODE IDENT NO.	SIZE	DRAWING NO.
	C	1007451
SCALE NONE		SHEET 1 OF 1

1007451

INCHES
0 1 2
PHOTOGRAPHIC SCALE CHECK

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REVISIONS 13060

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

DASH NO. 011

PART NO.	DESCRIPTION	REQ'D.
1007437-011	1% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007438-011	5% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007546-011	Auto-amplitude Controller (800 CPS, 28V) Module Assembly	1
1007412-011	Power Supply (+ 120 VDC, + 12 VDC) Module Assembly	1
See Note	Load Compensation Module Assembly	1
1007439-011	Power Supply (25.6 KC, Encoder Excitation) Module Assembly	2
1007551-011	Failure Indicator Module Assembly	1
1007532-011	Frame Assembly, Tray 2	1

NOTE: Select Part from Table I Per ATP.

Table I
1007550-011
1007550-021
1007550-031
1007550-041

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007400	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

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DRAWN B Riggs 9-25-64
CHECKED
APPROVED
APPROVED 9-28-64
APPROVED MIT W Kupfer 29 Sep 64
APPROVED MSC W J Rhine 9-28-64
DATE

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HOUSTON, TEXAS

POWER SUPPLY
ELECTRONICS ASSEMBLY
TRAY 2 (50 SERIES)

CODE IDENT NO. —
SIZE C
DRAWING NO. 1007452
SCALE NONE
SHEET 1 OF 1

1007452

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

REVISIONS 13060

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

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DASH NO. 011

PART NO.	DESCRIPTION	REQ'D.
1007517-011	A. C. Differential Amplifier Module Assembly	2
1007419-011	Interrogator Module Assembly	2
1007427-011	Binary Current Switch, Computer Output Module Assembly	2
1007507-011	D. C. Differential Amplifier & Precision Voltage Reference Module Ass'y.	3
1007509-011	PIPA Calibration Module Assembly (For reference only. This module is part of IMU Assembly)	2
1007521-011	Pulse Torque Gyro Calibration Module Assembly (For reference only. This module is part of IMU Assembly.)	1
1007533-011	Frame Assembly, Tray 3	1

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007400	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN B Rigazzio 9-25-64
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC 9-28-64
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

GYRO ACCELEROMETER
ELECTRONICS ASSEMBLY
TRAY 3 (50 SERIES)

CODE IDENT NO.
SIZE C
DRAWING NO. 1007453
SCALE NONE
SHEET 1 OF 1

1007453

MASTER

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

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REVISIONS 13060

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

DASH NO. 011

PART NO.	DESCRIPTION	REQ'D.
1007517-011	A. C. Differential Amplifier Module Assembly	1
1007419-011	Interrogator Module Assembly	1
1007416-011	Ternary Current Switch Module Assembly	3
1007507-011	D. C. Differential Amplifier & Precision Voltage Reference Module Ass'y.	3
1007509-011	PIPA Calibration Module Assembly (For reference only. This module is part of IMU Assembly.)	1
1007521-011	Pulse Torque Gyro Calibration Module Assembly (For reference only. This module is part of IMU Assembly.)	2
1007427-011	Binary Current Switch, Computer Output, Module Assembly	1
1007534-011	Frame Assembly, Tray 4	1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007400	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

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DRAWN B Riggins 9-25-64
CHECKED
APPROVED
APPROVED 9/29/64
APPROVED MIT W Kupfer 29 Sep 64
APPROVED MSC 9-29-64
DATE

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GYRO ACCELEROMETER
ELECTRONICS ASSEMBLY
TRAY 4 (50 SERIES)

CODE IDENT NO. —
SIZE C
DRAWING NO. 1007454
SCALE NONE
SHEET 1 OF 1

1007454

INCHES
0 1 2
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SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

REVISIONS 13060

DASH NO. 011

PART NO.	DESCRIPTION	REQ'D.
1007558-011	Forward-Backward Counter Module Assembly	1
1007555-011	CDU, Digital to Analog Converter Module Assembly	3
1007414-011	Encoder Module Assembly	3
1007561-011	CDU Zeroing & Lock Relays Module Assembly	1
1007535-011	Frame Assembly, Tray 5	1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007400	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
———

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 9-25-68
CHECKED
APPROVED
APPROVED 9/30/68
APPROVED MIT 27 Sept 68
APPROVED MSC 9-28-68
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CDU & GYRO–ACCELEROMETER ELECTRONICS ASSEMBLY
TRAY 5 (50 SERIES)

CODE IDENT NO. ——
SIZE C
DRAWING NO. 1007455
SCALE NONE
SHEET 1 OF 1

1007455

INCHES 0 1 2
PHOTOGRAPHIC SCALE ONLY

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REVISIONS 13060

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A	—	REPLACED BY CONFIGURATION DWG REV B PER TDRR 13915			11/4/64	

DASH NO. 011

PART NO.	DESCRIPTION	REQ'D.
1007560-011	Motor Drive Amplifier & Selector Module Assembly	3
1007437-011	1% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007438-011	5% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007546-011	Auto-Amplitude Controller (800 CPS, 28V) Module Assembly	1
1007564-011	CDU Zeroing Transformer & Relays Module Assembly	1
1007462-011	CDU Resolver Loads Module Assembly	1
1007446-011	Frame Assembly, Tray 6	1

Ⓐ REPLACED BY CONFIGURATION DWG REV B

1007456

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MASTER

NEXT ASSY	USED ON
1007400	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
————

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN		9-25-64
CHECKED		
APPROVED		
APPROVED		9/28/64
APPROVED MIT		25/9/64
APPROVED MSC		9-29-64
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CDU & POWER SUPPLY
ELECTRONICS ASSEMBLY
TRAY 6 (50 SERIES)

CODE IDENT NO.	SIZE	DRAWING NO.
——	C	1007456

SCALE NONE
SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

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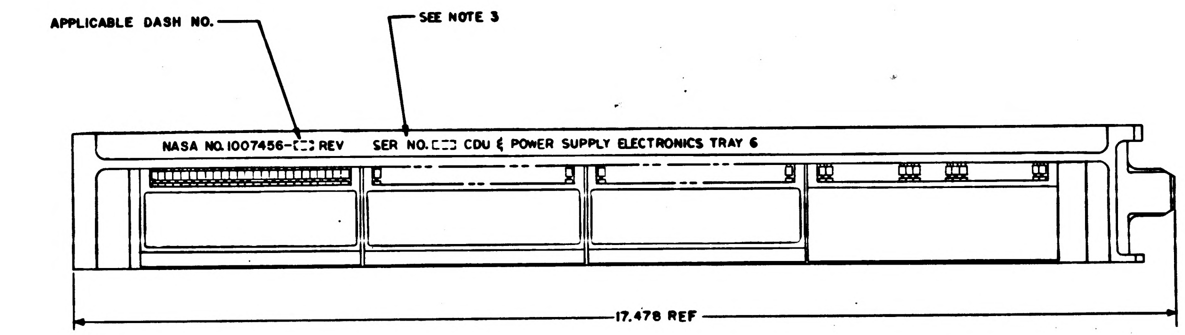
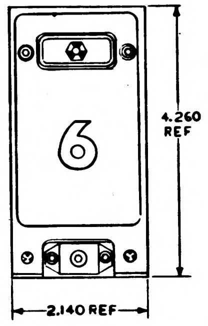
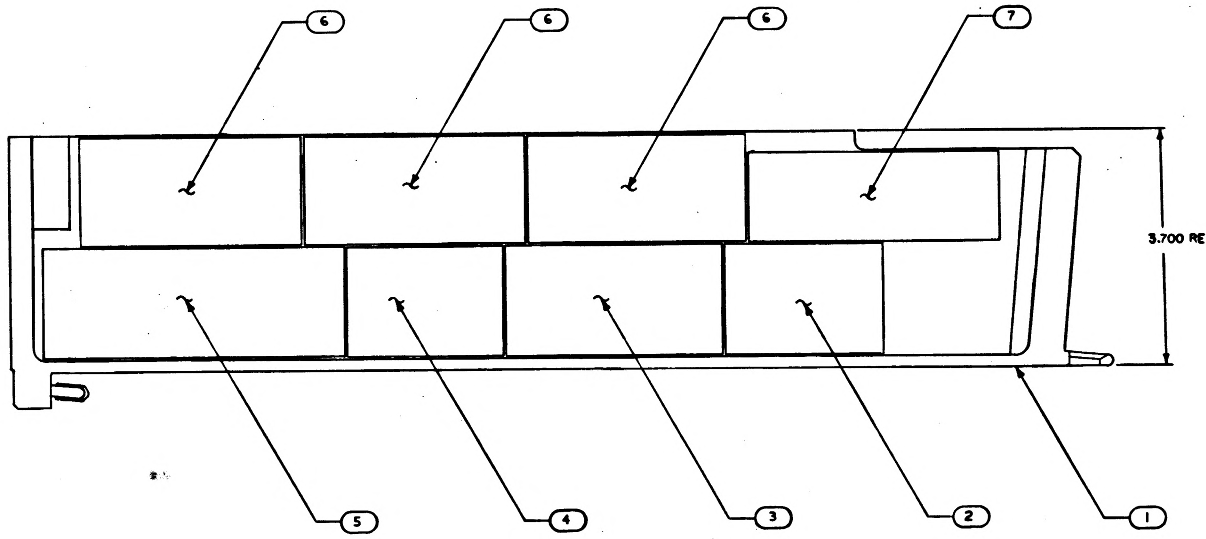
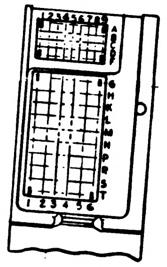
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
B	REPLACES WORD DWG REV A PER TDRR 13915	11/4/64	









Ⓑ REPLACES WORD DWG REV A

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO'S 2,3,4,5,6 AND 7 TO FIND NO. 1 TO BE 13-17 IN LB
3. MARK PER ND1002019, (WHITE) .140/.100 HIGH AND SERIALIZE PER ND 1002023

			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO.
			1		1007462-011	CDU RESOLVER LOADS	7
			3		1007560-011	MOTOR DRIVE AMP / SELECTOR CIRCUIT	6
			1		1007438-011	AMPLIFIER 5% 800CPS	5
			1		1007546-011	AAC FILTER & MULTIVIBRATOR 800 CPS	4
			1		1007437-011	AMPLIFIER 1%-800 CPS	3
			1		1007564-011	CDU ZEROING TRANS, RELAYS	2
			1		1007446-011	FRAME ASSEMBLY	1

QUANTITY REQUIRED

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007400		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± .020 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE 16 SEP 64
CHECKED 5 OCT 64
APPROVAL 8 OCT 64
APPROVAL 11-29-?
NASA APPROVAL W J R 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CDU & POWER SUPPLY
ELECTRONICS ASSEMBLY
TRAY 6

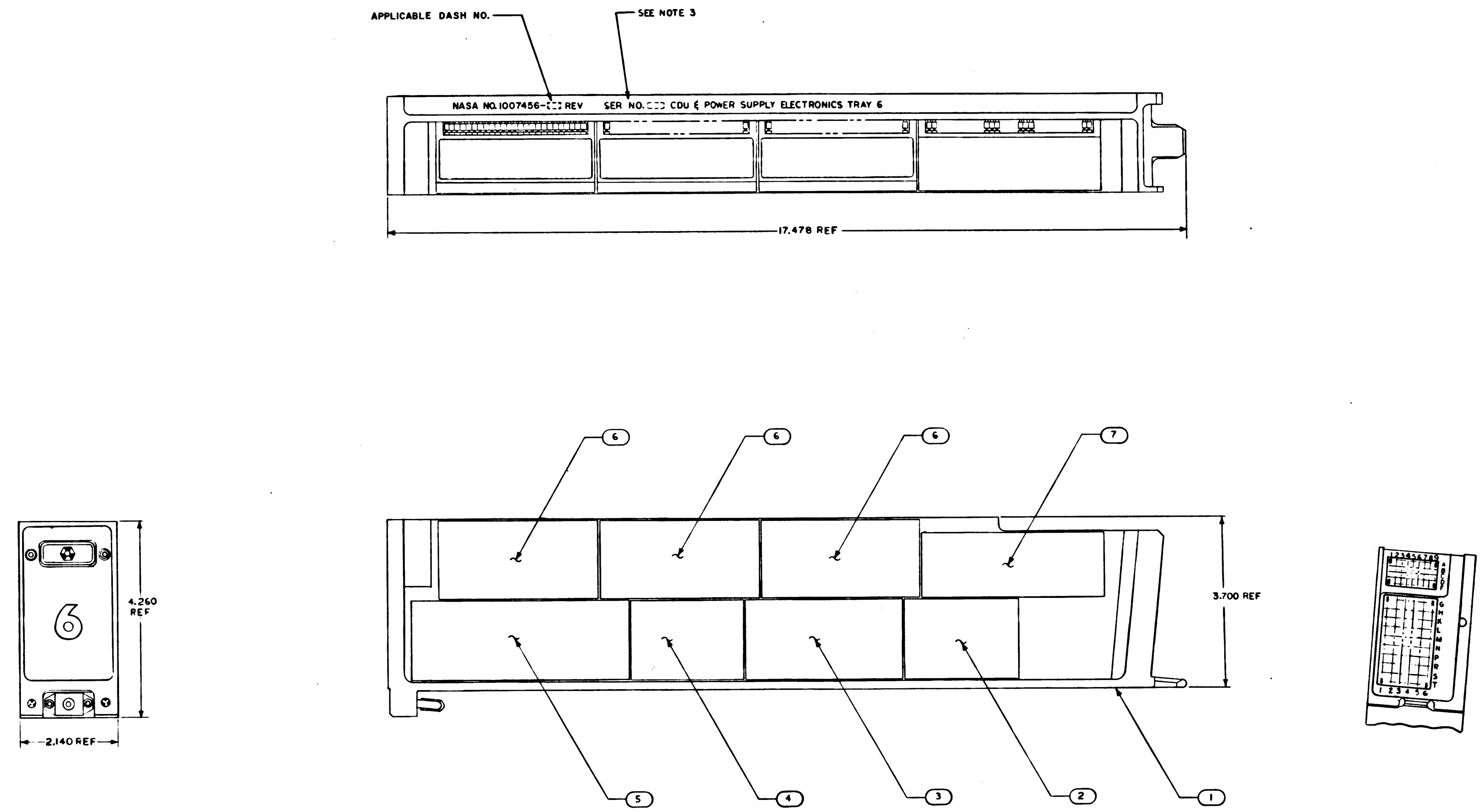
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007456
SCALE 1/1
WT
SHEET 1 OF 1

1007456 B

MASTER

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
Ⓑ B	REPLACES WORD DWG REV A PER TDRR 13915	64	wR
C	REV PER TDRR 16859	4 MAR 65	



Ⓑ REPLACES WORD DWG REV A

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO'S 2,3,4,5,6 AND 7 TO FIND NO. 1 TO BE 13-17 IN LB
3. MARK PER ND1002019, (WHITE) .140/.100 HIGH AND SERIALIZE PER ND 1002023
4. APPLY THIN LAYER OF THERMAL SILICONE COMPOUND FIND NO. 8 TO THE HEATSINK PORTION OF THE MOUNTING FACE OF ALL MODULES. AFTER ASSEMBLY OF THE MODULES ON THE TRAY, THE COMPOUND SHALL NOT BE VISIBLE ON THE EXPOSED SURFACES OF THE MODULES AND TRAY. CLEANING IS PERMITTED.

SEE NOTE 4

			AR		1006879	SILICONE COMPOUND	8
			1		1007462-011	CDU RESOLVER LOADS	7
			3		1007560-011	MOTOR DRIVE AMP & SELECTOR CIRCUIT	6
			1		1007438-011	AMPLIFIER 5% -800CPS	5
			1		1007546-011	AAC FILTER & MULTIVIBRATOR 800 CPS	4
			1		1007437-011	AMPLIFIER 1% -800CPS	3
			1		1007564-011	CDU ZEROING TRANS, RELAYS	2
			1		1007446-011	FRAME ASSEMBLY	1
			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF MATERIALS		

1007400		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

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TOLERANCES ON
FRACTIONS ± — DECIMALS ± .020 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 25 SEP 64
CHECKED 5 OCT 64
APPROVAL 8 OCT 64
APPROVAL 11-29-3
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CDU & POWER SUPPLY ELECTRONICS ASSEMBLY TRAY 6

CODE IDENT NO. | SIZE E | NASA DRAWING NO 1007456
SCALE 1/1 | WT | SHEET 1 OF 1

NOTICE WHEN GOVERNMENT DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
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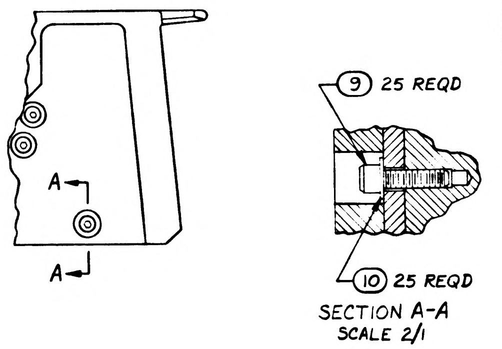
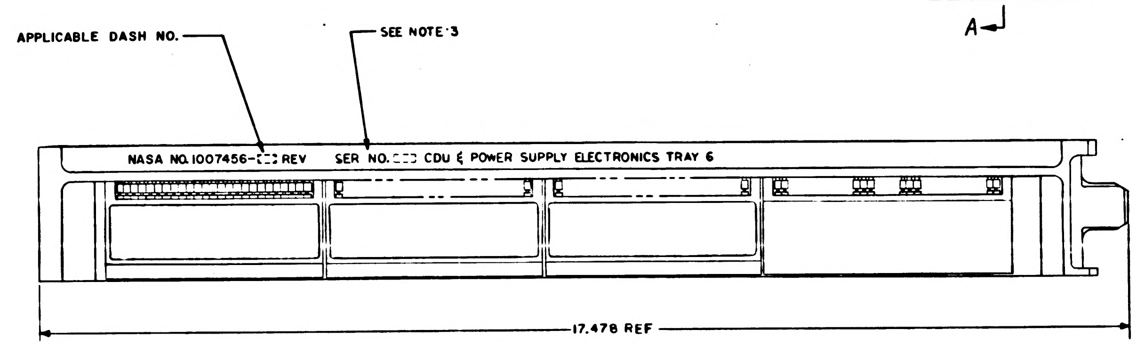
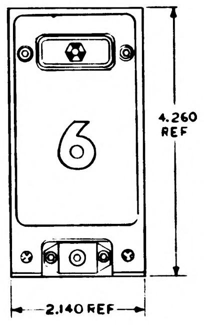
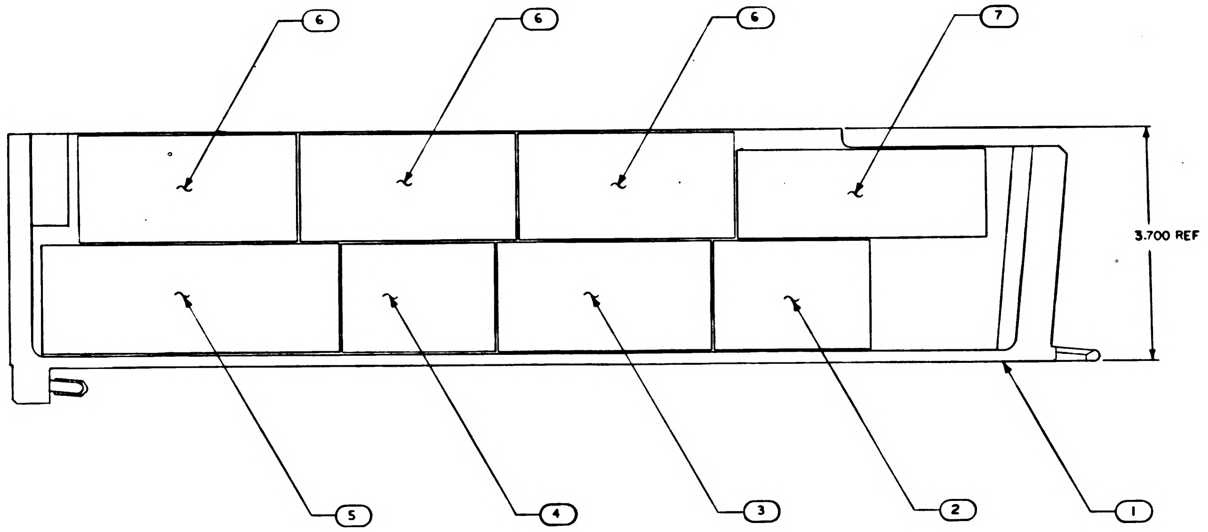
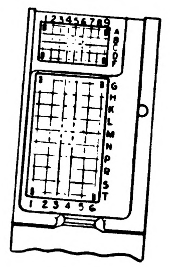
C	REV PER TDRR 16859	4 MAR 65	HO
D	REVISED PER TDRR 20119		











Ⓑ REPLACES WORD DWG REV A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO'S 2,3,4,5,6 AND 7 TO FIND NO. 1 TO BE 25-30 IN LB
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SEE NOTE 4

			25		MS 15795-805	WASHER, FLAT	10
			25		NAS 1352-06-8	SCREW, CAP, SOCKET HD	9
			AR		1006879	SILICONE COMPOUND	8
			1		1007462-011	CDU RESOLVER LOADS	7
			3		1007560-011	MOTOR DRIVE AMP & SELECTOR CIRCUIT	6
			1		1007438-011	AMPLIFIER 5φ-800CPS	5
			1		1007546-011	AAC FILTER & MULTIVIBRATOR 800 CPS	4
			1		1007437-011	AMPLIFIER 1φ-800CPS	3
			1		1007564-011	CDU ZEROING TRANS, RELAYS	2
			1		1007446-011	FRAME ASSEMBLY	1
			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF MATERIALS		

1007400		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

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DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± .020 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 28 SEPT 64
CHECKED 5 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL 11-6-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CDU & POWER SUPPLY
ELECTRONICS ASSEMBLY
TRAY 6

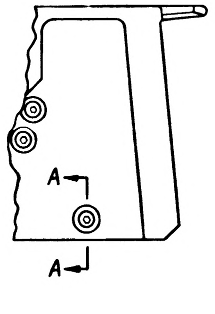
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007456
SCALE 1/1
WT
SHEET 1 OF 1

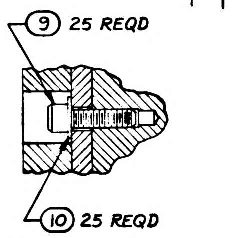
1007456 D

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

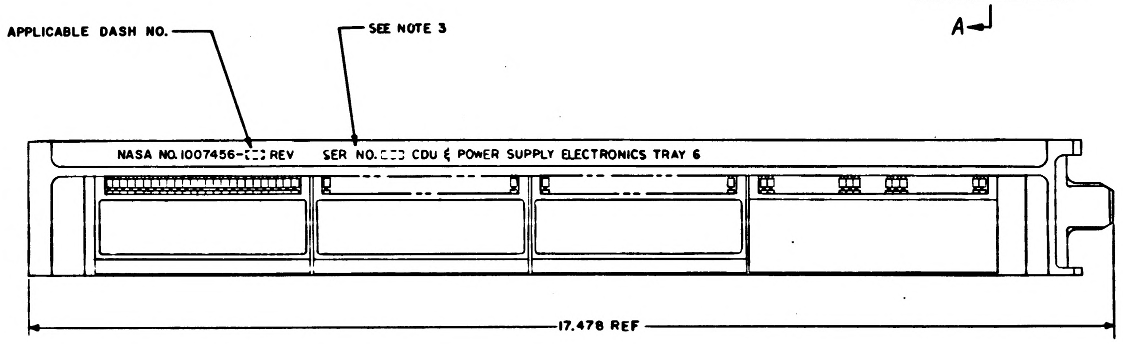
REVISIONS

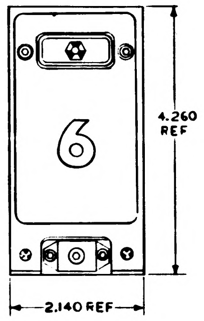
SYM	DESCRIPTION	DATE	APPROVAL
B	REPLACES WORD DWG REV A PER TDRR 3715	11/64	
C	REV PER TDRR 16859	4 MAR 65	
D	REVISED PER TDRR 20119	19 JUN 65	
E	REVISED PER TDRR 25361	3 JAN 66	

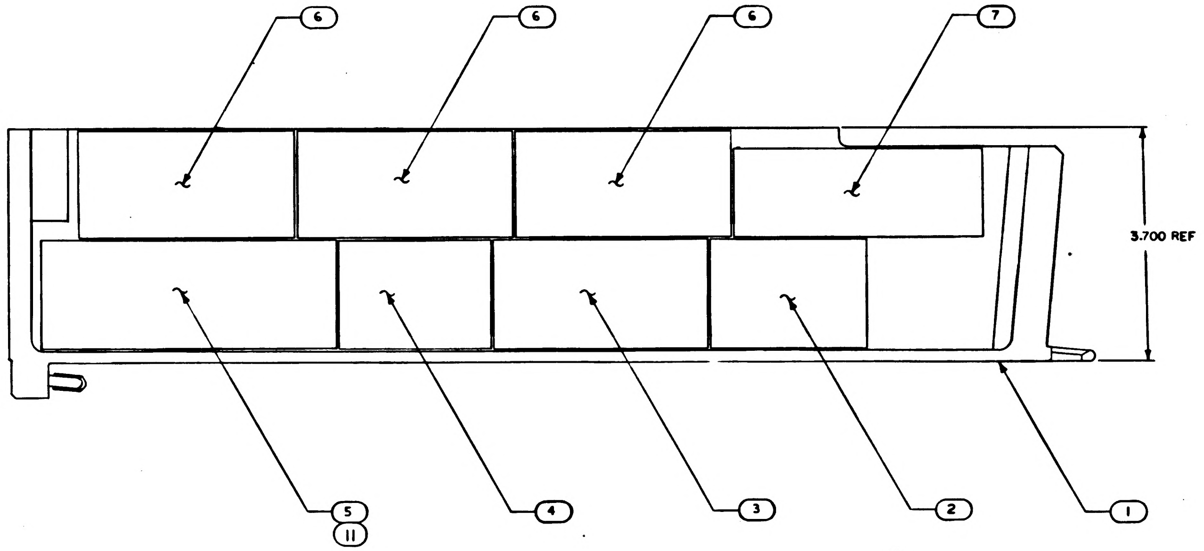


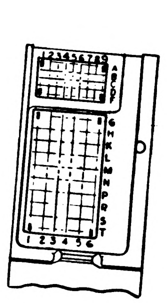


SECTION A-A
SCALE 2/1


APPLICABLE DASH NO.
SEE NOTE 3
NASA NO. 1007456-☐☐ REV SER NO. ☐☐☐ CDU & POWER SUPPLY ELECTRONICS TRAY 6
17.478 REF







Ⓑ REPLACES WORD DWG REV A

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO'S 2,3,4,5,6,7, AND 11 TO FIND NO. 1 TO BE 25-30 IN LB
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LIST OF MATERIALS

		1	—		1007548-011	AMPLIFIER 5% -800 CPS	11
		25	25		MS15795-805	WASHER, FLAT	10
		25	25		NAS1352-06-8	SCREW, CAP, SOCKET HD	9
SEE NOTE 4		AR	AR		1006879	SILICONE COMPOUND	8
		1	1		1007462-011	CDU RESOLVER LOADS	7
		3	3		1007560-011	MOTOR DRIVE AMP & SELECTOR CIRCUIT	6
		—	1		1007438-011	AMPLIFIER 5%-800CPS	5
		1	1		1007546-011	AAC FILTER & MULTIVIBRATOR 800 CPS	4
		1	1		1007437-011	AMPLIFIER 1%-800CPS	3
		1	1		1007564-011	CDU ZEROING TRANS, RELAYS	2
		1	1		1007446-011	FRAME ASSEMBLY	1
		021	011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED							

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007400		
APPLICATION		

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UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± .020 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 28 SEP 64
CHECKED 5 OCT 64
APPROVAL 8 OCT 64
APPROVAL 10-29-64
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CDU & POWER SUPPLY
ELECTRONICS ASSEMBLY
TRAY 6

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 1007456
SCALE 1/1 WT SHEET 1 OF 1

1007456 E

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REVISIONS 13060

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

DASH NO. 011

PART NO.	DESCRIPTION	REQ'D.
1007560-011	Motor Drive Amplifier & Selector Module Assembly	3
1007437-011	1% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007438-011	5% Power Amplifier (800 CPS, 28V) Module Assembly	1
1007546-011	Auto-Amplitude Controller (800 CPS, 28V) Module Assembly	1
1007564-011	CDU Zeroing Transformer & Relays Module Assembly	1
1007462-011	CDU Resolver Loads Module Assembly	1
1007446-011	Frame Assembly, Tray 6	1

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MASTER

NEXT ASSY	USED ON
1007400	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL ——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN 9-25-64
CHECKED
APPROVED
APPROVED 9/30/64
APPROVED MIT W Kupfer 29 Sep 64
APPROVED MSC W J Rhine 9-28-64
DATE

CDU & POWER SUPPLY ELECTRONICS ASSEMBLY
TRAY 6 (50 SERIES)

CODE IDENT NO. ——
SIZE C
DRAWING NO. 1007456
SCALE NONE
SHEET 1 OF 1

1007456

INCHES

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REVISIONS 13060

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

		DASH NO. 011
PART NO.	DESCRIPTION	REQ'D.
1007414-011	Encoder Module Assembly	2
1007412-011	Power Supply (+ 120 VDC, + 12 VDC) Module Assembly	1
1007563-011	CDU, Fixed Resolution Transformation & Entry Mode Module Ass'y.	1
1007426-011	IMU Temperature Controller Module Assembly	1
1007518-011	IMU Temperature Indicator, Alarm & Back-up Controller Module Ass'y.	1
1007593	Connector Plug Elec.	1
1007537-011	Frame Assembly, Tray 7	1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007400	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 9-25-64
CHECKED
APPROVED
APPROVED 9/28/64
APPROVED MIT 29 Sep 64
APPROVED MSC 9-29-64
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MISCELLANEOUS ELECTRONICS
ASSEMBLY
TRAY 7 (50 SERIES)

CODE IDENT NO. —
SIZE C
DRAWING NO. 1007457
SCALE NONE
SHEET 1 OF 1

1007457

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

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REVISIONS 13060

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REPLACED BY CONFIGURATION DWG REV B PER TDRR 13915			11/4/64	

DASH NO. 011

PART NO.	DESCRIPTION	REQ'D.
1007482-011	Motor Drive Amplifier Module Assembly	2
1007485-011	Relay Module Assembly	1
1007481-011	Motor Drive Pre-amp. Module Assembly (Integrator)	1
1007480-011	Two-Speed Switch Module Assembly	1
1007484-011	Buffer Circuit Module Assembly	1
1007555-011	CDU D to A Converter Module Assembly	2
1007487-011	Zero Optics Module Assembly	1
1007523-011	Resolver Drive Amplifier Module Assembly	1
1007483-011	Cosecant Generator Module Assembly	1
1007448-011	Frame Assembly, Tray 8	1

Ⓐ REPLACED BY CONFIGURATION DWG REV B

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

NEXT ASSY	USED ON
1007400	

APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN 9-25-64
CHECKED
APPROVED
APPROVED 9/28/64
APPROVED MIT 29/9/64
APPROVED MSC 9-29-64
DATE

OPTICAL ELECTRONICS ASSEMBLY TRAY 8 (50 SERIES)

CODE IDENT NO.
SIZE C
DRAWING NO. 1007458
SCALE NONE
SHEET 1 OF 1

INCHES
0 2
PHOTOGRAPHIC SCALE ONLY

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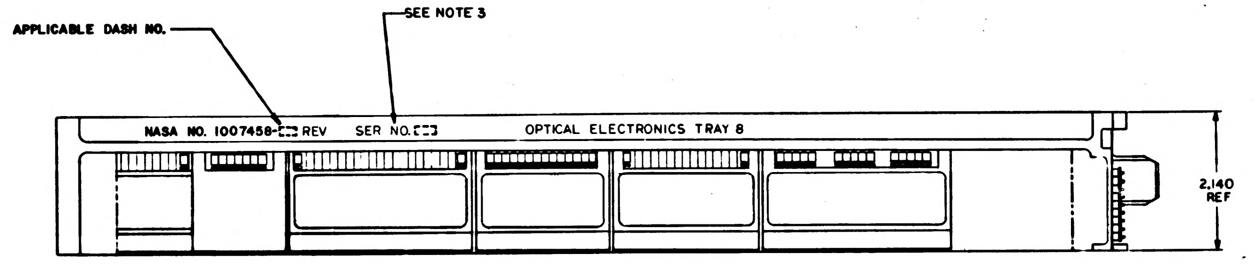
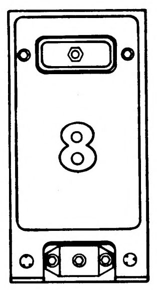
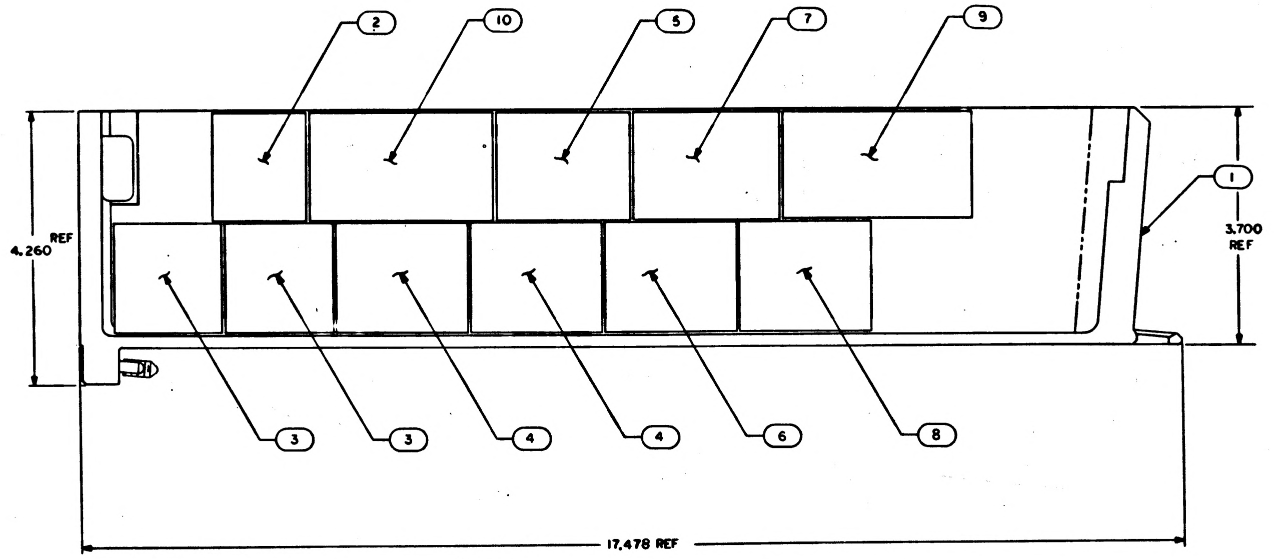
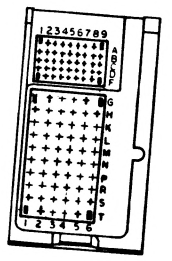
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
B	REPLACES WORD DWG REV A PER TDRR 13715	11/4/64	WR


APPLICABLE DASH NO.
SEE NOTE 3
NASA NO. 1007458-[ ] REV SER NO.[ ] OPTICAL ELECTRONICS TRAY 8
2.140 REF







Ⓑ REPLACES WORD DWG REV A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO.S 2,3,4,5,6,7,8,9 AND 10 TO FIND NO.1 TO BE 13-17 IN.LB.
3. MARK PER ND1002019, (WHITE) .140/.100 HIGH AND SERIALIZE PER ND1002023

			-011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			1		1007484-011	BUFFER CIRCUIT	10
			1		1007485-011	RELAY	9
			1		1007523-011	RESOLVER DRIVE AMP	8
			1		1007481-011	MOTOR DRIVE PREAMP	7
			1		1007483-011	COSECANT GENERATOR	6
			1		1007480-011	TWO-SPEED SWITCH	5
			2		1007482-011	MOTOR DRIVE AMP	4
			2		1007555-011	CDU D TO A CONVERTER	3
			1		1007487-011	ZERO OPTICS	2
			1		1007448-011	FRAME ASSY	1
QUANTITY REQUIRED					LIST OF MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007400		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS ± .020
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN DATE 28 SEP 64
CHECKED 30 SEP 64
APPROVAL
APPROVAL 11-20-64
NASA APPROVAL W J 11-4-64
MIT APPROVAL 4 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPTICAL
ELECTRONIC ASSEMBLY
TRAY 8

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007458
SCALE 1/1
WT
SHEET 1 OF 1

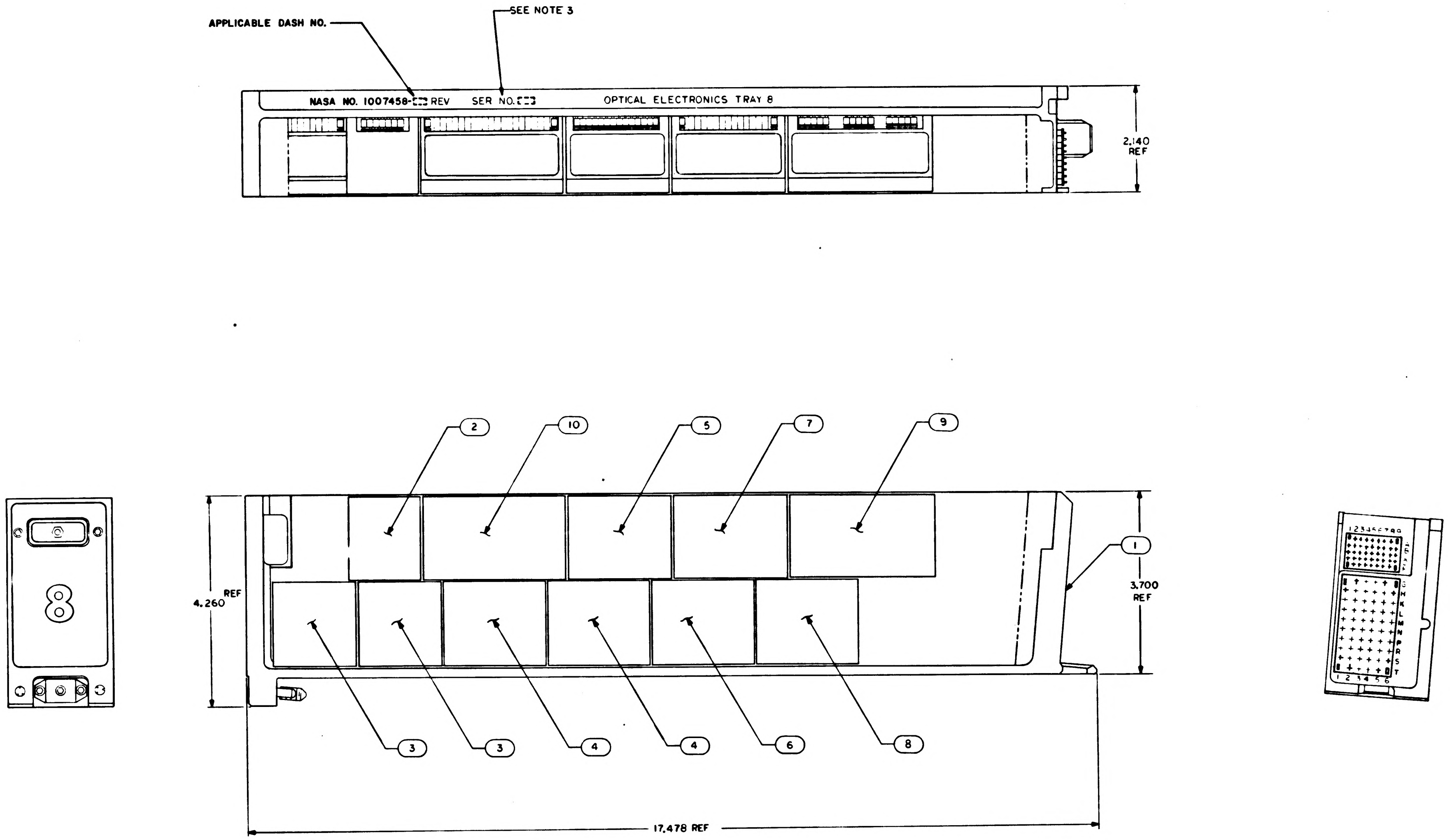
1007458 B

MASTER

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
B	REPLACES WORD DWG REV A PER TDRR 3775		
C	REV PER TDRR 16859	4 MAR 65	HTC



Ⓑ REPLACES WORD DWG REV A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO.S 2,3,4,5,6,7,8,9 AND 10 TO FIND NO.1 TO BE 13-17 IN.LB
3. MARK PER ND1002019, (WHITE) .140/.100 HIGH AND SERIALIZE PER ND1002023
4. APPLY THIN LAYER OF THERMAL SILICONE COMPOUND FIND NO.11 TO THE HEATSINK PORTION OF THE MOUNTING FACE OF ALL MODULES. AFTER ASSEMBLY OF THE MODULES ON THE TRAY, THE COMPOUND SHALL NOT BE VISIBLE ON THE EXPOSED SURFACES OF THE MODULES AND TRAY. CLEANING IS PERMITTED.

SEE NOTE 4

			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			AR		1006879	SILICONE COMPOUND	11
			1		1007484-011	BUFFER CIRCUIT	10
			1		1007485-011	RELAY	9
			1		1007523-011	RESOLVER DRIVE AMP	8
			1		1007481-011	MOTOR DRIVE PREAMF	7
			1		1007483-011	COSECANT GENERATOR	6
			1		1007480-011	TWO-SPEED SWITCH	5
			2		1007482-011	MOTOR DRIVE AMP	4
			2		1007555-011	CDU D TO A CONVERTER	3
			1		1007487-011	ZERO OPTICS	2
			1		1007448-011	FRAME ASSY	1
QUANTITY REQUIRED						LIST OF MATERIALS	

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007400		

APPLICATION

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± .020 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN DATE 28 SEP 64
CHECKED 8 OCT 64
APPROVAL
APPROVAL 10-29-64
NASA APPROVAL 11-4-64
MIT APPROVAL 4 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

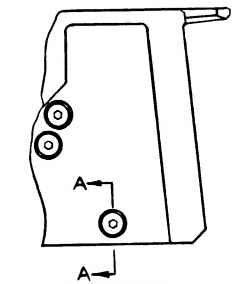
OPTICAL ELECTRONIC ASSEMBLY TRAY 8

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007458
SCALE 1/1
WT
SHEET 1 OF 1

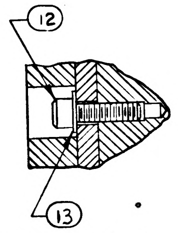
1007458 C

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

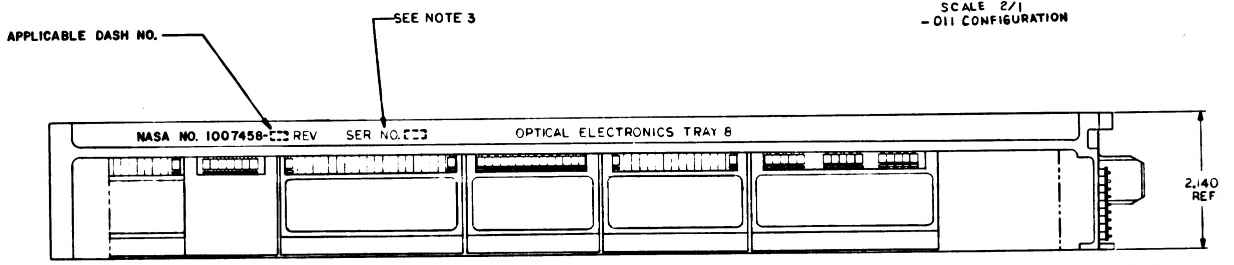
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
B	REPLACES WORD DWG REV A PER TDRR		
C	REV PER TDRR 16859	6 MAR 65	
D	REVISED PER TDRR 20119	9 JUL 65	

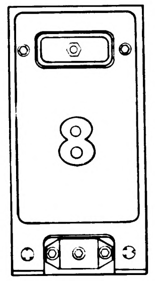


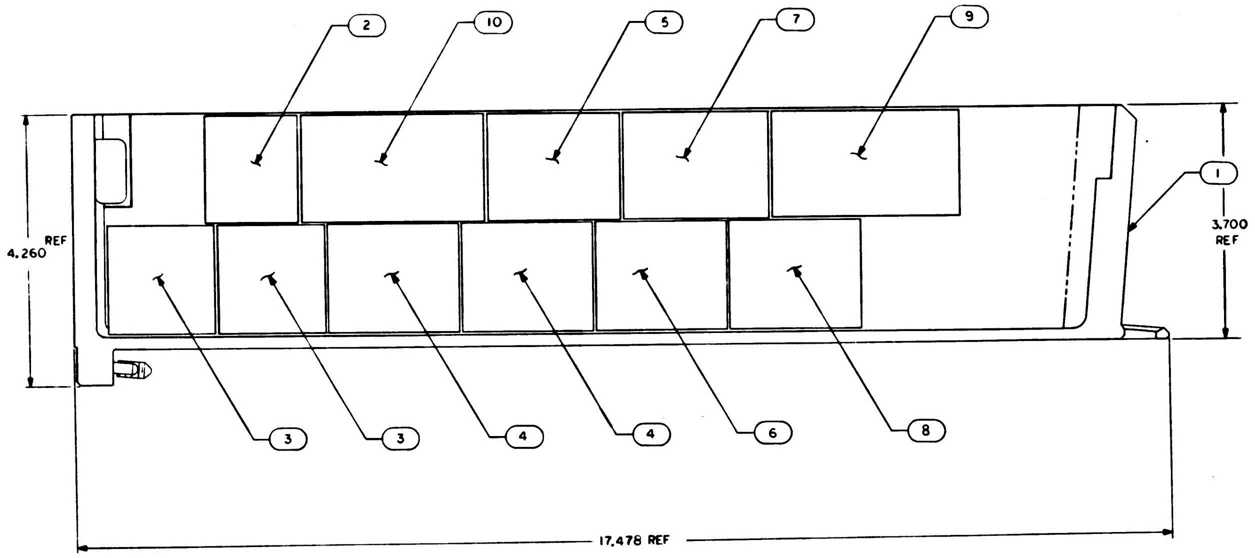
- 011 CONFIGURATION

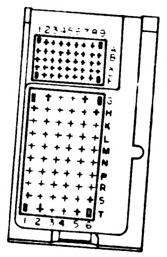


SECTION A-A
SCALE 2/1
- 011 CONFIGURATION









Ⓑ REPLACES WORD DWG REV A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO.S 2,3,4,5,6,7, 8,9 AND 10 TO FIND NO.1 TO BE 25-30 IN.LB
3. MARK PER ND1002019, (WHITE) .140/.100 HIGH AND SERIALIZE PER ND 1002023
4. APPLY THIN LAYER OF THERMAL SILICONE COMPOUND FIND NO. 11 TO THE HEATSINK PORTION OF THE MOUNTING FACE OF ALL MODULES. AFTER ASSEMBLY OF THE MODULES ON THE TRAY, THE COMPOUND SHALL NOT BE VISIBLE ON THE EXPOSED SURFACES OF THE MODULES AND TRAY. CLEANING IS PERMITTED.

				24		MS 15795-805	WASHER, FLAT	13
				24		NAS 1352-06-8	SCREW, CAP, SOCKET HEAD	12
SEE NOTE 4				AR		1006879	SILICONE COMPOUND	11
				1		1007484-011	BUFFER CIRCUIT	10
				1		1007485-011	RELAY	9
				1		1007523-011	RESOLVER DRIVE AMP	8
				1		1007481-011	MOTOR DRIVE PREAMP	7
				1		1007483-011	COSECANT GENERATOR	6
				1		1007480-011	TWO-SPEED SWITCH	5
				2		1007482-011	MOTOR DRIVE AMP	4
				2		1007555-011	CDU D TO A CONVERTER	3
				1		1007487-011	ZERO OPTICS	2
				1		1007448-011	FRAME ASSY	1
				011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
	QUANTITY REQUIRED					LIST OF MATERIALS		

1007400		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		
THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± .020 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN — DATE 28 SEP 64
CHECKED — 8 OCT 64
APPROVAL
APPROVAL 10-29-64
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPTICAL ELECTRONIC ASSEMBLY
TRAY 8

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 1007458
SCALE 1/1
WT
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 13060

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

DASH NO. 011

PART NO.	DESCRIPTION	REQ'D.
1007482-011	Motor Drive Amplifier Module Assembly	2
1007485-011	Relay Module Assembly	1
1007481-011	Motor Drive Pre-amp. Module Assembly (Integrator)	1
1007480-011	Two-Speed Switch Module Assembly	1
1007484-011	Buffer Circuit Module Assembly	1
1007555-011	CDU D to A Converter Module Assembly	2
1007487-011	Zero Optics Module Assembly	1
1007523-011	Resolver Drive Amplifier Module Assembly	1
1007483-011	Cosecant Generator Module Assembly	1
1007448-011	Frame Assembly, Tray 8	1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007400	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN B Riggio 9-25-64
CHECKED
APPROVED
APPROVED D.B. 9/28/64
APPROVED MIT 29/9/64
APPROVED MSC 9-29-64
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPTICAL ELECTRONICS ASSEMBLY
TRAY 8 (50 SERIES)

CODE IDENT NO.
SIZE C
DRAWING NO. 1007458
SCALE NONE
SHEET 1 OF 1

1007458

INCHES
0 1 2
PHOTOGRAPHIC SCALE

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 13060

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REPLACED BY CONFIGURATION DWG REV B PER TDRR 13915			11/4/64	WK

DASH NO. 011

PART NO.	DESCRIPTION	REQ'D.
1007482-011	Motor Drive Amplifier Module Assembly	4
1007485-011	Relay Module Assembly	1
1007480-011	Two-Speed Switch Module Assembly	1
1007401-011	Isolation Transformer Module Assembly	1
1007484-011	Buffer Circuit Module Assembly	1
1007488-011	Resistor and Capacitor Module Assembly	1
1007486-011	Servo Motor Drive Pre-amp. Module Assembly	1
1007449-011	Frame Assembly, Tray 9	1

Ⓐ REPLACED BY CONFIGURATION DWG REV B

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007400	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN B Riggs 9-25-64
CHECKED
APPROVED
APPROVED 9/28/64
APPROVED MIT W Kupfer 29/9/64
APPROVED MSC W J Rhine 9-29-64
DATE

OPTICAL ELECTRONICS ASSEMBLY
TRAY 9 (50 SERIES)

CODE IDENT NO.	SIZE	DRAWING NO.
	C	1007459

SCALE NONE SHEET 1 OF 1

INCHES
0 1 2

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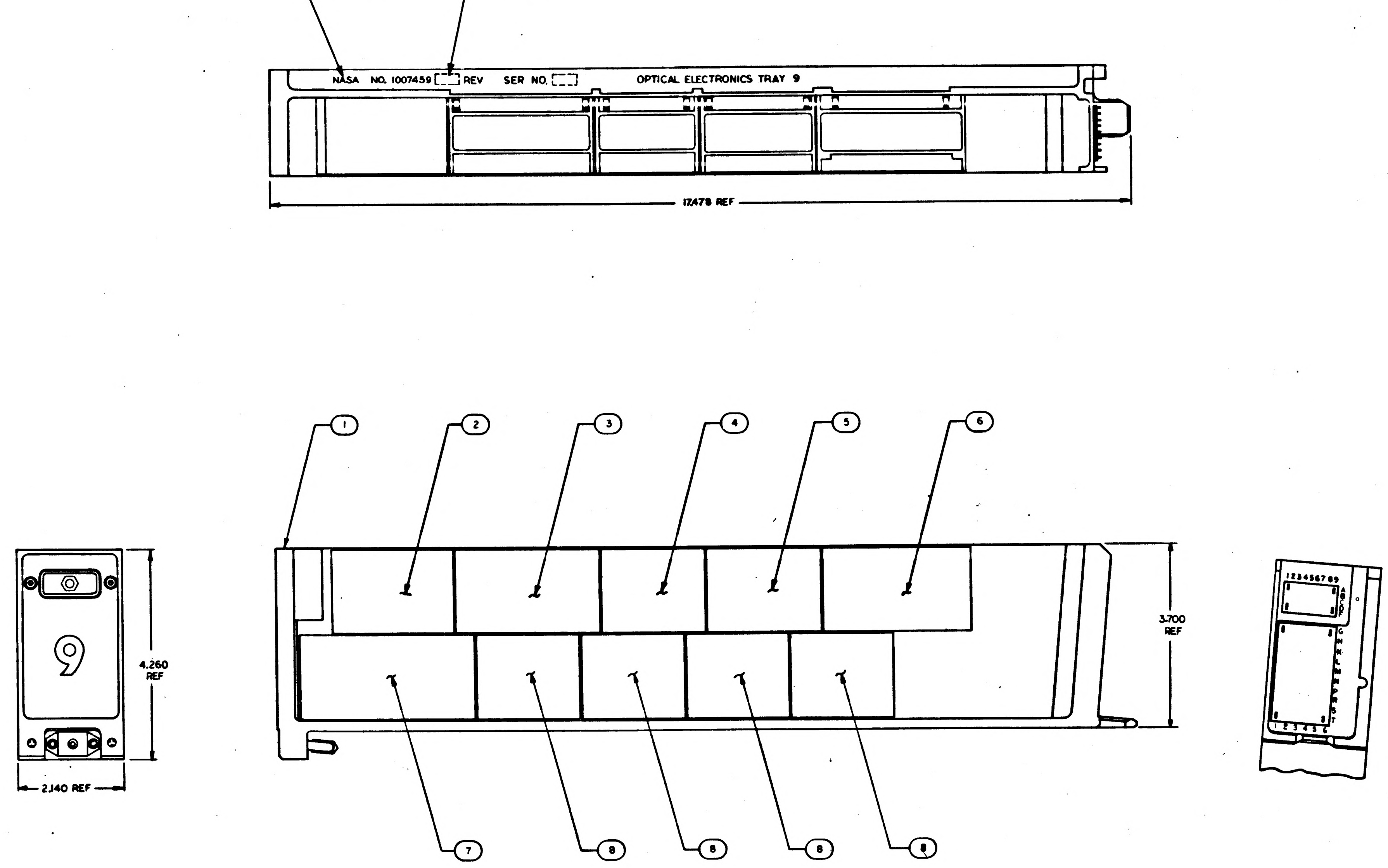
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
B	REPLACES WORD DWG REV A PER TDRR .39.5	1/9/64	wK



Ⓑ REPLACES WORD DWG REV A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MI...D-70327
2. MOUNTING TORQUE TO SECURE FIND NO.'S 2,3,4,5,6,7 AND 8 TO FIND NO. 1 TO BE 13/17 IN LB
3. MARK PER ND1002019, (WHITE) .140/.100 HIGH AND SERIALIZE PER ND 1002023

MASTER

QUANTITY REQUIRED							
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			4		1007482-011	MOTOR DRIVE AMP	8
			1		1007488-011	RESISTOR AND CAPACITOR	7
			1		1007485-011	RELAY	6
			1		1007486-011	SERVO MOTOR DRIVE PREAMP	5
			1		1007480-011	TWO-SPEED SWITCH	4
			1		1007484-011	BUFFER CIRCUIT	3
			1		1007401-011	ISOLATION TRANSFORMER	2
			1		1007449-011	FRAME ASSY	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007400		

APPLICATION

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UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.020 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN E. Smith Jr. 28 SEP 64
CHECKED J. Bizon 6 OCT 64
APPROVED K. Hummer 8 OCT 64
APPROVED W. R. Tut 10-20-64
NASA APPROVAL W. J. Rhine 11-4-64
MIT APPROVAL W. Kupfer 4 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPTICAL ELECTRONICS ASSEMBLY TRAY 9

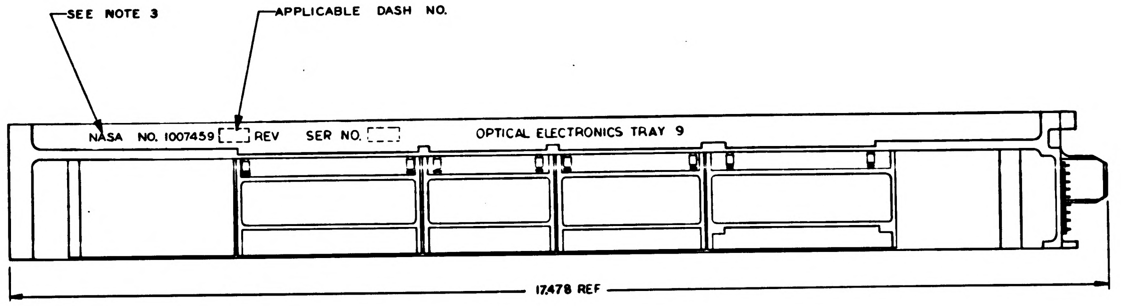
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007459
SCALE 1/1
WT
SHEET 1 OF 1

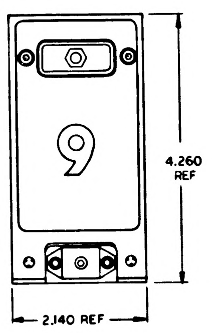
1007459 B

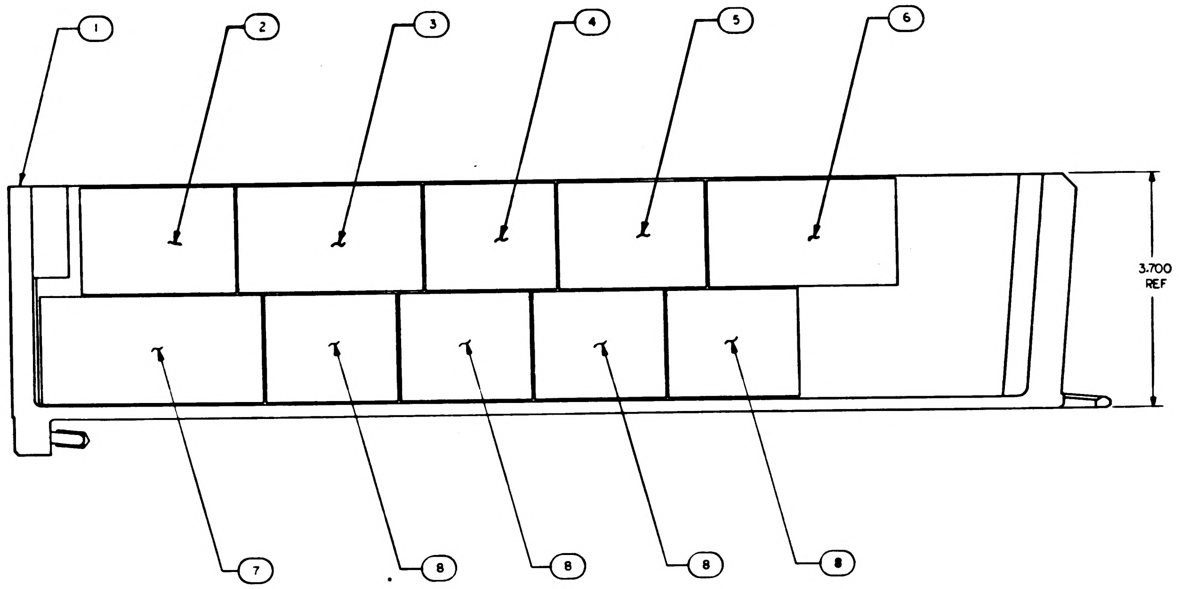
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

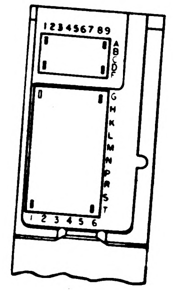
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
B	REPLACES WORD DWG REV A PER TORR	-64	WA
C	REV PER TORR 16859	3 MAR 65	









Ⓑ REPLACES WORD DWG REV A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO.'S 2,3,4,5,6,7 AND 8 TO FIND NO. 1 TO BE 13/17 IN LB
3. MARK PER ND1002019, (WHITE) .140/.100 HIGH AND SERIALIZE PER ND 1002023
4. APPLY THIN LAYER OF THERMAL SILICONE COMPOUND FIND NO. 9 TO THE HEATSINK PORTION OF THE MOUNTING FACE OF ALL MODULES. AFTER ASSEMBLY OF THE MODULES ON THE TRAY, THE COMPOUND SHALL NOT BE VISIBLE ON THE EXPOSED SURFACES OF THE MODULES AND TRAY. CLEANING IS PERMITTED.

SEE NOTE 4

			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			AR		1006879	SILICONE COMPOUND	9
			4		1007482-011	MOTOR DRIVE AMP	8
			1		1007488-011	RESISTOR AND CAPACITOR	7
			1		1007485-011	RELAY	6
			1		1007486-011	SERVO MOTOR DRIVE PREAMP	5
			1		1007480-011	TWO-SPEED SWITCH	4
			1		1007484-011	BUFFER CIRCUIT	3
			1		1007401-011	ISOLATION TRANSFORMER	2
			1		1007449-011	FRAME ASSY	1

QUANTITY REQUIRED

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007400		

APPLICATION

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TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.020 ANGLES ± ——
DO NOT SCALE THIS DRAWING
MATERIAL ——
HEAT TREATMENT ——
FINAL FINISH ——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN 28 SEP 64
CHECKER 5 OCT 64
APPROVAL 8 OCT 64
APPROVAL 10-29-64
NASA APPROVAL 11-6-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

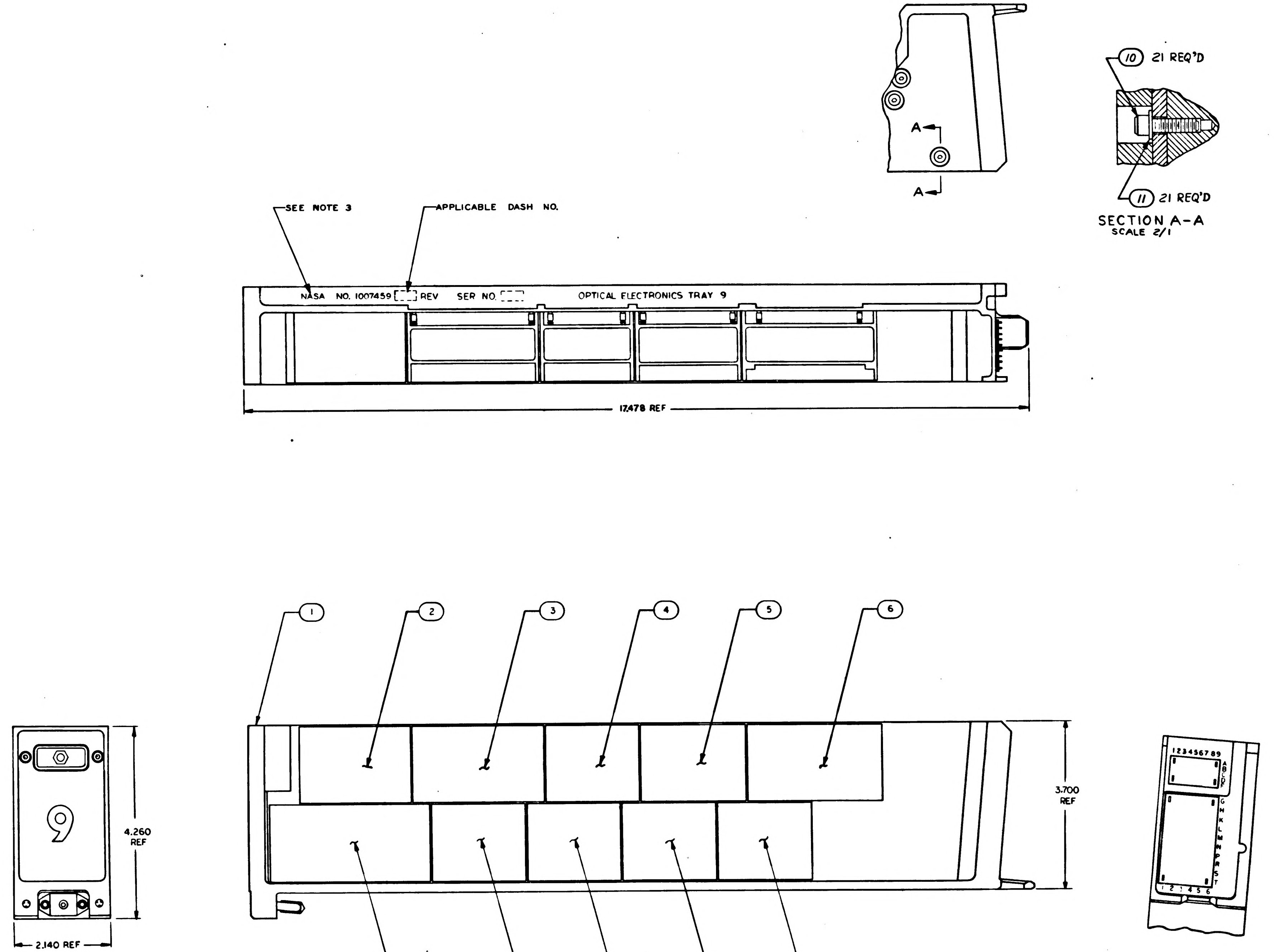
OPTICAL ELECTRONICS ASSEMBLY TRAY 9

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007459
SCALE 1/1
WT
SHEET 1 OF 1

1007459 C

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
B	REPLACES WORD DWG REV A PER TDRR		
C	REV PER TDRR 16859	5 MAR 65	
D	REV PER TDRR 20119	9 JUN 65	



Ⓑ REPLACES WORD DWG REV A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE TO SECURE FIND NO'S. 2, 3, 4, 5, 6, 7, AND 8 TO FIND NO. 1. TO BE 25/30 IN. LB
3. MARK PER ND 1002019, (WHITE) .140/.100 HIGH AND SERIALIZE PER ND 1002023.
4. APPLY THIN LAYER OF THERMAL SILICONE COMPOUND FIND NO. 9 TO THE HEATSINK PORTION OF THE MOUNTING FACE OF ALL MODULES. AFTER ASSEMBLY OF THE MODULES ON THE TRAY, THE COMPOUND SHALL NOT BE VISIBLE ON THE EXPOSED SURFACES OF THE MODULES AND TRAY. CLEANING IS PERMITTED.

SEE NOTE 4

			21		MS 15795-805	WASHER, FLAT	11
			21		NAS 1352-06-8	SCREW, CAP, SOCKET HEAD	10
			AR		1006879	SILICONE COMPOUND	9
			4		1007482-011	MOTOR DRIVE AMP	8
			1		1007488-011	RESISTOR AND CAPACITOR	7
			1		1007485-011	RELAY	6
			1		1007486-011	SERVO MOTOR DRIVE PREAMP	5
			1		1007480-011	TWO-SPEED SWITCH	4
			1		1007484-011	BUFFER CIRCUIT	3
			1		1007401-011	ISOLATION TRANSFORMER	2
			1		1007449-011	FRAME ASSY	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF MATERIALS		

1007400		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.020 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN E. Leonik Jr. 28 SEP 64
CHECKER 5 OCT 64
APPROVAL 8 OCT 64
APPROVAL 10-29-64
NASA APPROVAL W. J. 11-4-64
MIT APPROVAL 4 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPTICAL ELECTRONICS ASSEMBLY TRAY 9

CODE IDENT NO.
SIZE E
NASA DRAWING NO 1007459
SCALE 1/1
WT
SHEET 1 OF 1

1007459 D

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 13060

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

DASH NO. 011

PART NO.	DESCRIPTION	REQ'D.
1007482-011	Motor Drive Amplifier Module Assembly	4
1007485-011	Relay Module Assembly	1
1007480-011	Two-Speed Switch Module Assembly	1
1007401-011	Isolation Transformer Module Assembly	1
1007484-011	Buffer Circuit Module Assembly	1
1007488-011	Resistor and Capacitor Module Assembly	1
1007486-011	Servo Motor Drive Pre-amp. Module Assembly	1
1007449-011	Frame Assembly, Tray 9	1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007400	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN B Riggazi 9-25-64
CHECKED
APPROVED
APPROVED 9/28/64
APPROVED MIT 29/9/64
APPROVED MSC W J Rhine 9-29-64
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

OPTICAL ELECTRONICS ASSEMBLY
TRAY 9 (50 SERIES)

CODE IDENT NO. —
SIZE C
DRAWING NO. 1007459
SCALE NONE
SHEET 1 OF 1

1007459

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 13060

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REPLACED BY CONFIGURATION DWG REV B PER TDRR 13915			11/4/64	WK

PART NO.	DESCRIPTION	DASH NO. 011 REQ'D.
1007590-011	G&N Subsystems Supply Filter	3
1007438-011	5% 800 CPS Amplifier	1
1007591-011	800 CPS Compensation, Optics	1
1007525-011	Signal Conditioner Power Supplies	1
1007450-011	Frame Assembly, Tray 10	1

Ⓐ REPLACED BY CONFIGURATION DWG REV B

1007460 A

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

1007400	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN B Kiggajn 9-25-64
CHECKED
APPROVED
APPROVED 9/28/64
APPROVED MIT 29 Sep 64
APPROVED MSC W J Rhine 9-29-64
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

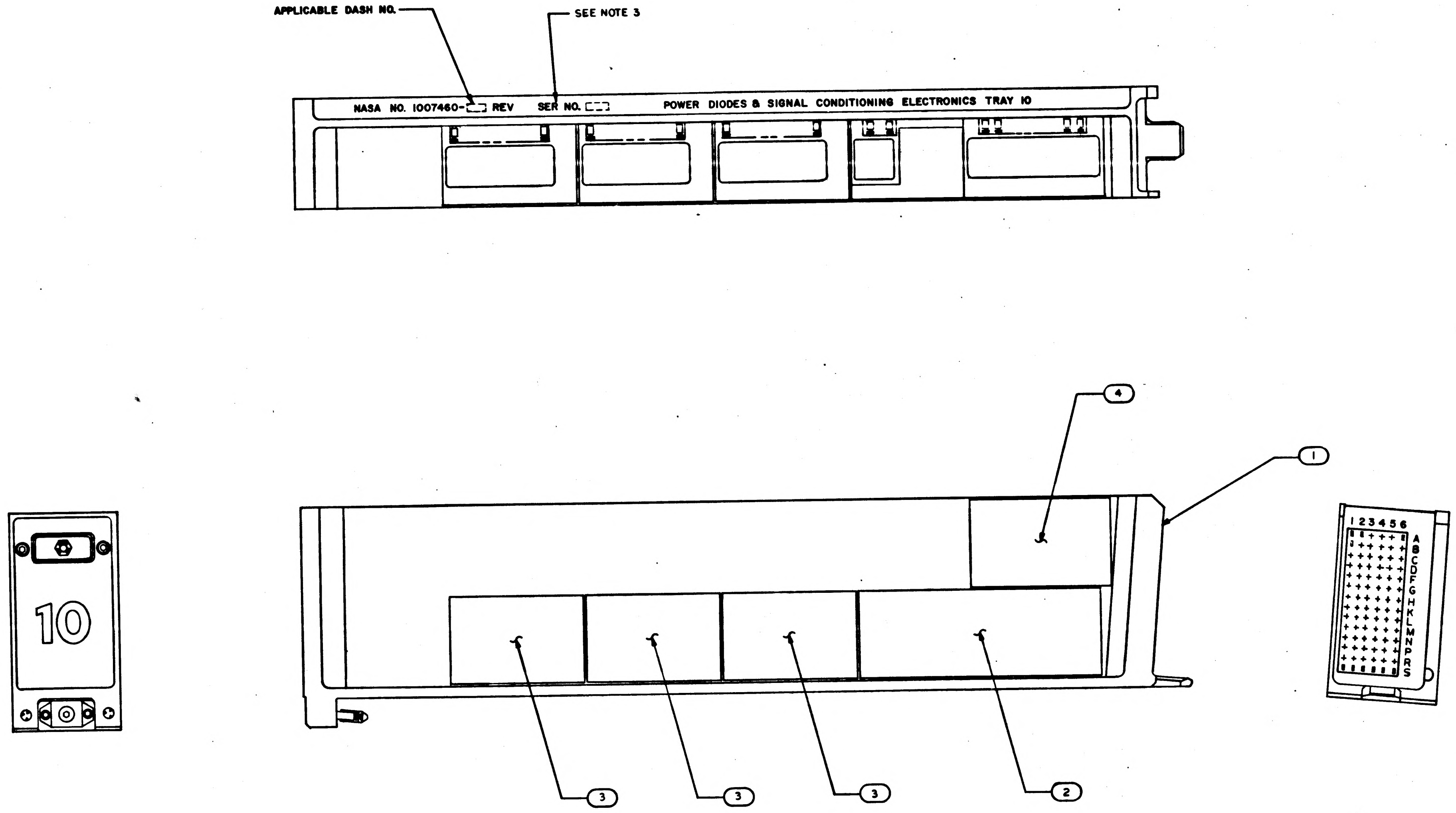
POWER DIODES & SIGNAL CONDITIONING
ELECTRONICS ASSEMBLY
TRAY 10 (50 SERIES)

CODE IDENT NO. | SIZE C | DRAWING NO. 1007460
SCALE NONE | SHEET 1 OF 1

INCHES
0 1 2
PHOTOGRAPHIC SCALE ONLY

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
B	REPLACES WORD DWG REV A PER TDRR 13915	11/4/64	


APPLICABLE DASH NO.
SEE NOTE 3
NASA NO. 1007460-[ ] REV
SER NO. [ ]
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
10
4
1
3
3
3
2
1 2 3 4 5 6
A B C D E F G H J K L M N P R S

Ⓑ REPLACES WORD DWG REV A

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL D 70327
2. MOUNTING TORQUE TO SECURE FIND NO'S. 2,3 AND 4 TO FIND NO. 1 TO BE 13-17 IN. LB.
3. MARK PER ND1002019, (WHITE) .140/.100 HIGH AND SERIALIZE PER ND1002023.

MASTER

			1		1007591-011	800 CPS COMPENSATION	4
			3		1007590-011	G&N SUB-SYS SUPPLY FILTER	3
			1		1007438-011	AMPLIFIER, 5% 800 CPS	2
			1		1007450-011	FRAME ASSEMBLY	1
			011	EFFEC-TIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

1007400		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
Cambridge, Mass
Contract NAS 9-497

DRAWN DATE
CHECKED 6 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL W J 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PWR DIODES & SIGNAL COND ELECTRONICS ASSEMBLY TRAY 10

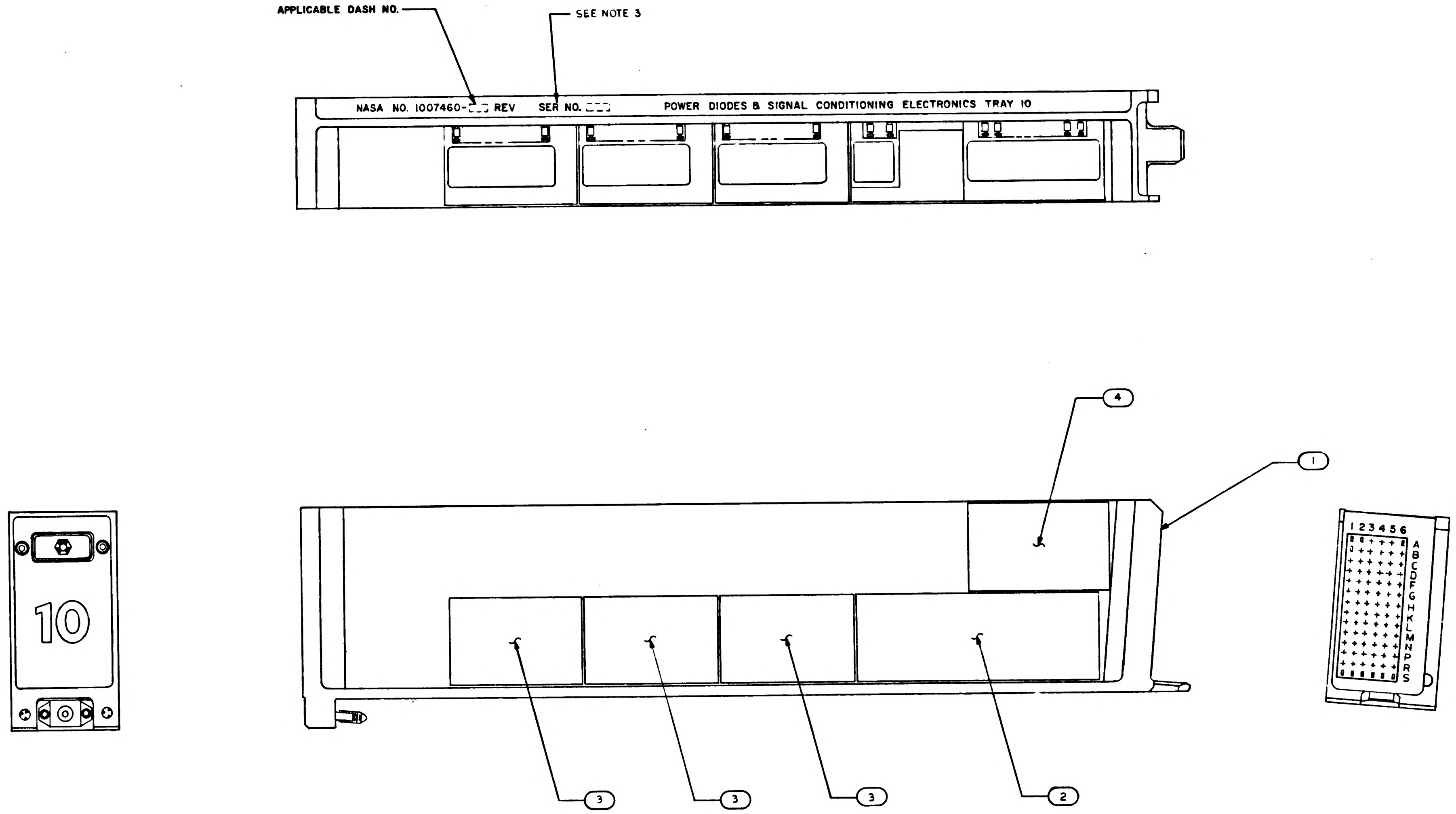
CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007460
SCALE 1/1
WT
SHEET 1 OF 1

1007460 B

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
B	REPLACES WORD DWG REV A PER TDRR		
C	REV PER TDRR 16859	5 MAR 65	


APPLICABLE DASH NO.
SEE NOTE 3
NASA NO. 1007460-___ REV
SER NO. ___
POWER DIODES & SIGNAL CONDITIONING ELECTRONICS TRAY 10
4
1
10
1 2 3 4 5 6
A B C D E F G H K L M N P R S
3
3
3
2

Ⓑ REPLACES WORD DWG REV A

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL D 70327
2. MOUNTING TORQUE TO SECURE FIND NO'S. 2,3 AND 4 TO FIND NO. 1 TO BE 13-17 IN. LB.
3. MARK PER ND1002019, (WHITE) .140/.100 HIGH AND SERIALIZE PER ND1002023.
4. APPLY THIN LAYER OF THERMAL SILICONE COMPOUND FIND NO. 5 TO THE HEATSINK PORTION OF THE MOUNTING FACE OF ALL MODULES. AFTER ASSEMBLY OF THE MODULES ON THE TRAY, THE COMPOUND SHALL NOT BE VISIBLE ON THE EXPOSED SURFACES OF THE MODULES AND TRAY. CLEANING IS PERMITTED.

SEE NOTE 4

			AR		1006879	SILICONE COMPOUND	5
			1		1007591-011	800 CPS COMPENSATION	4
			3		1007590-011	G&N SUB-SYS SUPPLY FILTER	3
			1		1007438-011	AMPLIFIER, 5% 800 CPS	2
			1		1007450-011	FRAME ASSEMBLY	1
QUANTITY REQUIRED			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007400		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN DATE 29 Sep 64
CHECKED 6 OCT 64
APPROVAL 8 OCT 64
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PWR DIODES & SIGNAL COND
ELECTRONICS ASSEMBLY
TRAY 10

CODE IDENT NO
SIZE E
NASA DRAWING NO 1007460
SCALE 1/1
WT
SHEET 1 OF 1

1007460 C

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 13060

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

DASH NO. 011

PART NO.	DESCRIPTION	REQ'D.
1007590-011	G&N Subsystems Supply Filter	3
1007438-011	5% 800 CPS Amplifier	1
1007591-011	800 CPS Compensation, Optics	1
1007525-011	Signal Conditioner Power Supplies	1
1007450-011	Frame Assembly, Tray 10	1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
1007400	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	B Kiganis	9-25-64
CHECKED		
APPROVED		
APPROVED	D. A. [illegible]	9/28/64
APPROVED MIT	W. [illegible]	29 Sep 64
APPROVED MSC	W J [illegible]	9-28-64
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

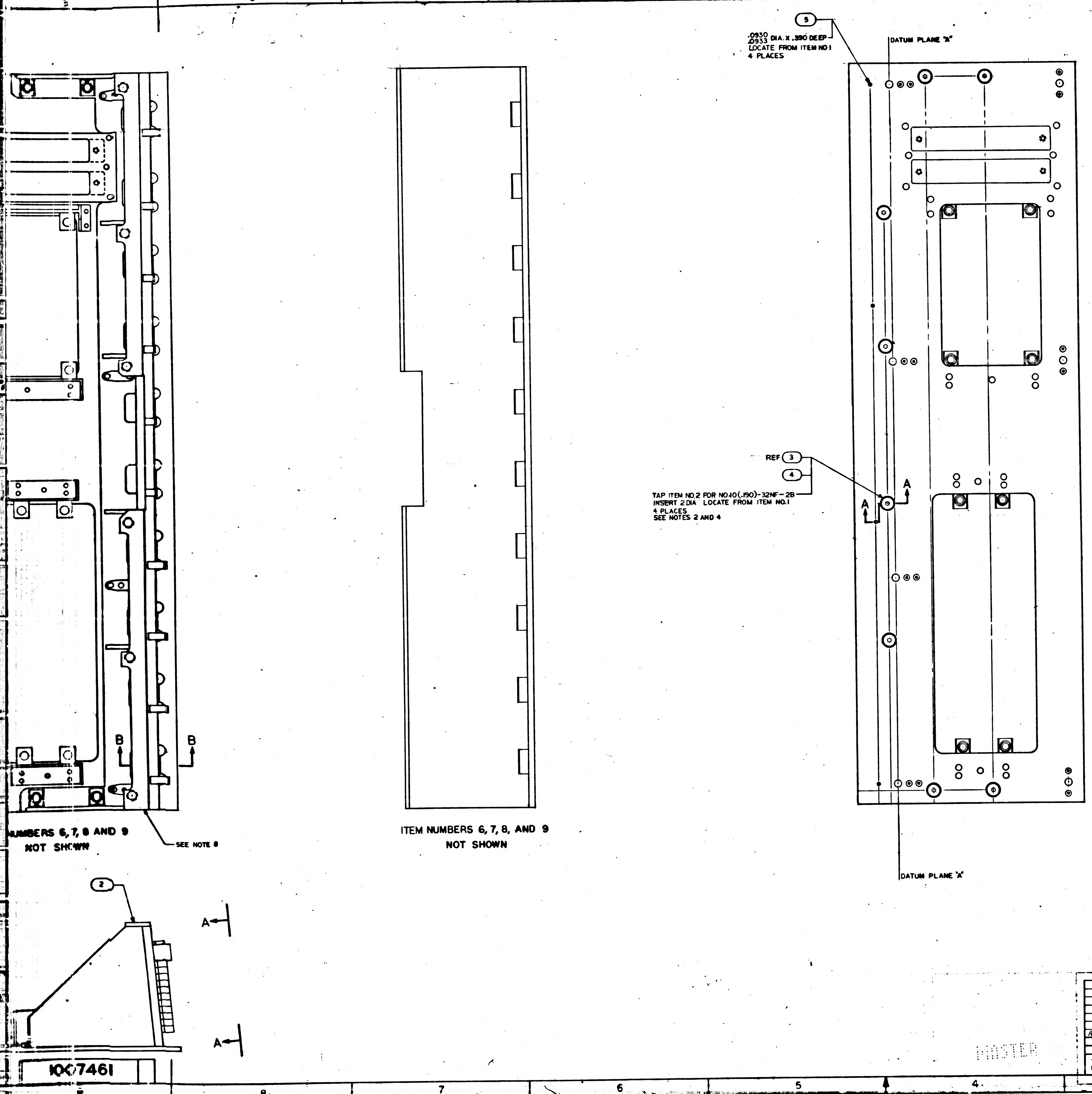
POWER DIODES & SIGNAL CONDITIONING
ELECTRONICS ASSEMBLY
TRAY 10 (50 SERIES)

CODE IDENT NO.	SIZE	DRAWING NO.
	C	1007460

SCALE NONE
SHEET 1 OF 1

1007460

REVISIONS TCEE 14008					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		UPGRADED FOR CLASS A RELEASE		20 OCT 64	FK


5
.0930 .0933 DIA. X .390 DEEP
LOCATE FROM ITEM NO 1
4 PLACES
DATUM PLANE "A"
REF 3
4
TAP ITEM NO.2 FOR NO.10(.190)-32NF-2B
INSERT 2 DIA LOCATE FROM ITEM NO.1
4 PLACES
SEE NOTES 2 AND 4
A
A
B
B
ITEM NUMBERS 6, 7, 8, AND 9 NOT SHOWN
ITEM NUMBERS 6, 7, 8 AND 9 NOT SHOWN
SEE NOTE 8
DATUM PLANE "A"
2
A
A
1007461
MASTER
8
7
6
5
4
3
2

SEE NOTE 9			10		13	NAS1190C04P8L	SCREW, PAN HEAD
SEE NOTE 9			10		12	NAS1190C04P5L	SCREW, PAN HEAD
			5		11	1008574-002	TRAY STOP
			5		10	1008574-001	TRAY STOP
SEE NOTE 9			225		9	1006781-3	CONTACT, WRAPOST FEMALE MIN
			225		8	1006774	INSULATOR, WRAPOST FEMALE MIN
			720		7	1010379-5	CONTACT, ELEC FEMALE
SEE NOTE 9			720		6	1010380	INSULATOR, BUSHING FEMALE
			4		5	1008153	PIN, STOP
			4		4	MS21209-F1-20	('897059-301) INSERT SCREW LOCKING
SEE NOTE 9			8		3	1010731-296	SCREW, FLAT HD, HEX SOCKET
			1		2	1008400	FRONT PLATE
			1		1	1008150	BOTTOM PLATE
			011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
	QUANTITY REQUIRED				LIST OF PARTS AND MATERIALS		

1015056-011		-011
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± -/-
DECIMALS ± SEE NOTE 5
ANGLES ± 0° 15'
DO NOT SCALE THIS DRAWING
MATERIAL -/-
HEAT TREATMENT -/-
FINAL FINISH -/-

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN R. La Rue DATE
CHECKED J. Brase 15 OCT 64
APPROVAL 22 Oct 64
APPROVAL NEA
NASA APPROVAL W J 11-4-69
MIT APPROVAL

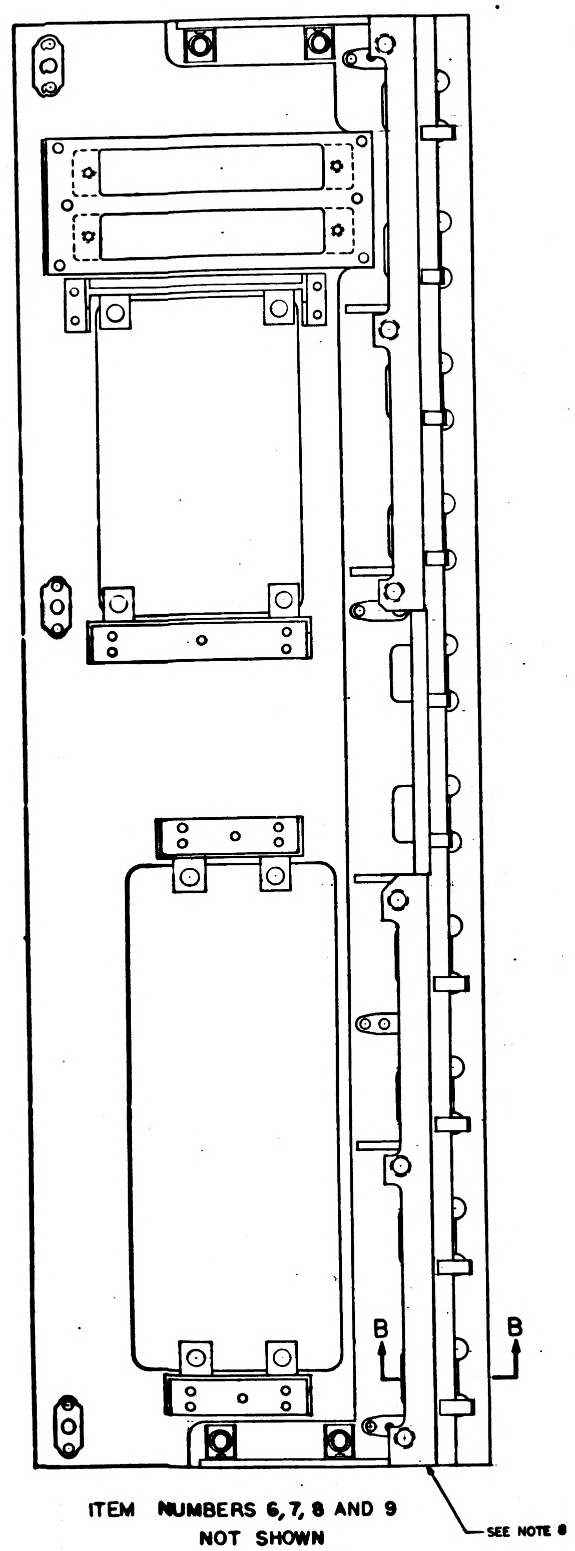
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

END CONNECTOR ASSEMBLY PSA

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007461
SCALE 1/1
NAS 9-497
SHEET 1 OF 1

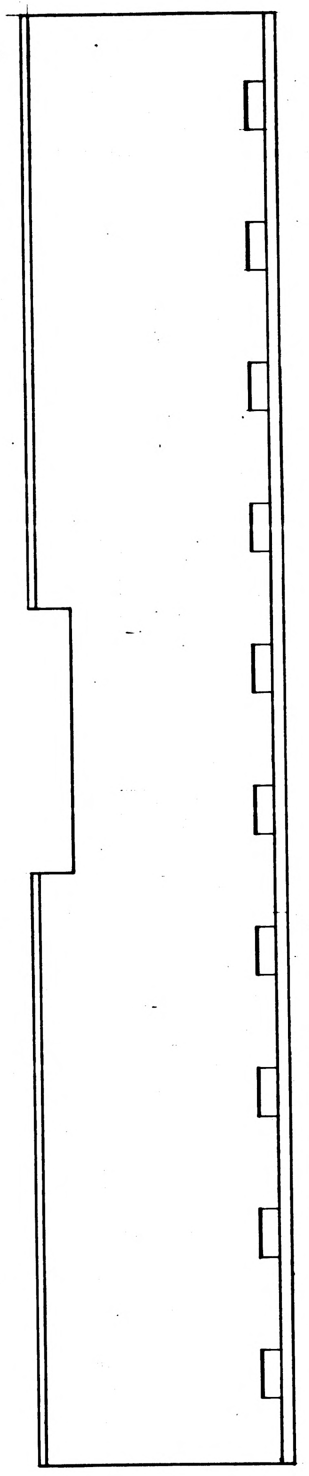
F3

SYM	ZONE	DESCRIPTION		DATE	
A		UPGRADED FOR CLASS A RELEASE			

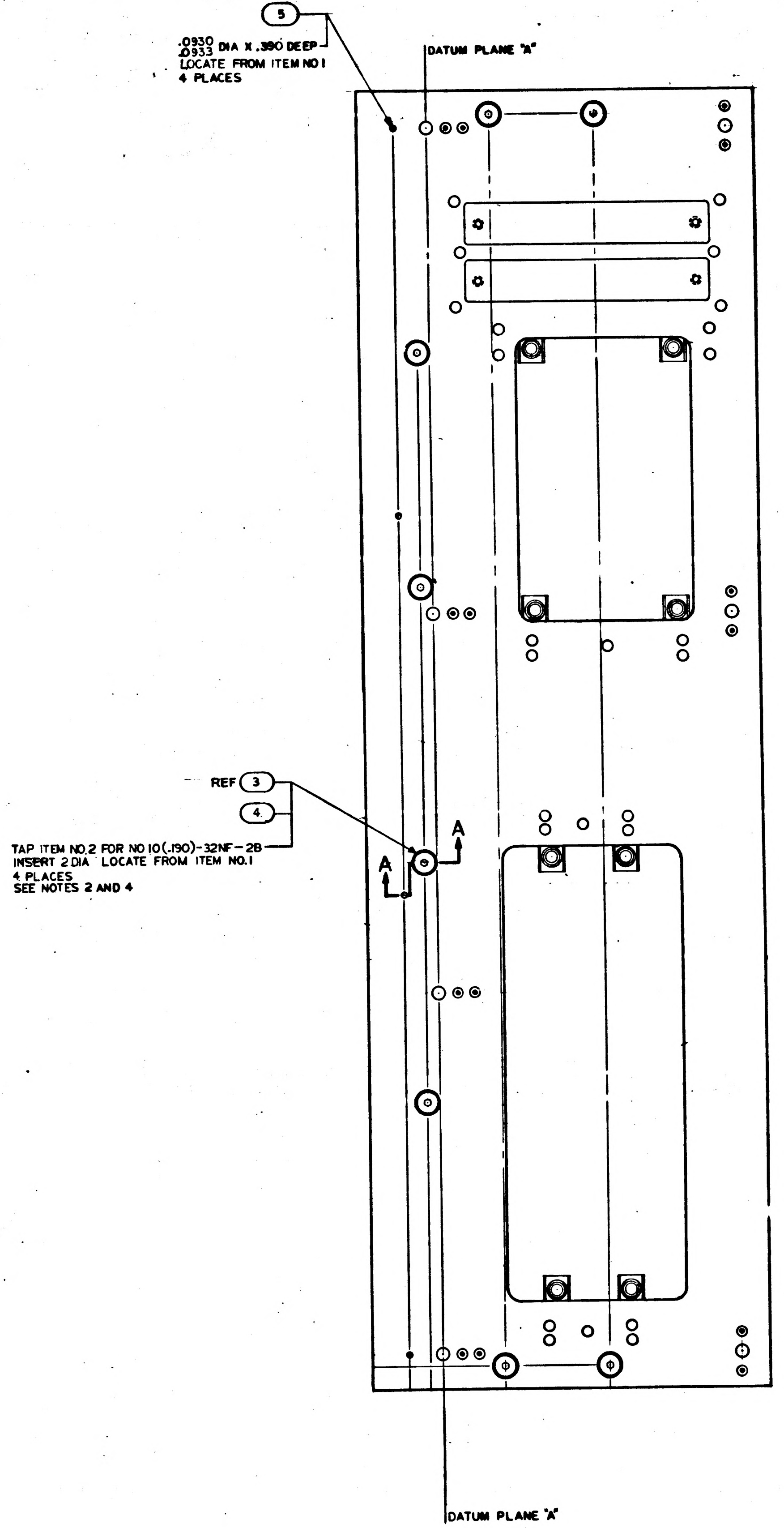


B
B
SEE NOTE 8

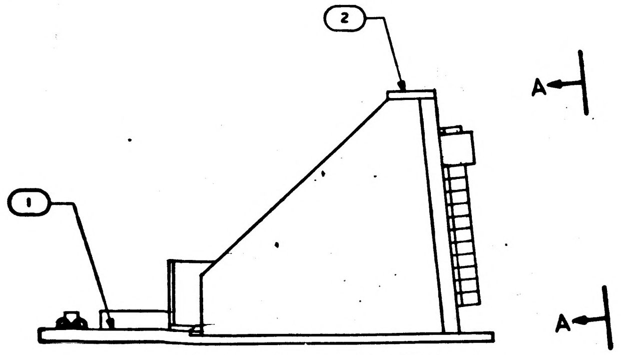
ITEM NUMBERS 6, 7, 8 AND 9 NOT SHOWN



ITEM NUMBERS 6, 7, 8, AND 9 NOT SHOWN



5
.0930 .0933 DIA X .390 DEEP LOCATE FROM ITEM NO 1 4 PLACES
DATUM PLANE "A"
REF 3
4
TAP ITEM NO.2 FOR NO 10(.190)-32NF-2B INSERT 2 DIA LOCATE FROM ITEM NO.1 4 PLACES SEE NOTES 2 AND 4
A
A
DATUM PLANE "A"



SEE NOTE 9				10		13	NAS1190C04P8L	SCREW, PAN HEAD
SEE NOTE 9				10		12	NAS1190C04P5L	SCREW, PAN HEAD
				5		11	1008574-002	TRAY STOP
				5		10	1008574-001	TRAY STOP
SEE NOTE 9				225		9	1006781-3	CONTACT, WRAPOST FEMALE MIN
				225		8	1006774	INSULATOR, WRAPOST FEMALE MIN
				720		7	1010379-5	CONTACT, ELEC FEMALE
SEE NOTE 9				720		6	1010380	INSULATOR, BUSHING FEMALE
				4		5	1008153	PIN, STOP
				4		4	MS21209-F1-20	(33-058-300) INSERT SCREW
SEE NOTE 9				8		3	1010731-296	SCREW, FLAT HD, SOCKET
				1		2	1008400	FRONT PLATE
				1		1	1008150	BOTTOM PLATE
				011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
	QUANTITY REQUIRED						LIST OF PARTS AND MATERIAL	

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1015056-011		-011
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —//— DECIMALS ±SEE NOTE 5 ANGLES ± 0° 15'
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN R. La Bar DATE 15 OCT 64
CHECKED J. Stans 15 OCT 64
APPROVAL B. Thomas 27 Oct 64
APPROVAL RCA
NASA APPROVAL W. J. R... 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

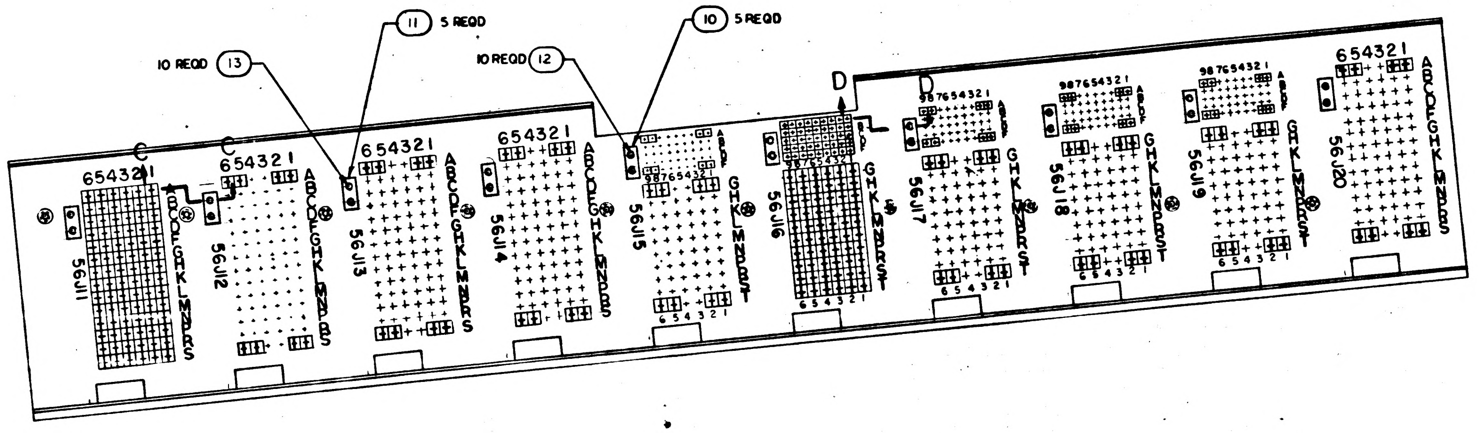
END CONNECTOR ASSEM
PEA

CODE IDENT NO.
SIZE J
1007461
SCALE 1/1

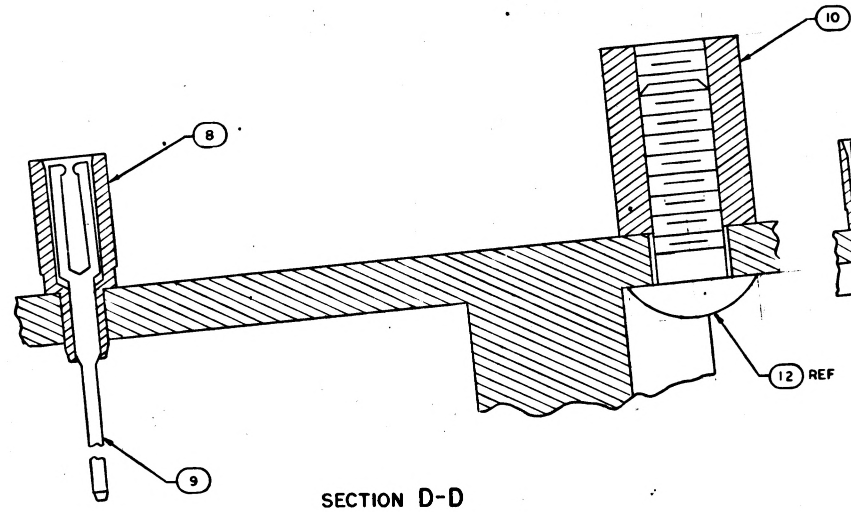
1007461

MASTER

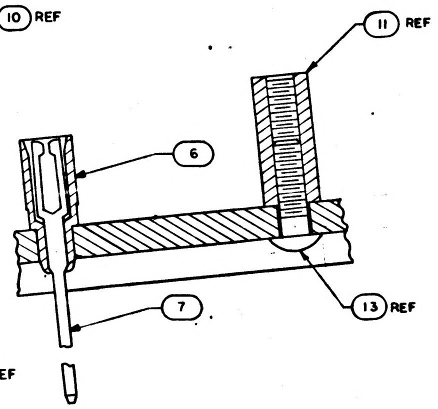
F2


10 REQD 13
11 5 REQD
10 REQD 12
10 5 REQD
C
C
D
D
56J11
56J12
56J13
56J14
56J15
56J16
56J17
56J18
56J19
56J20
654321
987654321
ABCDEFGHKLMNPRS

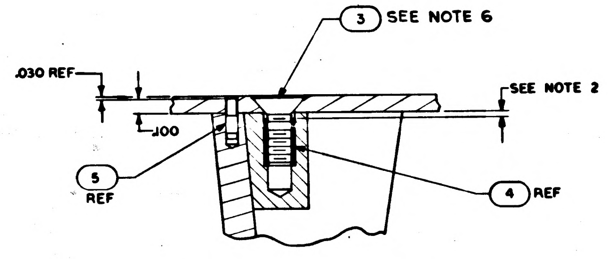
VIEW A-A


10 REF
8
12 REF
9

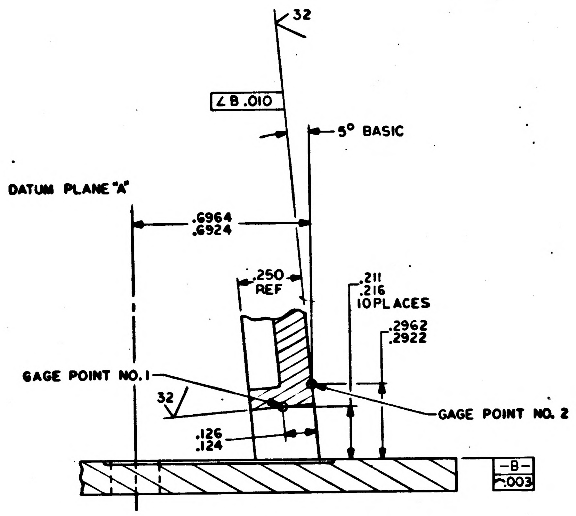
SECTION D-D
SCALE 10/1
225 PLACES
FOR ITEMS 8 & 9


11 REF
6
7
13 REF

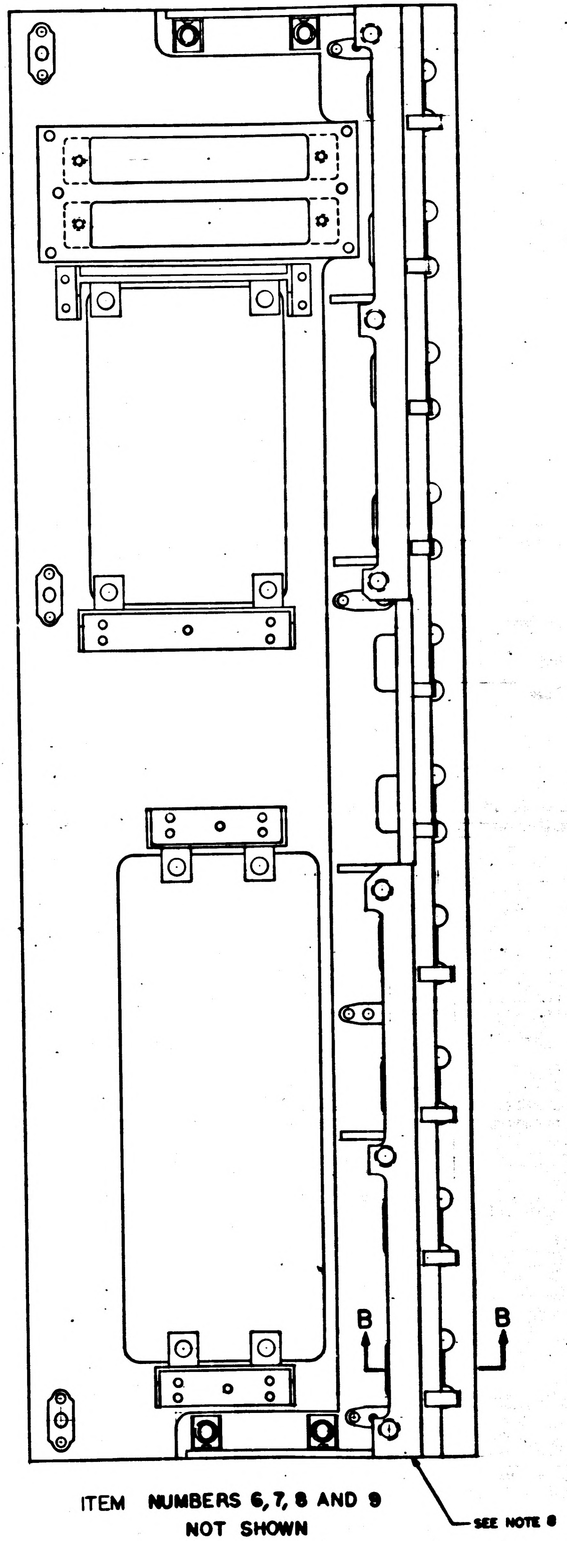
SECTION C-C
SCALE 4/1
720 PLACES
FOR ITEMS 5 & 7


3 SEE NOTE 6
.030 REF
SEE NOTE 2
.100
5 REF
4 REF

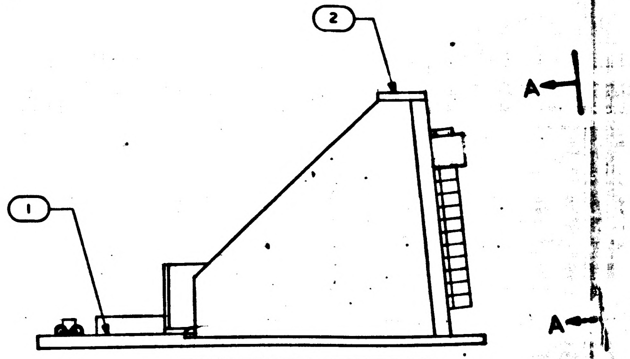
PARTIAL SECTION A-A
SCALE 2/1


32
∠B .010
5° BASIC
DATUM PLANE "A"
.6964
.6924
.250 REF
.211
.216
10PLACES
.2962
.2922
GAGE POINT NO. 1
GAGE POINT NO. 2
32
.126
.124
-B-
.003

PARTIAL SECTION B-B
SCALE 4/1


B
B
SEE NOTE 8

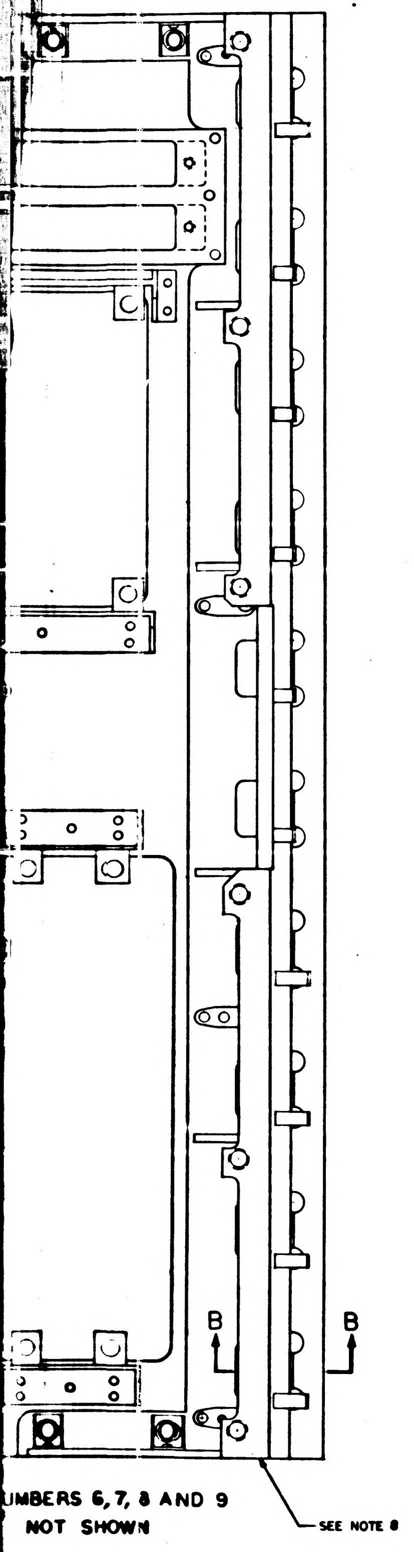
ITEM NUMBERS 6, 7, 8 AND 9
NOT SHOWN



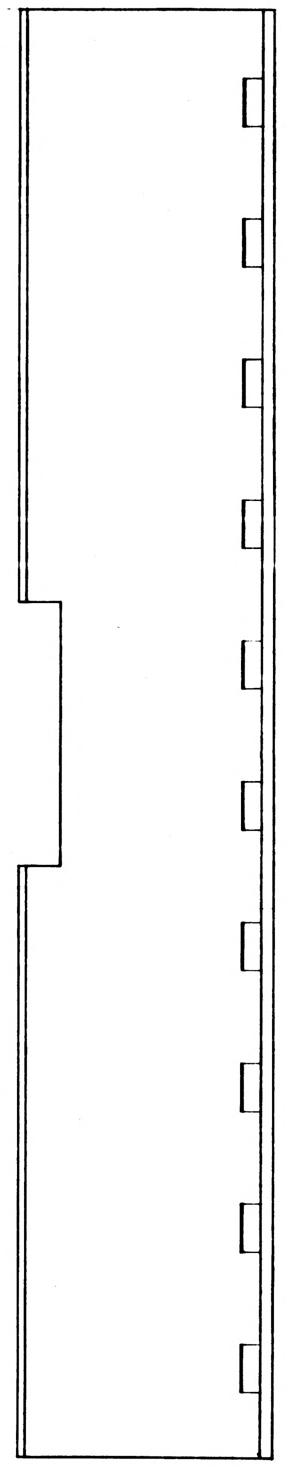
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. INSTALL ITEM NO. 4 PER MS33646. BREAK OFF DRIVING TANG
3. INSTALL ITEM NOS. 6, 7, 8 AND 9 PER ND1002136
4. COAT THREADS AND ITEM NO. 4 WITH MIL-P-8585 WET ZINC CHROMATE PRIMER
5. TOLERANCES: 2 PLACE DECIMALS = ±.010
3 PLACE DECIMALS = ±.005
6. MOUNTING TORQUE FOR ITEM NO. 3 35/40 INCH POUND
7. AFTER ASSEMBLY AND PINNING OF ITEM NUMBERS 1 AND 2, MARK CHARACTERS, 1007461 & SERIAL NO. (WHITE) PER ND1002023 ON BOTH 1008150 BOTTOM PLATE AND 1008400 FRONT PLATE.
8. ALIGNMENT BETWEEN ITEM NOS 1 AND 2 TO BE FLUSH TO .010 MISALIGNMENT
9. VENDOR ITEM - SEE SPECIFICATION CONTROL DRAWING.

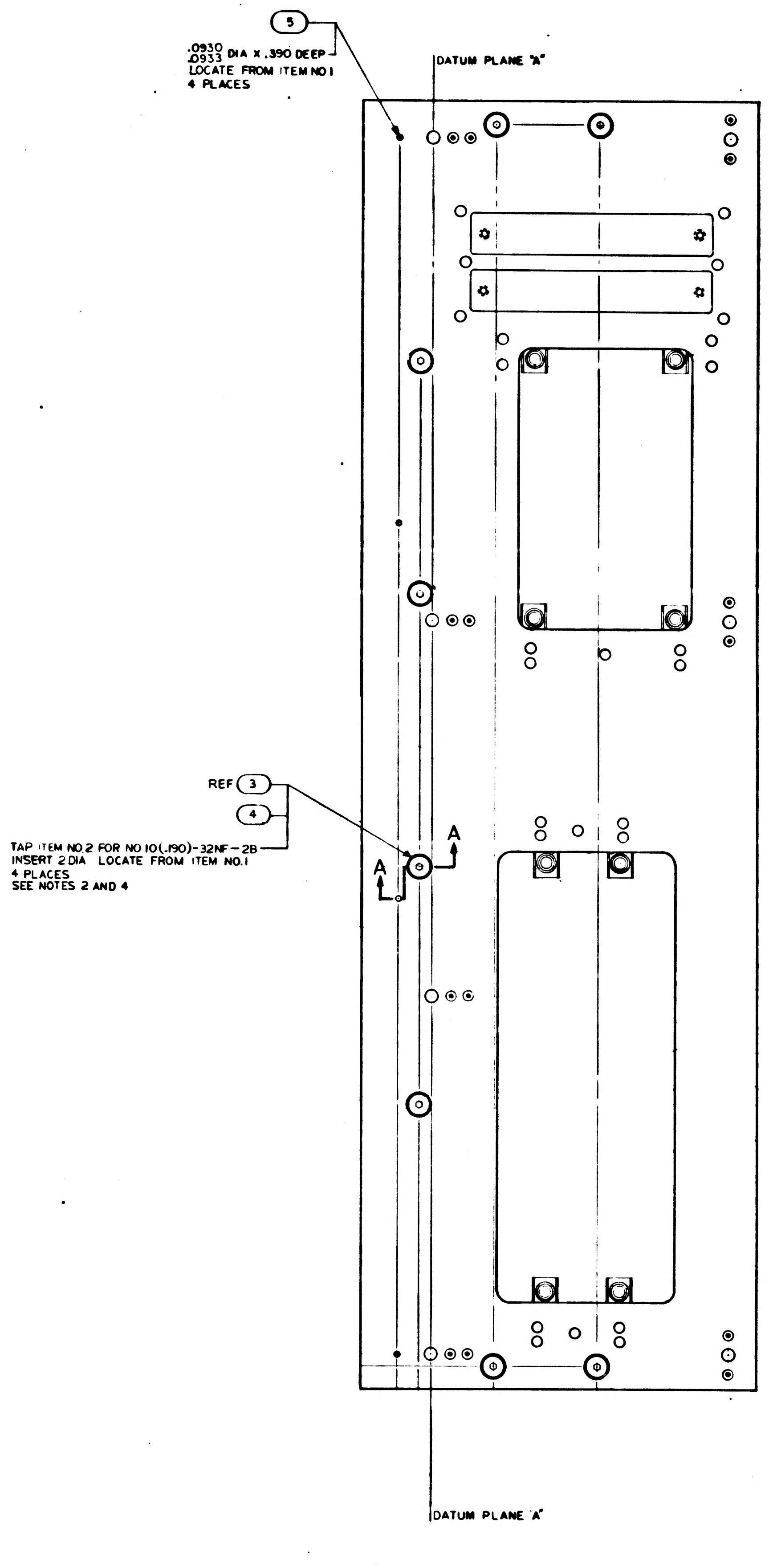
1007461

SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
		REVISIONS			
A		UPGRADED FOR CLASS A RELEASE		13 OCT 64	FK
B		REVISED PER TDRR 15485		26 JAN 65	WP

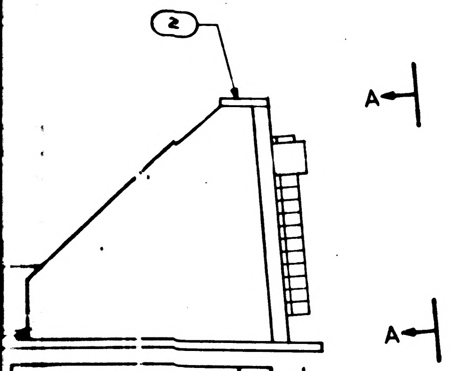

UMBERS 6, 7, 8 AND 9 NOT SHOWN

B
B
SEE NOTE 8


ITEM NUMBERS 6, 7, 8, AND 9 NOT SHOWN



5
.0930 .0933 DIA X .390 DEEP LOCATE FROM ITEM NO 1 4 PLACES
DATUM PLANE "A"
REF 3
4
TAP ITEM NO.2 FOR NO 10(.190)-32NF-2B INSERT 2 DIA LOCATE FROM ITEM NO.1 4 PLACES SEE NOTES 2 AND 4
A
A
DATUM PLANE "A"



1007461

	QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
SEE NOTE 9	10		13	1010618-15	SCREW, BUTTON HEAD
SEE NOTE 9	10		12	1010618-14	SCREW, BUTTON HEAD
	5		11	1008574-002	TRAY STOP
	5		10	1008574-001	TRAY STOP
SEE NOTE 9	225		9	1006781-3	CONTACT, WRAPOST FEMALE MIN
	225		8	1006774	INSULATOR, WRAPOST FEMALE MIN
	720		7	1010379-5	CONTACT, ELEC FEMALE
SEE NOTE 9	720		6	1010380	INSULATOR, BUSHING FEMALE
	4		5	1008153	PIN, STOP
	4		4	MS21209-F1-20	(897059-301) INSERT SCREW LOCKING
SEE NOTE 9	8		3	1010731-296	SCREW, FLAT HD, HEX SOCKET
	1		2	1008400	FRONT PLATE
	1		1	1008150	BOTTOM PLATE

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1015056-011		-011

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±SEE NOTE 5 ANGLES ± 0° 15'
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

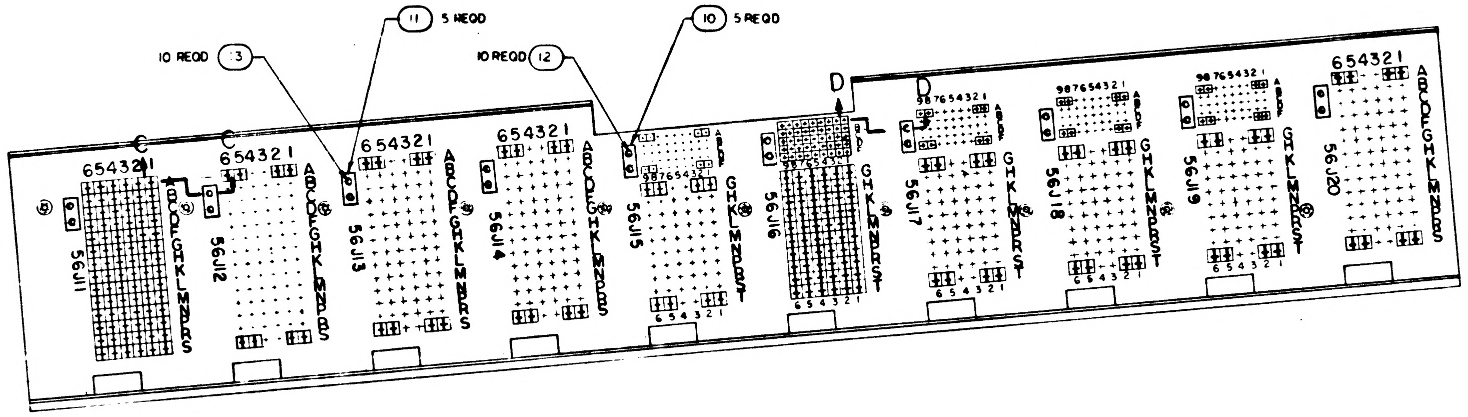
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN R. LaBue DATE 13 OCT 64
CHECKED J. Gibbs 15 OCT 64
APPROVAL
APPROVAL
NASA APPROVAL 11-4-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

END CONNECTOR ASSEMBLY PSA

CODE IDENT NO
SIZE J
NASA DRAWING NO 1007461
SCALE 1/1
NAS 9-497
SHEET 1 OF 1

2710007461


10 REQD
3
11
5 REQD
10 REQD
12
10
5 REQD
C
C
D
D
654321
ABCDEFGHKLMNPRS
56J11
56J12
56J13
56J14
56J15
56J16
56J17
56J18
56J19
56J20
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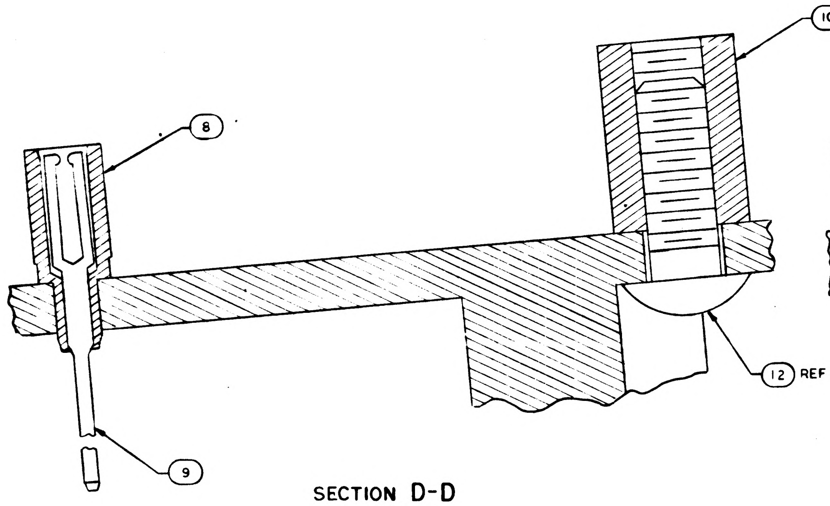
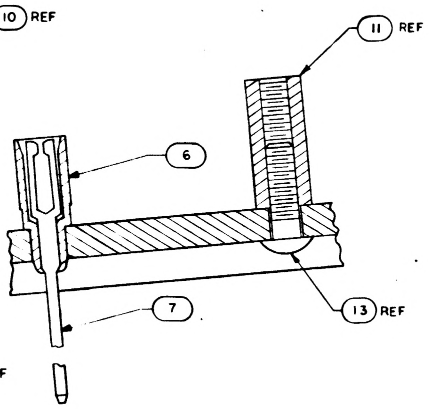
GHKLMNPRST

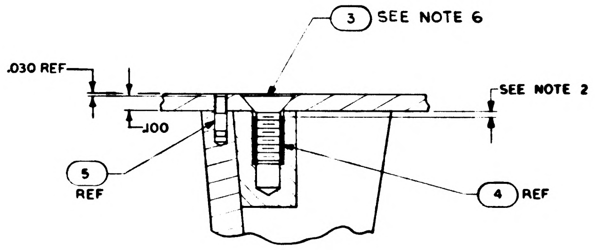
VIEW A-A


8
10 REF
12 REF
9

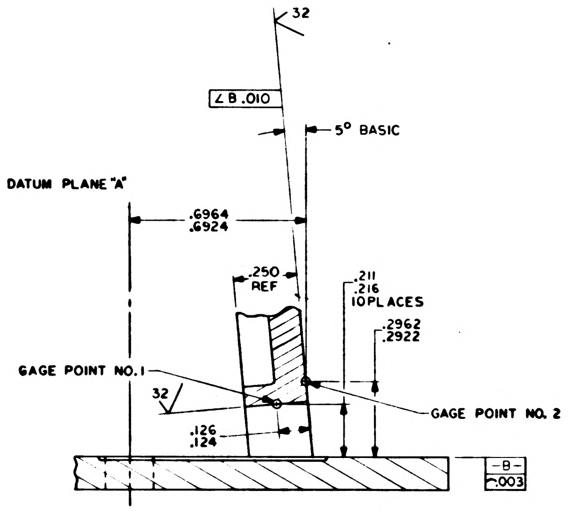
SECTION D-D
SCALE 10/1
225 PLACES
FOR ITEMS 8&9


11 REF
6
7
13 REF

SECTION C-C
SCALE 4/1
720 PLACES
FOR ITEMS 5&7


3 SEE NOTE 6
.030 REF
SEE NOTE 2
.100
5 REF
4 REF

PARTIAL SECTION A-A
SCALE 2/1


32
⏥ B .010
5° BASIC
DATUM PLANE "A"
.6964
.6924
.250 REF
.211
.216
10 PLACES
.2962
.2922
GAGE POINT NO. 1
GAGE POINT NO. 2
32
.126
.124
-B-
⏥ .003

PARTIAL SECTION B-B
SCALE 4/1

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. INSTALL ITEM NO. 4 PER MS33646. BREAK OFF DRIVING TANG
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   3 PLACE DECIMALS = ±.005
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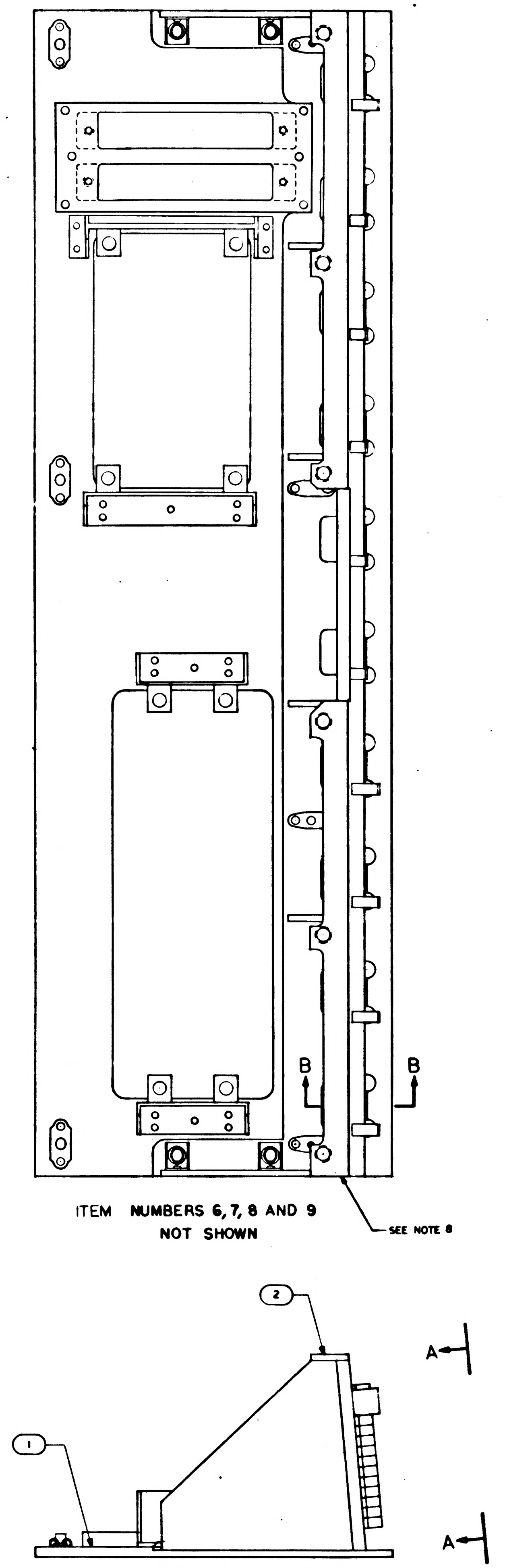
8. ALIGNMENT BETWEEN ITEM NOS 1 AND 2 TO BE FLUSH TO .010 MISALIGNMENT
9. VENDOR ITEM - SEE SPECIFICATION CONTROL DRAWING.


B
B
SEE NOTE 8
2
1
A
A

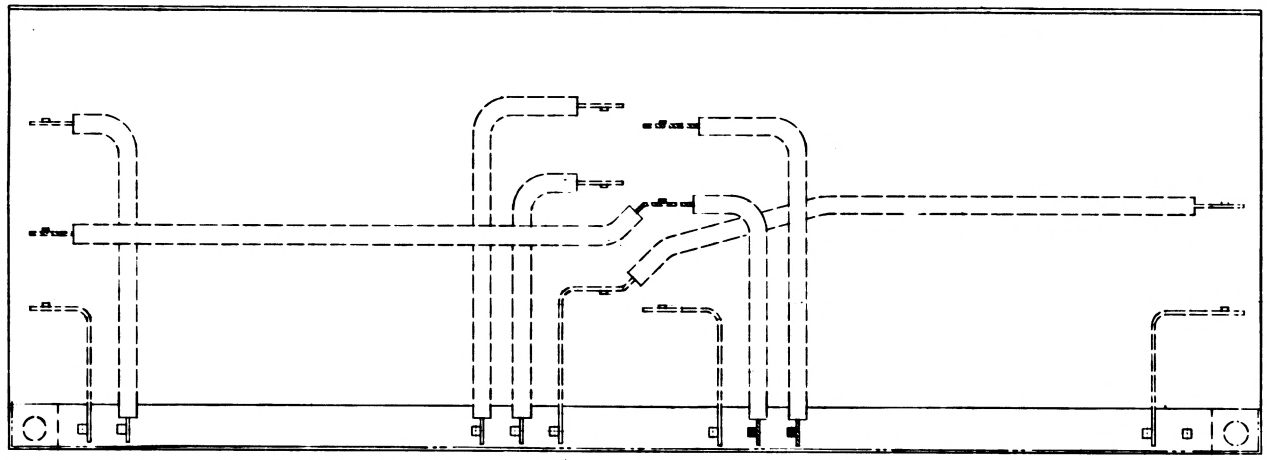
ITEM NUMBERS 6, 7, 8 AND 9 NOT SHOWN

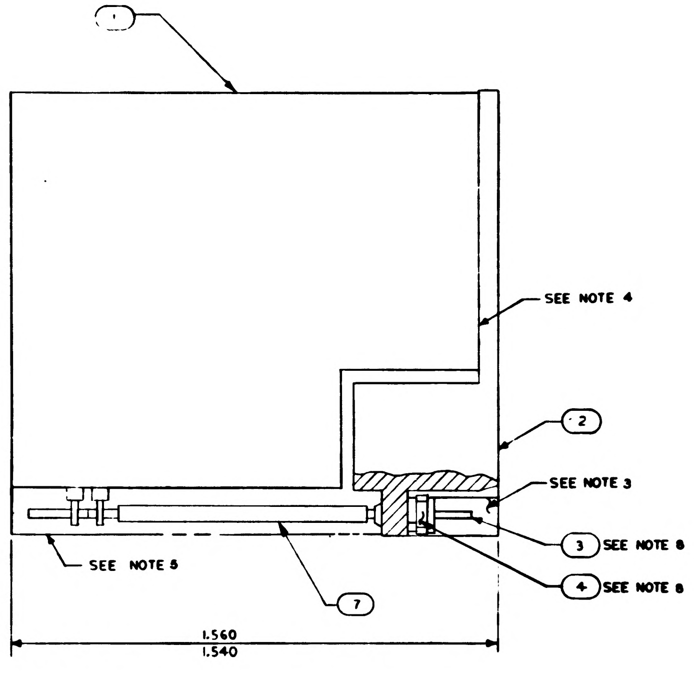
1007461

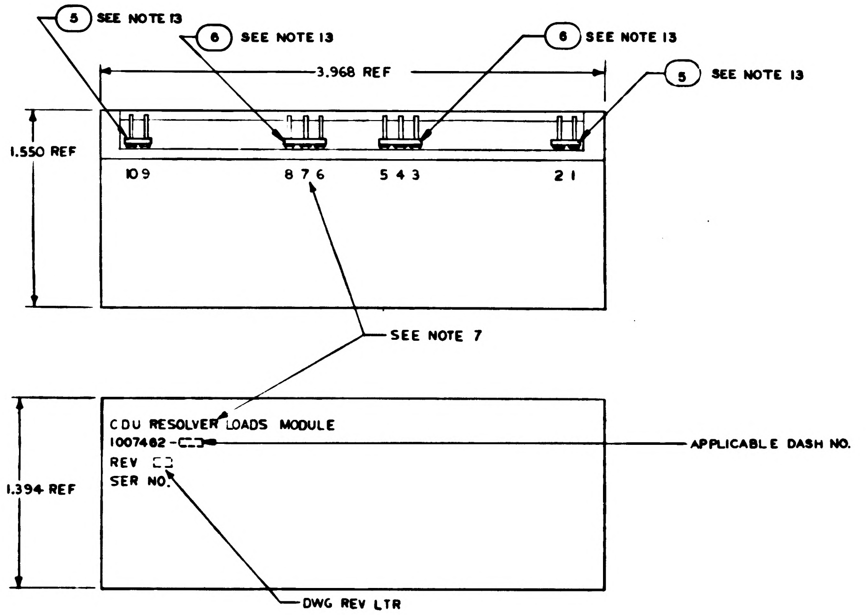
17/1007461

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 3			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 19533		







MARKING VIEW
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005.
3. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
4. BOND FIND NO. 1 TO FIND NO. 2 PER ND 1002004 TYPE I
5. ENCAPSULATE PER ND 1002036 CURING CYCLE B, UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSIONS BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
8. ASSEMBLE FIND NO. 3 AND FIND NO. 4 PER ND 1002136
9. PROCURE PER PS 1007062
10. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
11. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
12. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
13. BOND FIND NO. 5 AND FIND NO. 6 TO FIND NO. 4 PER ND 1002237
14. AR DENOTES AS REQUIRED
15. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
16. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

					1010055	SCHEMATIC ELEC	REF
			AR		1006776-20	INSULATION, SLEEVING ELEC	7
			2		1008540-3	GASKET CONNECTOR MINIATURE	6
			2		1008540-2	GASKET CONNECTOR MINIATURE	5
			10		1006775	INSULATOR WRAPOST MALE	4
			10		1006782-5	CONTACT WRAPOST MALE	3
			1		1007073	HEATSINK	2
			1		1007074	CDU RESOLVER LOADS MODULE SUB ASSY	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

1007456		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN R.M. KRUCKY DATE 23 SEP 64
CHECKED A. Udarch 25 SEP 64
APPROVAL
APPROVAL
NASA APPROVAL 10-20-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

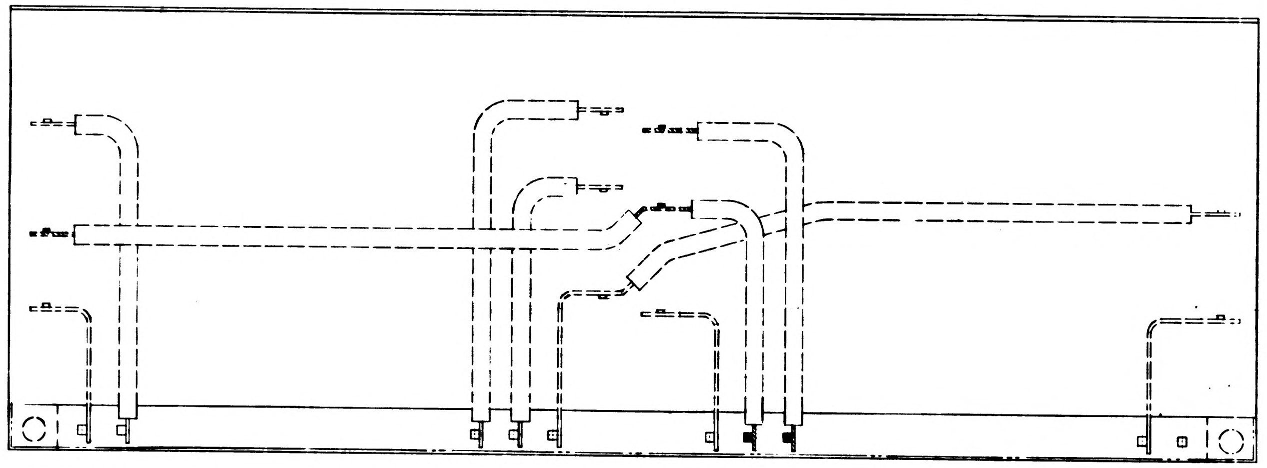
CDU RESOLVER LOADS
MODULE ASSEMBLY

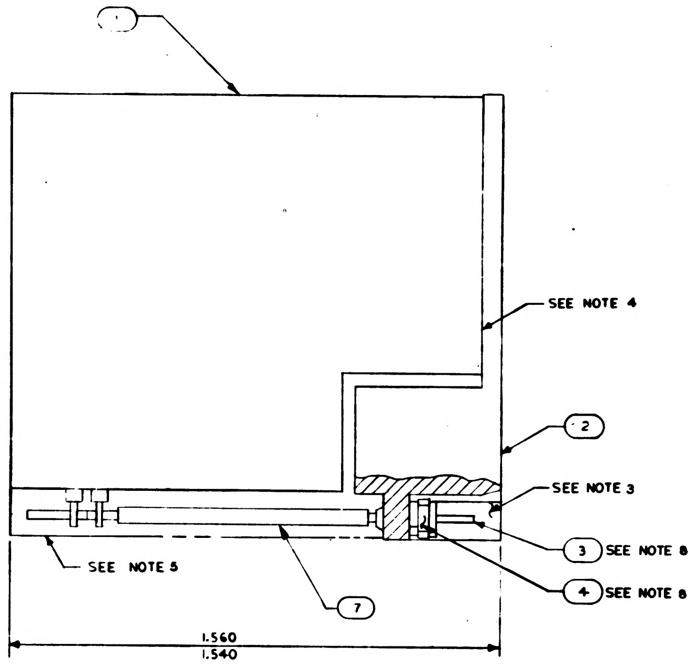
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	E	1007462
SCALE 5/1	WT —	SHEET 1 OF 1

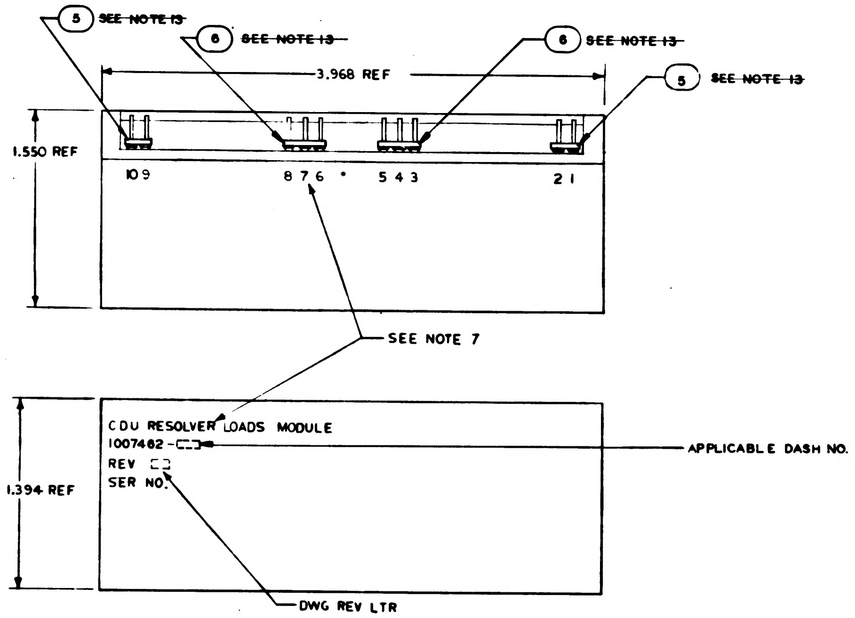
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 9533	[illegible]	[illegible]
B	REVISED PER TDRR 20143	[illegible]	[illegible]







MARKING VIEW
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005.
3. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
4. BOND FIND NO. 1 TO FIND NO. 2 PER ND 1002004 TYPE I
5. ENCAPSULATE PER ND 1002036 CURING CYCLE B, UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSIONS BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
8. ASSEMBLE FIND NO. 3 AND FIND NO. 4 PER ND 1002136
9. PROCURE PER PS 1007062
10. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
11. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
12. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
13. ~~BOND FIND NO. 5 AND FIND NO. 6 TO FIND NO. 4 PER ND 1002237~~
14. AR DENOTES AS REQUIRED
15. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
16. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

LIST OF MATERIALS

QUANTITY REQUIRED			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
					1010055	SCHEMATIC ELEC	REF
			AR		1006776-20	INSULATION, SLEEVING ELEC	7
			2		1008540-3	GASKET CONNECTOR MINIATURE	6
			2		1008540-2	GASKET CONNECTOR MINIATURE	5
			10		1006775	INSULATOR WRAPOST MALE	4
			10		1006782-5	CONTACT WRAPOST MALE	3
			1		1007073	HEATSINK	2
			1		1007074	CDU RESOLVER LOADS MODULE SUB ASSY	1

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER PLUS THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS XX± .02 XXX± .005
ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN R.M. KRUCKY DATE 28 SEP 64
CHECKED A. Ullarch 25 SEP 64
APPROVAL
APPROVAL
NASA APPROVAL 10-20-64
MIT APPROVAL

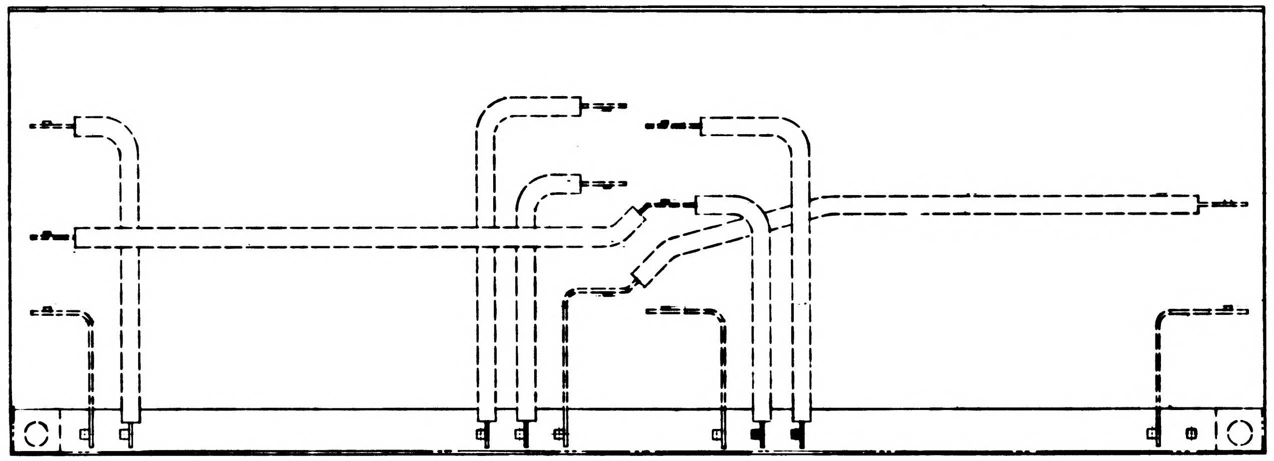
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

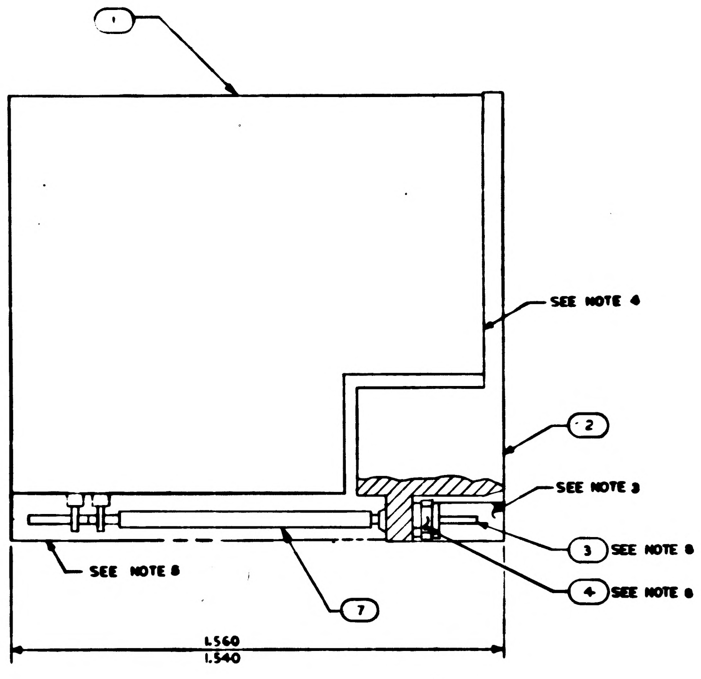
CDU RESOLVER LOADS
MODULE ASSEMBLY

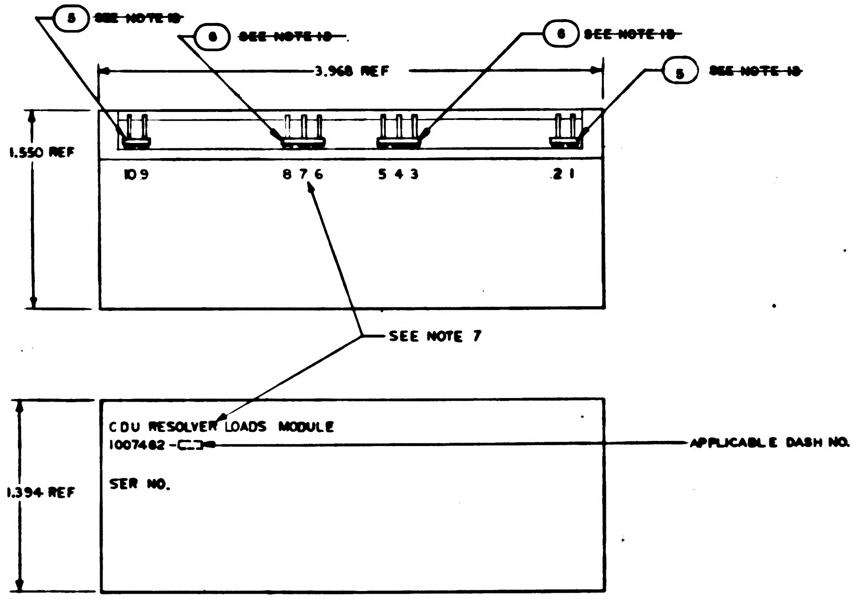
CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 1007462
SCALE 5/1
WT —
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 19533	JUN 65	EN
B	REVISED PER TDRR 20143	14 JUN 65	
C	REVISED PER TDRR 23318	23 OCT 65	







MARKING VIEW
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005.
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13. ~~BOND FIND NO. 5 AND FIND NO. 6 TO FIND NO. 4 PER ND 1002237~~
14. AR DENOTES AS REQUIRED
15. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
16. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010982 PRIMER AND 1000009-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

			☒		1010055	SCHEMATIC, ELEC	REF
			AR		1006776-20	INSULATION, SLEEVING ELEC	7
			2		1008540-3	GASKET CONNECTOR MINIATURE	6
			2		1008540-2	GASKET CONNECTOR MINIATURE	5
			10		1006775	INSULATOR WRAPOST MALE	4
			10		1006782-5	CONTACT WRAPOST MALE	3
			1		1007073	HEATSINK	2
			1		1007074	CDU RESOLVER LOADS MODULE SUB ASSY	1
			ON	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

1007456		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

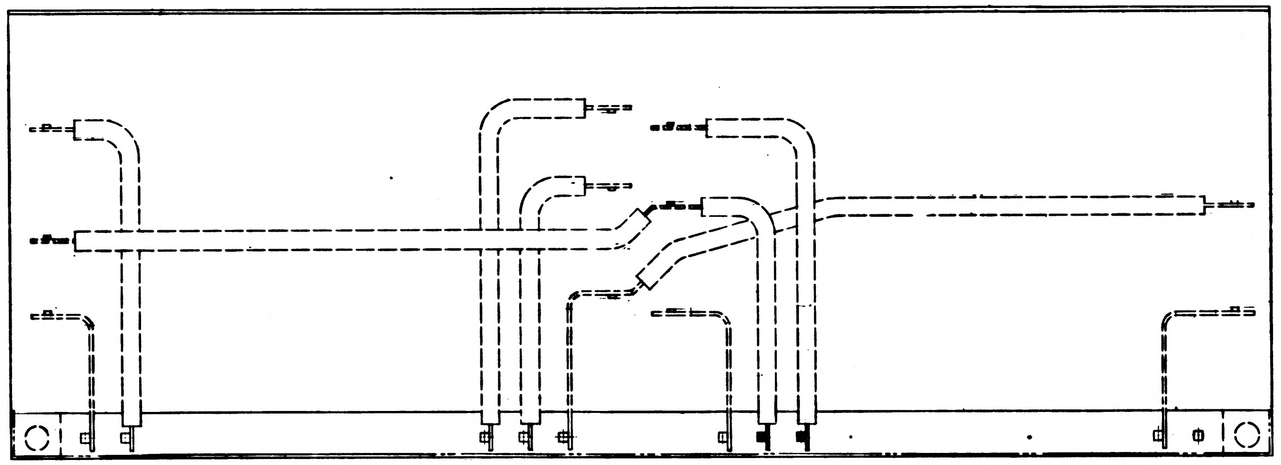
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX± .02 XXX± .005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT
FINAL FINISH —

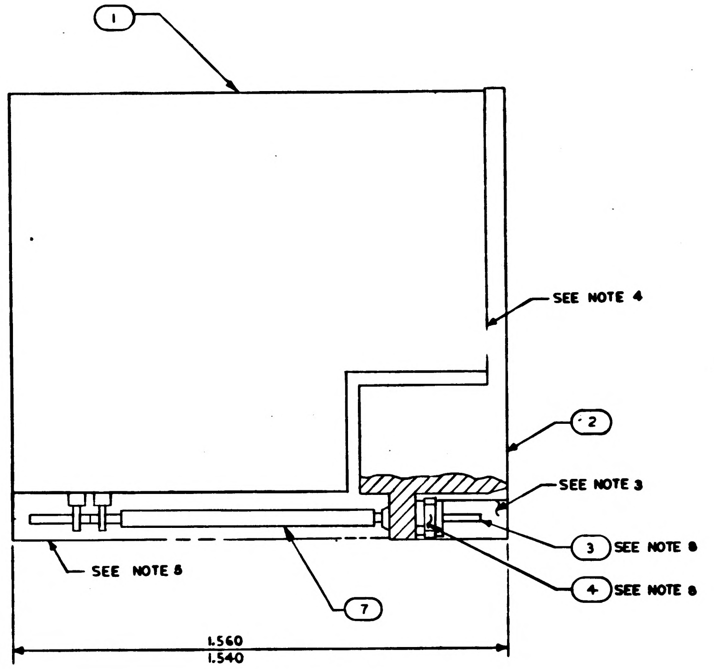
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497
DRAWN R M KRUCKY DATE 22 SEP 64
CHECKED A. Udovich
APPROVAL
APPROVAL
NASA APPROVAL 10-20-64
MIT APPROVAL

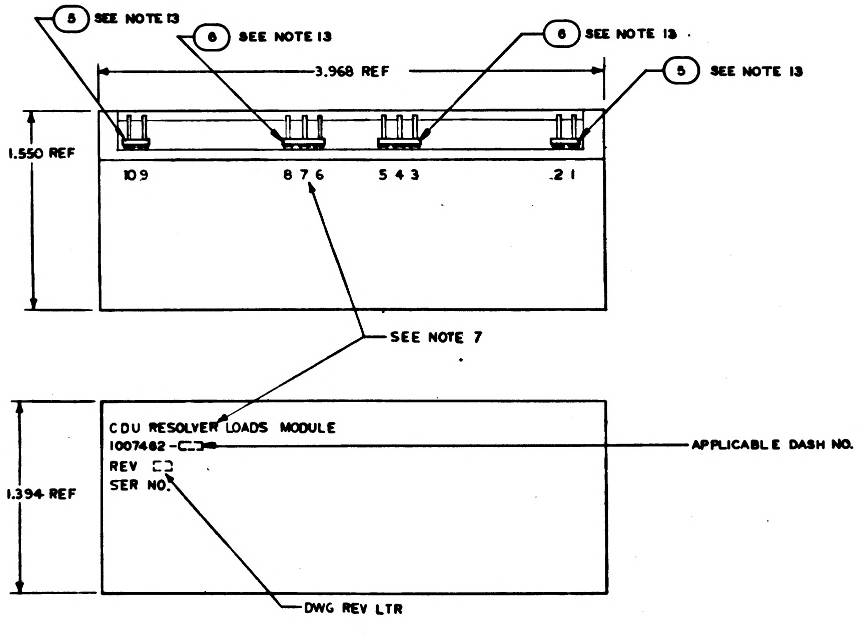
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CDU RESOLVER LOADS MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 1007462
SCALE 5/1
WT —
SHEET 1 OF 1







MARKING VIEW
SCALE 2/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005.
3. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
4. BOND FIND NO. 1 TO FIND NO. 2 PER ND 1002004 TYPE I
5. ENCAPSULATE PER ND 1002036 CURING CYCLE B, UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSIONS BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
8. ASSEMBLE FIND NO. 3 AND FIND NO. 4 PER ND 1002136
9. PROCURE PER PS 1007062
10. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
11. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
12. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
13. BOND FIND NO. 5 AND FIND NO. 6 TO FIND NO. 4 PER ND 1002237
14. AR DENOTES AS REQUIRED

REVISIONS

			☒		1010055	SCHEMATIC, ELEC	REF
			AR		1006776-20	INSULATION, SLEEVING ELEC	7
			2		1008540-3	GASKET CONNECTOR MINIATURE	6
			2		1008540-2	GASKET CONNECTOR MINIATURE	5
			10		1006775	INSULATOR WRAPOST MALE	4
			10		1006782-5	CONTACT WRAPOST MALE	3
			1		1007073	HEATSINK	2
			1		1007074	CDU RESOLVER LOADS MODULE SUB ASSY	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

1007456		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497
DRAWN R.M. KRUCKY DATE 25 SEP 64
CHECKED A. Udarich 25 SEP 64
APPROVAL
APPROVAL
NASA APPROVAL W. J. Kline 10-20-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CDU RESOLVER LOADS MODULE ASSEMBLY

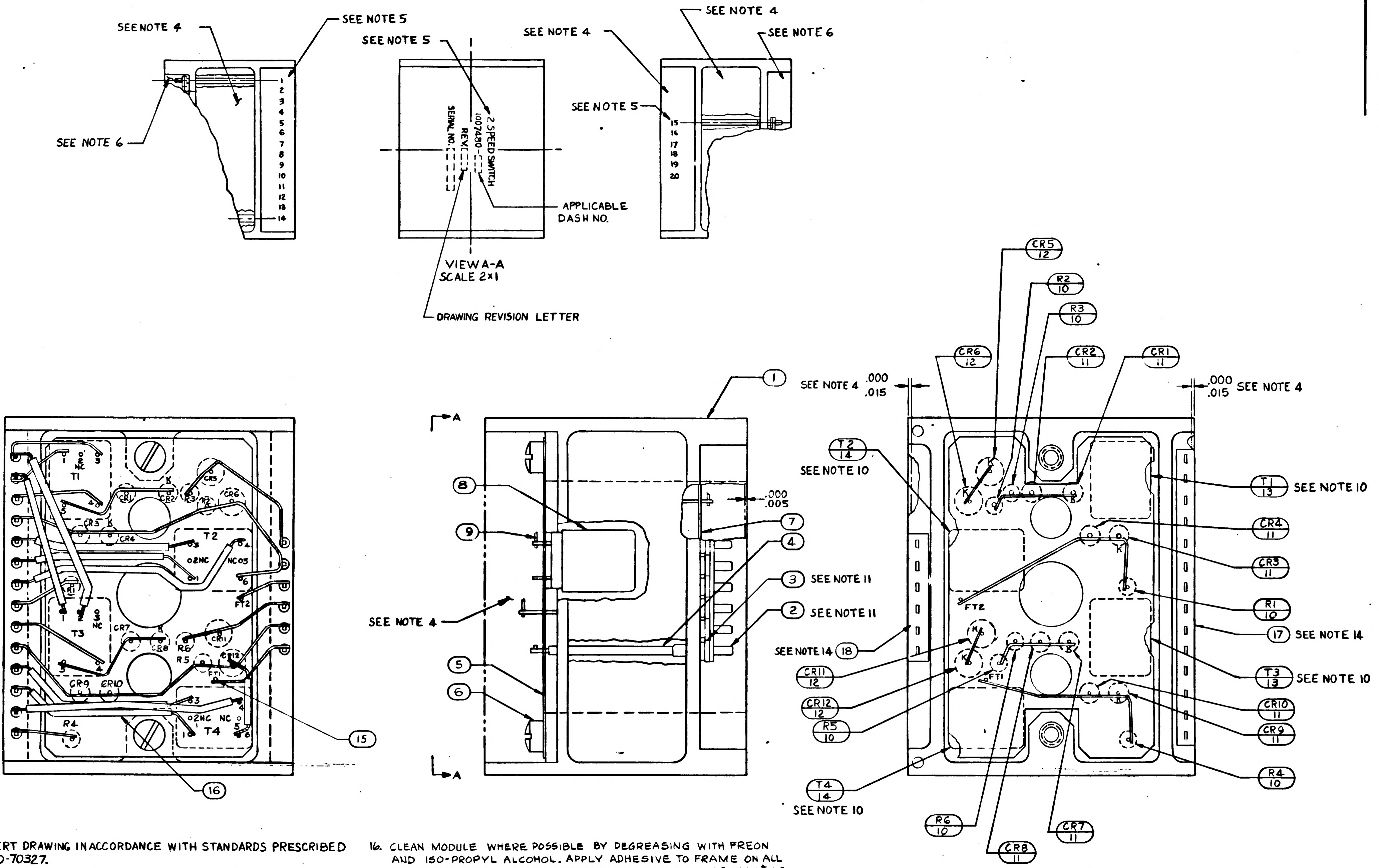
CODE IDENT NO. —
SIZE E
NASA DRAWING NO. 1007462
SCALE 5/1
WT —
SHEET 1 OF 1

1007462

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 19421		1 JUN 65	Cw



SEE NOTE 4
SEE NOTE 5
SEE NOTE 6
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11
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13
14
2 SPEED SWITCH
1007480-
REV
SERIAL NO.
APPLICABLE DASH NO.
VIEW A-A
SCALE 2×1
DRAWING REVISION LETTER
SEE NOTE 4
SEE NOTE 6
SEE NOTE 5
15
16
17
18
19
20
T1
T2
T3
T4
CR1
CR2
CR3
CR4
CR5
CR6
CR7
CR8
CR9
CR10
CR11
CR12
R1
R2
R3
R4
R5
R6
FT1
FT2
K
NC
2NC
NC
A
A
SEE NOTE 4
.000
.005
SEE NOTE 11
SEE NOTE 11
SEE NOTE 14
.000
.015
SEE NOTE 10
SEE NOTE 14
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16
17
18
CR5 12
R2 10
R3 10
CR6 12
CR2 11
CR1 11
T2 14
T1 13
CR4 11
CR3 11
R1 10
T3 13
CR10 11
CR9 11
R4 10
CR11 12
CR12 12
R5 10
T4 14
R6 10
CR8 11
CR7 11

NOTES:

1. INTERPERT DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED, COMPONENTS TO BE CENTERED BETWEEN ITEMS 5 & 7.
3. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005.
4. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSION BY MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
5. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
6. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
7. ON ITEMS 5 AND 7.
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU,
8. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
9. BLACK DOT & CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
10. BOND T1 THRU T4 TO ITEM 5 PER ND1002004 *TYPE I*
11. ASSEMBLE PER ND1002136.
12. PROCURE PER PS 1015104.
13. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. BOND ITEM NO. 17 AND ITEM NO. 18 TO ITEM NO. 3 PER ND1002237.
15. AR DENOTE AS REQUIRED
16. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ±.03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND 1002187 TYPE II.

LIST OF PARTS AND MATERIALS

QUANTITY REQUIRED					EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			-011					
			☒			REF	1015102	SCHEMATIC DIAGRAM, ELECTRICAL
			1			18	1008540-6	GASKET CONNECTOR MINIATURE
			1			17	1008540-14	GASKET CONNECTOR MINIATURE
			AR			16	1006776-21	INSULATION SLEEVING NO. 22
			AR			15	1006787-2	WIRE, FEED THRU
			2			14	1010329-1	TRANSFORMER
			2			13	1010291-3	TRANSFORMER
			4			12	1010372-21	DIODE
			8			11	1010392-1	DIODE
			6			10	1006750-63	RESISTOR
			AR			9	1006757-1	.010 X .020 NICKEL RIBBON
			4			8	1010461	TRANSFORMER SHIELD
			1			7	1015147	WAFER BOARD, LOWER
			2			6	1010485-98	4-40 FIL. HD. SCREW 3/16 LONG (NYLON)
			1			5	1015146	WAFER BOARD, UPPER
			AR			4	1006776-20	INSULATION SLEEVING
			20			3	1006775	INSULATOR WRAPOST-MALE MINAT.
			20			2	1006782-5	CONTACT, WRAPOST MALE MINAT.
			1			1	1015107	FRAME-MODULE

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
1007458		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
+ XX±.02 +
- XXX±.005 -
DO NOT SCALE THIS DRAWING

MATERIAL

CONTRACT NAS 9-497

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN R.M.KRUCKY DATE 30 SEP 64
CHECKED C. Wmrch 30 SEP 64
APPROVAL
APPROVAL D. Ritter 10/19/64
NASA APPROVAL 10-20-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

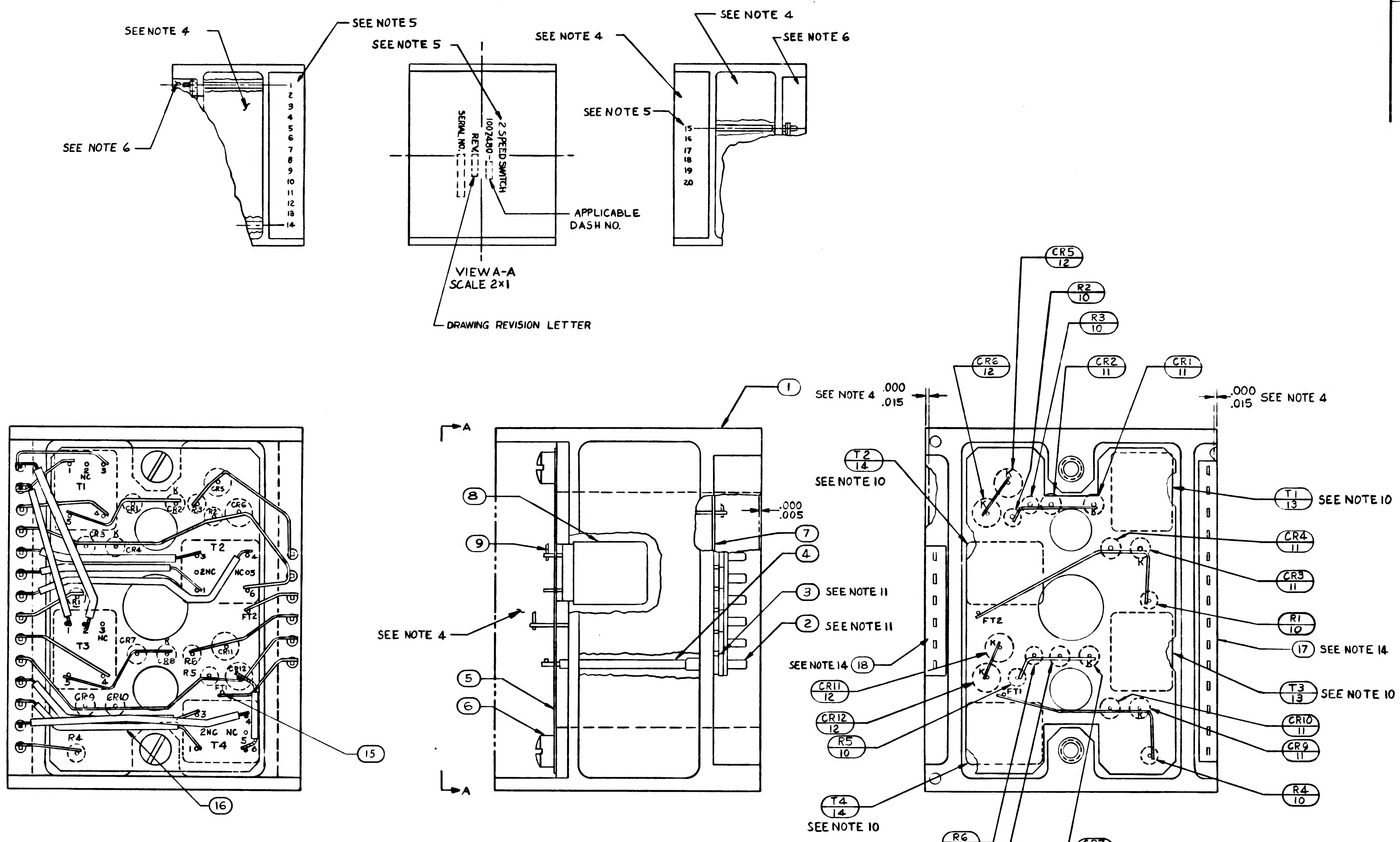
MODULE ASSEMBLY
TWO-SPEED SWITCH

CODE IDENT NO 80230
SIZE E
1007480
SCALE 4X1
SHEET 1 OF 1

MIL 1077E-P

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 19421		[illegible]	
B		REVISED PER TDRE 19534		[illegible]	


SEE NOTE 4
SEE NOTE 5
SEE NOTE 5
SEE NOTE 6
1 2 3 4 5 6 7 8 9 10 11 12 13 14
2 SPEED SWITCH
1007480-
REV
SERIAL NO.
APPLICABLE DASH NO.
VIEW A-A
SCALE 2X1
DRAWING REVISION LETTER
SEE NOTE 4
SEE NOTE 4
SEE NOTE 6
SEE NOTE 5
15 16 17 18 19 20
1
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8
9
7
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3 SEE NOTE 11
2 SEE NOTE 11
SEE NOTE 4
5
6
.000 .005
SEE NOTE 4 .000 .015
.000 .015 SEE NOTE 4
T1 NC
CR1 CR2 CR5 CR6
CR3 K
CR4
T2
2NC NC03
FT2
R1
T3
CR7 R6 CR11
R5 CR12
FT1
CR9 CR10
R4
2NC NC
T4
15
16
CR5 12
R2 10
R3 10
CR6 12
CR2 11
CR1 11
T2 14 SEE NOTE 10
T1 13 SEE NOTE 10
CR4 11
CR3 11
R1 10
17 SEE NOTE 14
SEE NOTE 14 18
CR11 12
CR12 12
R5 10
T3 13 SEE NOTE 10
CR10 11
CR9 11
R4 10
T4 14 SEE NOTE 10
R6 10
CR8 11
CR7 11
K
FT1
FT2

NOTES:

1. INTERPERT DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED, COMPONENTS TO BE CENTERED BETWEEN ITEMS 5&7.
3. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005.
4. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSION BY MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
5. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
6. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
7. ON ITEMS 5 AND 7.
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU,
8. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
9. BLACK DOT & CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
10. BOND T1 THRU T4 TO ITEM 5 PER ND1002004 *TYPE I*
11. ASSEMBLE PER ND1002136.
12. PROCURE PER PS 1015104.
13. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. BOND ITEM NO. 17 AND ITEM NO. 18 TO ITEM NO. 3 PER ND1002237.
15. AR DENOTE AS REQUIRED
16. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .05 INCH ±.03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND 1002167 TYPE II.~~
17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

					REF	1015102	SCHEMATIC DIAGRAM, ELECTRICAL
			1		18	1008540-6	GASKET CONNECTOR MINIATURE
			1		17	1008540-14	GASKET CONNECTOR MINIATURE
			AR		16	1006776-21	INSULATION SLEEVING NO. 22
			AR		15	1006787-2	WIRE, FEED THRU
			2		14	1010329-1	TRANSFORMER
			2		13	1010291-3	TRANSFORMER
			4		12	1010372-21	DIODE
			8		11	1010392-1	DIODE
			6		10	1006750-63	RESISTOR
			AR		9	1006757-1	.010 X .020 NICKEL RIBBON
			4		8	1010461	TRANSFORMER SHIELD
			1		7	1015147	WAFER BOARD LOWER
			2		6	1010485-98	4-40 FIL. HD. SCREW 3/16 LONG, NYLON
			1		5	1015146	WAFER BOARD UPPER
			AR		4	1006776-20	INSULATION SLEEVING
			20		3	1006775	INSULATOR WRAPOST-MALE MINIAT.
			20		2	1006782-5	CONTACT WRAPOST MALE MINIAT.
			1		1	1015107	FRAME-MODULE
			-011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
1007458		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT
DRAWN R.M. KRUCKY DATE 24 SEP 64
CHECKED 30 SEP 64
APPROVAL
APPROVAL 10/9/64
NASA APPROVAL
MIT APPROVAL

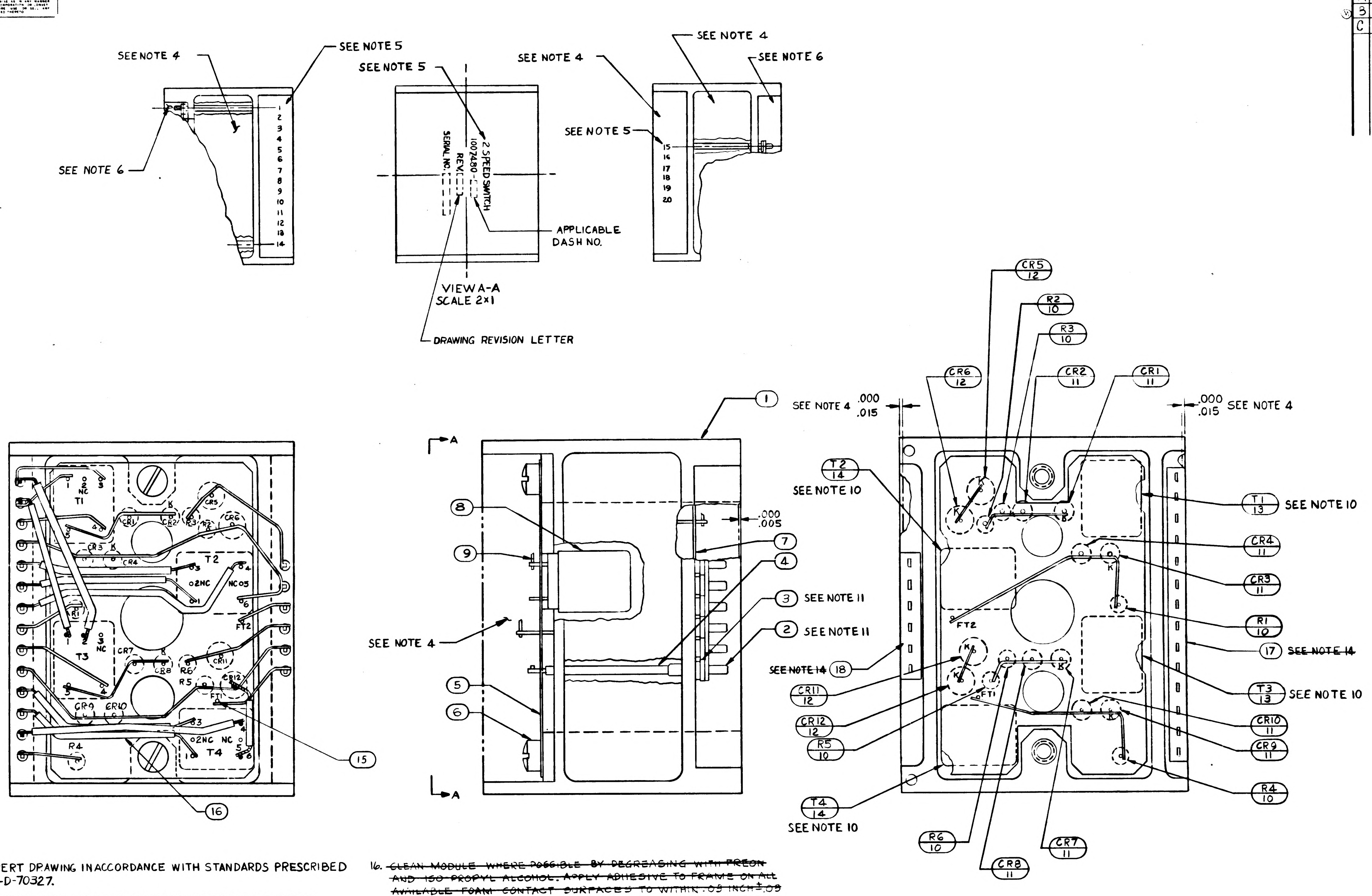
MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

MODULE ASSEMBLY
TWO-SPEED SWITCH

CODE IDENT NO 80230
SIZE E
1007480
SCALE 4X1
SHEET 1 OF 1

MIL 1077E-P

SYM	ZONE	DESCRIPTION	CHG NO
A		REVISED PER TDRR 19421	
B		REVISED PER TDRR 19534	
C		REVISED PER TDRR 20143	


SEE NOTE 4
SEE NOTE 5
SEE NOTE 6
1 2 3 4 5 6 7 8 9 10 11 12 13 14
SEE NOTE 5
2 SPEED SWITCH
1007480-
REV
SERIAL NO.
APPLICABLE DASH NO.
VIEW A-A
SCALE 2×1
DRAWING REVISION LETTER
SEE NOTE 4
SEE NOTE 6
SEE NOTE 4
SEE NOTE 5
15 16 17 18 19 20
T1
T2
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CR1 CR2 CR3 CR4 CR5 CR6 CR7 CR8 CR9 CR10 CR11 CR12
R1 R2 R3 R4 R5 R6
FT1 FT2
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SEE NOTE 4
SEE NOTE 11
SEE NOTE 11
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16
SEE NOTE 4 .000 .015
.000 .015 SEE NOTE 4
CR5 12
R2 10
R3 10
CR6 12
CR2 11
CR1 11
T2 14 SEE NOTE 10
T1 13 SEE NOTE 10
CR4 11
CR3 11
R1 10
17 ~~SEE NOTE 14~~
~~SEE NOTE 14~~ 18
T3 13 SEE NOTE 10
CR11 12
CR12 12
R5 10
CR10 11
CR9 11
R4 10
T4 14 SEE NOTE 10
R6 10
CR8 11
CR7 11

NOTES:

1. INTERPERT DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED, COMPONENTS TO BE CENTERED BETWEEN ITEMS 5&7.
3. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005.
4. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSION BY MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
5. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
6. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
7. ON ITEMS 5 AND 7.
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU,
8. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
9. BLACK DOT & CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
10. BOND T1 THRU T4 TO ITEM 5 PER ND1002004 *TYPE I*
11. ASSEMBLE PER ND1002136.
12. PROCURE PER PS 1015104.
13. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. ~~BOND ITEM NO. 17 AND ITEM NO. 18 TO ITEM NO. 3 PER ND1002237.~~
15. AR DENOTE AS REQUIRED
16. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ±.03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND 1002187 TYPE II.~~
17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROFYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

			☒		REF	1015102	SCHEMATIC DIAGRAM, ELECTRICAL
			1		18	1008540-6	GASKET CONNECTOR MINIATURE
			1		17	1008540-14	GASKET CONNECTOR MINIATU
			AR		16	1006776-21	INSULATION SLEEVING NO.2
			AR		15	1006787-2	WIRE, FEED THRU
			2		14	1010329-1	TRANSFORMER
			2		13	1010291-3	TRANSFORMER
			4		12	1010372-21	DIODE
			8		11	1010392-1	DIODE
			6		10	1006750-63	RESISTOR
			AR		9	1006757-1	.010X.020 NICKEL RIBBON
			4		8	1010461	TRANSFORMER SHIELD
			1		7	1015147	WAFER BOARD LOWER
			2		6	1010485-98	4-40 FIL. HD. SCREW 3/16 LONG([illegible])
			1		5	1015146	WAFER BOARD UPPER
			AR		4	1006776-20	INSULATION SLEEVING
			20		3	1006775	INSULATOR WRAPOST-MALE MINIAT
			20		2	1006782-5	CONTACT WRAPOST MALE MIN
			1		1	1015107	FRAME-MODULE
QUANTITY REQUIRED			-011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
1007458		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
+ XX±.02 +
- XXX±.005 -
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN R.M. KRUCKY DATE 24 SEP 64
CHECKED A. Monich 30 SEP 64
APPROVAL
APPROVAL 10/9/64
NASA APPROVAL 10-20-64
MIT APPROVAL

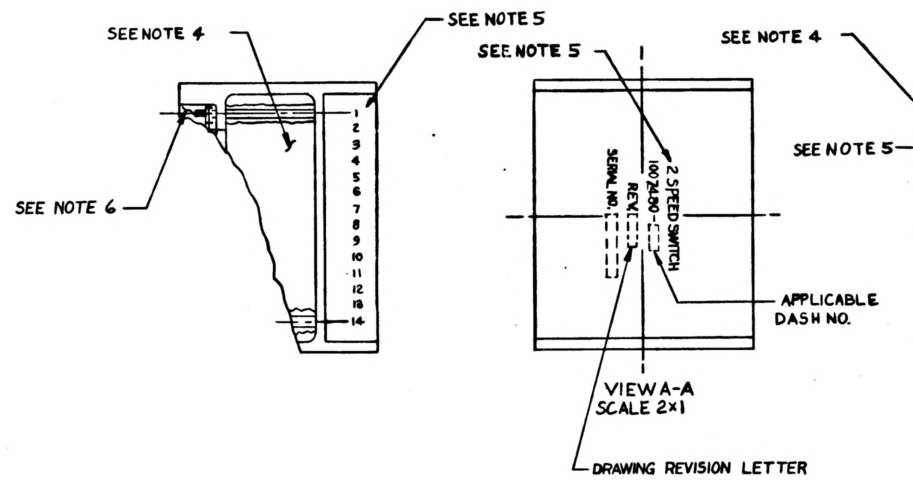
MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

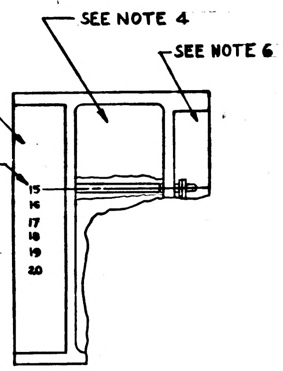
MODULE ASSEMBLY
TWO-SPEED SWITCH

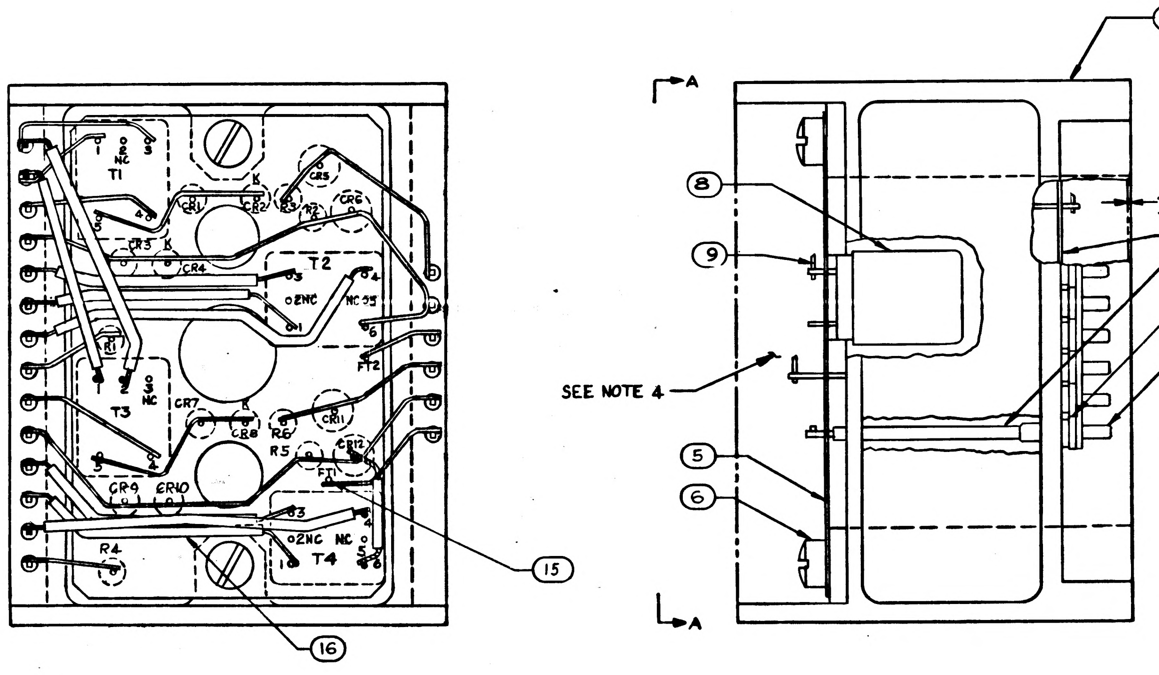
CODE IDENT NO 80230
SIZE E
1007480
SCALE 4X1
SHEET 1 OF 1

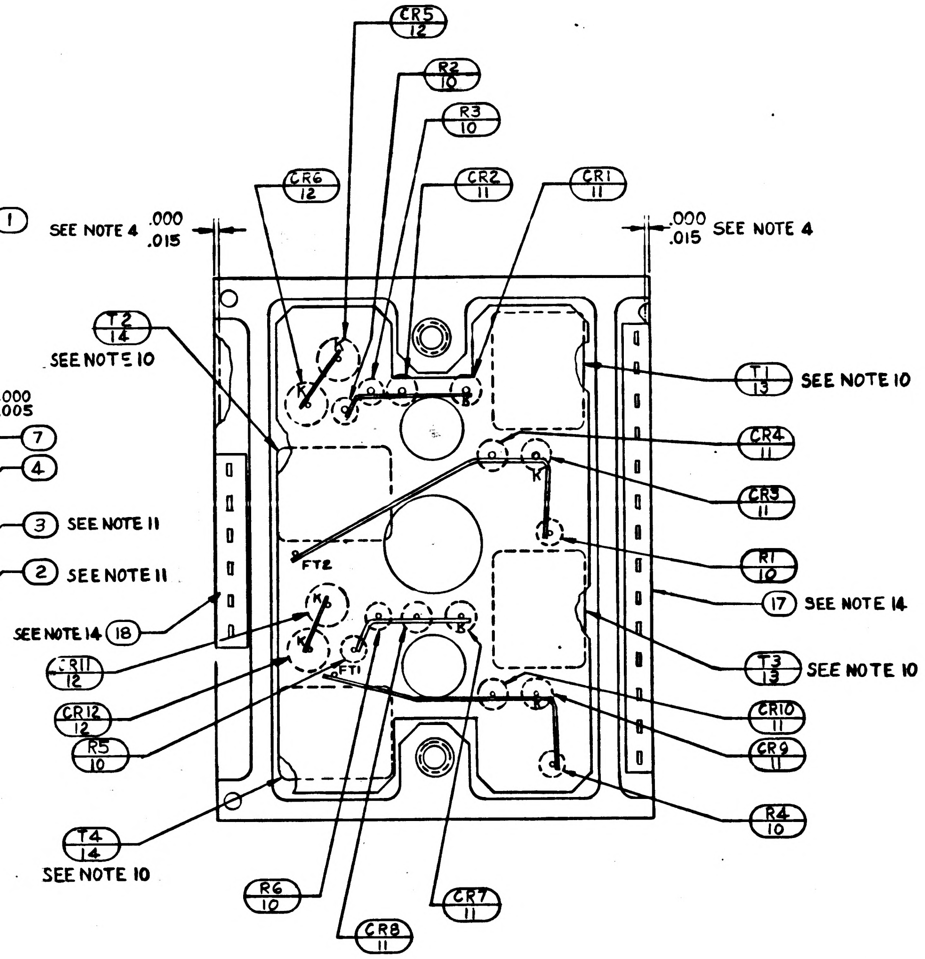
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 1354					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD


SEE NOTE 4
SEE NOTE 5
SEE NOTE 6
1 2 3 4 5 6 7 8 9 10 11 12 13 14
SEE NOTE 5
2 SPEED SWITCH
1007480
SERIAL NO.
REV.
APPLICABLE DASH NO.
VIEW A-A
SCALE 2×1
DRAWING REVISION LETTER


SEE NOTE 4
SEE NOTE 6
SEE NOTE 4
SEE NOTE 5
15 16 17 18 19 20


T1
NC
CR1
CR2
CR3
CR5
CR6
CR4
T2
NC
FT2
R1
T3
NC
CR7
CR8
R6
R5
CR11
CR12
CR9
CR10
FT1
R4
T4
NC
15
16
1
A
A
8
9
SEE NOTE 4
5
6
.000
.005
7
4
3 SEE NOTE 11
2 SEE NOTE 11


CR5 12
R2 10
R3 10
CR6 12
CR2 11
CR1 11
SEE NOTE 4 .000 .015
.000 .015 SEE NOTE 4
T2 14
SEE NOTE 10
T1 13 SEE NOTE 10
CR4 11
CR3 11
R1 10
17 SEE NOTE 14
SEE NOTE 14 18
CR11 12
FT2
FT1
K
T3 13 SEE NOTE 10
CR12 12
R5 10
CR10 11
CR9 11
R4 10
T4 14
SEE NOTE 10
R6 10
CR8 11
CR7 11

NOTES:

1. INTERPERT DRAWING INACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED, COMPONENTS TO BE CENTERED BETWEEN ITEMS 5 & 7.
3. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005.
4. ENCAPSULATE MODULE PER ND1002002(BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSION BY MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
5. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
6. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
7. ON ITEMS 5 AND 7.
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU,
8. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
9. BLACK DOT & CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
10. BOND T1 THRU T4 TO ITEM 5 PER ND1002004 TYPE I
11. ASSEMBLE PER ND1002136.
12. PROCURE PER PS 1015104.
13. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. BOND ITEM NO. 17 AND ITEM NO. 18 TO ITEM NO. 3 PER ND1002237.
15. AR DENOTE AS REQUIRED

			☒		REF	1015102	SCHEMATIC DIAGRAM, ELECTRICAL
			1		18	1008540-6	GASKET CONNECTOR MINIATURE
			1		17	1008540-14	GASKET CONNECTOR MINIATURE
			AR		16	1006776-21	INSULATION SLEEVING NO. 22
			AR		15	1006787-2	WIRE, FEED THRU
			2		14	1010329-1	TRANSFORMER
			2		13	1010291-3	TRANSFORMER
			4		12	1010372-21	DIODE
			8		11	1010392-1	DIODE
			6		10	1006750-63	RESISTOR
			AR		9	1006757-1	.010 X .020 NICKEL RIBBON
			4		8	1010461	TRANSFORMER SHIELD
			1		7	1015147	WAFER BOARD, LOWER
			2		6	1010485-98	4-40 FIL. HD. SCREW 3/16 LONG, NYLON
			1		5	1015146	WAFER BOARD, UPPER
			AR		4	1006776-20	INSULATION SLEEVING
			20		3	1006775	INSULATOR, WRAPOST-MALE MINAT.
			20		2	1006782-5	CONTACT WRAPOST MALE MINAT.
			1		1	1015107	FRAME-MODULE
			-011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
1007458		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
+ XX±.02 +
- XXX±.005 -
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

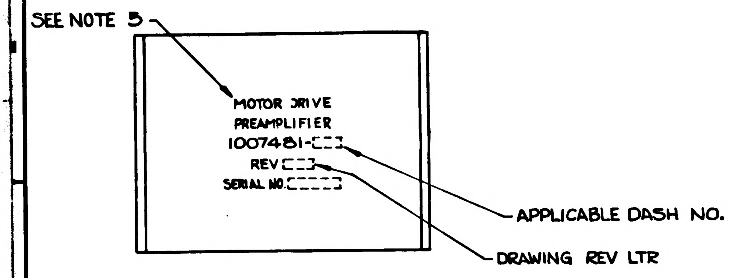
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN R.M. KRUCKY DATE 24 SEP 64
CHECKED A. Wernick 30 SEP 64
APPROVAL Shaw 10/5/64
APPROVAL D. Porter 10/9/64
NASA APPROVAL W. J. Kline 10-20-64
MIT APPROVAL 10/29/64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

MODULE ASSEMBLY
TWO-SPEED SWITCH

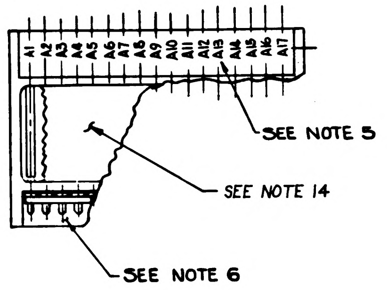
CODE IDENT NO. —
SIZE E
1007480
SCALE 4X1
SHEET 1 OF 1

SYM	ZONE	REVISIONS DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 19535		2 JUN 65	RS EF

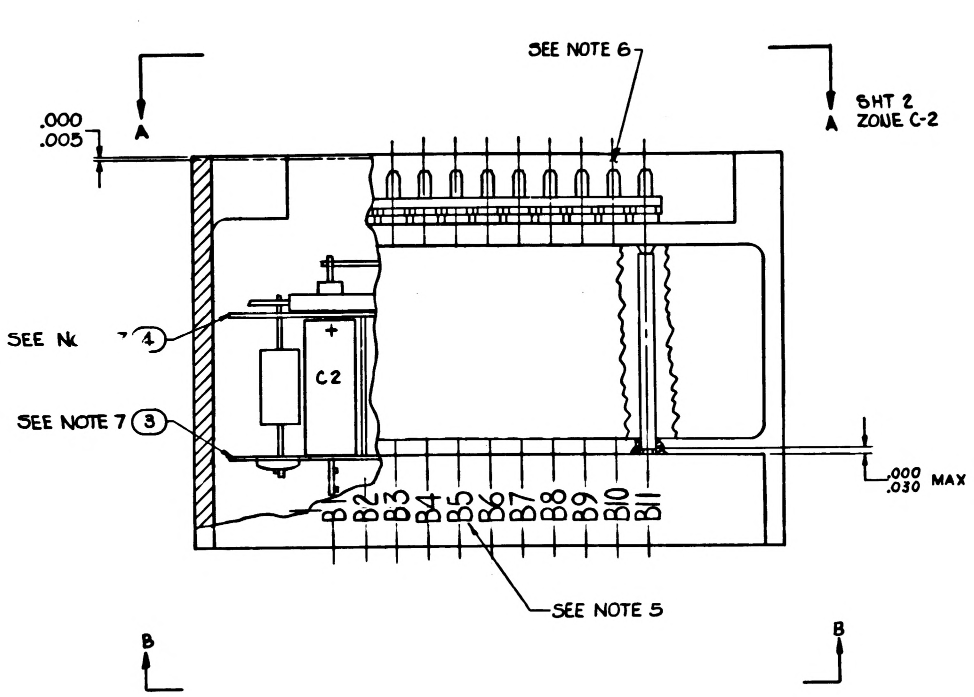


SEE NOTE 5
MOTOR DRIVE
PREAMPLIFIER
1007481-
REV
SERIAL NO.
APPLICABLE DASH NO.
DRAWING REV LTR

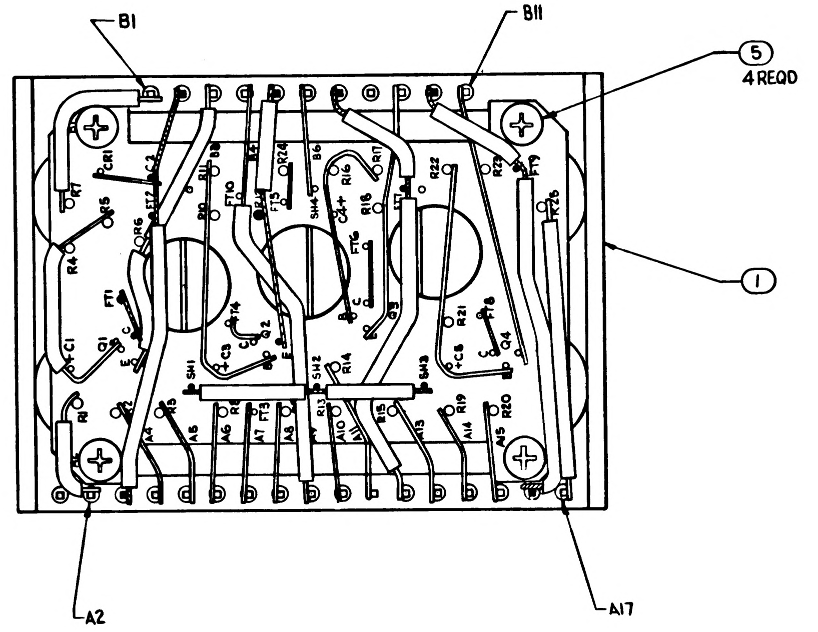
VIEW B-B
SCALE 2:1



A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17
SEE NOTE 5
SEE NOTE 14
SEE NOTE 6



SEE NOTE 6
A
SHT 2
ZONE C-2
.000
.005
A
SEE NOTE 7 ④
SEE NOTE 7 ③
C2
+
.000
.030 MAX
B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11
SEE NOTE 5
B
B



B1
B11
⑤
4 REQD
①
A2
A17
CR1
R1
R2
R3
R4
R5
R6
C1
C2
Q1
Q2
Q4
R14
R15
R16
R17
R18
R19
R20
R21
R22
R23
R24
SH1
SH2
SH3
SH4
C6
FT1
FT2
FT3
FT5
FT6
FT9
FT10

NOTES:

1. UNLESS OTHERWISE SPECIFIED COMPONENTS TO BE CENTRALIZED BETWEEN ITEM 4 & 3.
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
4. PROCURE PER PS 1015113.
5. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
6. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
7. ON ITEM NOS 3 AND 4:
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT( ) INDICATES FEED THRU,
   PLUS(+) INDICATES POSITIVE END OF CAPACITOR,
   C- INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B- INDICATES BASE LEAD OF TRANSISTOR,
   E- INDICATES EMITTER LEAD OF TRANSISTOR.
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
9. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING.
10. UNLESS OTHERWISE SPECIFIED: WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
11. ASSEMBLE PER ND 1002136
12. BOND ITEM NO. 23 AND ITEM 24 TO ITEM 16 PER ND1002237.
13. BOND ITEM NO. 13 TO ITEM NO. 3 PER ND 1002004 TYPE I
14. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
15. AR DENOTES AS REQUIRED
16. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
17. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			╳		REF	1015112	SCHEMATIC DIAGRAM ELECTRICAL
			1		24	1008540-6	GASKET CONNECTOR MINAT
			2		23	1008540-11	GASKET CONNECTOR MINAT
			2		22	1010379-20	RESISTOR - FIXED
			4		21	1010369-739	RESISTOR - FIXED
			AR		20	1006757-1	WIRE, NICKEL RIBBON .010×.020
			AR		19	1006776-21	SLEEVING, ELECT. INSULATING
			AR		18	1006776-20	SLEEVING, ELECT. INSULATING
			AR		17	1006787-2	WIRE, FEED THROUGH #24 AWG
			28		16	1006775	INSULATOR, WRAPOST-MALE MINAT
			28		15	1006782-5	CONTACT, BLADE EDGE CONNECTOR
			1		14	1010372-18	SEMICONDUCTOR DEVICE, DIODE
			4		13	1010397-1	TRANSISTOR
			1		12	1006755-79	CAPACITOR, FIXED
			4		11	1006755-65	CAPACITOR, FIXED
			1		10	1006760-50	RESISTOR, FIXED
			4		9	1006750-67	RESISTOR, FIXED
			8		8	1010364-769	RESISTOR, FIXED
			2		7	1010364-673	RESISTOR, FIXED
			4		6	1010364-687	RESISTOR, FIXED
			4		5	MS 35216-3	SCREW 1/4 #2-56NC
			1		4	1015132	WAFER BOARD, LOWER
			1		3	1015133	WAFER BOARD, UPPER
			3		2	1015118	SHIELD
			1		1	1015115	FRAME, MODULE

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007458		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
+- XX ± .02 +-
-- XXX ± .005 --
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS-9-497

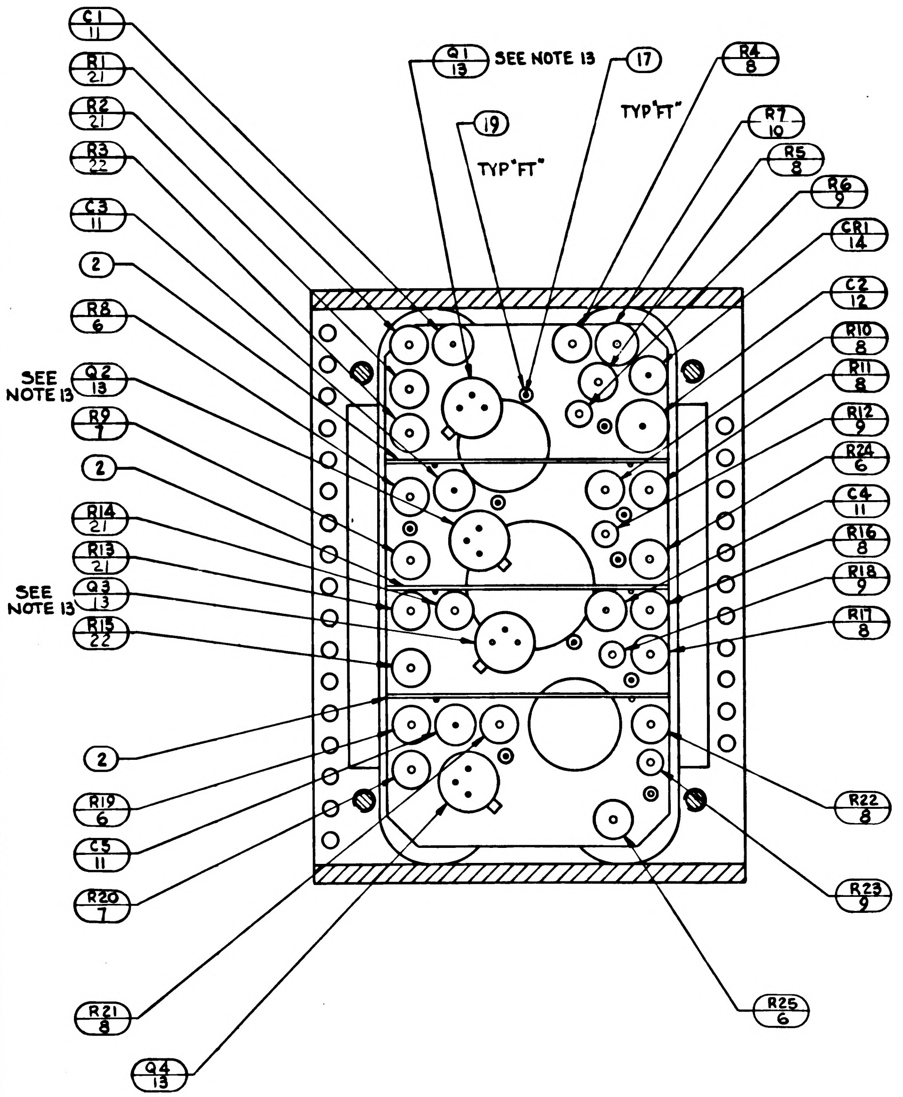
MIT
INSTRUMENTATION LAB
Cambridge Mass
DRAWN DATE 21 Sep 64
CHECK 28 SEP 64
APPROVAL
APPROVAL 10/13/64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

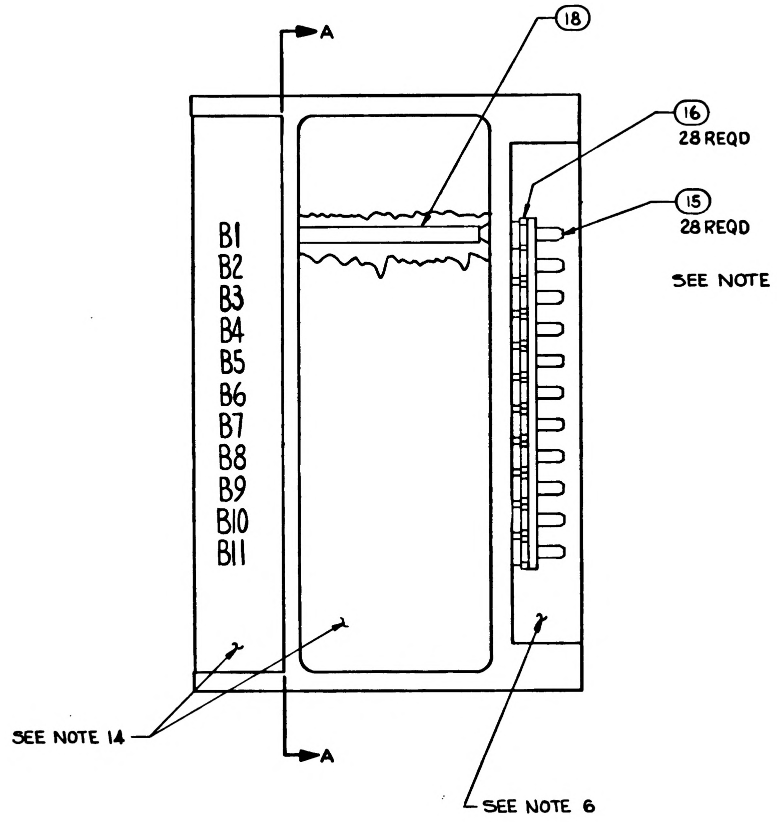
INTEGRATOR MOTOR DRIVE PREAMPLIFIER MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007481
SCALE 4:1
SHEET 1 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 9535		2 JUN 65	RS


C1 11
R1 21
R2 21
R3 22
C3 11
2
R8 6
SEE NOTE 13
Q2 13
R9 7
2
R14 21
R13 21
SEE NOTE 13
Q3 13
R15 22
2
R19 6
C5 11
R20 7
R21 8
Q4 13
Q1 13 SEE NOTE 13
19
TYP "FT"
17
TYP "FT"
R4 8
R7 10
R5 8
R6 9
CR1 14
C2 12
R10 8
R11 8
R12 9
R24 6
C4 11
R16 8
R18 9
R17 8
R22 8
R23 9
R25 6

SECTION A-A


A
A
18
16
28 REQD
15
28 REQD
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B5
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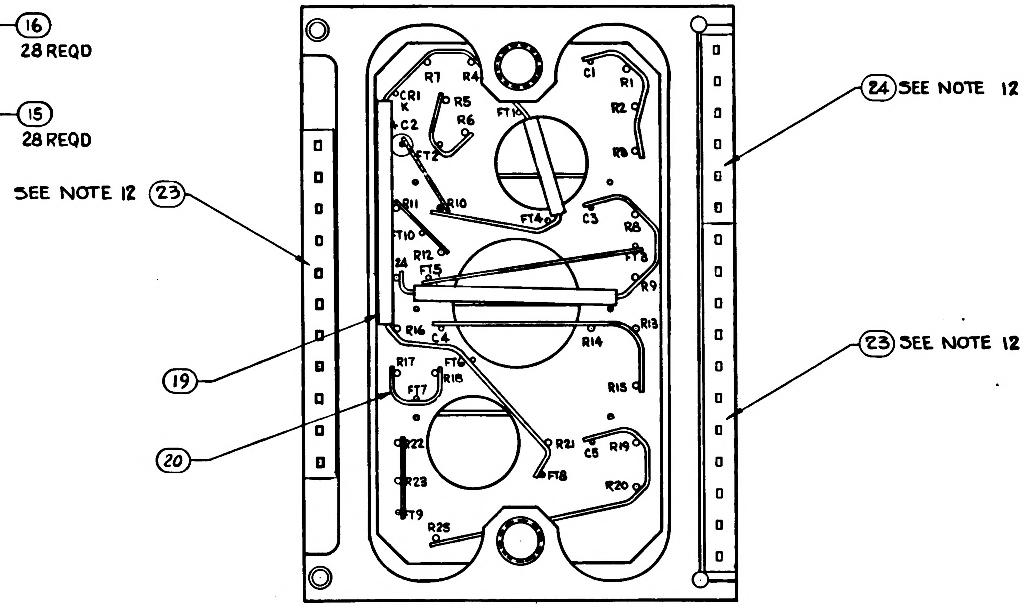
B8
B9
B10
B11
SEE NOTE 14
SEE NOTE 6


24 SEE NOTE 12
SEE NOTE 12 23
23 SEE NOTE 12
19
20
CR1
K
R7
R4
R5
R6
C2
FT1
FT2
C1
R1
R2
R3
R10
R11
FT4
C3
R8
FT10
R12
24
FT5
R9
R16
C4
R14
R13
R17
FT6
R18
FT7
R15
C22
R21
C5
R19
R23
FT8
R20
FT9
R25

VIEW A-A
ROTATED 90° CW
SHEET 1
ZONE H-5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ± ± ± DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS DRAWN DATE 21 Sep 64 CHECKED A. Udarich 22 SEP 64 APPROVAL APPROVAL D. R. Fist 10/19/64	MANNED SPACECRAFT CENTER HOUSTON, TEXAS INTEGRATOR MOTOR DRIVE PREAMPLIFIER MODULE ASSEMBLY
MATERIAL —	NASA APPROVAL	CODE IDENT NO. 80230 · SIZE E · 1007481
CONTRACT NAS-9-497	MIT APPROVAL	SCALE 4:1 · SHEET 2 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
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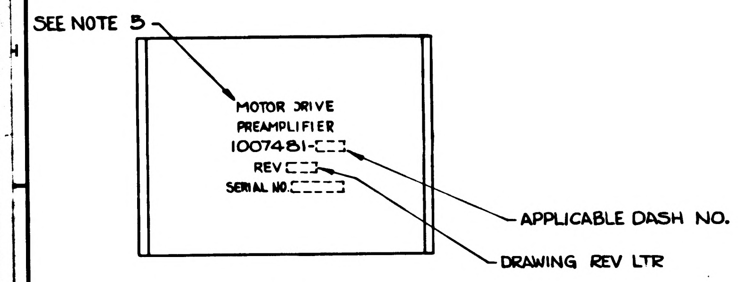
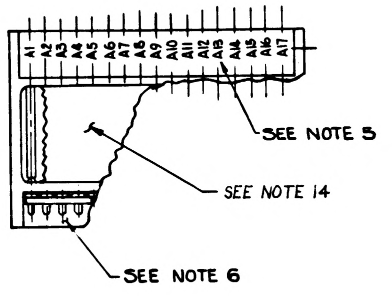
B		REVISED PER TDRR 20.63		65	


SEE NOTE 5
MOTOR DRIVE
PREAMPLIFIER
1007481-
REV
SERIAL NO.
APPLICABLE DASH NO.
DRAWING REV LTR

VIEW B-B
SCALE 2:1


A1
A2
A3
A4
A5
A6
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A10
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A12
A13
A14
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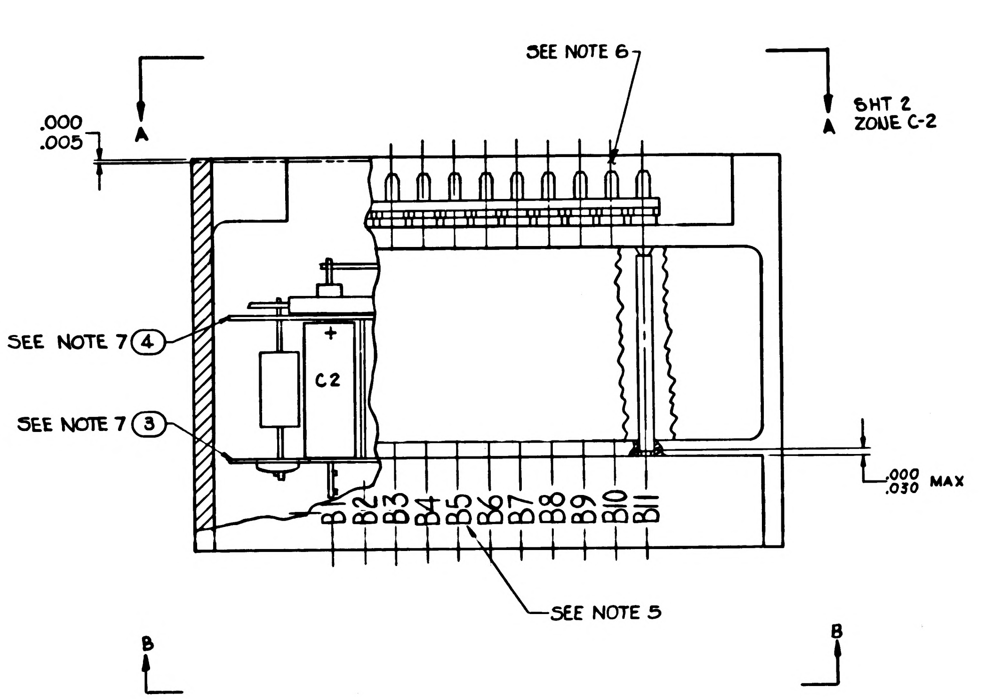
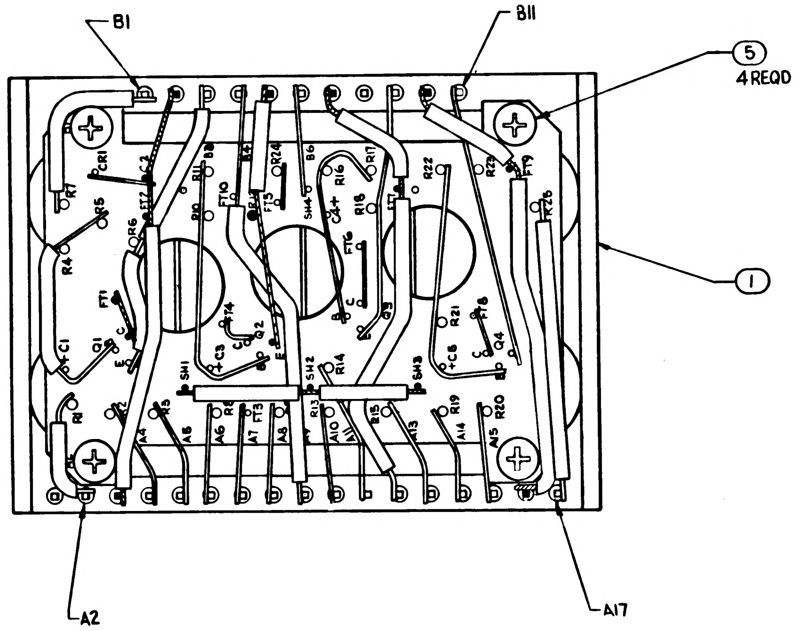
A16
A17
SEE NOTE 5
SEE NOTE 14
SEE NOTE 6


.000
.005
A
SEE NOTE 6
SHT 2
ZONE C-2
A
SEE NOTE 7 ④
SEE NOTE 7 ③
C2
+
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
.000
.030 MAX
SEE NOTE 5
B
B


B1
B11
⑤
4 REQD
①
A2
A17
R7
CR1
C2
R5
R4
R16
Q1
C1
R1
A4
A6
A7
A8
A10
A13
A14
A15
R23
FT9
R26
Q3
Q4
R22
R21
R19
R20
SH1
SH2
SH3
SH4

NOTES:

1. UNLESS OTHERWISE SPECIFIED COMPONENTS TO BE CENTRALIZED BETWEEN ITEM 4 & 3.
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
4. PROCURE PER PS 1015113.
5. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
6. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
7. ON ITEM NOS 3 AND 4:
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT( ) INDICATES FEED THRU,
   PLUS(+) INDICATES POSITIVE END OF CAPACITOR,
   C-INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B-INDICATES BASE LEAD OF TRANSISTOR,
   E-INDICATES EMITTER LEAD OF TRANSISTOR.
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
9. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING.
10. UNLESS OTHERWISE SPECIFIED:
    WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
11. ASSEMBLE PER ND 1002136
12. ~~BOND ITEM NO. 23 AND ITEM 24 TO ITEM 16 PER ND1002237.~~
13. BOND ITEM NO.13 TO ITEM NO.3 PER ND 1002004 TYPE I
14. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
15. AR DENOTES AS REQUIRED
16. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
17. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011			LIST OF PARTS AND MATERIALS	
			X		REF	1015112	SCHEMATIC DIAGRAM ELECTRICAL
			1		24	1008540-6	GASKET CONNECTOR MINAT
			2		23	1008540-11	GASKET CONNECTOR MINAT
			2		22	1010379-20	RESISTOR - FIXED
			4		21	1010369-739	RESISTOR - FIXED
			AR		20	1006757-1	WIRE, NICKEL RIBBON .010×.020
			AR		19	1006776-21	SLEEVING, ELECT. INSULATING
			AR		18	1006776-20	SLEEVING, ELECT. INSULATING
			AR		17	1006787-2	WIRE, FEED THROUGH #24 AWG
			28		16	1006775	INSULATOR, WRAPOST-MALE MINAT
			28		15	1006782-5	CONTACT, BLADE EDGE CONNECTOR
			1		14	1010372-18	SEMICONDUCTOR DEVICE, DIODE
			4		13	1010397-1	TRANSISTOR
			1		12	1006755-79	CAPACITOR, FIXED
			4		11	1006755-65	CAPACITOR, FIXED
			1		10	1006760-50	RESISTOR, FIXED
			4		9	1006750-67	RESISTOR, FIXED
			8		8	1010364-769	RESISTOR, FIXED
			2		7	1010364-673	RESISTOR, FIXED
			4		6	1010364-687	RESISTOR, FIXED
			4		5	MS 35216-3	SCREW 1/4 #2-56NC
			1		4	1015132	WAFER BOARD, LOWER
			1		3	1015133	WAFER BOARD, UPPER
			3		2	1015118	SHIELD
			1		1	1015115	FRAME, MODULE

1007458		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS +- DECIMALS XX ± .02 XXX ± .005 ANGLES +- --
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE 21 Sep 64
CHECK A. Adorch 28SEP 64
APPROVAL
APPROVAL 10/19/64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

INTEGRATOR
MOTOR DRIVE PREAMPLIFIER
MODULE ASSEMBLY

CODE IDENT NO. 8C230
SIZE E
1007481
SCALE 4:1
SHEET 1 OF 2

8 7 6 5 4 3 2 1

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
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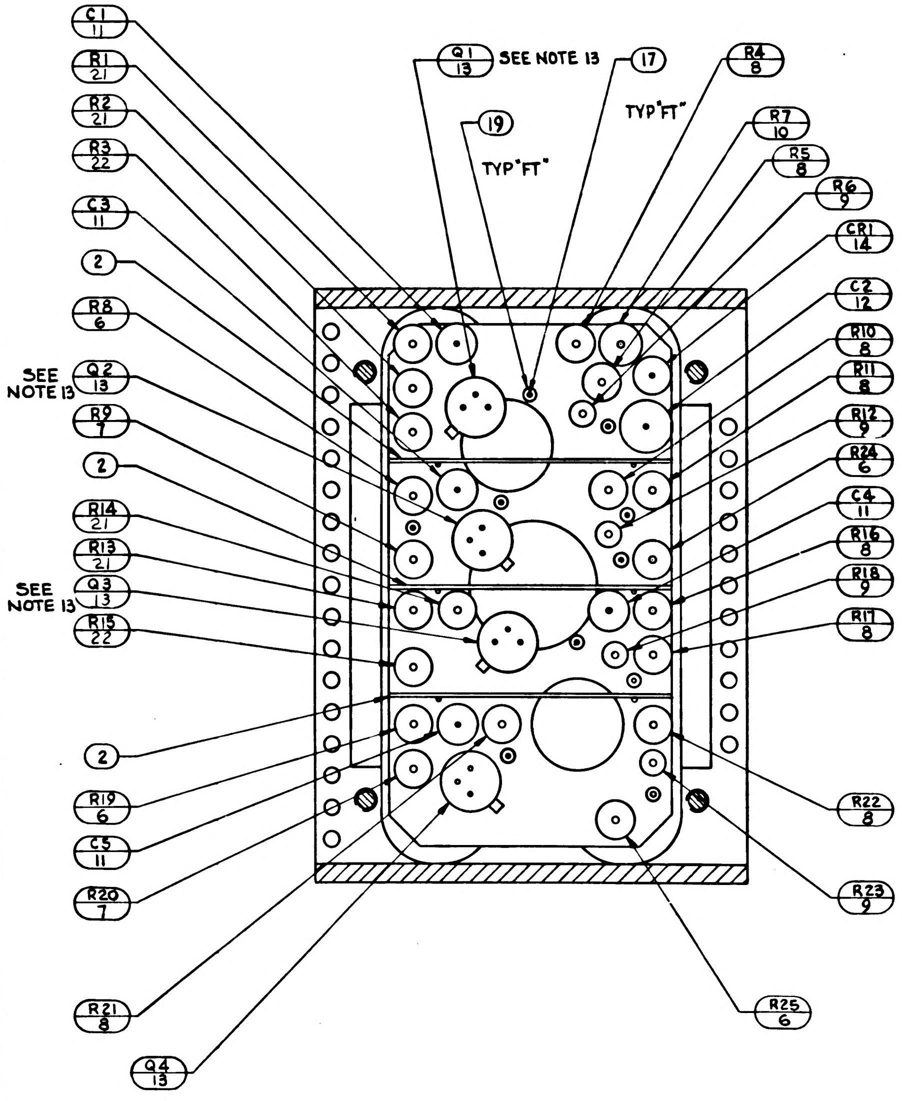
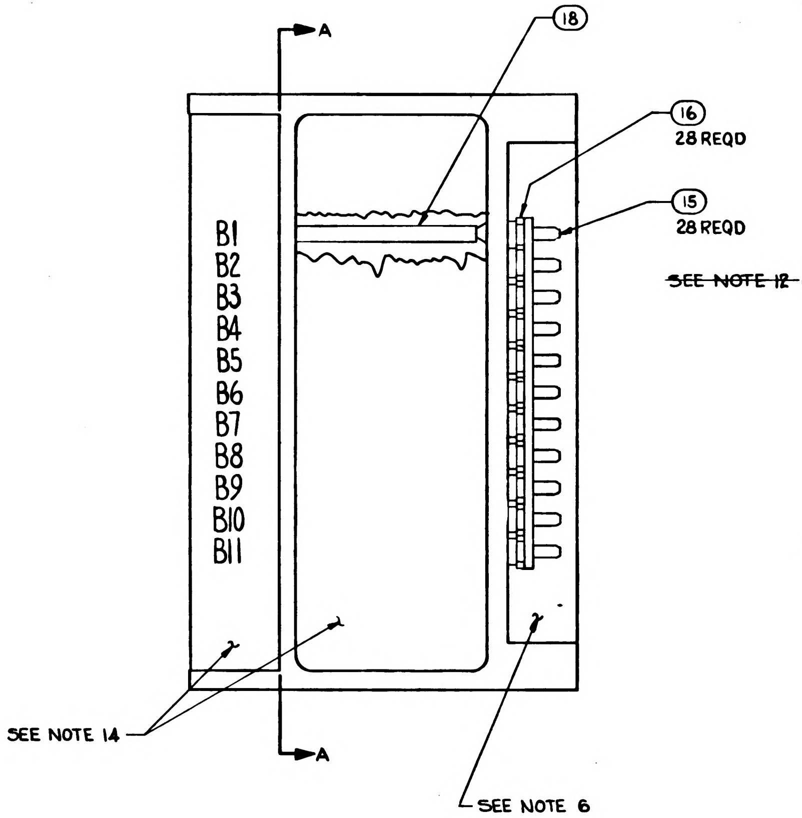
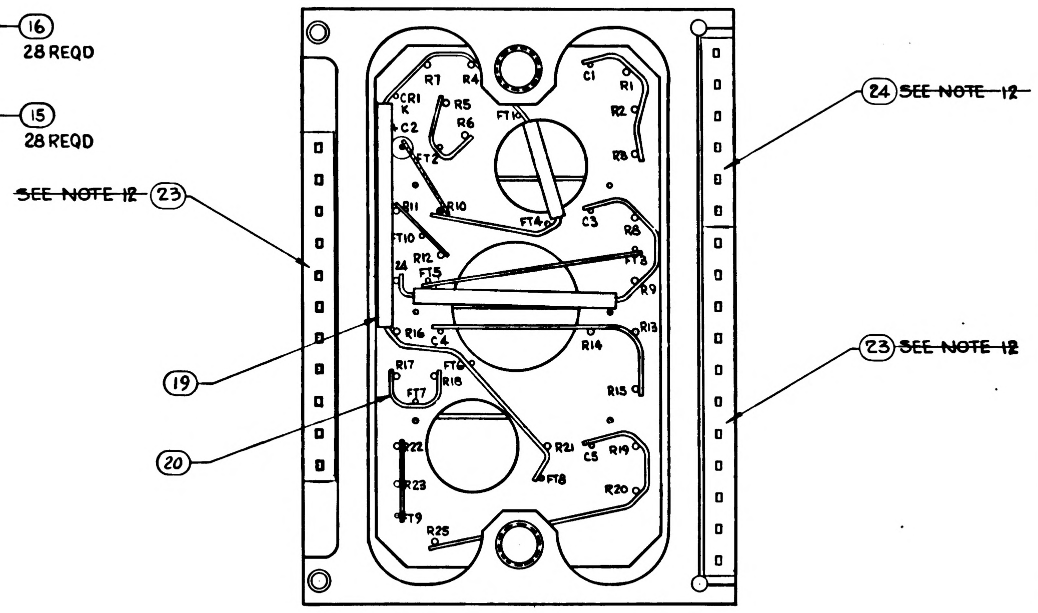
B		REVISED PER TDR 20.43		12 JUN 65	[illegible]


C1 11
R1 21
R2 21
R3 22
C3 11
2
R8 6
SEE NOTE 13
Q2 13
R9 7
2
R14 21
R13 21
SEE NOTE 13
Q3 13
R15 22
2
R19 6
C5 11
R20 7
R21 8
Q4 13
Q1 13 SEE NOTE 13
17
19
TYP "FT"
TYP "FT"
R4 8
R7 10
R5 8
R6 9
CR1 14
C2 12
R10 8
R11 8
R12 9
R24 6
C4 11
R16 8
R18 9
R17 8
R22 8
R23 9
R25 6

SECTION A-A


A
18
16
28 REQD
15
28 REQD
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
SEE NOTE 14
SEE NOTE 6
A


24 ~~SEE NOTE 12~~
~~SEE NOTE 12~~ 23
23 SEE NOTE 12
19
20
R7
R4
CR1
K
R5
C2
R6
FT1
FT2
C1
R1
R2
R3
R11
R10
FT4
C3
R8
FT10
R12
FT3
24
FT5
R9
R16
C4
R14
R13
R17
FT6
R18
FT7
R15
R22
R21
C5
R19
FT8
R23
R20
FT9
R25

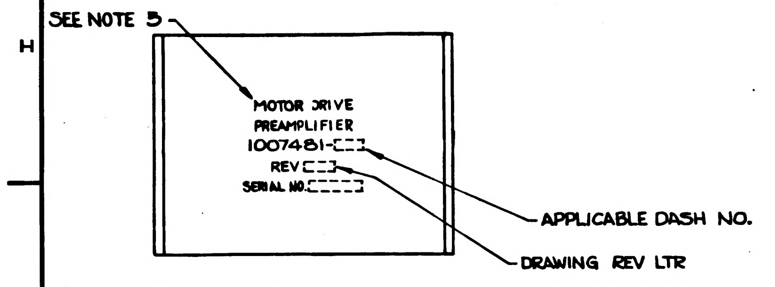
VIEW A-A
ROTATED 90° CW
SHEET 1
ZONE H-5

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES + — + — + — — — — — — — DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS DRAWN [illegible] DATE 21 Sep 64 CHECKED A. Ulrich 28 SEP 64 APPROVAL [illegible] APPROVAL [illegible] 10/19/64	MANNED SPACECRAFT CENTER HOUSTON, TEXAS INTEGRATOR MOTOR DRIVE PREAMPLIFIER MODULE ASSEMBLY
MATERIAL —	NASA APPROVAL [illegible]	CODE IDENT NO. 80230 SIZE E 1007481
CONTRACT NAS-9-497	MIT APPROVAL [illegible]	SCALE 4:1 SHEET 2 OF 2

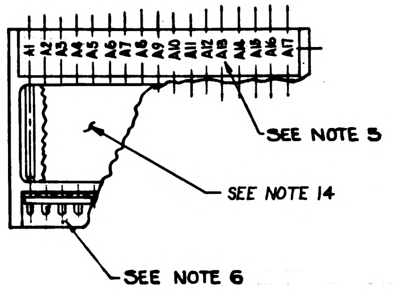
1007481

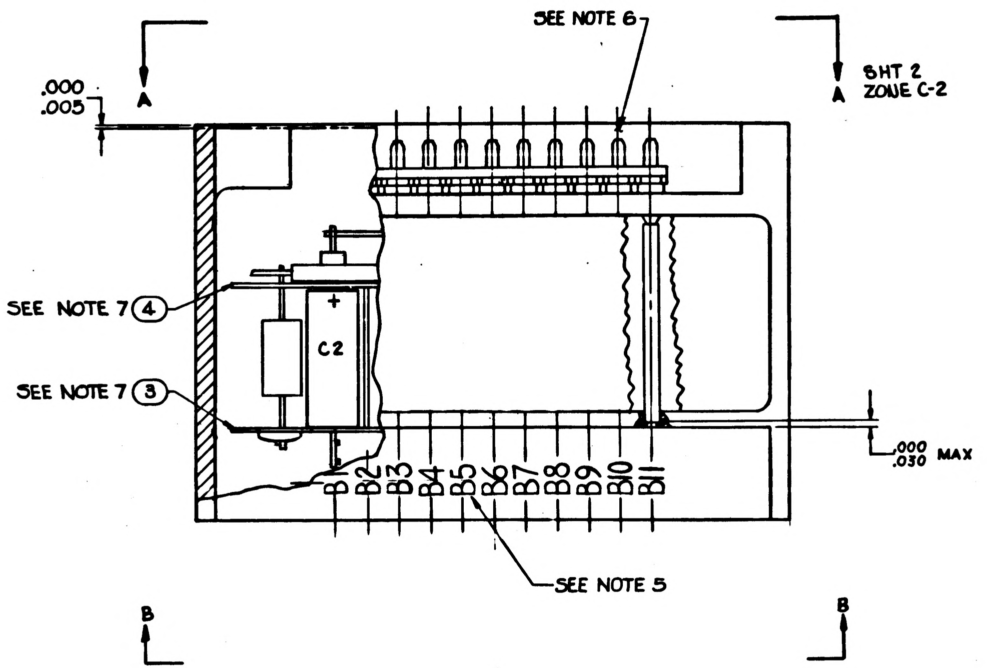
8 7 6 5 4 3 2 1

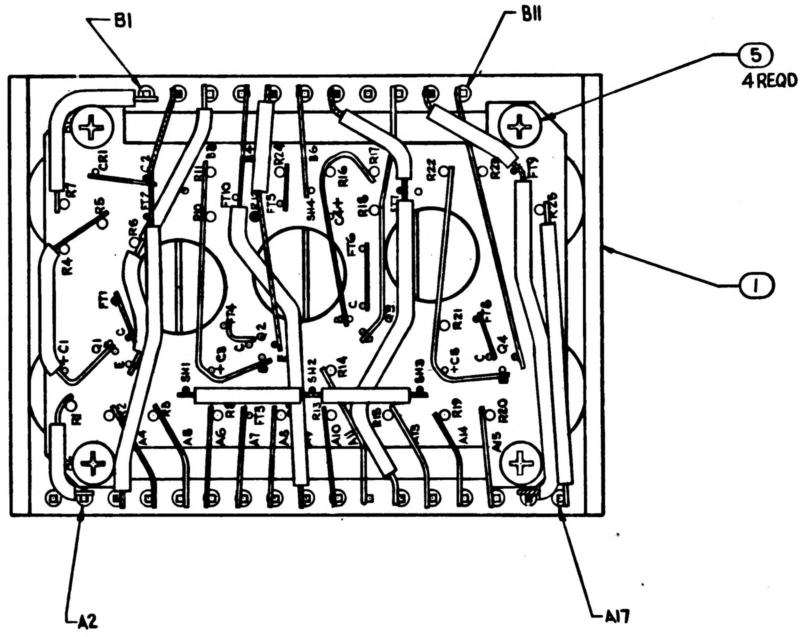
REVISIONS 13621					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.


SEE NOTE 5
MOTOR DRIVE
PREAMPLIFIER
1007481-
REV
SERIAL NO.
APPLICABLE DASH NO.
DRAWING REV LTR

VIEW B-B
SCALE 2:1


A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17
SEE NOTE 5
SEE NOTE 14
SEE NOTE 6


SEE NOTE 6
.000
.005
A
SHT 2
ZONE C-2
SEE NOTE 7 ④
SEE NOTE 7 ③
C2
+
B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11
.000
.030 MAX
SEE NOTE 5
B
B


B1
B11
⑤
4 REQD
①
A2
A17
CR1 C2 R7 R5 R6 R4 FT1 C1 Q1 C E FT2 B8 R11 R10 FT10 R24 FT5 B6 SH4 C4 R16 R17 R18 FT6 C Q3 R22 R23 FT9 R25 R21 FT8 Q4 C6 FT4 Q2 C3 SH1 SH2 SH3 R14 R13 R15 R19 R20 R1 R2 R3 R8 R9 FT3 A4 A5 A6 A7 A8 A9 A10 A11 A13 A14 A15

NOTES:

1. UNLESS OTHERWISE SPECIFIED COMPONENTS TO BE CENTRALIZED BETWEEN ITEM 4 & 3.
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
4. PROCURE PER PS 1015113.
5. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
6. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
7. ON ITEM NOS 3 AND 4:
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU,
   PLUS(+) INDICATES POSITIVE END OF CAPACITOR,
   C-INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B-INDICATES BASE LEAD OF TRANSISTOR,
   E-INDICATES EMITTER LEAD OF TRANSISTOR.
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
9. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING.
10. UNLESS OTHERWISE SPECIFIED:
    WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
11. ASSEMBLE PER ND 1002136
12. BOND ITEM NO. 23 AND ITEM 24 TO ITEM 16 PER ND1002237.
13. BOND ITEM NO. 13 TO ITEM NO. 3 PER ND 1002004 TYPE I
14. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
15. AR DENOTES AS REQUIRED

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			X		REF	1015112	SCHEMATIC DIAGRAM ELECTRICAL
			1		24	1008540-6	GASKET CONNECTOR MINAT
			2		23	1008540-11	GASKET CONNECTOR MINAT
			2		22	1010379-20	RESISTOR - FIXED
			4		21	1010369-739	RESISTOR - FIXED
			AR		20	1006757-1	WIRE, NICKEL RIBBON .010×.020
			AR		19	1006776-21	SLEEVING, ELECT. INSULATING
			AR		18	1006776-20	SLEEVING, ELECT. INSULATING
			AR		17	1006787-2	WIRE, FEED THROUGH #24 AWG
			28		16	1006775	INSULATOR, WRAPOST-MALE MINAT
			28		15	1006782-5	CONTACT, BLADE EDGE CONNECTOR
			1		14	1010372-18	SEMICONDUCTOR DEVICE, DIODE
			4		13	1010397-1	TRANSISTOR
			1		12	1006755-79	CAPACITOR, FIXED
			4		11	1006755-65	CAPACITOR, FIXED
			1		10	1006760-50	RESISTOR, FIXED
			4		9	1006750-67.	RESISTOR, FIXED
			8		8	1010364-769	RESISTOR, FIXED
			2		7	1010364-673	RESISTOR, FIXED
			4		6	1010364-687	RESISTOR, FIXED
			4		5	MS 35216-3	SCREW ¼ #2-56NC
			1		4	1015132	WAFER BOARD, LOWER
			1		3	1015133	WAFER BOARD, UPPER
			3		2	1015118	SHIELD
			1		1	10151 5	FRAME, MODULE

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007456		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
+- XX±.02 +-
— XXX±.005 --
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS-9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN 21 Sep 64 DATE
CHECK 28 SEP 64
APPROVAL
APPROVAL 10/19/64
NASA APPROVAL 10-20-64
MIT APPROVAL

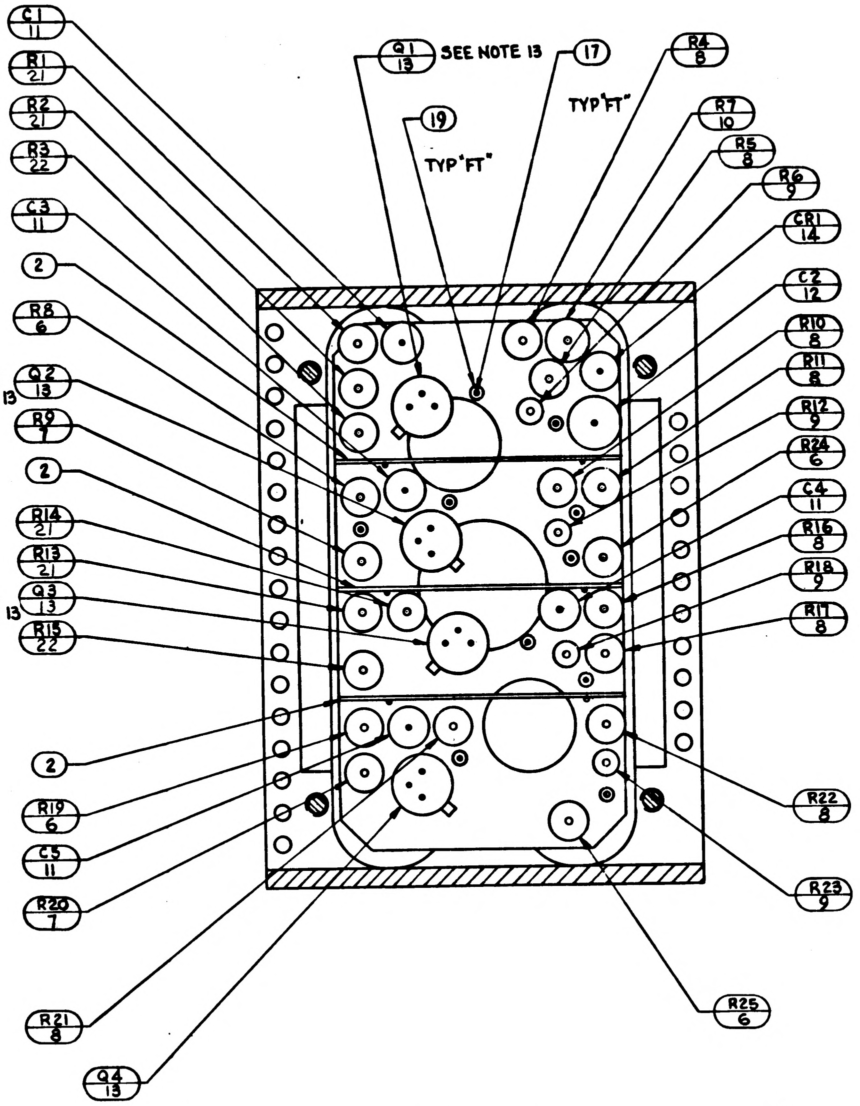
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

INTEGRATOR MOTOR DRIVE PREAMPLIFIER MODULE ASSEMBLY

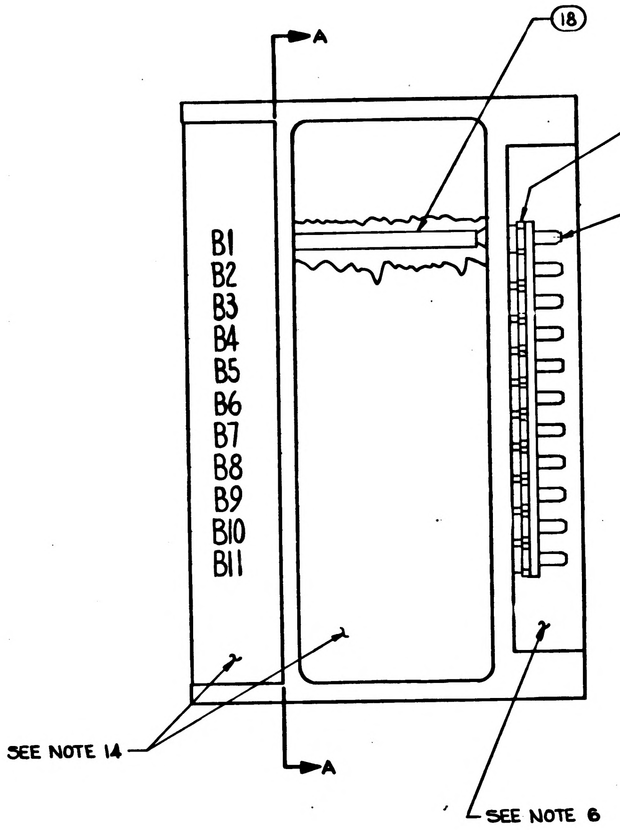
CODE IDENT NO.
SIZE E
1007481
SCALE 4:1
SHEET 1 OF 2

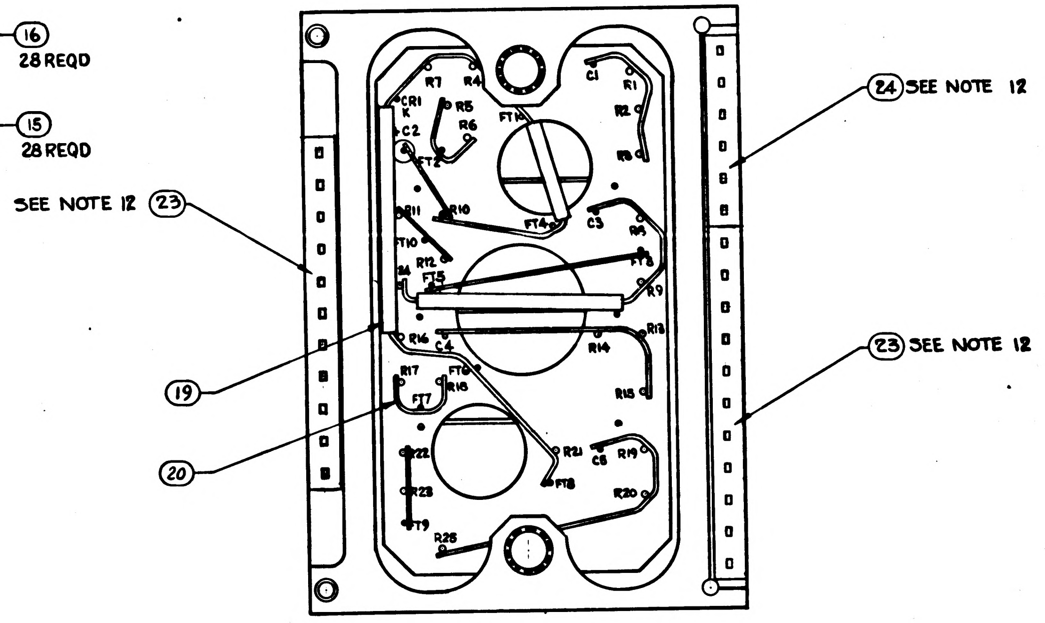
1007481

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.


C1 11
R1 21
R2 21
R3 22
C3 11
2
R8 6
SEE NOTE 13
Q2 13
R9 7
2
R14 21
R13 21
SEE NOTE 13
Q3 13
R15 22
2
R19 6
C5 11
R20 7
R21 8
Q4 13
Q1 13 SEE NOTE 13
17
19
TYP "FT"
TYP "FT"
R4 8
R7 10
R5 8
R6 9
CR1 14
C2 12
R10 8
R11 8
R12 9
R24 6
C4 11
R16 8
R18 9
R17 8
R22 8
R23 9
R25 6

SECTION A-A


A
A
18
16 28 REQD
15 28 REQD
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
SEE NOTE 14
SEE NOTE 6


24 SEE NOTE 12
SEE NOTE 12 23
23 SEE NOTE 12
19
20
R7
R4
C1
R1
CR1
R5
R6
C2
R2
FT1
R3
FT2
R11
R10
FT4
C3
R8
FT10
R12
FT3
FT5
R9
R16
C4
R13
R14
R17
FT6
R15
FT7
R18
R21
C5
R19
R22
FT8
R20
R23
FT9
R25

VIEW A-A
ROTATED 90° CW
SHEET 1
ZONE H-5

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN [illegible] DATE 21 Sep 64
CHECKED R. Ulmich 21 SEP 64
APPROVAL [illegible]
APPROVAL D. R. Fid 10/19/64
NASA APPROVAL W. G. Rl[illegible] 10-20-64
APPROVAL [illegible]

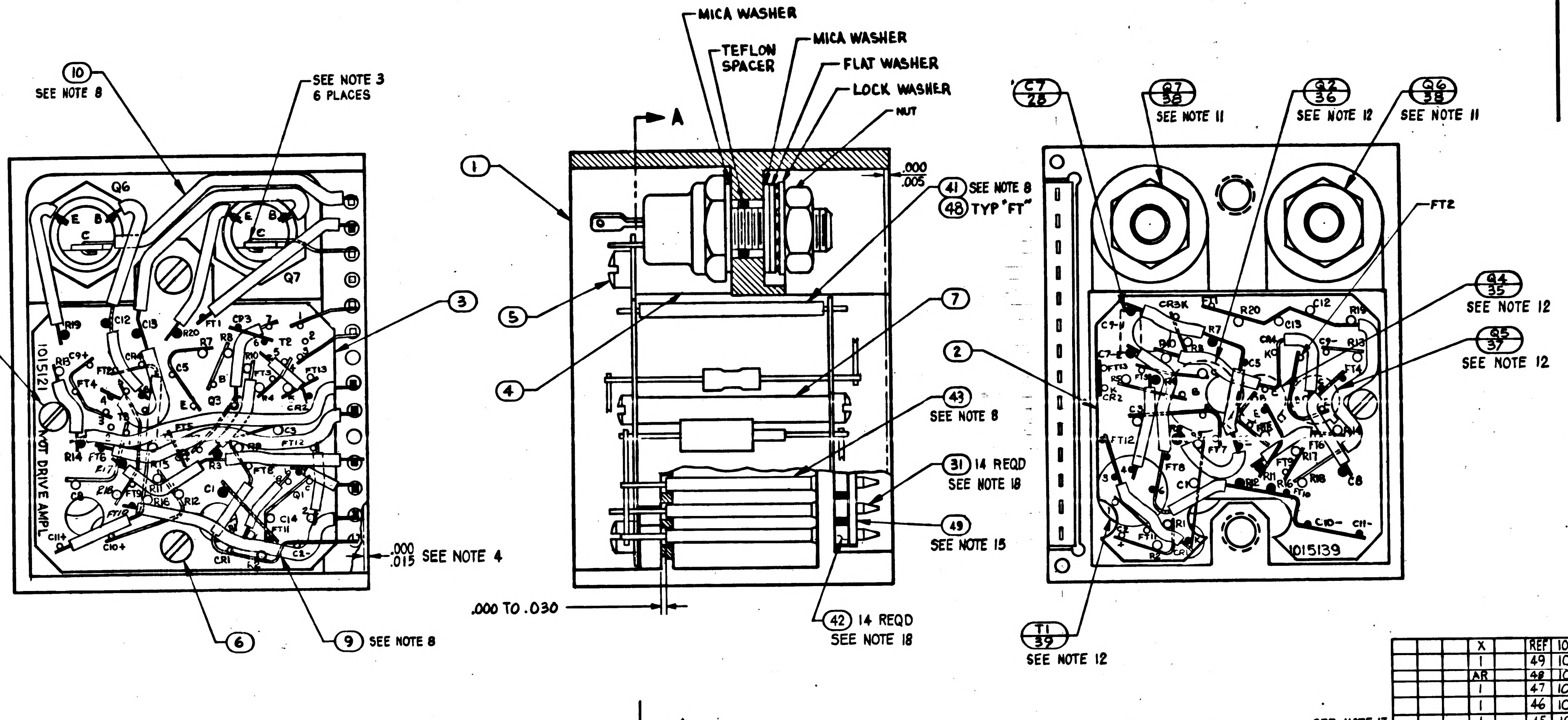
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

INTEGRATOR
MOTOR DRIVE PREAMPLIFIER
MODULE ASSEMBLY

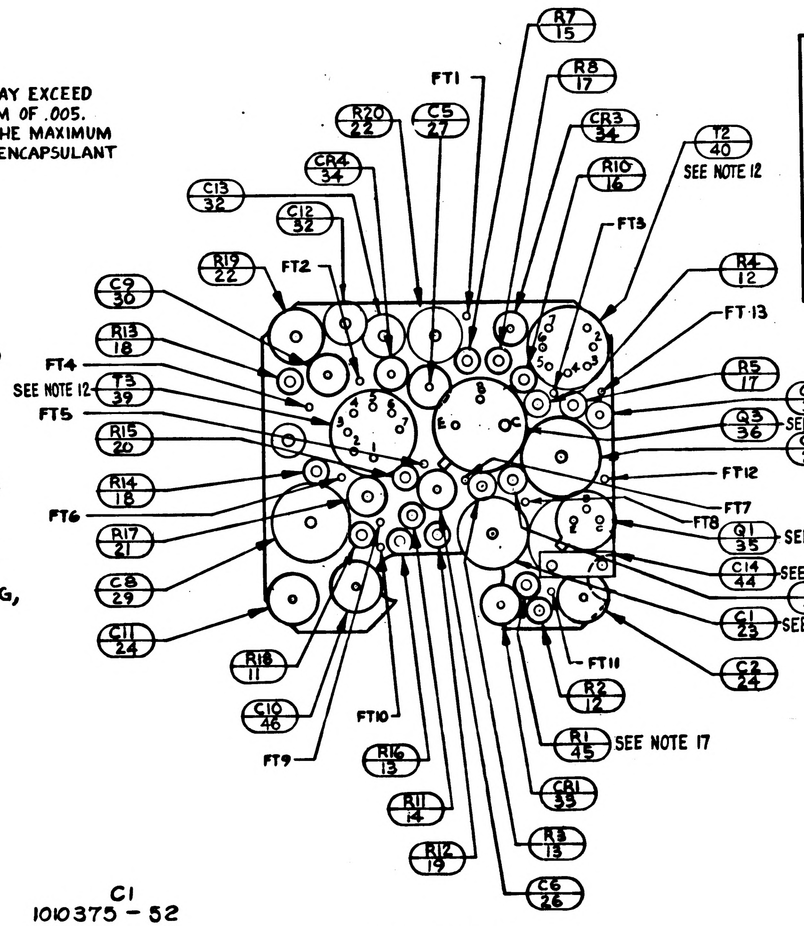
CODE IDENT NO.
SIZE E
1007481
SCALE 4:1
SHEET 2 of 2

1007481

REVISIONS 3403				
SYM	ZONE	DESCRIPTION	DATE	APPD.
A		REVISED PER TDRR 14095 CHG NO.		

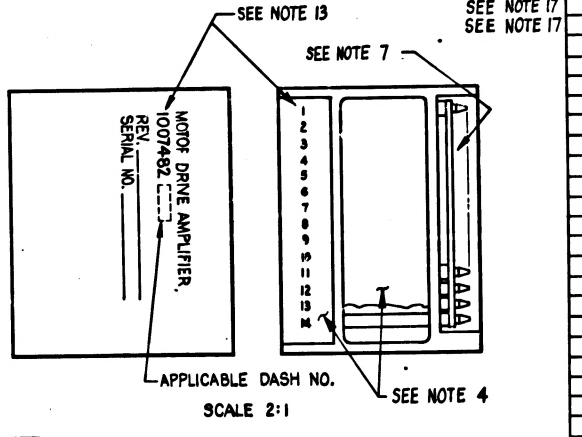


10
SEE NOTE 8
SEE NOTE 3
6 PLACES
Q6
Q7
8
2 REQD
3
1015121
MOT DRIVE AMPL
.000
.015 SEE NOTE 4
6
9 SEE NOTE 8
MICA WASHER
TEFLON SPACER
MICA WASHER
FLAT WASHER
LOCK WASHER
NUT
A
1
5
4
7
.000
.005
41 SEE NOTE 8
48 TYP "FT"
43 SEE NOTE 8
31 14 REQD SEE NOTE 18
49 SEE NOTE 15
.000 TO .030
42 14 REQD SEE NOTE 18
A
C7 28
Q7 38 SEE NOTE 11
Q2 36 SEE NOTE 12
Q6 38 SEE NOTE 11
FT2
Q4 35 SEE NOTE 12
Q5 37 SEE NOTE 12
2
T1 39 SEE NOTE 12
1015139



R7 15
FT1
R8 17
C5 27
R20 22
CR3 34
CR4 34
R10 16
T2 40 SEE NOTE 12
C13 32
C12 32
FT3
R19 22
FT2
R4 12
C9 30
FT13
R13 18
FT4
SEE NOTE 12 T3 39
R5 17
FT5
CR2 34
R15 20
Q3 36 SEE NOTE 12
C3 25
FT12
R14 18
FT6
FT7
FT8
R17 21
Q1 35 SEE NOTE 12
C8 29
C14 44 SEE NOTE 17 & 19
R9 27
C11 24
C1 23 SEE NOTE 17
R18 11
C2 24
FT11
C10 46
R2 12
FT10
R1 45 SEE NOTE 17
FT9
R16 13
CR1 33
R11 14
R3 13
R12 19
C6 26

SECTION A-A
SHOWING ONLY LOWER WAFER
AND COMPONENTS



SEE NOTE 13
SEE NOTE 7
MOTOR DRIVE AMPLIFIER
1007482-
REV.
SERIAL NO.
APPLICABLE DASH NO.
SEE NOTE 4

SCALE 2:1

SEE NOTE 17
SEE NOTE 17
SEE NOTE 17

1. INTERPRET DWG IN ACCORDANCE WITH STDS PER MIL-D-70327.
2. ALL WELDED CONNECTIONS TO BE MADE PER ND 1002005.
3. SOLDER PER ND1002071.
4. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND IT'S RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
6. BLACK DOT AND CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
7. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
8. AR DENOTES AS REQUIRED
9. UNLESS OTHERWISE SPECIFIED: COMPONENTS TO BE CENTRALIZED BETWEEN ITEMS 2 & 3.
10. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
11. MOUNTING TORQUE FOR ITEM 38, 12^{+2}_{-2} INCH POUNDS
12. TRANSISTORS AND TRANSFORMERS TO BE CEMENTED IN PLACE PER ND 1002004 TYPE I
13. MARK PIN NUMBERS .060/.100. HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
14. ON ITEMS 2 & 3 BROKEN PATH INDICATES INSULATION SLEEVING,
    "K" INDICATES CATHODE SIDE OF DIODE,
    FT INDICATES FEED THRU,
    MINUS (-) INDICATES NEGATIVE END OF CAPACITOR,
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
    "C" INDICATES COLLECTOR LEAD OF TRANSISTOR,
    "B" INDICATES BASE LEAD OF TRANSISTOR,
    "E" INDICATES EMITTER LEAD OF TRANSISTOR.
15. BOND ITEM NO. 49 TO ITEM NO. 42 PER ND1002237.
16. PROCURE PER PS 1015121.
17. SELECT PART PER ATP 1015121 COMPONENTS TO BE SELECTED FROM TABLE BELOW:

R1	C14	C1
1006750-4 THRU -13	1010359-17, 21, 23, 25 THRU 29	1010375 - 52 1010375 - 53

18. ASSEMBLE PER ND 1002136
19. *C14 MAY BE OMITTED PER ATP 1015121. WHEN C14 IS OMITTED, FT12 SHOULD BE OMITTED.*

					ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			X		REF	1015116	SCHEMATIC, ELECTRICAL
			1		49	1008540-14	GASKET CONNECTOR, MINIATURE
			AR		48	1006776-22	INSULATION SLEEVING
			1		47	1006750-57	RESISTOR - FIXED
			1		46	1006755-15	CAPACITOR
			1		45	1006750	RESISTOR-FIXED-SELECTED
			1		44	1010359	CAPACITOR VALUE SELECTED
			AR		43	1006776-20	INSULATION SLEEVING
			14		42	1006775	INSULATOR, WRAPOST-MALE MINAT
			AR		41	1006787-2	WIRE-FEED THRU #24 AWG
			1		40	1010365	TRANSFORMER
			2		39	1010276	TRANSFORMER
			1		38	1010269-2	TRANSISTOR (MATCHED PAIR)
			1		37	1010357	↑
			2		36	1010398-1	↑
			2		35	1010397	TRANSISTOR
			3		34	1010370	DIODE
			1		33	1010372-24	DIODE
			2		32	1010279-218	CAPACITOR
			14		31	1006782-5	CONTACT, BLADE EDGE CONNECTOR
			1		30	1006755-69	CAPACITOR
			1		29	1010375-124	↑
			1		28	1010359-17	↑
			1		27	1010279-226	↑
			1		26	1006755-29	↑
			1		25	1010438-102	↑
			2		24	1006755-13	↑
			1		23	1010375	CAPACITOR
			2		22	1010389-8	RESISTOR-FIXED
			1		21	1006760-48	↑
			1		20	1006750-78	↑
			1		19	↑ -31	↑
			2		18	↑ -73	↑
			2		17	↑ -39	↑
			1		16	↑ -61	↑
			1		15	↑ -71	↑
			1		14	↑ -15	↑
			2		13	↑ -43	↑
			2		12	↑ -56	↑
			1		11	1006750-8	RESISTOR-FIXED
			AR		10	1006776-21	INSULATION SLEEVING
			AR		9	1006757-1	WIRE, NICKEL RIBBON
			2		8	AN500D-2-4	SCREW
			1		7	1015135-017	SPACER
			1		6	AN500D-4-4	SCREW, PAN HEAD
			1		5	AN500D-4-12	SCREW, PAN HEAD
			1		4	1015131	SPACER
			1		3	1015140	WAFER BOARD, UPPER
			1		2	1015139	WAFER BOARD, LOWER
			1		1	1015128	FRAME ASSEMBLY
			011	EFFECTIVITY			
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
1007458		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS +— DECIMALS XX±.02 XXX±.005 ANGLES +—
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

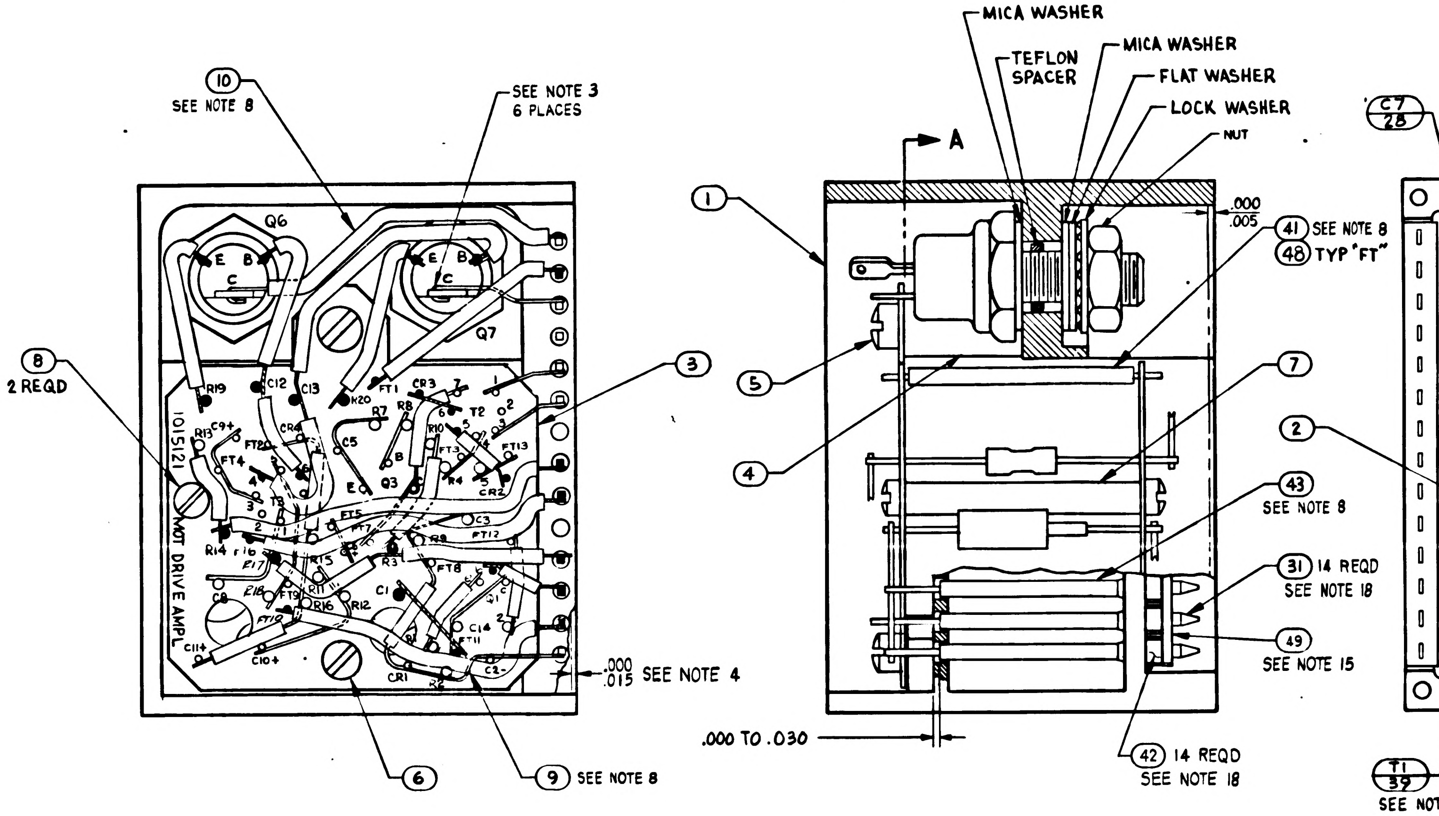
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN Fore DATE 23 SEP 64
CHECKED B. Ulmanek 23 SEP 64
APPROVAL
APPROVAL D. B. Test 10-2-64
NASA APPROVAL W. J. Rhine 10-14-64
MIT APPROVAL 10/14/64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

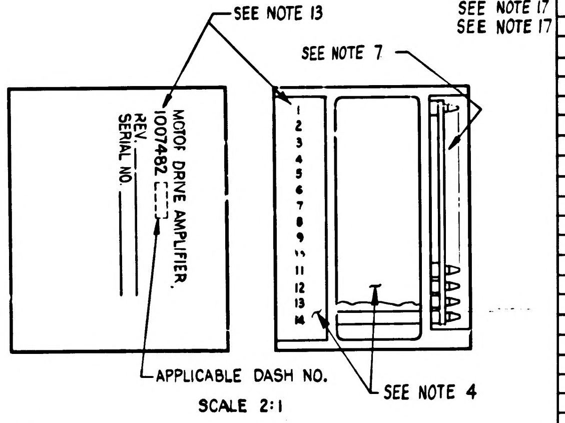
MOTOR DRIVE AMPLIFIER MODULE ASSEMBLY

CODE IDENT NO.
SIZE E
1007482
SCALE 4:1
SHEET

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TORR 14095		10 Nov 64	wk
B		REVISED PER TORR 19422			JJJ DLF


MICA WASHER
TEFLON SPACER
MICA WASHER
FLAT WASHER
LOCK WASHER
NUT
A
(10) SEE NOTE 8
SEE NOTE 3 6 PLACES
Q6
Q7
(8) 2 REQD
(3)
1015121
MOT DRIVE AMPL
.000 .015 SEE NOTE 4
(6)
(9) SEE NOTE 8
(1)
(5)
(4)
(7)
.000 .005
(41) SEE NOTE 8
(48) TYP "FT"
(43) SEE NOTE 8
(31) 14 REQD SEE NOTE 18
(49) SEE NOTE 15
(42) 14 REQD SEE NOTE 18
.000 TO .030
(2)
C7 28
Q7 38 SEE NOTE 11
Q2 36 SEE NOTE 12
Q6 38 SEE NOTE 11
FT2
Q4 35 SEE NOTE 12
Q5 37 SEE NOTE 12
1015139
T1 39 SEE NOTE 12

A

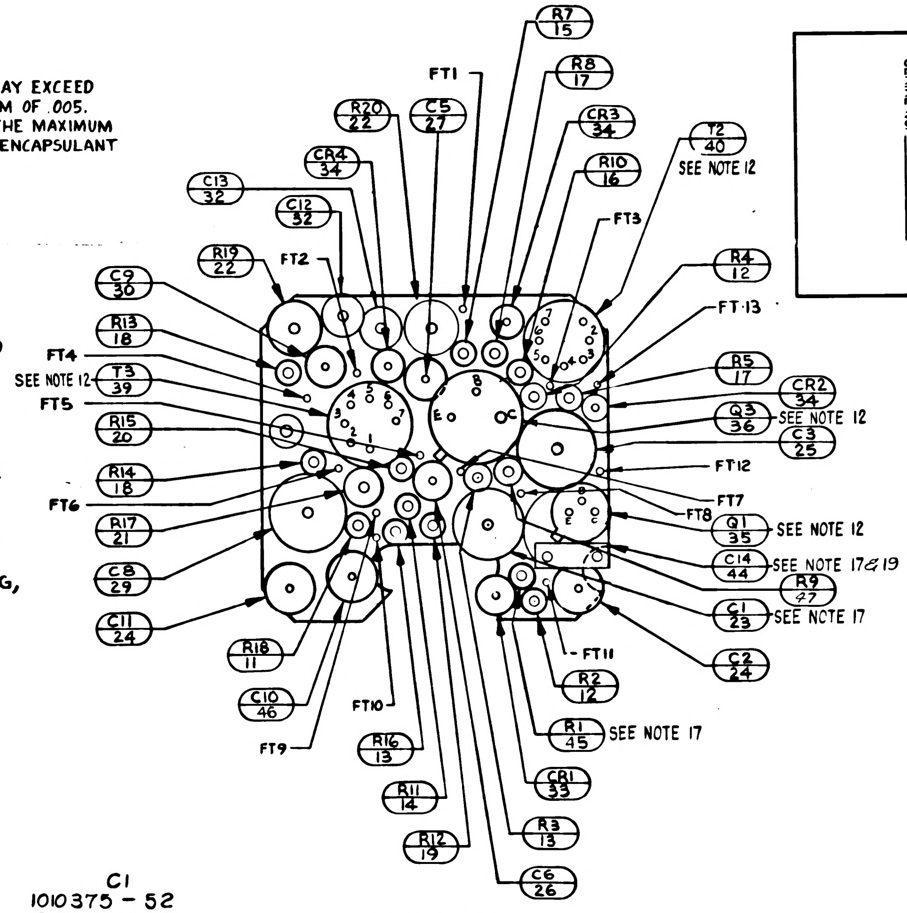

SEE NOTE 13
MOTOR DRIVE AMPLIFIER
1007482 -
REV.
SERIAL NO.
SEE NOTE 7
APPLICABLE DASH NO.
SEE NOTE 4

SCALE 2:1

1. INTERPRET DWG IN ACCORDANCE WITH STDS PER MIL-D-70327.
2. ALL WELDED CONNECTIONS TO BE MADE PER ND 1002005.
3. SOLDER PER ND1002071.
4. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
6. BLACK DOT AND CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
7. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
8. AR DENOTES AS REQUIRED
9. UNLESS OTHERWISE SPECIFIED: COMPONENTS TO BE CENTRALIZED BETWEEN ITEMS 2 & 3.
10. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
11. MOUNTING TORQUE FOR ITEM 38, 12^{+2}_{-2} INCH POUNDS
12. TRANSISTORS AND TRANSFORMERS TO BE CEMENTED IN PLACE PER ND 1002004 TYPE I
13. MARK PIN NUMBERS .060/.100. HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
14. ON ITEMS 2&3 BROKEN PATH INDICATES INSULATION SLEEVING,
    "K" INDICATES CATHODE SIDE OF DIODE,
    FT INDICATES FEED THRU,
    MINUS(-) INDICATES NEGATIVE END OF CAPACITOR,
    PLUS(+) INDICATES POSITIVE END OF CAPACITOR,
    "C" INDICATES COLLECTOR LEAD OF TRANSISTOR,
    "B" INDICATES BASE LEAD OF TRANSISTOR,
    "E" INDICATES EMITTER LEAD OF TRANSISTOR.
15. BOND ITEM NO. 49 TO ITEM NO. 42 PER ND1002237.
16. PROCURE PER PS 1015121.
17. SELECT PART PER ATP 1015121 COMPONENTS TO BE SELECTED FROM TABLE BELOW:

R1	C14	C1
1006750-4 THRU -13	1010359-17,21,23,25 THRU 29	1010375 - 52 1010375 - 53

18. ASSEMBLE PER ND 1002136
19. *C14 MAY BE OMITTED PER ATP 1015121. WHEN C14 IS OMITTED, FT12 SHOULD BE OMITTED.*
20. *CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ±.03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.*


R7 15
FT1
R8 17
R20 22
C5 27
CR3 34
CR4 34
R10 16
T2 40 SEE NOTE 12
C13 32
C12 32
FT3
R19 22
FT2
R4 12
C9 30
FT13
R13 18
FT4
R5 17
SEE NOTE 12 T3 39
CR2 34
FT5
Q3 36 SEE NOTE 12
C3 25
R15 20
FT12
R14 18
FT7
FT6
FT8
Q1 35 SEE NOTE 12
R17 21
C14 44 SEE NOTE 17 & 19
C8 29
R9 47
C1 23 SEE NOTE 17
C11 24
FT11
C2 24
R18 11
R2 12
C10 46
FT10
R1 45 SEE NOTE 17
FT9
R16 13
CR1 33
R11 14
R3 13
R12 19
C6 26

SECTION A-A
SHOWING ONLY LOWER WAFER
AND COMPONENTS

	QUANTITY REQUIRED				EFFECTIVITY	ITEM NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
				011				
				X		REF	1015116	SCHEMATIC, ELECTRICAL
				1		49	1008540-14	GASKET CONNECTOR, MINIATURE
				AR		48	1006776-22	INSULATION SLEEVING
				1		47	1006750-57	RESISTOR - FIXED
				1		46	1006755-15	CAPACITOR
SEE NOTE 17				1		45	1006750	RESISTOR-FIXED-SELECTED
SEE NOTE 17				1		44	1010359	CAPACITOR VALUE SELECTED
				AR		43	1006776-20	INSULATION SLEEVING
				14		42	1006775	INSULATOR, WRAPOST-MALE MINAT
				AR		41	1006787-2	WIRE-FEED THRU #24AWG
				1		40	1010365	TRANSFORMER
				2		39	1010276	TRANSFORMER
				1		38	1010269-2	TRANSISTOR (MATCHED PAIR)
				1		37	1010357	↑
				2		36	1010398-1	
				2		35	1010397	TRANSISTOR
				3		34	1010370	DIODE
				1		33	1010372-24	DIODE
				2		32	1010279-218	CAPACITOR
				14		31	1006782-5	CONTACT, BLADE EDGE CONNECTOR
				1		30	1006755-69	CAPACITOR
				1		29	1010375-124	↑
				1		28	1010359-17	
				1		27	1010279-226	
				1		26	1006755-29	
				1		25	1010438-102	
				2		24	1006755-13	
SEE NOTE 17				1		23	1010375	CAPACITOR
				2		22	1010389-8	RESISTOR-FIXED
				1		21	1006760-48	↑
				1		20	1006750-78	
				1		19	↑ -31	
				2		18	-73	
				2		17	-39	
				1		16	-61	
				1		15	-71	
				1		14	-15	
				2		13	-43	
				2		12	-56	
				1		11	1006750-8	RESISTOR-FIXED
				AR		10	1006776-21	INSULATION SLEEVING
				AR		9	1006757-1	WIRE, NICKEL RIBBON
				2		8	AN500D-2-4	SCREW
				1		7	1015135-017	SPACER
				1		6	AN500D-4-4	SCREW, PAN HEAD
				1		5	AN500D-4-12	SCREW, PAN HEAD
				1		4	1015131	SPACER
				1		3	1015140	WAFER BOARD, UPPER
				1		2	1015139	WAFER BOARD, LOWER
				1		1	1015128	FRAME ASSEMBLY

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
1007458		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS +— —— DECIMALS XX±.02 XXX±.005 ANGLES +— ——
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

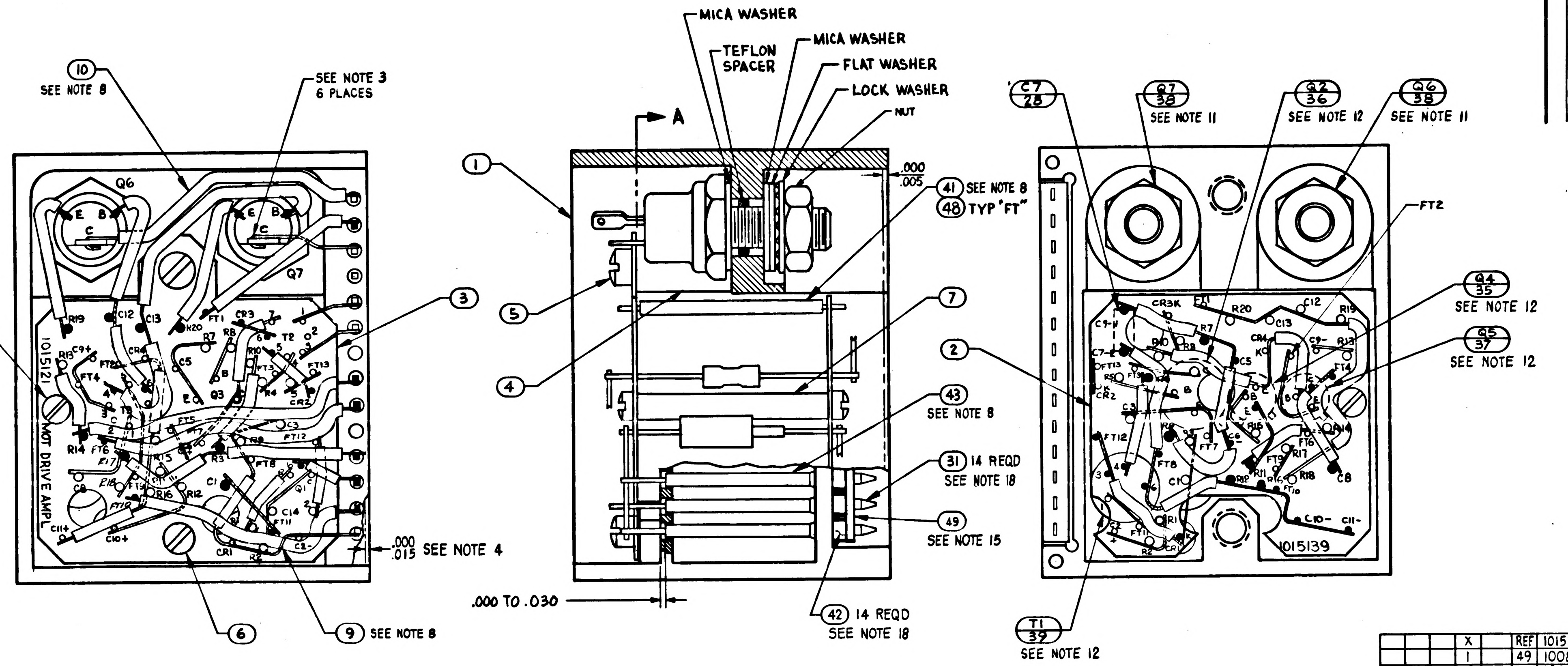
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN Foro DATE 22 SEP 64
CHECKED A. Uernel 23 SEP 64
APPROVAL
APPROVAL 11-9-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

MOTOR DRIVE AMPLIFIER
MODULE ASSEMBLY

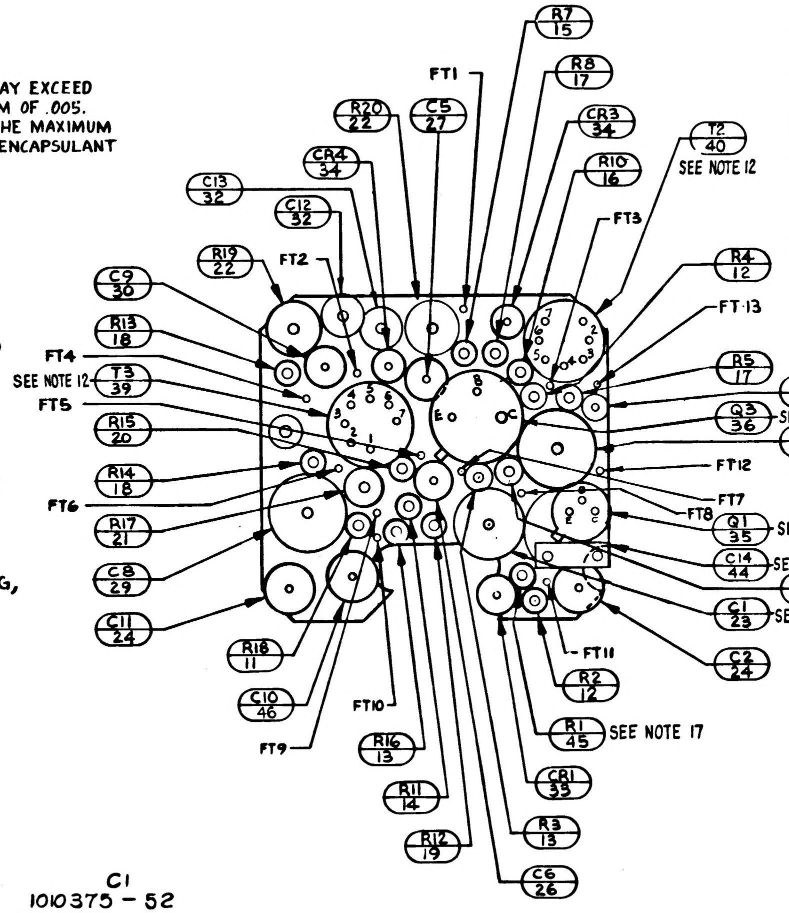
CODE IDENT NO. SIZE E 1007482
SCALE 4:1 SHEET 1 OF 1

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TORR 14005		10 Aug 64	
B		REVISED PER TORR 19422			JJJ DLF
C		REVISED PER TORR 19536		3 JUN 65	



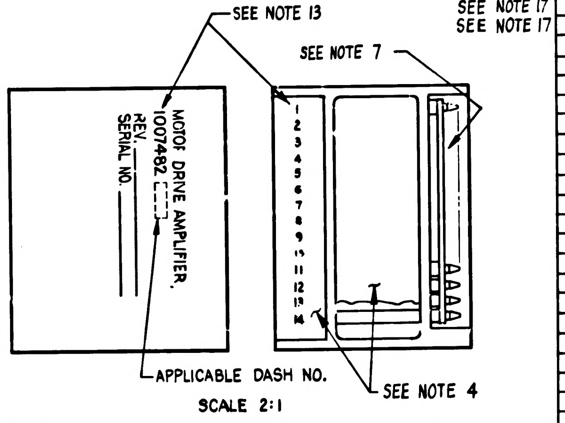
MICA WASHER
TEFLON SPACER
MICA WASHER
FLAT WASHER
LOCK WASHER
NUT
A
.000
.005
41 SEE NOTE 8
48 TYP "FT"
7
43 SEE NOTE 8
31 14 REQD SEE NOTE 18
49 SEE NOTE 15
42 14 REQD SEE NOTE 18
.000 TO .030
1
5
4
10 SEE NOTE 8
SEE NOTE 3 6 PLACES
8 2 REQD
3
6
9 SEE NOTE 8
.000 .015 SEE NOTE 4
1015121 MOT DRIVE AMPL
Q6
Q7
C7 28
Q7 38 SEE NOTE 11
Q2 36 SEE NOTE 12
Q6 38 SEE NOTE 11
FT2
2
Q4 35 SEE NOTE 12
Q5 37 SEE NOTE 12
T1 39 SEE NOTE 12
1015139

A



R7 15
FT1
R8 17
R20 22
C5 27
CR3 34
CR4 34
T2 40 SEE NOTE 12
C13 32
C12 32
R10 16
FT3
R19 22
FT2
R4 12
C9 30
FT·13
R13 18
R5 17
FT4
CR2 34
SEE NOTE 12 T3 39
Q3 36 SEE NOTE 12
FT5
C3 25
R15 20
FT12
R14 18
FT7
FT6
FT8
R17 21
Q1 35 SEE NOTE 12
C8 29
C14 44 SEE NOTE 17 & 19
R9 47
C11 24
C1 23 SEE NOTE 17
C2 24
R18 11
FT11
R2 12
C10 46
FT10
R1 45 SEE NOTE 17
FT9
R16 13
CR1 33
R11 14
R3 13
R12 19
C6 26

SECTION A-A
SHOWING ONLY LOWER WAFER
AND COMPONENTS



SEE NOTE 13
SEE NOTE 7
MOTOR DRIVE AMPLIFIER,
1007482
REV.
SERIAL NO.
1
2
3
4
5
6
7
8
9
10
11
12
13
14
APPLICABLE DASH NO.
SEE NOTE 4

SCALE 2:1

1. INTERPRET DWG IN ACCORDANCE WITH STDS PER MIL-D-70327.
2. ALL WELDED CONNECTIONS TO BE MADE PER ND 1002005.
3. SOLDER PER ND1002071.
4. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
6. BLACK DOT AND CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
7. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
8. AR DENOTES AS REQUIRED
9. UNLESS OTHERWISE SPECIFIED: COMPONENTS TO BE CENTRALIZED BETWEEN ITEMS 2 & 3.
10. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
11. MOUNTING TORQUE FOR ITEM 38, 12^{+2}_{-2} INCH POUNDS
12. TRANSISTORS AND TRANSFORMERS TO BE CEMENTED IN PLACE PER ND 1002004 TYPE I
13. MARK PIN NUMBERS .060/.100. HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
14. ON ITEMS 2&3 BROKEN PATH INDICATES INSULATION SLEEVING,
    "K" INDICATES CATHODE SIDE OF DIODE,
    FT INDICATES FEED THRU,
    MINUS(-) INDICATES NEGATIVE END OF CAPACITOR,
    PLUS(+) INDICATES POSITIVE END OF CAPACITOR,
    "C" INDICATES COLLECTOR LEAD OF TRANSISTOR,
    "B" INDICATES BASE LEAD OF TRANSISTOR,
    "E" INDICATES EMITTER LEAD OF TRANSISTOR.
15. BOND ITEM NO. 49 TO ITEM NO. 42 PER ND1002237.
16. PROCURE PER PS 1015121.
17. SELECT PART PER ATP 1015121 COMPONENTS TO BE SELECTED FROM TABLE BELOW:

R1	C14	C1
1006750-4 THRU -13	1010359-17,21,23,25 THRU 29	1010375 - 52 1010375 - 53

18. ASSEMBLE PER ND 1002136
19. C14 MAY BE OMITTED PER ATP 1015121. WHEN C14 IS OMITTED, FT12 SHOULD BE OMITTED.
20. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ±.03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~

NOTES:

21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

SEE NOTE 17
SEE NOTE 17
SEE NOTE 17

QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
X		REF	1015116	SCHEMATIC, ELECTRICAL
1		49	1008540-14	GASKET CONNECTOR, MINIATURE
AR		~~48~~	~~1006776-22~~	~~INSULATION SLEEVING~~
1		47	1006750-57	RESISTOR - FIXED
1		46	1006755-15	CAPACITOR
1		45	1006750	RESISTOR - FIXED - SELECTED
1		44	1010359	CAPACITOR VALUE SELECTED
AR		43	1006776-20	INSULATION SLEEVING
14		42	1006775	INSULATOR, WRAPOST - MALE MINAT
AR		41	1006787-2	WIRE - FEED THRU #24 AWG
1		40	1010365	TRANSFORMER
2		39	1010276	TRANSFORMER
1		38	1010269-2	TRANSISTOR (MATCHED PAIR)
1		37	1010357	↑
2		36	1010398-1	↑
2		35	1010397	TRANSISTOR
3		34	1010370	DIODE
1		33	1010372-24	DIODE
2		32	1010279-218	CAPACITOR
14		31	1006782-5	CONTACT, BLADE EDGE CONNECTOR
1		30	1006755-69	CAPACITOR
1		29	1010375-124	↑
1		28	1010359-17	↑
1		27	1010279-226	↑
1		26	1006755-29	↑
1		25	1010438-102	↑
2		24	1006755-13	↑
1		23	1010375	CAPACITOR
2		22	1010389-8	RESISTOR - FIXED
1		21	1006760-48	↑ ↑
1		20	1006750-78	↑ ↑
1		19	↑ -31	↑ ↑
2		18	↑ -73	↑ ↑
2		17	↑ -39	↑ ↑
1		16	↑ -61	↑ ↑
1		15	↑ -71	↑ ↑
1		14	↑ -15	↑ ↑
2		13	↑ -43	↑ ↑
2		12	↑ -56	↑ ↑
1		11	1006750-8	RESISTOR - FIXED
AR		10	1006776-21	INSULATION SLEEVING
AR		9	1006757-1	WIRE, NICKEL RIBBON
2		8	AN500D-2-4	SCREW
1		7	1015135-017	SPACER
1		6	AN500D-4-4	SCREW, PAN HEAD
1		5	AN500D-4-12	SCREW, PAN HEAD
1		4	1015131	SPACER
1		3	1015140	WAFER BOARD, UPPER
1		2	1015139	WAFER BOARD, LOWER
1		1	1015128	FRAME ASSEMBLY

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
1007458		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS +— DECIMALS XX±.02 XXX±.005 ANGLES +—
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

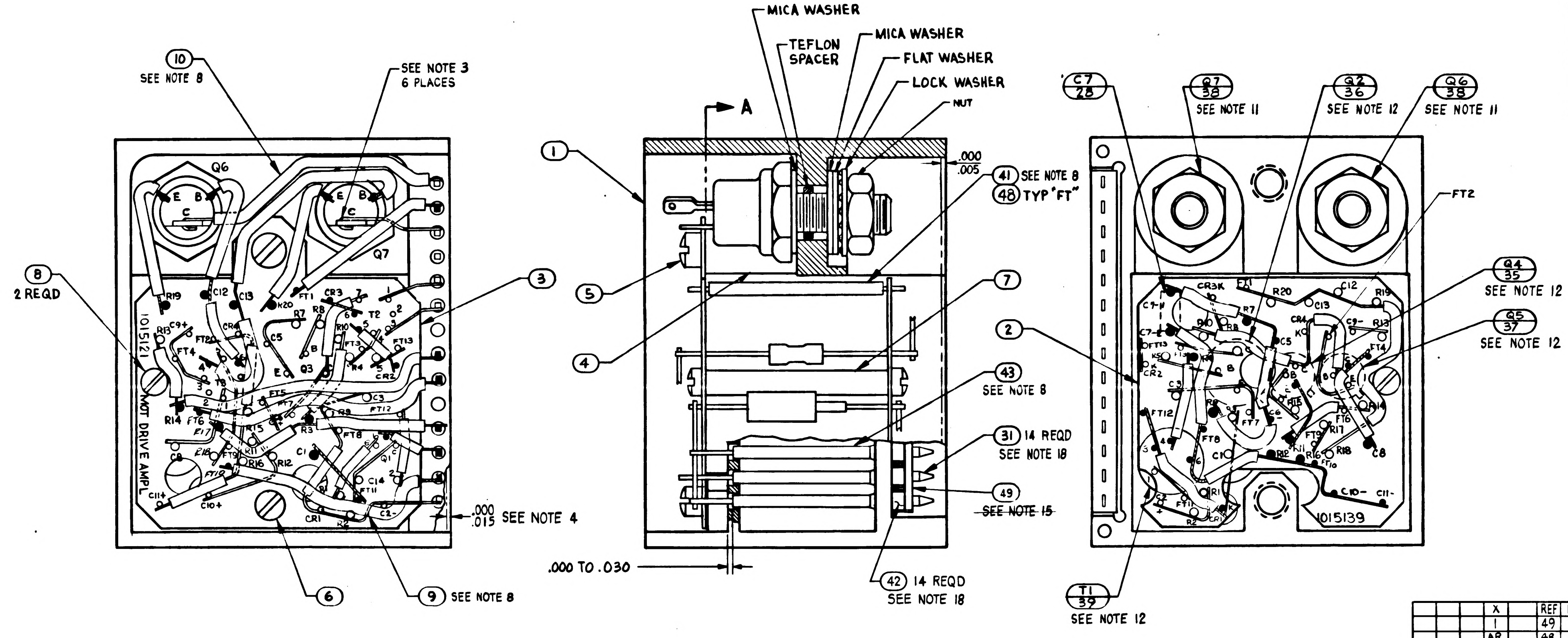
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN Toro DATE 22 SEP 64
CHECKED A. Unruh 23 SEP 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

MOTOR DRIVE AMPLIFIER
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007482
SCALE 4:1
SHEET 1 OF 1

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TORR		10 Nov 64	
B		REVISED PER TORR 9			JJJ
C		REVISED PER TORR 953		30 JUN 65	
D		REVISED PER TORR 20.43		14 JUN 65	

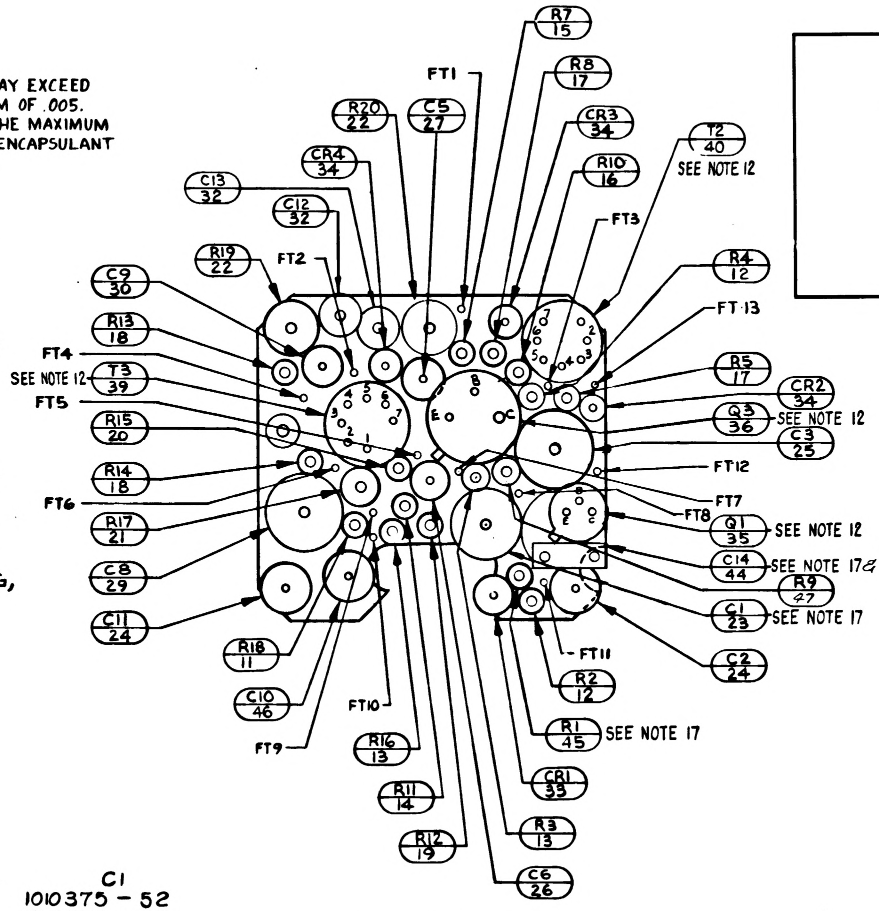

MICA WASHER
TEFLON SPACER
MICA WASHER
FLAT WASHER
LOCK WASHER
NUT
A
.000 .005
41 SEE NOTE 8
48 TYP "FT"
10 SEE NOTE 8
SEE NOTE 3 6 PLACES
8 2 REQD
Q6
Q7
3
1
5
4
7
6
9 SEE NOTE 8
.000 .015 SEE NOTE 4
.000 TO .030
43 SEE NOTE 8
31 14 REQD SEE NOTE 18
49
~~SEE NOTE 15~~
42 14 REQD SEE NOTE 18
1015121
MOT DRIVE AMPL
C7 28
Q7 38 SEE NOTE 11
Q2 36 SEE NOTE 12
Q6 38 SEE NOTE 11
FT2
Q4 35 SEE NOTE 12
Q5 37 SEE NOTE 12
2
T1 39 SEE NOTE 12
1015139

A

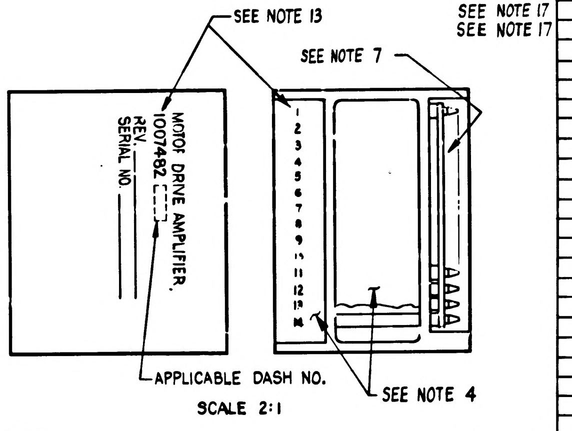
1. INTERPRET DWG IN ACCORDANCE WITH STDS PER MIL-D-70327.
2. ALL WELDED CONNECTIONS TO BE MADE PER ND 1002005.
3. SOLDER PER ND1002071.
4. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
6. BLACK DOT AND CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
7. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
8. AR DENOTES AS REQUIRED
9. UNLESS OTHERWISE SPECIFIED: COMPONENTS TO BE CENTRALIZED BETWEEN ITEMS 2 & 3.
10. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
11. MOUNTING TORQUE FOR ITEM 38, 12^{+2}_{-2} INCH POUNDS
12. TRANSISTORS AND TRANSFORMERS TO BE CEMENTED IN PLACE PER ND 1002004 TYPE I
13. MARK PIN NUMBERS .060/.100. HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
14. ON ITEMS 2&3 BROKEN PATH INDICATES INSULATION SLEEVING,
    "K" INDICATES CATHODE SIDE OF DIODE,
    FT INDICATES FEED THRU,
    MINUS(-) INDICATES NEGATIVE END OF CAPACITOR,
    PLUS(+) INDICATES POSITIVE END OF CAPACITOR,
    "C" INDICATES COLLECTOR LEAD OF TRANSISTOR,
    "B" INDICATES BASE LEAD OF TRANSISTOR,
    "E" INDICATES EMITTER LEAD OF TRANSISTOR.
15. ~~BOND ITEM NO. 49 TO ITEM NO. 42 PER ND1002237.~~
16. PROCURE PER PS 1015121.
17. SELECT PART PER ATP 1015121 COMPONENTS TO BE SELECTED FROM TABLE BELOW:

R1	C14	C1
1006750-4 THRU -13	1010359-17,21,23,25 THRU 29	1010375 - 52 1010375 - 53

18. ASSEMBLE PER ND 1002136
19. C14 MAY BE OMITTED PER ATP 1015121. WHEN C14 IS OMITTED, FT12 SHOULD BE OMITTED.
20. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~


R7 15
FT1
R8 17
C5 27
R20 22
CR3 34
CR4 34
R10 16
T2 40 SEE NOTE 12
C13 32
C12 32
FT3
R19 22
FT2
R4 12
C9 30
FT13
R13 18
FT4
SEE NOTE 12
T3 39
R5 17
FT5
CR2 34
R15 20
Q3 36 SEE NOTE 12
C3 25
FT12
R14 18
FT7
FT6
FT8
Q1 35 SEE NOTE 12
R17 21
C14 44 SEE NOTE 17&19
C8 29
R9 47
C1 23 SEE NOTE 17
C11 24
C2 24
FT11
R18 11
R2 12
C10 46
FT10
R1 45 SEE NOTE 17
R16 13
FT9
CR1 33
R11 14
R3 13
R12 19
C6 26

SECTION A-A
SHOWING ONLY LOWER WAFER AND COMPONENTS


SEE NOTE 13
MOTOR DRIVE AMPLIFIER
1007482
REV
SERIAL NO.
SEE NOTE 7
1
2
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4
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8
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10
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12
13
14
APPLICABLE DASH NO.
SEE NOTE 4

SCALE 2:1

NOTES:

21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

	QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
				011				LIST OF PARTS AND MATERIALS
				X		REF	1015116	SCHEMATIC, ELECTRICAL
				1		49	1008540-14	GASKET CONNECTOR, MINIATURE
				AR		48	~~1006776-22~~	~~INSULATION SLEEVING~~
				1		47	1006750-57	RESISTOR - FIXED
				1		46	1006755-15	CAPACITOR
SEE NOTE 17				1		45	1006750	RESISTOR-FIXED-SELECTED
SEE NOTE 17				1		44	1010359	CAPACITOR VALUE SELECTED
				AR		43	1006776-20	INSULATION SLEEVING
				14		42	1006775	INSULATOR, WRAPOST-MALE MINAT
				AR		41	1006787-2	WIRE-FEED THRU #24 AWG
				1		40	1010365	TRANSFORMER
				2		39	1010276	TRANSFORMER
				1		38	1010269-2	TRANSISTOR (MATCHED PAIR)
				1		37	1010357	
				2		36	1010398-1	
				2		35	1010397	TRANSISTOR
				3		34	1010370	DIODE
				1		33	1010372-24	DIODE
				2		32	1010279-218	CAPACITOR
				14		31	1006782-5	CONTACT, BLADE EDGE CONNECTOR
				1		30	1006755-69	CAPACITOR
				1		29	1010375-124	
				1		28	1010359-17	
				1		27	1010279-226	
				1		26	1006755-29	
				1		25	1010438-102	
				2		24	1006755-13	
SEE NOTE 17				1		23	1010375	CAPACITOR
				2		22	1010389-8	RESISTOR-FIXED
				1		21	1006760-48	
				1		20	1006750-78	
				1		19	-31	
				2		18	-73	
				2		17	-39	
				1		16	-61	
				1		15	-71	
				1		14	-15	
				2		13	-43	
				2		12	-56	
				1		11	1006750-8	RESISTOR-FIXED
				AR		10	1006776-21	INSULATION SLEEVING
				AR		9	1006757-1	WIRE, NICKEL RIBBON
				2		8	AN500D-2-4	SCREW
				1		7	1015135-017	SPACER
				1		6	AN500D-4-4	SCREW, PAN HEAD
				1		5	AN500D-4-12	SCREW, PAN HEAD
				1		4	1015131	SPACER
				1		3	1015140	WAFER BOARD, UPPER
				1		2	1015139	WAFER BOARD, LOWER
				1		1	1015128	FRAME ASSEMBLY

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
1007458		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS +— DECIMALS XX ±.02 XXX ±.005 ANGLES +—
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN Toro DATE 22 SEP 64
CHECKED A. Uhnel 23 SEP 64
APPROVAL
APPROVAL 11-9-64
NASA APPROVAL
MIT APPROVAL

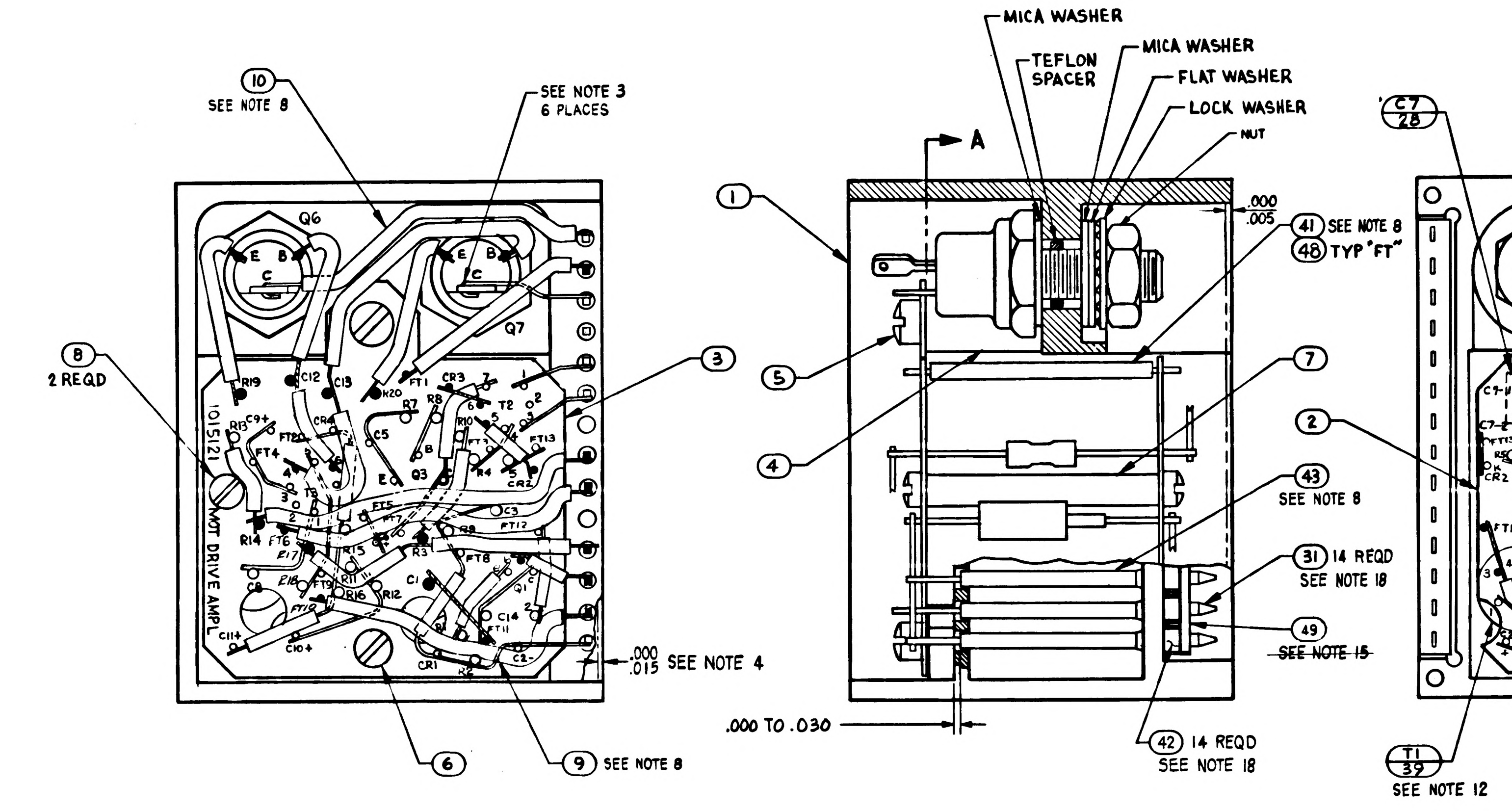
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

MOTOR DRIVE AMPLIFIER
MODULE ASSEMBLY

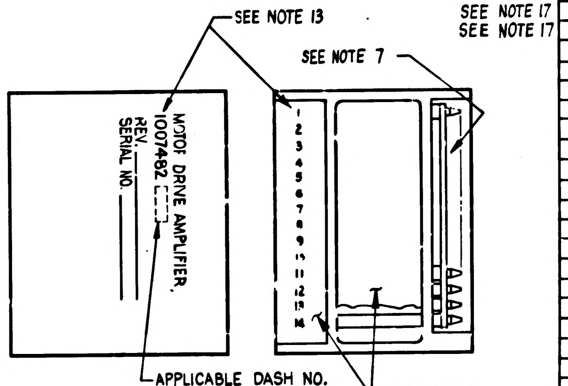
CODE IDENT NO. 80230
SIZE E
1007482
SCALE 4:1
SHEET 1 OF 1

1007482

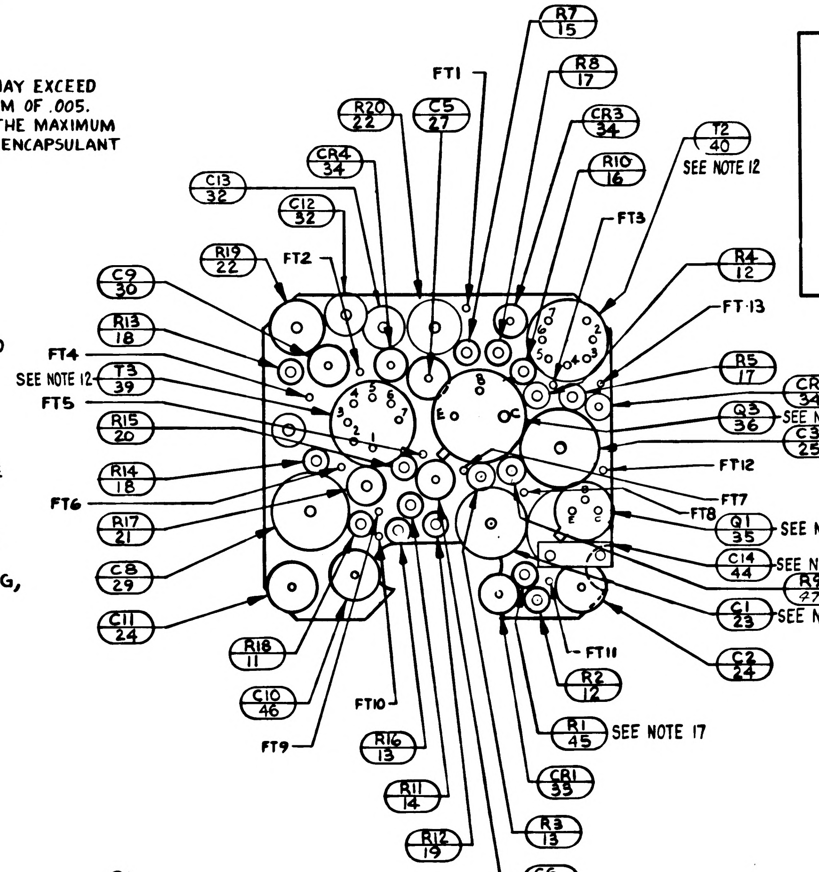
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		~~REVISED PER TDRR~~			
B		REVISED PER TDRR 19422			JJJ DL
C		REVISED PER TDRR 19536		3 JUN 65	
D		REVISED PER TDRR 20143		19 JUN 65	
E		REVISED PER TDRR 22299		16 SEP 65	


MICA WASHER
TEFLON SPACER
MICA WASHER
FLAT WASHER
LOCK WASHER
NUT
A
.000
.005
41 SEE NOTE 8
48 TYP "FT"
1
3
5
4
7
2
43 SEE NOTE 8
31 14 REQD SEE NOTE 18
49
~~SEE NOTE 15~~
42 14 REQD SEE NOTE 18
.000 TO .030
10 SEE NOTE 8
SEE NOTE 3 6 PLACES
8 2 REQD
.000 .015 SEE NOTE 4
6
9 SEE NOTE 8
1015121
MDT DRIVE AMPL
Q6
Q7
C7 28
Q7 38 SEE NOTE 11
Q2 36 SEE NOTE 12
Q6 38 SEE NOTE 11
FT2
Q4 35 SEE NOTE 12
Q5 37 SEE NOTE 12
T1 39 SEE NOTE 12
1015139

A


SEE NOTE 13
SEE NOTE 7
MOTOR DRIVE AMPLIFIER
1007482-
REV
SERIAL NO.
APPLICABLE DASH NO.
SEE NOTE 4

SCALE 2:1


FT1
R7 15
R8 17
CR3 34
R10 16
T2 40 SEE NOTE 12
FT3
R4 12
FT13
R5 17
CR2 34
Q3 36 SEE NOTE 12
C3 25
FT12
FT7
FT8
Q1 35 SEE NOTE 12
C14 44 SEE NOTE 17&19
R9 27
C1 23 SEE NOTE 17
C2 24
FT11
R2 12
R1 45 SEE NOTE 17
CR1 33
R3 13
C6 26
R12 19
R11 14
R16 13
FT10
FT9
C10 46
R18 11
C11 24
C8 29
R17 21
FT6
R14 18
R15 20
FT5
T3 39 SEE NOTE 12
FT4
R13 18
C9 30
C13 32
R19 22
FT2
C12 32
CR4 34
R20 22
C5 27

SECTION A-A
SHOWING ONLY LOWER WAFER
AND COMPONENTS

1. INTERPRET DWG IN ACCORDANCE WITH STDS PER MIL-D-70327.
2. ALL WELDED CONNECTIONS TO BE MADE PER ND 1002005.
3. SOLDER PER ND1002071.
4. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
6. BLACK DOT AND CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
7. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
8. AR DENOTES AS REQUIRED
9. UNLESS OTHERWISE SPECIFIED: COMPONENTS TO BE CENTRALIZED BETWEEN ITEMS 2 & 3.
10. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
11. MOUNTING TORQUE FOR ITEM 38, 12^{+2}_{-2} INCH POUNDS
12. TRANSISTORS AND TRANSFORMERS TO BE CEMENTED IN PLACE PER ND 1002004 TYPE I
13. MARK PIN NUMBERS .060/.100. HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.060 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
14. ON ITEMS 2&3 BROKEN PATH INDICATES INSULATION SLEEVING,
    "K" INDICATES CATHODE SIDE OF DIODE,
    FT INDICATES FEED THRU,
    MINUS(-) INDICATES NEGATIVE END OF CAPACITOR,
    PLUS(+) INDICATES POSITIVE END OF CAPACITOR,
    "C" INDICATES COLLECTOR LEAD OF TRANSISTOR,
    "B" INDICATES BASE LEAD OF TRANSISTOR,
    "E" INDICATES EMITTER LEAD OF TRANSISTOR.
15. ~~BOND ITEM NO. 49 TO ITEM NO. 42 PER ND1002237.~~
16. PROCURE PER PS 1015121.
17. SELECT PART PER ATP 1015121 COMPONENTS TO BE SELECTED FROM TABLE BELOW:

R1	C14	C1
1006750-4 THRU -13	1010359-17,21,23,25 THRU 29	1010375 - 52 1010375 - 53

18. ASSEMBLE PER ND 1002136
19. *C14 MAY BE OMITTED PER ATP 1015121. WHEN C14 IS OMITTED, FT12 SHOULD BE OMITTED.*
20. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ±.03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~

NOTES:
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

	QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
				011				
				X		REF	1015116	SCHEMATIC, ELECTRICAL
				1		49	1008540-14	GASKET CONNECTOR, MINIATURE
				AR		48	~~1006776-22~~	~~INSULATION SLEEVING~~
				1		47	1006750-57	RESISTOR - FIXED
				1		46	1006755-15	CAPACITOR
SEE NOTE 17				1		45	1006750	RESISTOR-FIXED-SELECTED
SEE NOTE 17				1		44	1010359	CAPACITOR VALUE SELECTED
				AR		43	1006776-20	INSULATION SLEEVING
				14		42	1006775	INSULATOR, WRAPOST-MALE MINAT
				AR		41	1006787-2	WIRE-FEED THRU #24 AWG
				1		40	1010365	TRANSFORMER
				2		39	1010276	TRANSFORMER
				1		38	1010269-2	TRANSISTOR (MATCHED PAIR)
				1		37	1010357	↑
				2		36	1010398-1	
				2		35	1010397	TRANSISTOR
				3		34	1010370	DIODE
				1		33	1010372-24	DIODE
				2		32	1010279-218	CAPACITOR
				14		31	1006782-5	CONTACT, BLADE EDGE CONNECTOR
				1		30	1006755-69	CAPACITOR
				1		29	1010375-124	↑
				1		28	1010359-17	
				1		27	1010279-226	
				1		26	1006755-29	
				1		25	1010438-102	
				2		24	1006755-13	
SEE NOTE 17				1		23	1010375	CAPACITOR
				2		22	1010389-8	RESISTOR-FIXED
				1		21	1006760-48	↑ ↑
				1		20	1006750-78	
				1		19	↑ -31	
				2		18	-73	
				2		17	-39	
				1		16	-61	
				1		15	-71	
				1		14	-15	
				2		13	-43	
				2		12	-56	
				1		11	1006750-8	RESISTOR-FIXED
				AR		10	1006776-21	INSULATION SLEEVING
				AR		9	1006757-1	WIRE, NICKEL RIBBON
				2		8	AN500D-2-4	SCREW
				1		7	1015135-017	SPACER
				1		6	AN500D-4-4	SCREW, PAN HEAD
				1		5	AN500D-4-12	SCREW, PAN HEAD
				1		4	1015131	SPACER
				1		3	1015140	WAFER BOARD, UPPER
				1		2	1015139	WAFER BOARD, LOWER
				1		1	1015128	FRAME ASSEMBLY

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459 1007458		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS +— —— DECIMALS XX±.02 XXX±.005 ANGLES +— ——
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

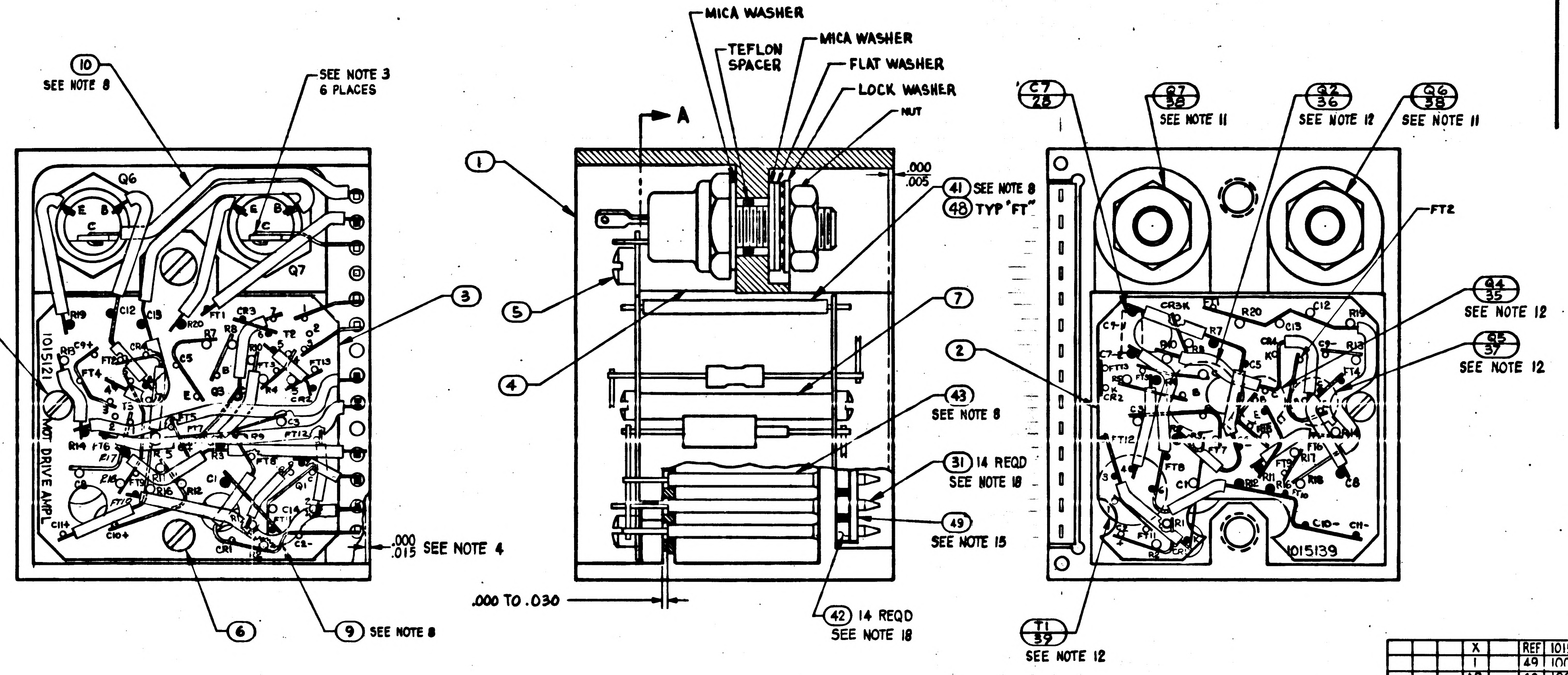
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN Toro DATE 22 SEP 64
CHECKED A. Usnick 23 SEP 64
APPROVAL
APPROVAL 10-9-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

MOTOR DRIVE AMPLIFIER
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007482
SCALE 4:1
SHEET 1 OF 1

SYM	ZONE	REVISIONS 3603 DESCRIPTION	CHG NO.	DATE	APPD.

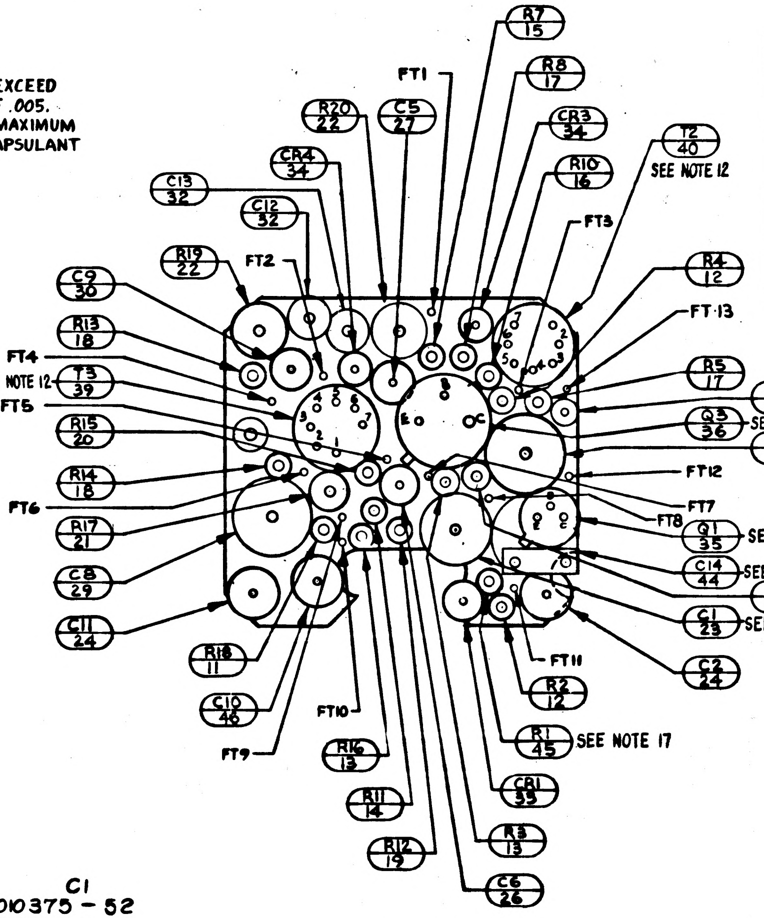


10 SEE NOTE 8
SEE NOTE 3 6 PLACES
8 2 REQD
3
6
9 SEE NOTE 8
.000 .015 SEE NOTE 4
1015121
MOT DRIVE AMPL
Q6
Q7
MICA WASHER
TEFLON SPACER
MICA WASHER
FLAT WASHER
LOCK WASHER
NUT
A
1
5
4
7
.000 .005
41 SEE NOTE 8
48 TYP "FT"
43 SEE NOTE 8
31 14 REQD SEE NOTE 18
49 SEE NOTE 15
42 14 REQD SEE NOTE 18
.000 TO .030
C7 28
Q7 38 SEE NOTE 11
Q2 36 SEE NOTE 12
Q6 38 SEE NOTE 11
FT2
2
Q4 35 SEE NOTE 12
Q5 37 SEE NOTE 12
T1 39 SEE NOTE 12
1015139

1. INTERPRET DWG IN ACCORDANCE WITH STDS PER MIL-D-70327.
2. ALL WELDED CONNECTIONS TO BE MADE PER ND 1002005.
3. SOLDER PER ND1002071.
4. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
5. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
6. BLACK DOT AND CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
7. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
8. AR DENOTES AS REQUIRED
9. UNLESS OTHERWISE SPECIFIED: COMPONENTS TO BE CENTRALIZED BETWEEN ITEMS 2 & 3.
10. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
11. MOUNTING TORQUE FOR ITEM 38, 12^{+2}_{-2} INCH POUNDS
12. TRANSISTORS AND TRANSFORMERS TO BE CEMENTED IN PLACE PER ND 1002004 TYPE I
13. MARK PIN NUMBERS .060/.100. HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
14. ON ITEMS 2&3 BROKEN PATH INDICATES INSULATION SLEEVING,
    "K" INDICATES CATHODE SIDE OF DIODE,
    FT INDICATES FEED THRU,
    MINUS(-) INDICATES NEGATIVE END OF CAPACITOR,
    PLUS(+) INDICATES POSITIVE END OF CAPACITOR,
    "C" INDICATES COLLECTOR LEAD OF TRANSISTOR,
    "B" INDICATES BASE LEAD OF TRANSISTOR,
    "E" INDICATES EMITTER LEAD OF TRANSISTOR.
15. BOND ITEM NO. 49 TO ITEM NO. 42 PER ND1002237.
16. PROCURE PER PS 1015121.
17. SELECT PART PER ATP 1015121 — COMPONENTS TO BE SELECTED FROM TABLE BELOW:

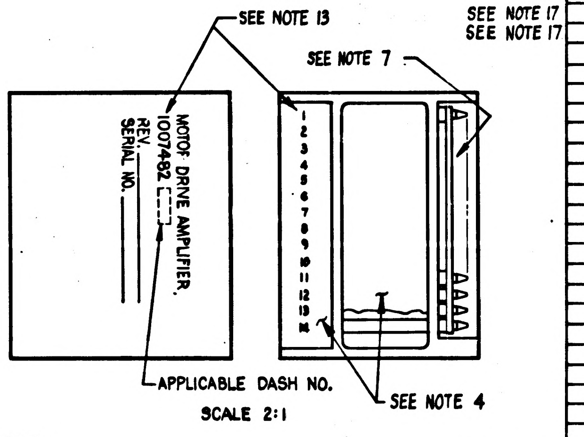
R1	C14	C1
1006750-4 THRU -13	1010359-17,21,23,25 THRU 29	1010375 - 52 1010375 - 53

18. ASSEMBLE PER ND 1002136



R7 15
FT1
R8 17
R20 22
C5 27
CR3 34
C13 32
CR4 34
R10 16
T2 40 SEE NOTE 12
C12 32
FT3
R19 22
FT2
C9 30
R4 12
FT13
R13 18
FT4
SEE NOTE 12 T3 39
FT5
R5 17
CR2 34
R15 20
Q3 36 SEE NOTE 12
C3 25
FT12
R14 18
FT6
FT7
FT8
R17 21
Q1 35 SEE NOTE 12
C8 29
C14 44 SEE NOTE 17
R9 47
C11 24
C1 23 SEE NOTE 17
C2 24
R18 11
FT11
C10 46
FT10
R2 12
R16 13
R1 45 SEE NOTE 17
FT9
R11 14
CR1 33
R3 13
R12 19
C6 26

SECTION A-A
SHOWING ONLY LOWER WAFER
AND COMPONENTS



SEE NOTE 13
MOTOR DRIVE AMPLIFIER
1007482
REV.
SERIAL NO.
SEE NOTE 7
1
2
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8
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12
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14
APPLICABLE DASH NO.
SEE NOTE 4

SCALE 2:1

				X		REF	1015116	SCHEMATIC, ELECTRICAL
				1		49	1008540-14	GASKET CONNECTOR MINIATURE
				AR		48	1006776-22	INSULATION SLEEVING
				1		47	1006750-57	RESISTOR - FIXED
				1		46	1006755-15	CAPACITOR
SEE NOTE 17				1		45	1006750	RESISTOR-FIXED-SELECTED
SEE NOTE 17				1		44	1010359	CAPACITOR VALUE SELECTED
				AR		43	1006776-20	INSULATION SLEEVING
				14		42	1006775	INSULATOR, WRAPOST-MALE MINAT
				AR		41	1006787-2	WIRE-FEED THRU #24 AWG
				1		40	1010365	TRANSFORMER
				2		39	1010276	TRANSFORMER
				1		38	1010269-2	TRANSISTOR (MATCHED PAIR)
				1		37	1010357	↑
				2		36	1010398-1	↑
				2		35	1010397	TRANSISTOR
				3		34	1010370	DIODE
				1		33	1010372-24	DIODE
				2		32	1010279-218	CAPACITOR
				14		31	1006782-5	CONTACT, BLADE EDGE CONNECTOR
				1		30	1006755-69	CAPACITOR
				1		29	1010375-124	↑
				1		28	1010359-17	↑
				1		27	1010279-226	↑
				1		26	1006755-29	↑
				1		25	1010438-102	↑
				2		24	1006755-13	↑
SEE NOTE 17				1		23	1010375	CAPACITOR
				2		22	1010389-8	RESISTOR-FIXED
				1		21	1006760-48	↑
				1		20	1006750-78	↑
				1		19	↑ -31	↑
				2		18	-73	↑
				2		17	-39	↑
				1		16	-61	↑
				1		15	-71	↑
				1		14	-15	↑
				2		13	-43	↑
				2		12	-56	↑
				1		11	1006750-8	RESISTOR-FIXED
				AR		10	1006776-21	INSULATION SLEEVING
				AR		9	1006757-1	WIRE, NICKEL RIBBON
				2		8	AN500D-2-4	SCREW
				1		7	1015135-017	SPACER
				1		6	AN500D-4-4	SCREW, PAN HEAD
				1		5	AN500D-4-12	SCREW, PAN HEAD
				1		4	1015131	SPACER
				1		3	1015140	WAFER BOARD, UPPER
				1		2	1015139	WAFER BOARD, LOWER
				1		1	1015128	FRAME ASSEMBLY
				011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
QUANTITY REQUIRED						LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
1007458		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN Tore DATE 23 SEP 64
CHECKED B. Ulmrich 23 SEP 64
APPROVAL Shaw 23 SEP 64
APPROVAL D. Bartest 10-2-64
NASA APPROVAL W. J. [illegible] 10-14-64
MIT APPROVAL A. Hopkins

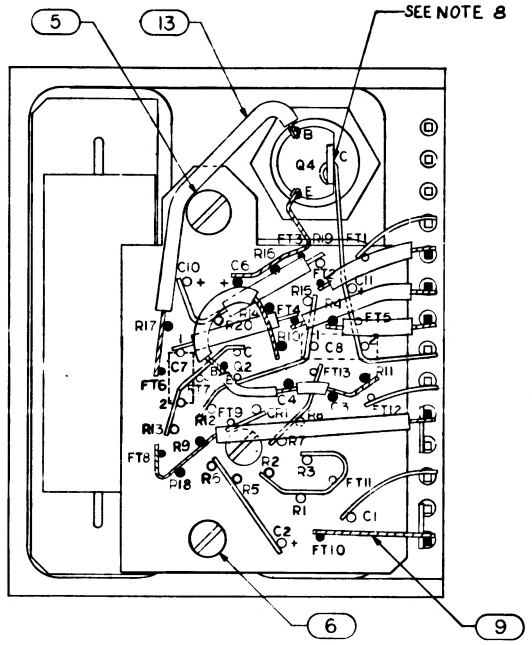
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

MOTOR DRIVE AMPLIFIER
MODULE ASSEMBLY

CODE IDENT NO.
SIZE E
1007482
SCALE 4:1
SHEET

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 3537	65	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FT5
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C7
R20
C8
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C4
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R12
CR1
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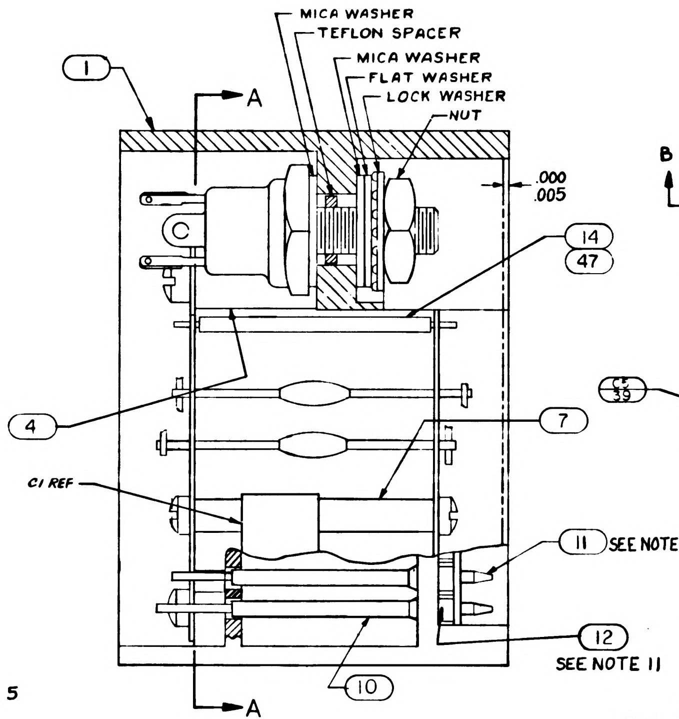
SEE NOTE 5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TEFLON SPACER
MICA WASHER
FLAT WASHER
LOCK WASHER
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SEE NOTE 11
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SEE NOTE 11
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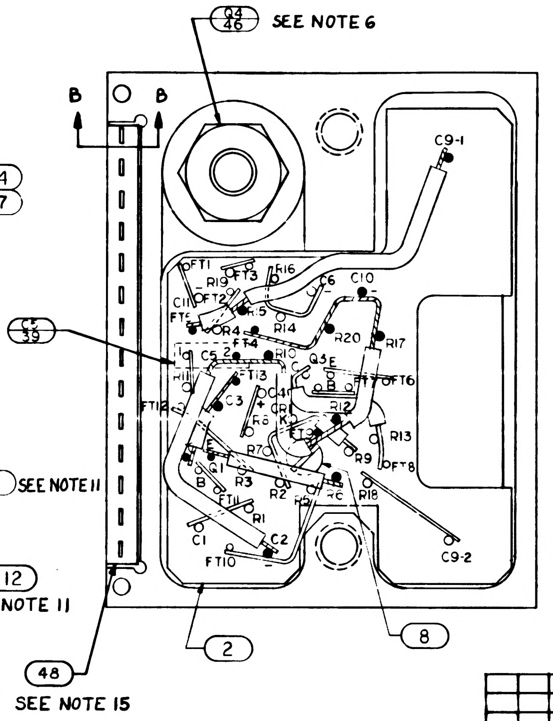
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R4
C5
Q5E
FT6
C3
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SEE NOTE 15
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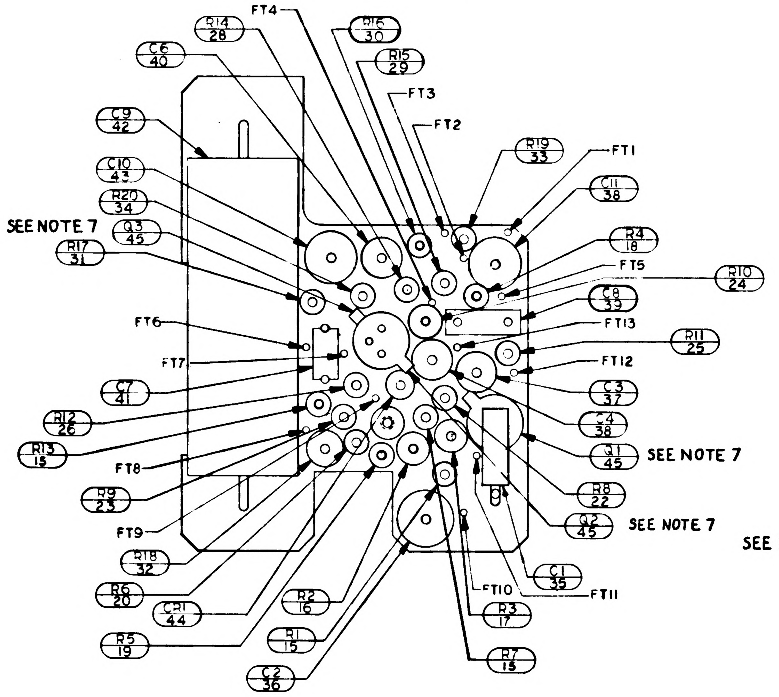
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Q3 45
R4 18
R17 31
FT5
R10 24
C8 39
FT6
FT13
R11 25
FT7
FT12
C3 37
C7 41
C4 38
R12 26
Q1 45
SEE NOTE 7
R13 15
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R9 23
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SEE NOTE 7
FT9
R18 32
R6 20
CR1 44
R2 16
FT10
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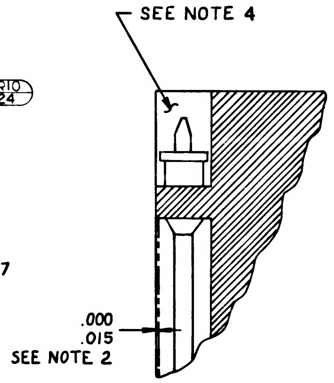
SECTION A-A
SHOWING ONLY LOWER WAFER
AND COMPONENTS

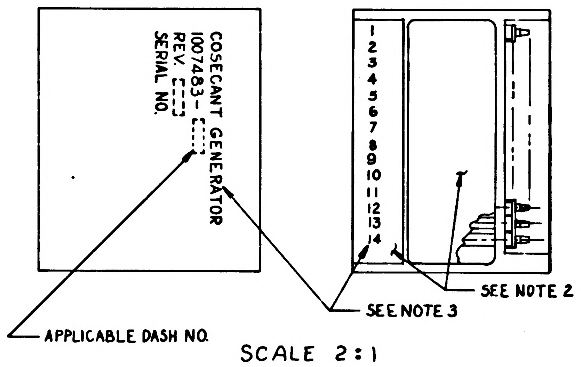

SEE NOTE 4
.000
.015
SEE NOTE 2

PARTIAL SECTION B-B
SCALE 4:1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
3. MARK PIN NUMBERS, .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
4. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
5. AR DENOTES AS REQUIRED
6. MOUNTING TORQUE FOR FIND NO.46, 12$^{+2}_{-2}$ INCH POUNDS
7. TRANSISTORS TO BE CEMENTED IN PLACE PER ND1002004, TYPE I
8. SOLDER PER ND 1002071
9. WHITE DOT & CLEAR WIRE INDICATE LOWER LEVEL WIRING.
10. BLACK DOT & CROSSHATCHED WIRING INDICATE UPPER LEVEL WIRING.
11. ASSEMBLE PER ND 1002136
12. ON FIND NO 2 & 3, BROKEN PATH INDICATES INSULATION SLEEVING,
    "K" INDICATES CATHODE SIDE OF DIODE,
    FT INDICATES FEED THRU,
    MINUS (-) INDICATES NEGATIVE END OF CAPACITOR.
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
    "C" INDICATES COLLECTOR LEAD OF TRANSISTOR,
    "B" INDICATES BASE LEAD OF TRANSISTOR,
    "E" INDICATES EMITTER LEAD OF TRANSISTOR;
13. ALL WELDED CONNECTIONS TO BE MADE PER ND 1002005.
14. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
15. BOND FIND NO.48 TO FIND NO.12 PER ND1002237.

16. UNLESS OTHERWISE SPECIFIED: COMPONENTS TO BE CENTRALIZED BETWEEN ITEMS 2 & 3.
17. PROCURE PER PS 1015124.
18. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
19. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1011729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.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1007483-
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SEE NOTE 2
SEE NOTE 3
APPLICABLE DASH NO.

SCALE 2:1

QUANTITY REQUIRED								
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			X			1015148	SCHEMATIC, DIAGRAM ELEC	REF
			1			1008540-14	GASKET, CONNECTOR MINIATURE	48
			AR			1006776-22	INSULATION, SLEEVING	47
			1			1010269-1	TRANSISTOR	46
			3			1010397-1	TRANSISTOR	45
			1			1010372-24	DIODE	44
			1			1006755-77	CAPACITOR	43
			1			1010375-66		42
			1			1010359-11		41
			1			1006755-65		40
			2			1010359-27		39
			2			1006755-69		38
			1			1010375-124		37
			1			1006755-20		36
			1			1010359-27	CAPACITOR	35
			1			1006750-18	RESISTOR FIXED	34
			1			1006750-7		33
			1			1010368-11		32
			1			1006750-56		31
			1			1010364-749		30
			1			1006750-64		29
			1			1006750-70		28
								27
			1			1006750-34		26
			1			1006750-19		25
			1			1010364-757		24
			1			1006750-44		23
			1			1006750-69		22
								21
			1			1006750-20		20
			1			1006750-72		19
			1			1006750-77		18
			1			1010364-521		17
			1			1010364-727		16
			3			1006750-84	RESISTOR FIXED	15
			AR			1006787-2	WIRE-FEED THRU #22 AWG	14
			AR			1006776-21	INSULATION SLEEVING	13
			14			1006775	INSULATOR, WRAPOST-MALE	12
			14			1006782-5	CONTACT, BLADE EDGE CONN.	11
			AR			1006776-20	INSULATION SLEEVING	10
			AR			1006757-1	WIRE, NICKEL RIBBON	9
			2			AN500D-2-4	SCREW	8
			1			1015135-015	SPACER	7
			1			AN500D-4-4	SCREW, PAN HEAD	6
			1			AN500D-4-12	SCREW, PAN HEAD	5
			1			1015131	SPACER	4
			1			1015157	WAFER BOARD, UPPER	3
			1			1015156	WAFER BOARD, LOWER	2
			1			1015152	FRAME ASSY	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007458		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX ± .02 XXX ± .005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
Cambridge, Mass
Contract NAS 9-497
DRAWN R.M. KRUCKY 23 SEP 64
CHECKED A. Udrach 24 SEP 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COSECANT GENERATOR
MODULE ASSY

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO. 1007483
SCALE 4 X
WT
SHEET 1 OF 1

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
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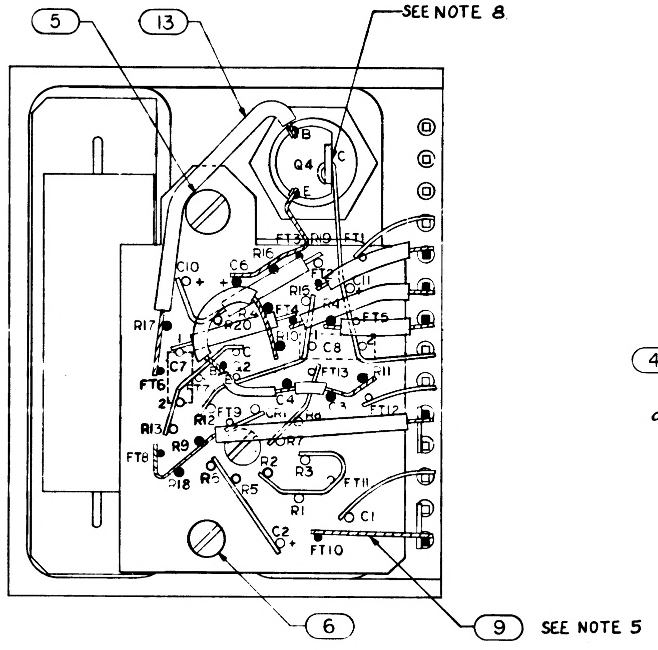
B	REVISED PER TDRR 20 43		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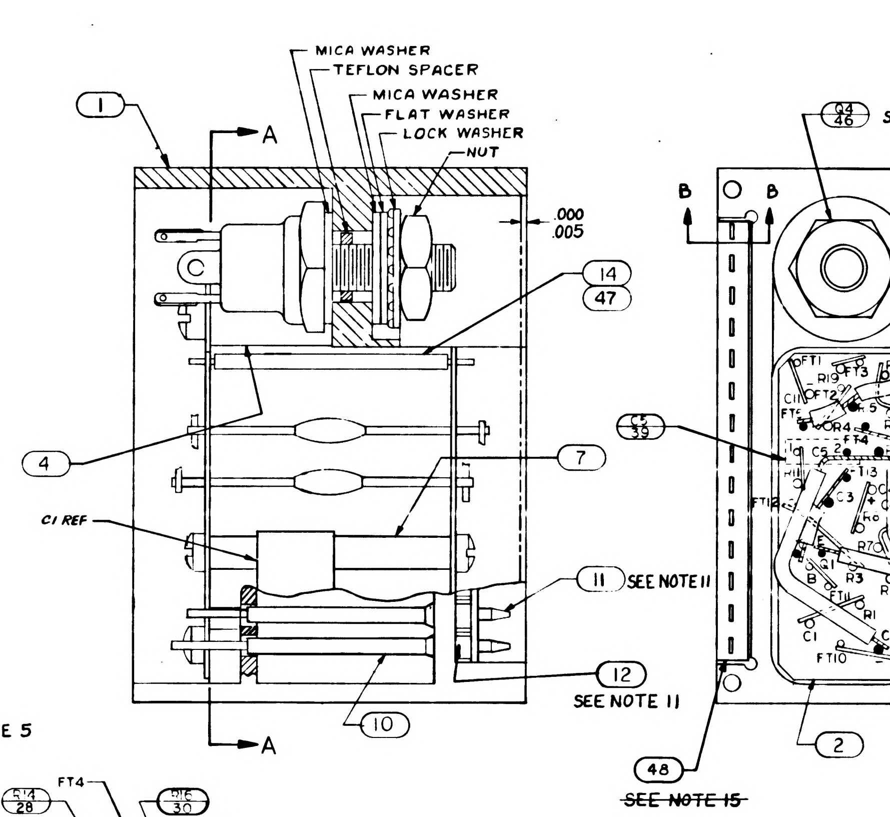
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MICA WASHER
FLAT WASHER
LOCK WASHER
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C1 REF
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SEE NOTE 11
12
SEE NOTE 11
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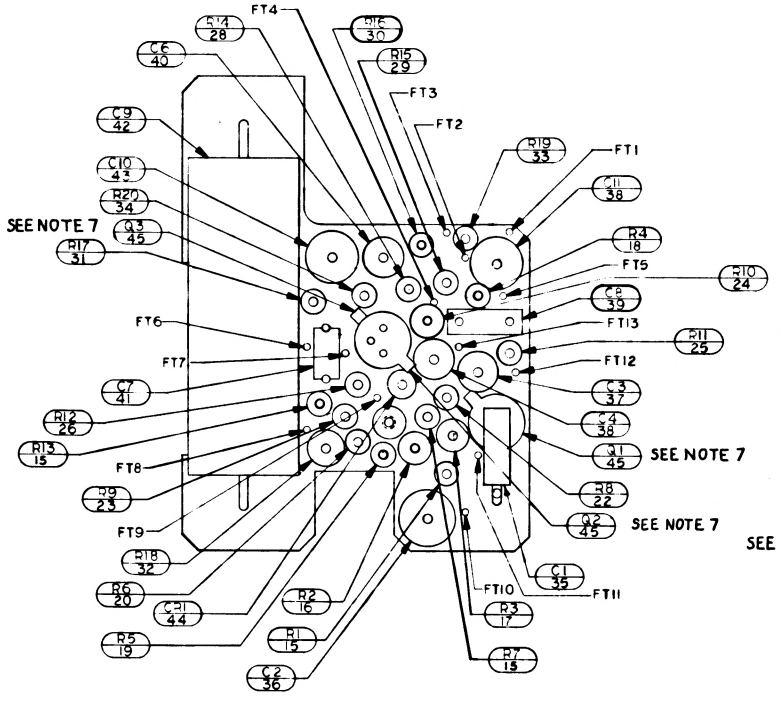
~~SEE NOTE 15~~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SEE NOTE 7
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C8
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R11
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FT7
FT12
C7
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C3
37
R12
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C4
38
R13
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Q1
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SEE NOTE 7
FT8
R9
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R8
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Q2
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SEE NOTE 7
FT9
R18
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R6
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CR1
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R2
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R5
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R1
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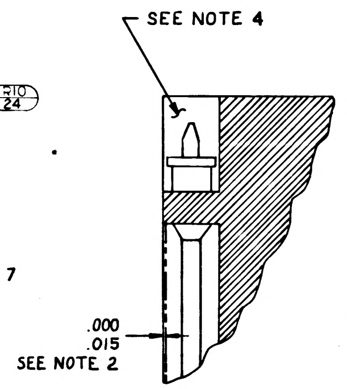
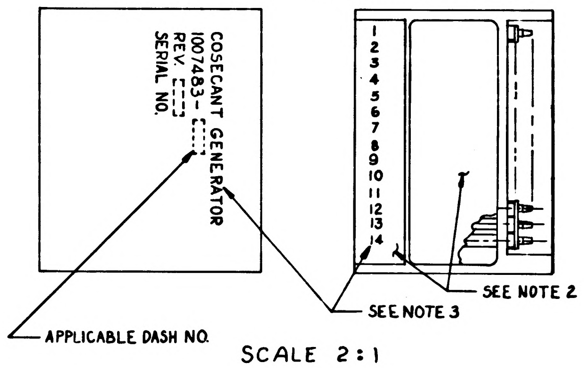
SECTION A-A
SHOWING ONLY LOWER WAFER
AND COMPONENTS


SEE NOTE 4
.000
.015
SEE NOTE 2

PARTIAL SECTION B-B
SCALE 4:1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
3. MARK PIN NUMBERS, .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
4. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
5. AR DENOTES AS REQUIRED
6. MOUNTING TORQUE FOR FIND NO.46, 12^{+2}_{-2} INCH POUNDS
7. TRANSISTORS TO BE CEMENTED IN PLACE PER ND1002004, TYPE I
8. SOLDER PER ND 1002071
9. WHITE DOT & CLEAR WIRE INDICATE LOWER LEVEL WIRING.
10. BLACK DOT & CROSSHATCHED WIRING INDICATE UPPER LEVEL WIRING.
11. ASSEMBLE PER ND 1002136
12. ON FIND NO 2 & 3, BROKEN PATH INDICATES INSULATION SLEEVING.
 "K" INDICATES CATHODE SIDE OF DIODE,
 FT INDICATES FEED THRU,
 MINUS (-) INDICATES NEGATIVE END OF CAPACITOR.
 PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
 "C" INDICATES COLLECTOR LEAD OF TRANSISTOR,
 "B" INDICATES BASE LEAD OF TRANSISTOR,
 "E" INDICATES EMITTER LEAD OF TRANSISTOR;
13. ALL WELDED CONNECTIONS TO BE MADE PER ND 1002005.
14. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
15. ~~BOND FIND NO.48 TO FIND NO.12 PER ND 1002237.~~
16. UNLESS OTHERWISE SPECIFIED: COMPONENTS TO BE CENTRALIZED BETWEEN ITEMS 2 & 3.
17. PROCURE PER PS 1015124.
18. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
19. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 101729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.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1007483-
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SEE NOTE 3
SEE NOTE 2
APPLICABLE DASH NO.

SCALE 2:1

			011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
			X			1015148	SCHEMATIC, DIAGRAM ELEC	REF
			1			1008540-14	GASKET, CONNECTOR MINIATURE	48
			AR			1006776-22	INSULATION, SLEEVING	47
			1			1010269-1	TRANSISTOR	46
			3			1010397-1	TRANSISTOR	45
			1			1010372-24	DIODE	44
			1			1006755-77	CAPACITOR	43
			1			1010375-66		42
			1			1010359-11		41
			1			1006755-65		40
			2			1010359-27		39
			2			1006755-69		38
			1			1010375-124		37
			1			1006755-20		36
			1			1010359-27	CAPACITOR	35
			1			1006750-18	RESISTOR FIXED	34
			1			1006750-7		33
			1			1010368-11		32
			1			1006750-56		31
			1			1010364-749		30
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			1			1006750-72		19
			1			1006750-77		18
			1			1010364-521		17
			1			1010364-727		16
			3			1006750-84	RESISTOR FIXED	15
			AR			1006787-2	WIRE-FEED THRU #22 AWG	14
			AR			1006776-21	INSULATION SLEEVING	13
			14			1006775	INSULATOR, WRAPOST-MALE	12
			14			1006782-5	CONTACT, BLADE EDGE CONN.	11
			AR			1006776-20	INSULATION SLEEVING	10
			AR			1006757-1	WIRE, NICKEL RIBBON	9
			2			AN500D-2-4	SCREW	8
			1			1015135-015	SPACER	7
			1			AN500D-4-4	SCREW, PAN HEAD	6
			1			AN500D-4-12	SCREW, PAN HEAD	5
			1			1015131	SPACER	4
			1			1015157	WAFER BOARD, UPPER	3
			1			1015156	WAFER BOARD, LOWER	2
			1			1015152	FRAME ASSY	1

QUANTITY REQUIRED
LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007458		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX ± .02 XXX ± .005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN R.M. KRUCKY 23 SEP 64
CHECKED A. Ulmer 24 SEP 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COSECANT GENERATOR
MODULE ASSY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 1007483
SCALE 4 X
WT
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 13402

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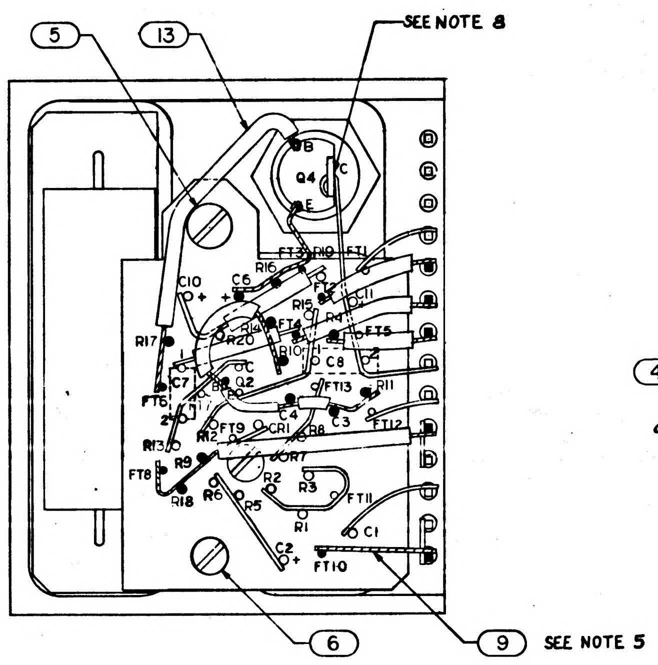
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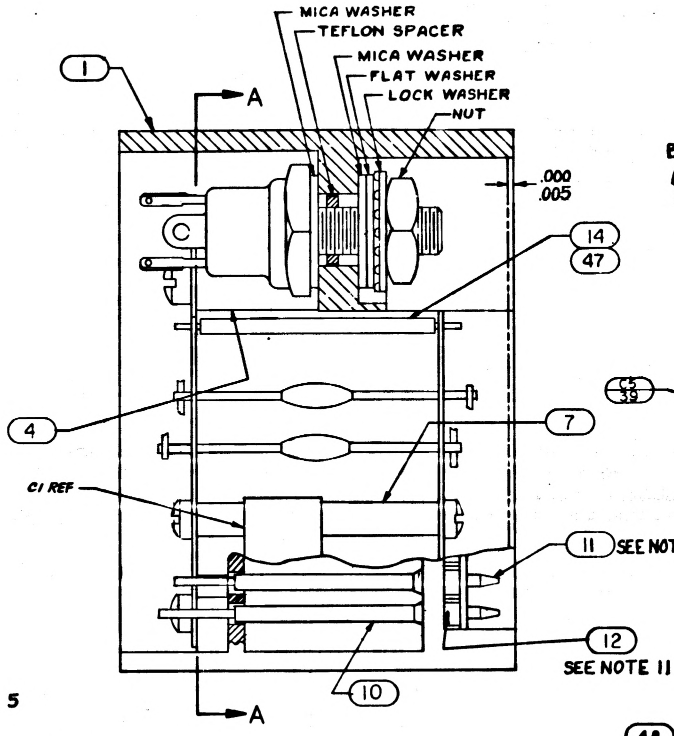
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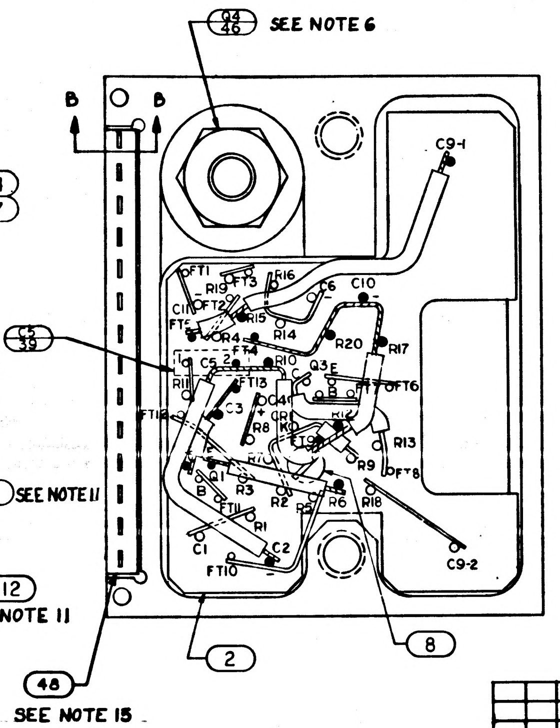
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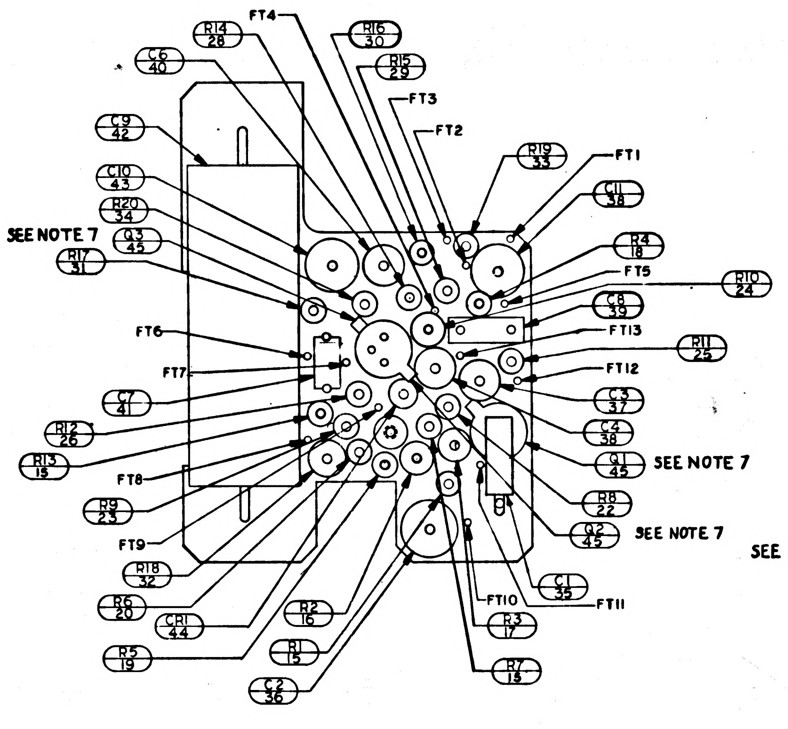
SEE NOTE 15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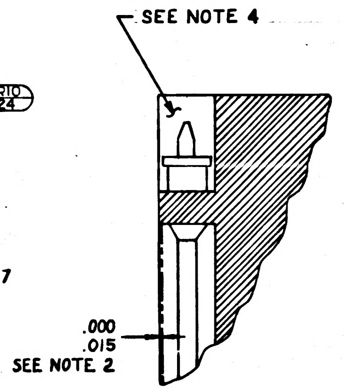
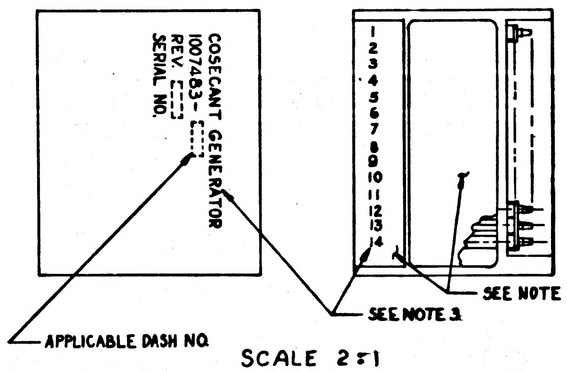
R12
26
C4
38
R13
15
Q1
45
SEE NOTE 7
FT8
R9
23
R8
22
FT9
Q2
45
SEE NOTE 7
R18
32
C1
35
R6
20
FT10
FT11
CR1
44
R2
16
R3
17
R5
19
R1
15
R7
13
C2
36

SECTION A-A
SHOWING ONLY LOWER WAFER
AND COMPONENTS


SEE NOTE 4
.000
.015
SEE NOTE 2

PARTIAL SECTION B-B
SCALE 4:1


COSECANT GENERATOR
1007483-
REV.
SERIAL NO.
1
2
3
4
5
6
7
8
9
10
11
12
13
14
SEE NOTE 2
SEE NOTE 3
APPLICABLE DASH NO.

SCALE 2:1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
3. MARK PIN NUMBERS, .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
4. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
5. AR DENOTES AS REQUIRED
6. MOUNTING TORQUE FOR FIND NO. 46, 12^{+2}_{-2} INCH POUNDS
7. TRANSISTORS TO BE CEMENTED IN PLACE PER ND1002004, TYPE I
8. SOLDER PER ND 1002071
9. WHITE DOT & CLEAR WIRE INDICATE LOWER LEVEL WIRING.
10. BLACK DOT & CROSSHATCHED WIRING INDICATE UPPER LEVEL WIRING.
11. ASSEMBLE PER ND 1002136
12. ON FIND NO 2 & 3, BROKEN PATH INDICATES INSULATION SLEEVING.
    "K" INDICATES CATHODE SIDE OF DIODE,
    FT INDICATES FEED THRU,
    MINUS (-) INDICATES NEGATIVE END OF CAPACITOR.
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
    "C" INDICATES COLLECTOR LEAD OF TRANSISTOR,
    "B" INDICATES BASE LEAD OF TRANSISTOR,
    "E" INDICATES EMITTER LEAD OF TRANSISTOR;
13. ALL WELDED CONNECTIONS TO BE MADE PER ND 1002005.
14. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
15. BOND FIND NO.48 TO FIND NO.12 PER ND1002237.
16. UNLESS OTHERWISE SPECIFIED: COMPONENTS TO BE CENTRALIZED BETWEEN ITEMS 2 & 3.
17. PROCURE PER PS 1015124.

QUANTITY REQUIRED				EFFECTIVITY	LIST OF MATERIALS			
			011		ITEM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			X			1015148	SCHEMATIC, DIAGRAM ELEC	REF
			1			1008540-14	GASKET, CONNECTOR MINIATURE	48
			AR			1006776-22	INSULATION, SLEEVING	47
			1			1010269-1	TRANSISTOR	46
			3			1010397-1	TRANSISTOR	45
			1			1010372-24	DIODE	44
			1			1006755-77	CAPACITOR	43
			1			1010375-66		42
			1			1010359-11		41
			1			1006755-65		40
			2			1010359-27		39
			2			1006755-69		38
			1			1010375-124		37
			1			1006755-20		36
			1			1010359-27	CAPACITOR	35
			1			1006750-18	RESISTOR-FIXED	34
			1			1006750-7		33
			1			1010368-11		32
			1			1006750-56		31
			1			1010364-749		30
			1			1006750-64		29
			1			1006750-70		28
								27
			1			1006750-34		26
			1			1006750-19		25
			1			1010364-757		24
			1			1006750-44		23
			1			1006750-69		22
								21
			1			1006750-20		20
			1			1006750-72		19
			1			1006750-77		18
			1			1010364-521		17
			1			1010364-727		16
			3			1006750-84	RESISTOR FIXED	15
			AR			1006787-2	WIRE-FEED THRU #22 AWG	14
			AR			1006776-21	INSULATION SLEEVING	13
			14			1006775	INSULATOR, WRAPOST-MALE	12
			14			1006782-5	CONTACT, BLADE EDGE CONN.	11
			AR			1006776-20	INSULATION SLEEVING	10
			AR			1006757-1	WIRE, NICKEL RIBBON	9
			2			AN500D-2-4	SCREW	8
			1			1015135-015	SPACER	7
			1			AN500D-4-4	SCREW, PAN HEAD	6
			1			AN500D-4-12	SCREW, PAN HEAD	5
			1			1015131	SPACER	4
			1			1015157	WAFER BOARD, UPPER	3
			1			1015156	WAFER BOARD, LOWER	2
			1			1015152	FRAME ASSY	1

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007458		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS XX ± .02 XXX ± .005
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN R M KRUCKY 23 SEP 64
CHECKED A. Ulmer 24 SEP 64
APPROVAL
APPROVAL 11-8-64
NASA APPROVAL W. J. 10-14-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

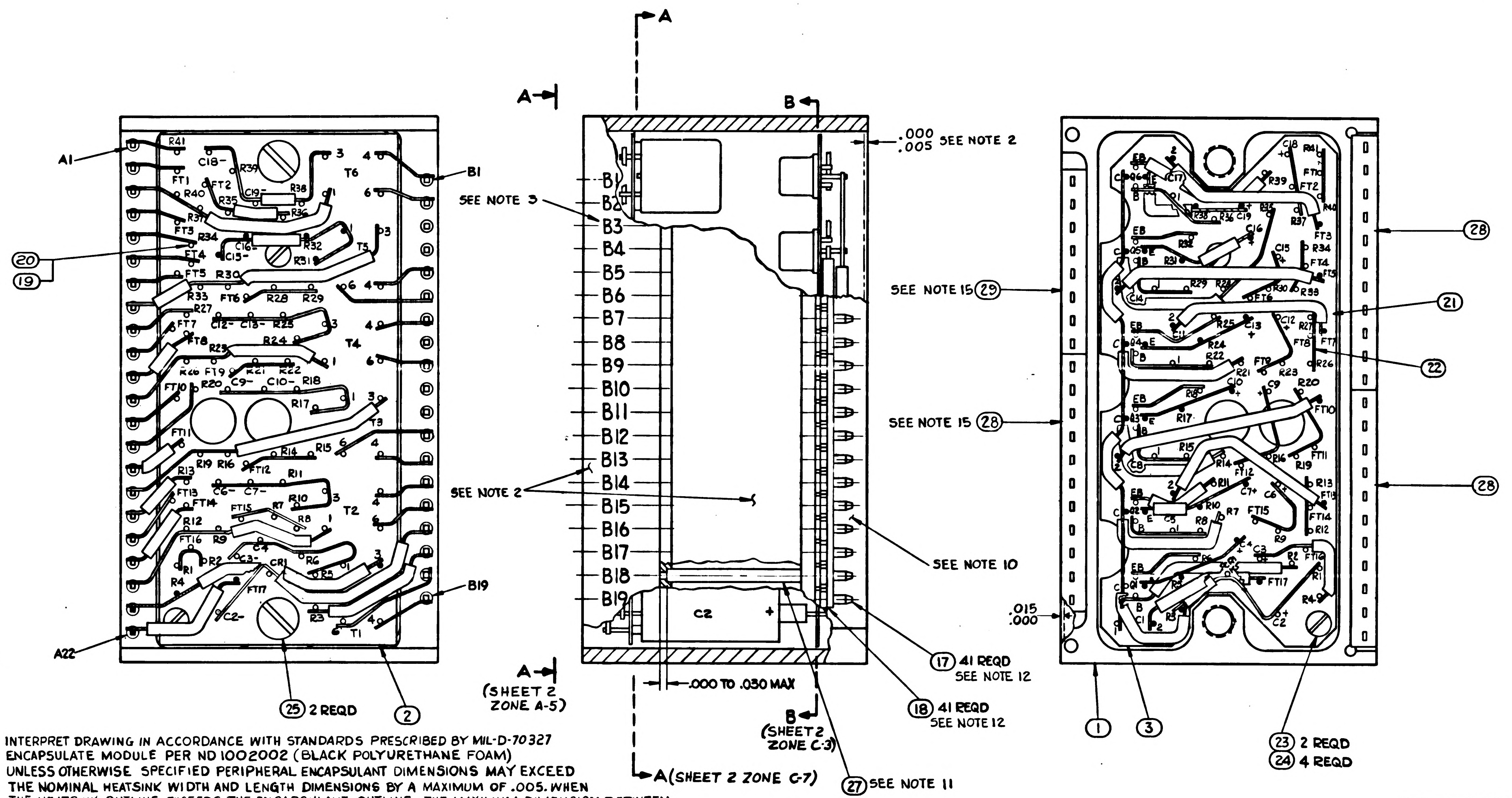
COSECANT GENERATOR
MODULE ASSY

CODE IDENT NO.
SIZE E
NASA DRAWING NO. 1007483
SCALE 4 X
WT
SHEET 1 OF 1

1007483

MASTER

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 19538		JUN 65	J.K.



1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015, REMOVE ALL FLASHING.
3. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
4. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005
5. TRANSISTORS AND TRANSFORMERS TO BE CEMENTED IN PLACE PER ND1002004 TYPE I
6. UNLESS OTHERWISE SPECIFIED COMPONENTS TO BE CENTRALIZED BETWEEN ITEM 2 & 3
7. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.

9. ON ITEMS NO. 2 & 3.
   BROKEN PATHS INDICATE INSULATION SLEEVING.
   K INDICATES CATHODE SIDE OF DIODE.
   FT ( ) INDICATES FEED THRU.
   MINUS (-) INDICATES NEGATIVE END OF CAPACITOR.
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
   C INDICATES COLLECTOR LEAD OF TRANSISTOR.
   B INDICATES BASE LEAD OF TRANSISTOR.
   E INDICATES EMITTER LEAD OF TRANSISTOR.
   EB INDICATES EMITTER BASE LEAD OF TRANSISTOR.
10. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.
11. A R DENOTES AS REQUIRED
12. ASSEMBLE PER ND1002136.
13. PROCURE PER PS 1015136.
14. UNLESS OTHERWISE SPECIFIED: WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
15. BOND ITEMS (28) & (29) TO ITEM (18) PER ND 1002237.
16. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
17. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			☒		REF	1015126	SCHEMATIC, ELECTRICAL
			1		29	1008540-8	GASKET, CONNECTOR-MINAT
			3		28	1008540-11	GASKET, CONNECTOR-MINAT
			AR		27	1006776-20	SLEEVING, ELECT. INSULATING
			6		26	1010461	SHIELD, MAGNETIC
			2		25	AN500D-4-4	SCREW
			4		24	AN500D-2-4	SCREW
			2		23	1015135-016	SPACER
			AR		22	1006757-1	WIRE, NICKEL RIBBON .010×.020
			AR		21	1006776-21	SLEEVING, ELECT. INSULATING
			AR		20	1006776-22	SLEEVING, ELECT. INSULATING
			AR		19	1006787-2	WIRE, FEED THROUGH #24 AWG
			41		18	1006775	INSULATOR, WRAPOST-MALE
			41		17	1006782-5	CONTACT, BLADE EDGE CONN.
			6		16	1010342	TRANSISTOR
			6		15	1010329-1	TRANSFORMER
			1		14	1010829-13	SEMICONDUCTOR DEVICE DIODE
			6		13	1010359-29	CAPACITOR, FIXED
			1		12	1006755-84	CAPACITOR, FIXED
			12		11	1006755-69	CAPACITOR, FIXED
			6		10	1006750-51	RESISTOR, FIXED
			1		9	1006750-26	RESISTOR, FIXED
			5		8	1010374-54	RESISTOR, FIXED
			11		7	1010374-29	RESISTOR, FIXED
			6		6	1010374-1	RESISTOR, FIXED
			6		5	1010364-765	RESISTOR, FIXED
			6		4	1010364-719	RESISTOR, FIXED
			1		3	1015732	WAFER BOARD, LOWER
			1		2	1015733	WAFER BOARD, UPPER
			1		1	1015734	FRAME, MODULE

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
1007458		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
+ — XXX ± .005 + —
— — XX ± .02 — —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

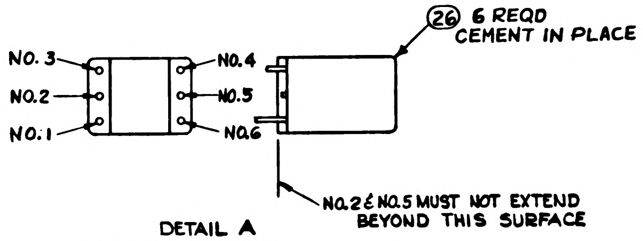
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAW Orcel DATE 22 SEP 64
CHECKED 24 SEP 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

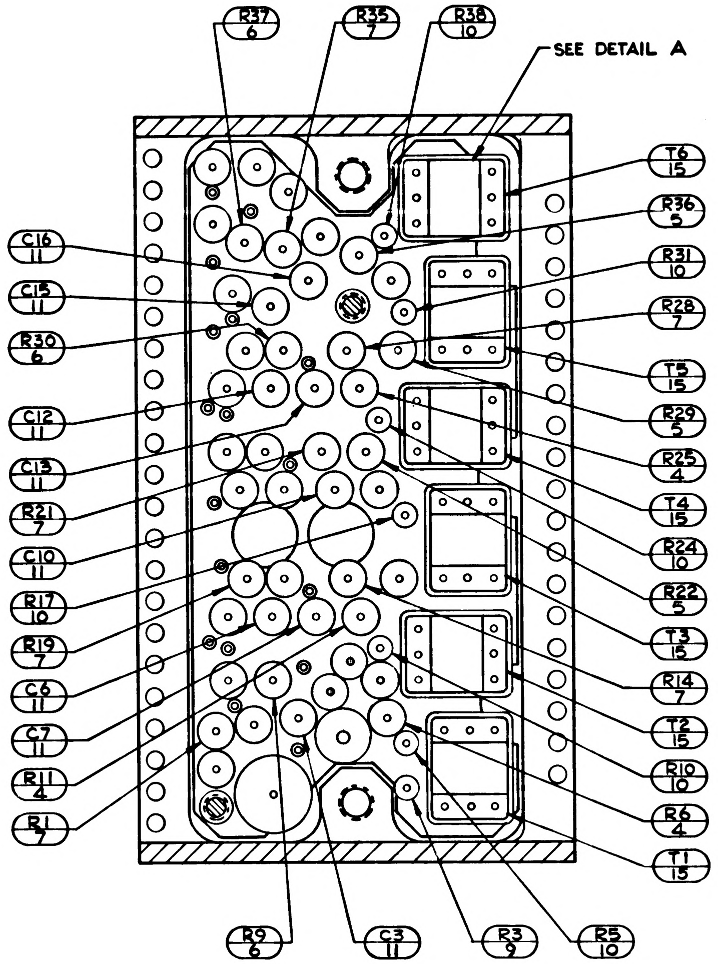
BUFFER CIRCUIT
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007484
SCALE 4:1
SHEET 1 OF 2

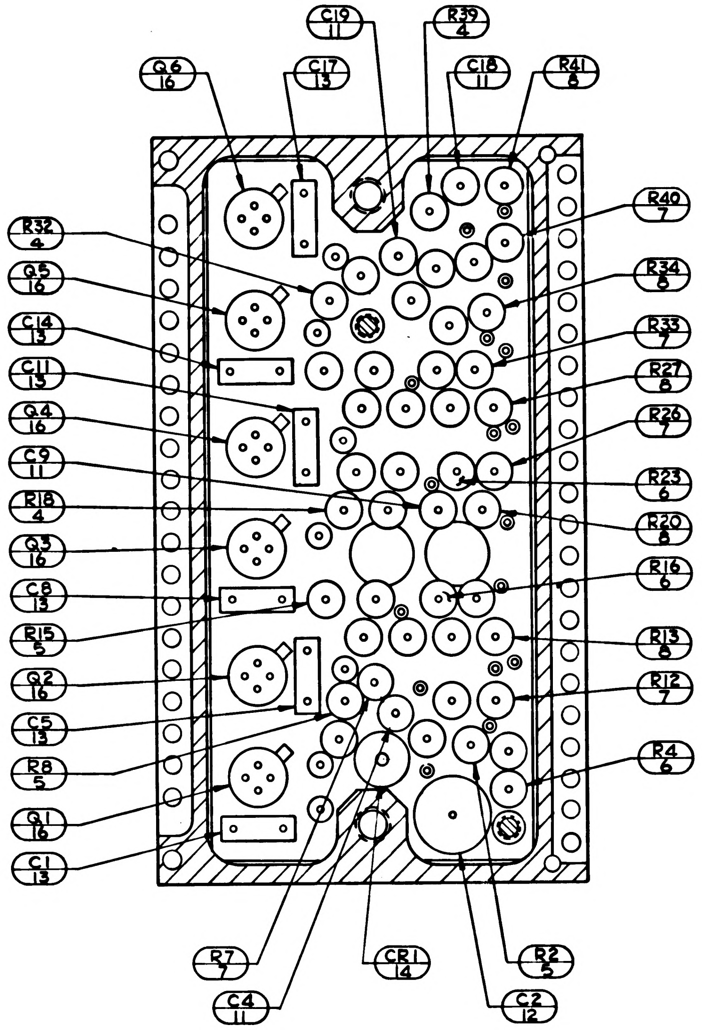
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 19538			


NO. 3
NO. 2
NO. 1
NO. 4
NO. 5
NO. 6
26 6 REQD
CEMENT IN PLACE
NO. 2 & NO. 5 MUST NOT EXTEND
BEYOND THIS SURFACE

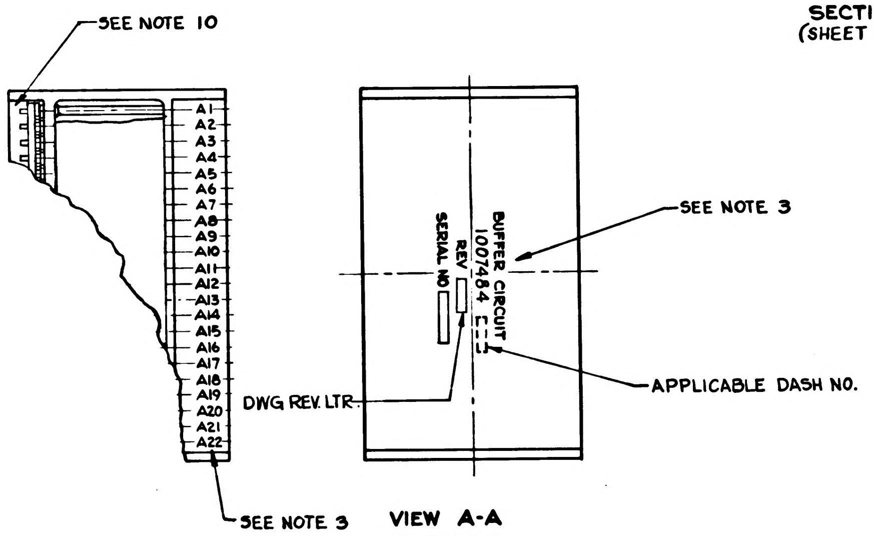
DETAIL A
TYPICAL DETAIL FOR T6, T5, T4, T3, T2, & T1


R37 6
R35 7
R38 10
SEE DETAIL A
T6 15
R36 5
R31 10
R28 7
T5 15
R29 5
R25 4
T4 15
R24 10
R22 5
T3 15
R14 7
T2 15
R10 10
R6 4
T1 15
C16 11
C15 11
R30 6
C12 11
C13 11
R21 7
C10 11
R17 10
R19 7
C6 11
C7 11
R11 4
R1 7
R9 6
C3 11
R3 9
R5 10

SECTION A-A
(SHEET 1 ZONE D-5)


Q6 16
C17 13
C19 11
R39 4
C18 11
R41 8
R32 4
Q5 16
C14 13
C11 13
Q4 16
C9 11
R18 4
Q3 16
C8 13
R15 5
Q2 16
C5 13
R8 5
Q1 16
C1 13
R40 7
R34 8
R33 7
R27 8
R26 7
R23 6
R20 8
R16 6
R13 8
R12 7
R4 6
R7 7
C4 11
CR1 14
R2 5
C2 12

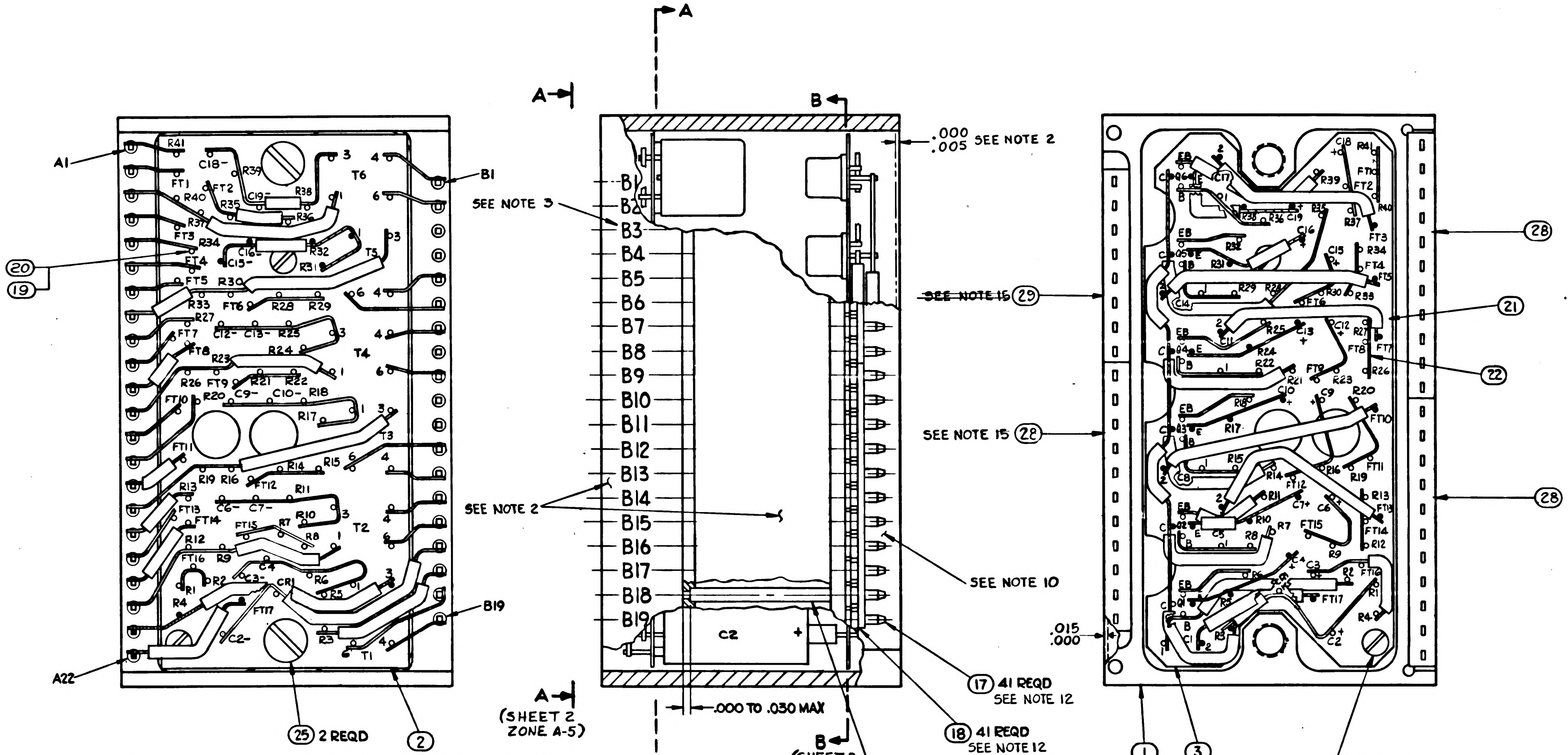
SECTION B-B
(SHEET 1 ZONE D-5)


SEE NOTE 10
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
A16
A17
A18
A19
A20
A21
A22
SEE NOTE 3
DWG REV. LTR
BUFFER CIRCUIT
1007484 -
REV
SERIAL NO
SEE NOTE 3
APPLICABLE DASH NO.

VIEW A-A
SCALE 2:1
(SHEET 1 ZONE D-6)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS + − DECIMALS + − ANGLES + −	MIT INSTRUMENTATION LAB CAMBRIDGE MASS. DRAWN Orgel DATE 18 SEP 64 CHECKED Adamick 24 SEP 64 APPROVAL APPROVAL A. A. Test 10-5-64	MANNED SPACECRAFT CENTER HOUSTON, TEXAS BUFFER CIRCUIT MODULE ASSEMBLY
DO NOT SCALE THIS DRAWING		
MATERIAL —	NASA APPROVAL	CODE IDENT NO. 80230 · SIZE E · 1007484
CONTRACT	MIT APPROVAL	SCALE 4:1 · SHEET 2 OF 2

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
REVISIONS					
A		REVISED PER TDRR 19538		JUN 65	
B		REVISED PER TDRR 20C43		19 JUL 65	



A
A
B
A1
A22
B1
B19
R41
C18
R39
T6
FT1
FT2
R40
C17
C19
R38
R35
R37
R36
FT3
R34
C16
R32
T5
FT4
C15
R31
FT5
R30
R33
R27
FT6
R28
R29
FT7
C12
C13
R25
T4
FT8
R23
R24
R26
FT9
R21
R22
FT10
R20
C9
C10
R18
R17
T3
FT11
R14
R15
R13
R19
R16
FT12
R11
FT13
C6
C7
R10
FT14
FT15
R7
R8
T2
R12
FT16
R9
C4
R1
R2
C3
CR1
R6
R5
R4
FT17
C2
R3
C1
T1
C5
20
19
25 2 REQD
2
SEE NOTE 3
SEE NOTE 2
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
B13
B14
B15
B16
B17
B18
B19
C2
.000
.005 SEE NOTE 2
SEE NOTE 15 29
SEE NOTE 15 28
SEE NOTE 10
.015
.000
.000 TO .030 MAX
(SHEET 2 ZONE A-5)
(SHEET 2 ZONE C-3)
17 41 REQD SEE NOTE 12
18 41 REQD SEE NOTE 12
28
21
22
1
3
EB
E
B
C

23 2 REQD
24 4 REQD
A(SHEET 2 ZONE C-7)
27 SEE NOTE 11

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015, REMOVE ALL FLASHING.
3. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
4. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005
5. TRANSISTORS AND TRANSFORMERS TO BE CEMENTED IN PLACE PER ND1002004 TYPE I
6. UNLESS OTHERWISE SPECIFIED COMPONENTS TO BE CENTRALIZED BETWEEN ITEM 2 & 3
7. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.

9. ON ITEMS NO. 2 & 3.
   BROKEN PATHS INDICATE INSULATION SLEEVING.
   K INDICATES CATHODE SIDE OF DIODE.
   FT( ) INDICATES FEED THRU.
   MINUS (-) INDICATES NEGATIVE END OF CAPACITOR.
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
   C INDICATES COLLECTOR LEAD OF TRANSISTOR.
   B INDICATES BASE LEAD OF TRANSISTOR.
   E INDICATES EMITTER LEAD OF TRANSISTOR.
   EB INDICATES EMITTER BASE LEAD OF TRANSISTOR.

10. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.
11. A R DENOTES AS REQUIRED
12. ASSEMBLE PER ND1002136.
13. PROCURE PER PS1015136.
14. UNLESS OTHERWISE SPECIFIED:
    WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
15. ~~BOND ITEMS (28) & (29) TO ITEM (18) PER ND1002237.~~
16. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
17. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
☒		REF	1015126	SCHEMATIC, ELECTRICAL
1		29	1008540-8	GASKET, CONNECTOR-MINAT
3		28	1008540-11	GASKET, CONNECTOR-MINAT
AR		27	1006776-20	SLEEVING, ELECT. INSULATING
6		26	1010461	SHIELD, MAGNETIC
2		25	AN500D-4-4	SCREW
4		24	AN500D-2-4	SCREW
2		23	1015135-016	SPACER
AR		22	1006757-1	WIRE, NICKEL RIBBON .010×.020
AR		21	1006776-21	SLEEVING, ELECT. INSULATING
AR		20	1006776-22	SLEEVING, ELECT. INSULATING
AR		19	1006787-2	WIRE, FEED THROUGH #24 AWG
41		18	1006775	INSULATOR, WRAPOST-MALE
41		17	1006782-5	CONTACT, BLADE EDGE CONN.
6		16	1010342	TRANSISTOR
6		15	1010329-1	TRANSFORMER
1		14	1010829-13	SEMICONDUCTOR DEVICE DIODE
6		13	1010359-29	CAPACITOR, FIXED
1		12	1006755-84	CAPACITOR, FIXED
12		11	1006755-69	CAPACITOR, FIXED
6		10	1006750-51	RESISTOR, FIXED
1		9	1006750-26	RESISTOR, FIXED
5		8	1010374-54	RESISTOR, FIXED
11		7	1010374-29	RESISTOR, FIXED
6		6	1010374-1	RESISTOR, FIXED
6		5	1010364-765	RESISTOR, FIXED
6		4	1010364-719	RESISTOR, FIXED
1		3	1015732	WAFER BOARD, LOWER
1		2	1015733	WAFER BOARD, UPPER
1		1	1015734	FRAME, MODULE

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
1007458		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — XXX ± .005 ± —
— — XX ± .02 — —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

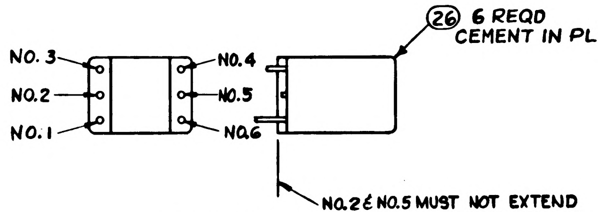
MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAW Orzel 22 SEP 64 DATE
CHECKED [illegible] 24 SEP 64
APPROVAL [illegible]
APPROVAL [illegible] 10-9-64
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

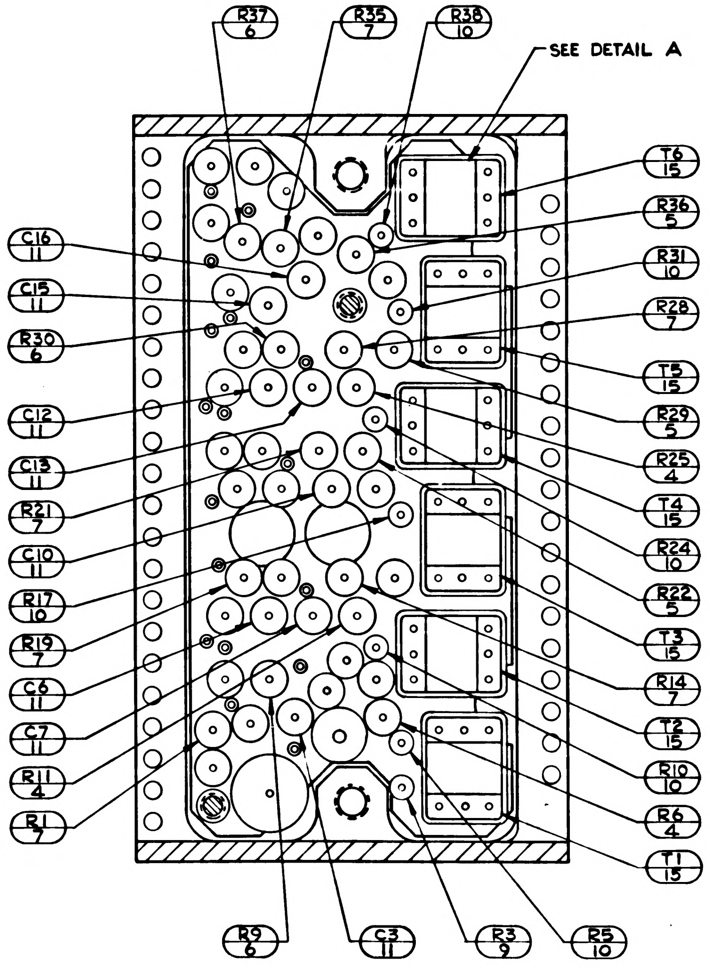
BUFFER CIRCUIT
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE E
1007484
SCALE 4:1
SHEET 1 OF 2

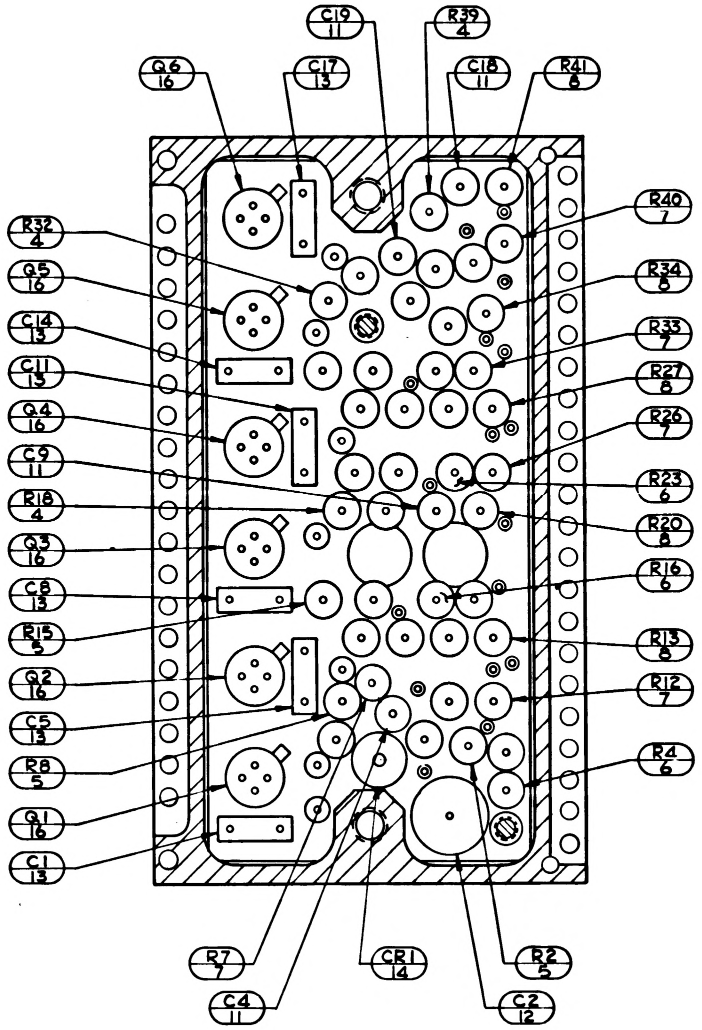
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
REVISIONS					
A		REVISED PER TDRR 19538		JUN 65	
B		REVISION STATUS CHANGED		19	


NO. 3
NO.2
NO.1
NO.4
NO.5
NO.6
(26) 6 REQD
CEMENT IN PLACE
NO.2 & NO.5 MUST NOT EXTEND
BEYOND THIS SURFACE

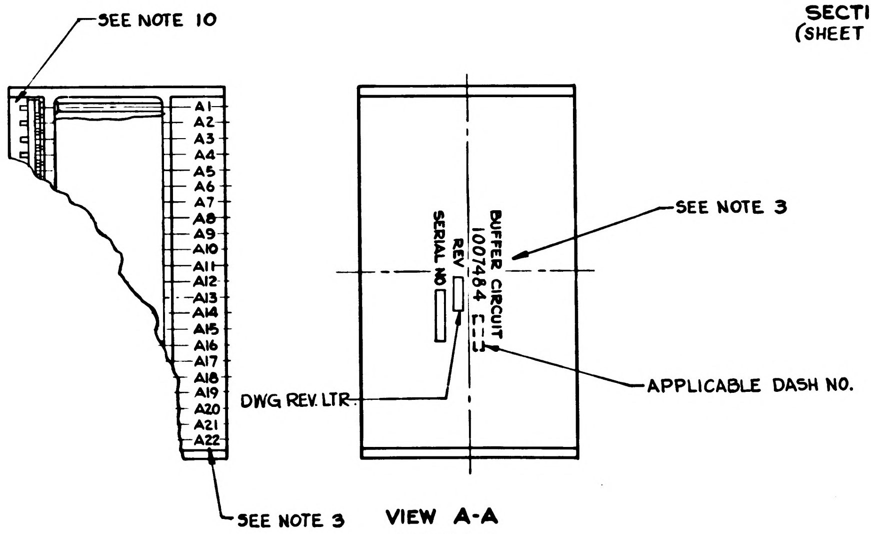
DETAIL A
TYPICAL DETAIL FOR T6, T5, T4, T3, T2, & T1


R37 6
R35 7
R38 10
SEE DETAIL A
T6 15
R36 5
R31 10
R28 7
T5 15
R29 5
R25 4
T4 15
R24 10
R22 5
T3 15
R14 7
T2 15
R10 10
R6 4
T1 15
C16 11
C15 11
R30 6
C12 11
C13 11
R21 7
C10 11
R17 10
R19 7
C6 11
C7 11
R11 4
R1 7
R9 6
C3 11
R3 9
R5 10

SECTION A-A
(SHEET 1 ZONE D-5)


C19 11
R39 4
Q6 16
C17 13
C18 11
R41 8
R40 7
R34 8
R33 7
R27 8
R26 7
R23 6
R20 8
R16 6
R13 8
R12 7
R4 6
R32 4
Q5 16
C14 13
C11 13
Q4 16
C9 11
R18 4
Q3 16
C8 13
R15 5
Q2 16
C5 13
R8 5
Q1 16
C1 13
R7 7
C4 11
CR1 14
R2 5
C2 12

SECTION B-B
(SHEET 1 ZONE D-5)


SEE NOTE 10
A1
A2
A3
A4
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A7
A8
A9
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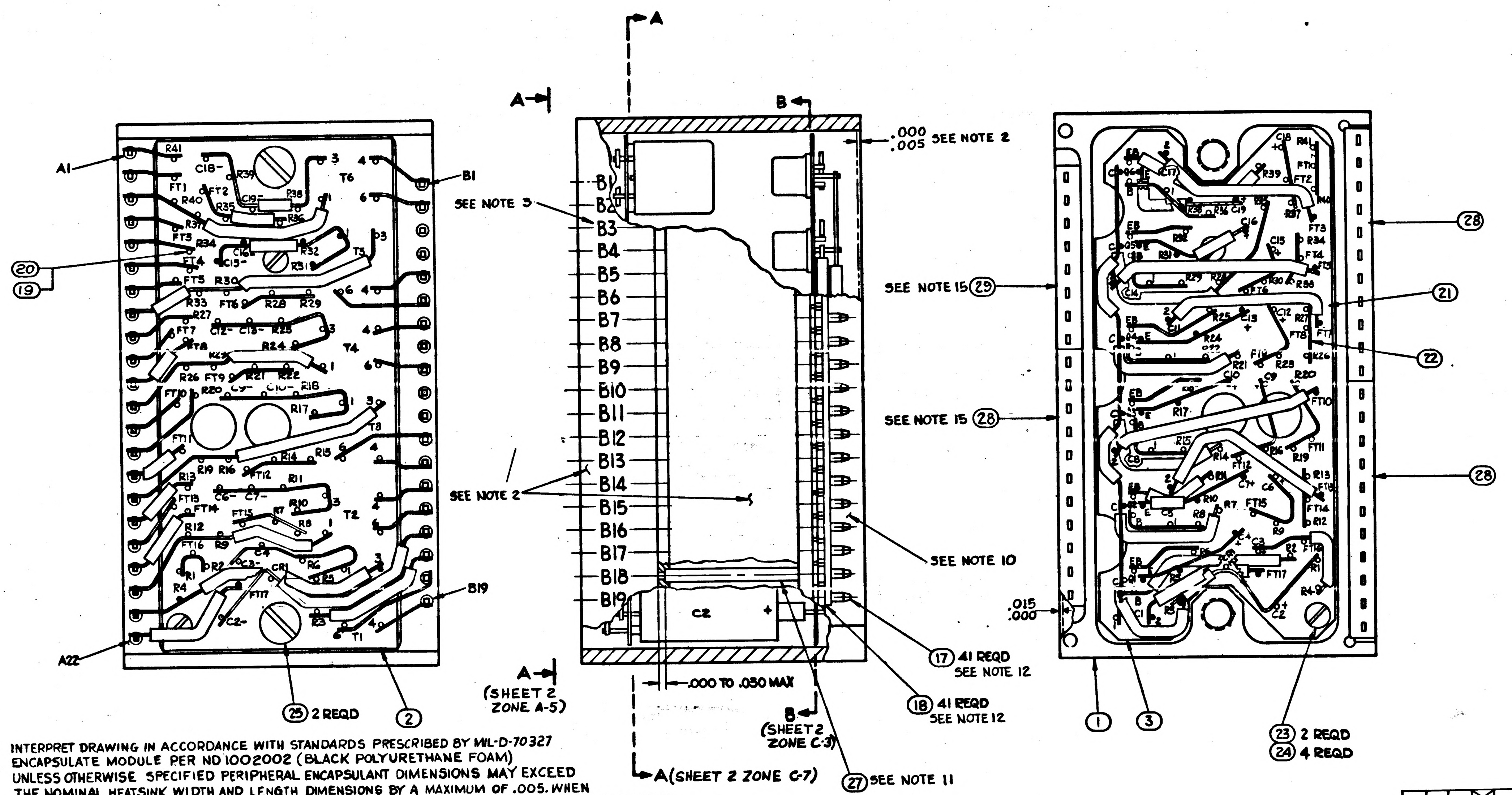
A11
A12
A13
A14
A15
A16
A17
A18
A19
A20
A21
A22
SEE NOTE 3
BUFFER CIRCUIT
1007484 -
REV
SERIAL NO
SEE NOTE 3
DWG REV. LTR.
APPLICABLE DASH NO.

VIEW A-A
SCALE 2:1
(SHEET 1 ZONE D-6)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ± ± ±	MIT INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DO NOT SCALE THIS DRAWING	DRAWN Orgel DATE 18 SEP 64 CHECKED Adams 18 SEP 64 APPROVAL APPROVAL 10-5-64	BUFFER CIRCUIT MODULE ASSEMBLY	
MATERIAL —	NASA APPROVAL	CODE IDENT NO. 80230	SIZE E — 1007484
CONTRACT	MIT APPROVAL	SCALE 4:1	SHEET 2 OF 2

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPD.
			CHG NO.	



1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015, REMOVE ALL FLASHING.
3. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
4. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005
5. TRANSISTORS AND TRANSFORMERS TO BE CEMENTED IN PLACE PER ND1002004 TYPE I
6. UNLESS OTHERWISE SPECIFIED COMPONENTS TO BE CENTRALIZED BETWEEN ITEM 2 & 3
7. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
9. ON ITEMS NO. 2 & 3.
   - BROKEN PATHS INDICATE INSULATION SLEEVING.
   - K INDICATES CATHODE SIDE OF DIODE.
   - FT ( ) INDICATES FEED THRU.
   - MINUS (-) INDICATES NEGATIVE END OF CAPACITOR.
   - PLUS (+) INDICATES POSITIVE END OF CAPACITOR.
   - C INDICATES COLLECTOR LEAD OF TRANSISTOR.
   - B INDICATES BASE LEAD OF TRANSISTOR.
   - E INDICATES EMITTER LEAD OF TRANSISTOR.
   - EB INDICATES EMITTER BASE LEAD OF TRANSISTOR.
10. AREAS TO BE FREE OF ENCAPSULATING COMPOUND.
11. A R DENOTES AS REQUIRED
12. ASSEMBLE PER ND1002136.
13. PROCURE PER PS 1015136.
14. UNLESS OTHERWISE SPECIFIED: WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
15. BOND ITEMS (28) & (29) TO ITEM (18) PER ND1002237.

					ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			☒		REF	1015126	SCHEMATIC, ELECTRICAL
			1		29	1008540-8	GASKET, CONNECTOR-MINAT
			3		28	1008540-11	GASKET, CONNECTOR-MINAT
			AR		27	1006776-20	SLEEVING, ELECT. INSULATING
			6		26	1010461	SHIELD, MAGNETIC
			2		25	AN500D-4-4	SCREW
			4		24	AN500D-2-4	SCREW
			2		23	1015135-016	SPACER
			AR		22	1006757-1	WIRE, NICKEL RIBBON .010×.020
			AR		21	1006776-21	SLEEVING, ELECT. INSULATING
			AR		20	1006776-22	SLEEVING, ELECT. INSULATING
			AR		19	1006787-2	WIRE, FEED THROUGH #24 AWG
			41		18	1006775	INSULATOR, WRAPOST-MALE
			41		17	1006782-5	CONTACT, BLADE EDGE CONN.
			6		16	1010342	TRANSISTOR
			6		15	1010329-1	TRANSFORMER
			1		14	1010265-13	SEMICONDUCTOR DEVICE DIODE
			6		13	1010359-29	CAPACITOR, FIXED
			1		12	1006755-84	CAPACITOR, FIXED
			12		11	1006755-69	CAPACITOR, FIXED
			6		10	1006750-51	RESISTOR, FIXED
			1		9	1006750-26	RESISTOR, FIXED
			5		8	1010374-54	RESISTOR, FIXED
			11		7	1010374-29	RESISTOR, FIXED
			6		6	1010374-1	RESISTOR, FIXED
			6		5	1010364-768	RESISTOR, FIXED
			6		4	1010364-719	RESISTOR, FIXED
			1		3	1015732	WAFER BOARD, LOWER
			1		2	1015733	WAFER BOARD, UPPER
			1		1	1015734	FRAME, MODULE
QUANTITY REQUIRED			011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
1007458		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
+ — XXX ± .005 + —
— — XX ± .02 — —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAW Orzel 22 SEP 64 DATE
CHECKED R. Staruch 24 SEP 64
APPROVAL Spirnagle
APPROVAL D. R. Trost 10-8-64
NASA APPROVAL W J Rhine 10-14-64
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

BUFFER CIRCUIT
MODULE ASSEMBLY

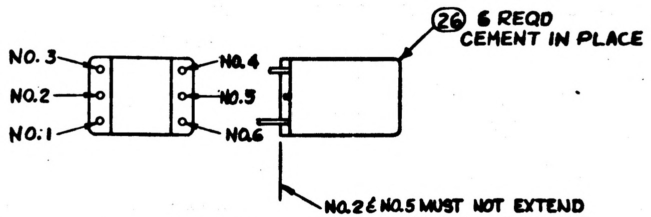
CODE IDENT NO.
SIZE E
1007484
SCALE 4:1
SHEET OF 2

1007484

MASTER

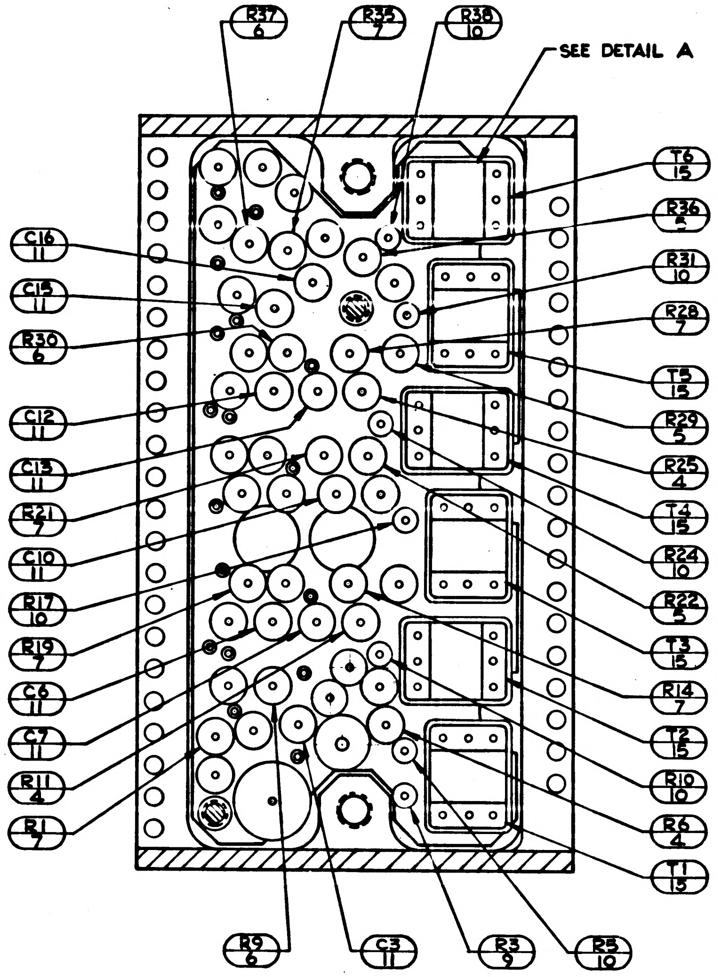
REVISIONS 13403

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.



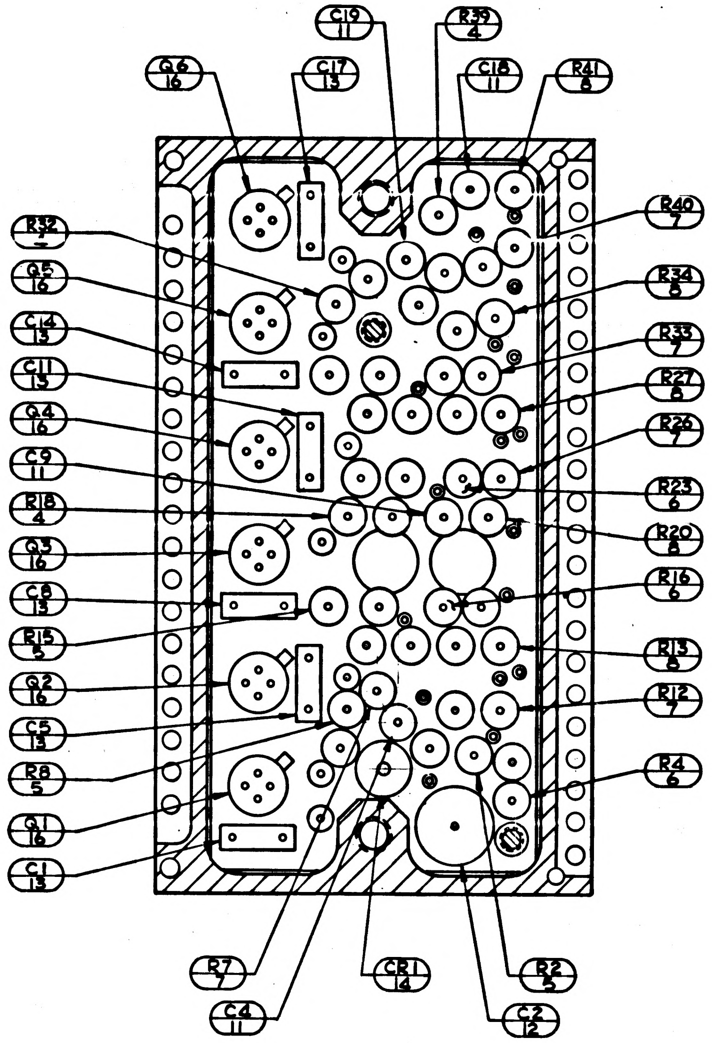
NO. 3
NO. 2
NO. 1
NO. 4
NO. 5
NO. 6
26 6 REQD CEMENT IN PLACE
NO. 2 & NO. 5 MUST NOT EXTEND BEYOND THIS SURFACE

DETAIL A
TYPICAL DETAIL FOR T6, T5, T4, T3, T2, & T1



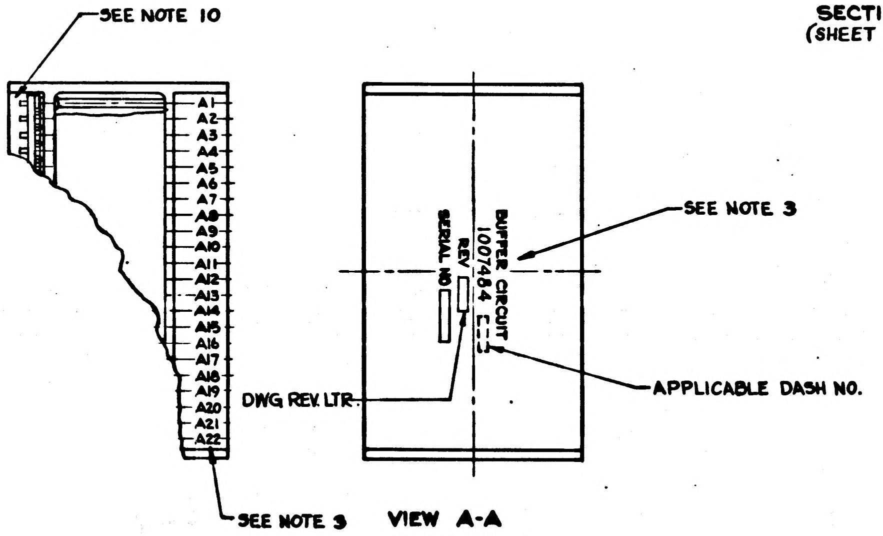
R37 6
R35 7
R38 10
SEE DETAIL A
C16 11
C15 11
R30 6
C12 11
C13 11
R21 7
C10 11
R17 10
R19 7
C6 11
C7 11
R11 4
R1 7
T6 15
R36 5
R31 10
R28 7
T5 15
R29 5
R25 4
T4 15
R24 10
R22 5
T3 15
R14 7
T2 15
R10 10
R6 4
T1 15
R9 6
C3 11
R3 9
R5 10

SECTION A-A
(SHEET 1 ZONE D-5)



C19 11
R39 4
Q6 16
C17 13
C18 11
R41 8
R32 7
Q5 16
C14 13
C11 13
Q4 16
C9 11
R18 4
Q3 16
C8 13
R15 5
Q2 16
C5 13
R8 5
Q1 16
C1 13
R40 7
R34 8
R33 7
R27 8
R26 7
R23 6
R20 8
R16 6
R13 8
R12 7
R4 6
R7 7
C4 11
CR1 14
C2 12
R2 5

SECTION B-B
(SHEET 1 ZONE D-5)



SEE NOTE 10
A1
A2
A3
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A12
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A14
A15
A16
A17
A18
A19
A20
A21
A22
SEE NOTE 3
BUFFER CIRCUIT
1007484
REV
SERIAL NO
SEE NOTE 3
DWG REV LTR
APPLICABLE DASH NO.

VIEW A-A
SCALE 2:1
(SHEET 1 ZONE D-6)

MASTER

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT

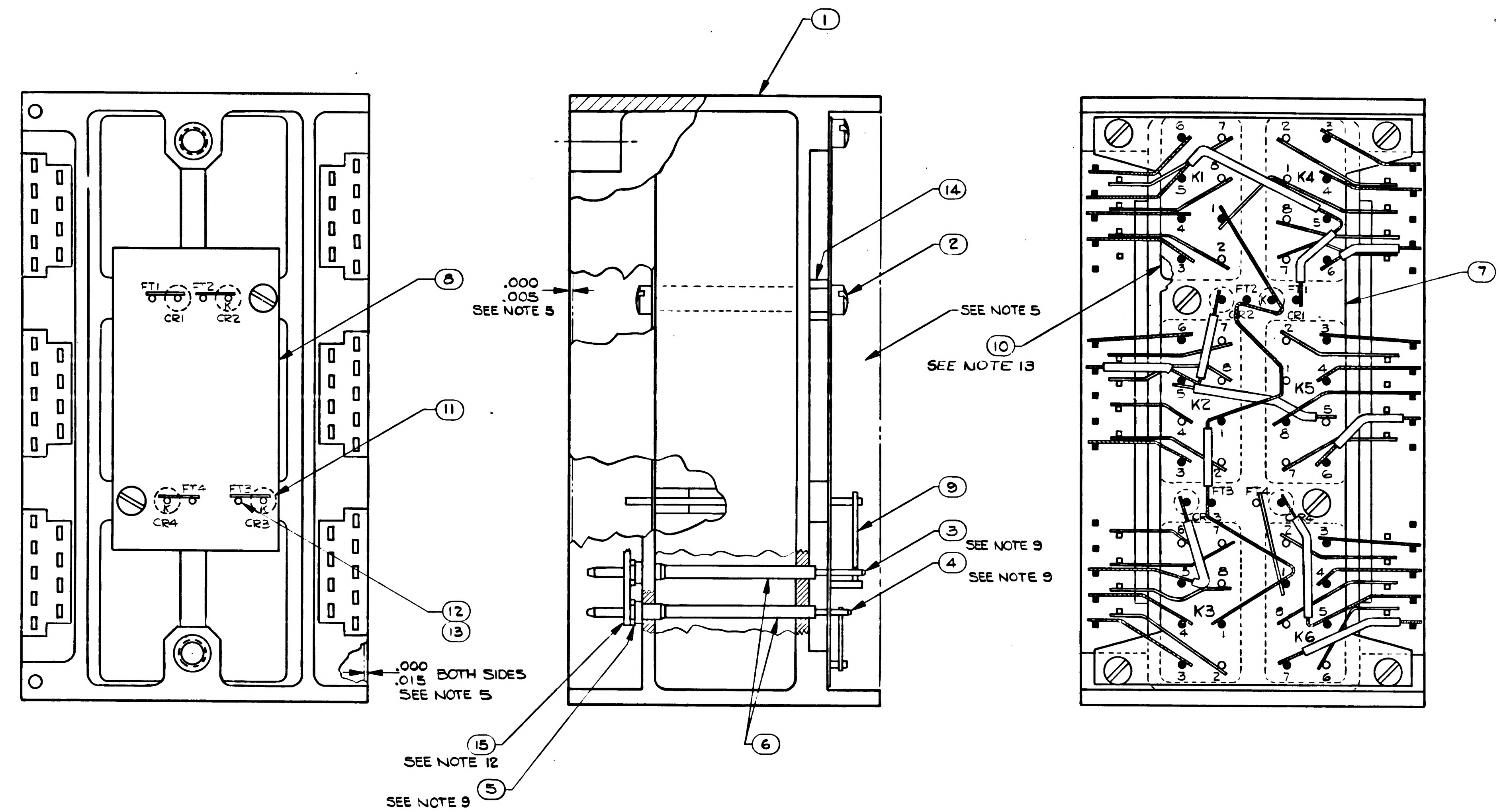
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN Orzech DATE 18 Sep 64
CHECKED
APPROVAL
APPROVAL 11-2-64
NASA APPROVAL 15-11-64
MIT APPROVAL 10/14/64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

BUFFER CIRCUIT
MODULE ASSEMBLY

CODE IDENT NO.
SIZE E
1007484
SCALE 4:1
SHEET 2 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 19539			



1
14
2
SEE NOTE 5
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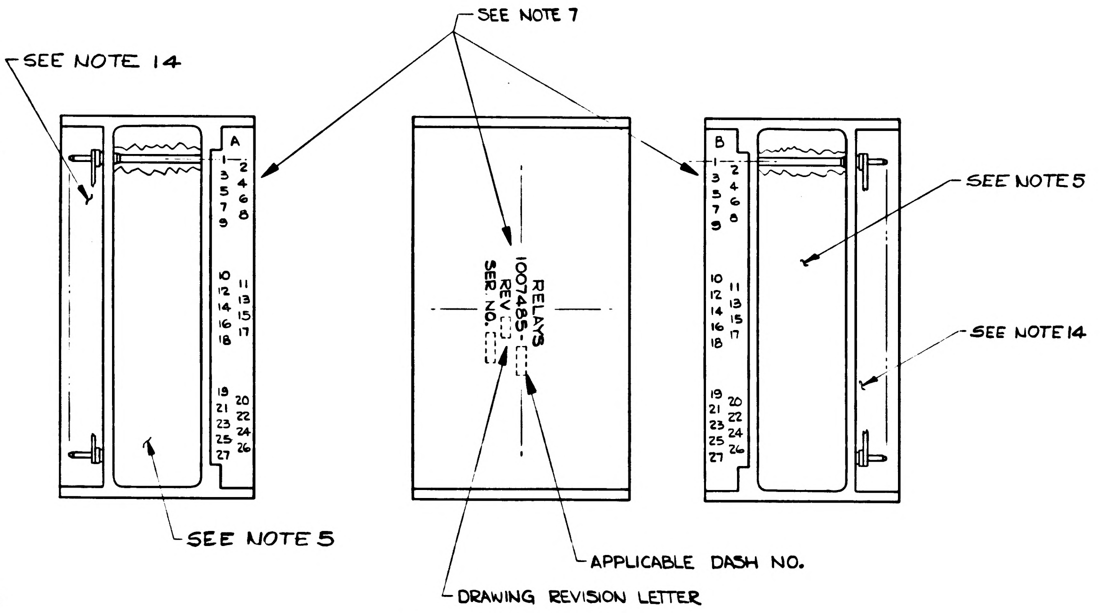
SEE NOTE 13
7
.000
.005
SEE NOTE 5
8
FT1
FT2
CR1
CR2
11
FT4
FT3
CR4
CR3
12
13
.000 BOTH SIDES
.015
SEE NOTE 5
9
3 SEE NOTE 9
4 SEE NOTE 9
15
SEE NOTE 12
5
SEE NOTE 9
6
K1
K2
K3
K4
K5
K6

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE PER ND 1002005.
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK LENGTH AND WIDTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
6. ON ITEMS 7 AND 8
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE.
   FT( ) INDICATES FEED THRU
7. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
8. PROCURE PER PS 1015137
9. ASSEMBLE PER ND 1002136.
10. AR DENOTES AS REQUIRED
11. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
12. BOND ITEM 15 TO ITEM 5 PER ND 1002237.
13. BOND ITEM 10 TO ITEM 7 PER ND 1002004 TYPE I
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. CLEAN MODULE WERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
16. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.



SEE NOTE 7
SEE NOTE 14
A
B
1 2 3 4 5 6 7 8 9
10 11 12 13 14 15 16 17 18
19 20 21 22 23 24 25 26 27
RELAYS
1007485-
REV.
SER NO.
SEE NOTE 5
SEE NOTE 5
SEE NOTE 14
APPLICABLE DASH NO.
DRAWING REVISION LETTER

MARKING VIEWS
SCALE: 2/1

			╳		REF	1015108	SCHEMATIC DIAGRAM ELEC
			6		15	1008554	GASKET, CONNECTOR MIN
			2		14	1015135 -015	SPACER NYLON
			AR		13	1006776 -21	INSULATION SLEEVING
			AR		12	1006787 -2	WIRE, FEED THRU
			4		11	1010362 -3	DIODE 1N649
			6		10	1010353 - 4	RELAY
			AR		9	1006757-1	WIRE, NICKEL RIBBON
			1		8	1015144	WAFER BOARD, LOWER
			1		7	1015145	WAFER BOARD, UPPER
			AR		6	1006776 -20	INSULATION SLEEVING
			54		5	1006775	INSULATOR, WRAPOST-VALE
			24		4	1006782 -4	CONTACT, BLADE EDGE CONN
			30		3	1006782 -5	CONTACT, BLADE EDGE CONN
			8		2	AN500D -2-4	SCREW #2-56 x 1/4 FIL-D
			1		1	1015143	FRAME RELAY MODULE
			011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

1007459		
1007458		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS-9-497

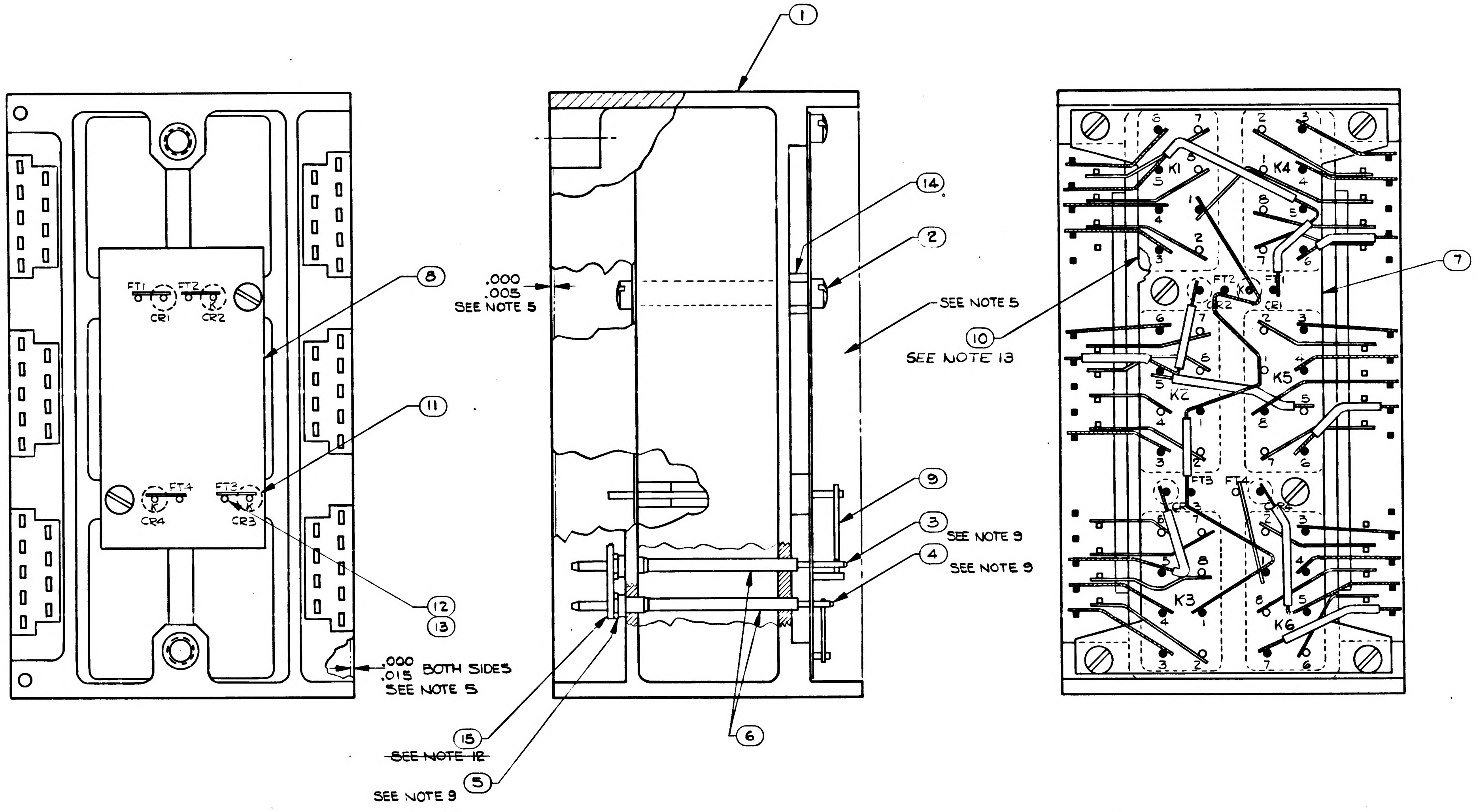
M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN 24 SEP 64
CHECKED A. Ulrich 25 SEP 64
APPROVAL
APPROVAL 10/19/64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

MODULE ASSEMBLY
RELAY

CODE IDENT NO 80230
SIZE E
1007485
SCALE 4/1
SHEET 1 OF 1

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 19539			
B		REVISED PER TDRR 20143			



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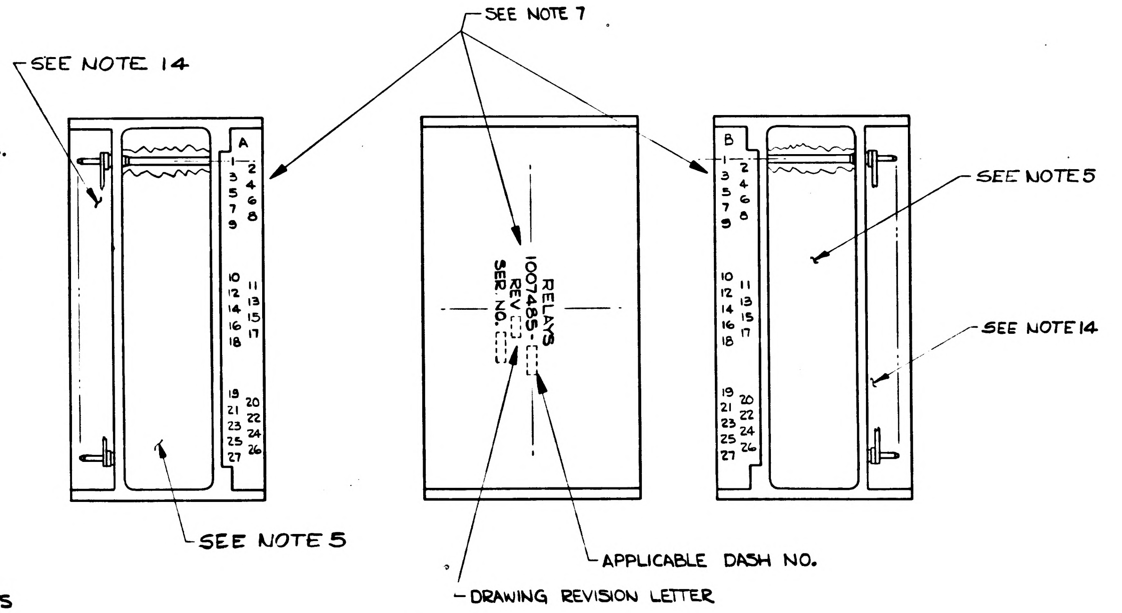
FT1
FT2
FT3
FT4
CR1
CR2
CR3
CR4
K1
K2
K3
K4
K5
K6
.000
.005
SEE NOTE 5
SEE NOTE 5
SEE NOTE 13
SEE NOTE 9
SEE NOTE 9
.000 BOTH SIDES
.015
SEE NOTE 5
~~SEE NOTE 12~~
SEE NOTE 9

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE PER ND 1002005.
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK LENGTH AND WIDTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
6. ON ITEMS 7 AND 8
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE.
   FT( ) INDICATES FEED THRU
7. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
8. PROCURE PER PS 1015137
9. ASSEMBLE PER ND 1002136.
10. AR DENOTES AS REQUIRED
11. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
12. ~~BOND ITEM 15 TO ITEM 5 PER ND 1002237.~~
13. BOND ITEM 10 TO ITEM 7 PER ND 1002004 TYPE I
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. CLEAN MODULE WERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
16. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYP II, AFTER ENCAPSULATION USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.



SEE NOTE 7
SEE NOTE 14
A
B
1 2 3 4 5 6 7 8 9
10 11 12 13 14 15 16 17 18
19 20 21 22 23 24 25 26 27
RELAYS
1007485-
REV
SER NO.
SEE NOTE 5
SEE NOTE 14
SEE NOTE 5
APPLICABLE DASH NO.
DRAWING REVISION LETTER

MARKING VIEWS
SCALE: 2/1

LIST OF PARTS AND MATERIALS

QUANTITY REQUIRED			011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			╳		REF	1015108	SCHEMATIC DIAGRAM ELEC
			6		15	1008554	GASKET, CONNECTOR MIN
			2		14	1015135 -015	SPACER NYLON
			AR		13	1006776 -21	INSULATION SLEEVING
			AR		12	1006787 -2	WIRE, FEED THRU
			4		11	1010362 -3	DIODE 1N649
			6		10	1010353 -4	RELAY
			AR		9	1006757-1	WIRE, NICKEL RIBBON
			1		8	1015144	WAFER BOARD, LOWER
			1		7	1015145	WAFER BOARD, UPPER
			AR		6	1006776 -20	INSULATION SLEEVING
			54		5	1006775	INSULATOR WRAPOST - MALE
			24		4	1006782 -4	CONTACT, BLADE EDGE CONN
			30		3	1006782 -5	CONTACT, BLADE EDGE CONN
			8		2	AN500D -2-4	SCREW #2-56 x .4 FIL HD
			1		1	1015143	FRAME RELAY MODULE

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
1007458		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + — DECIMALS + — ANGLES + —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN [illegible] DATE 24 Sep 64
CHECKED A. Ulrich 25 SEP 64
APPROVAL [illegible]
APPROVAL D. B. Test 10/19/64
NASA APPROVAL [illegible] 10-20-64
MIT APPROVAL [illegible]

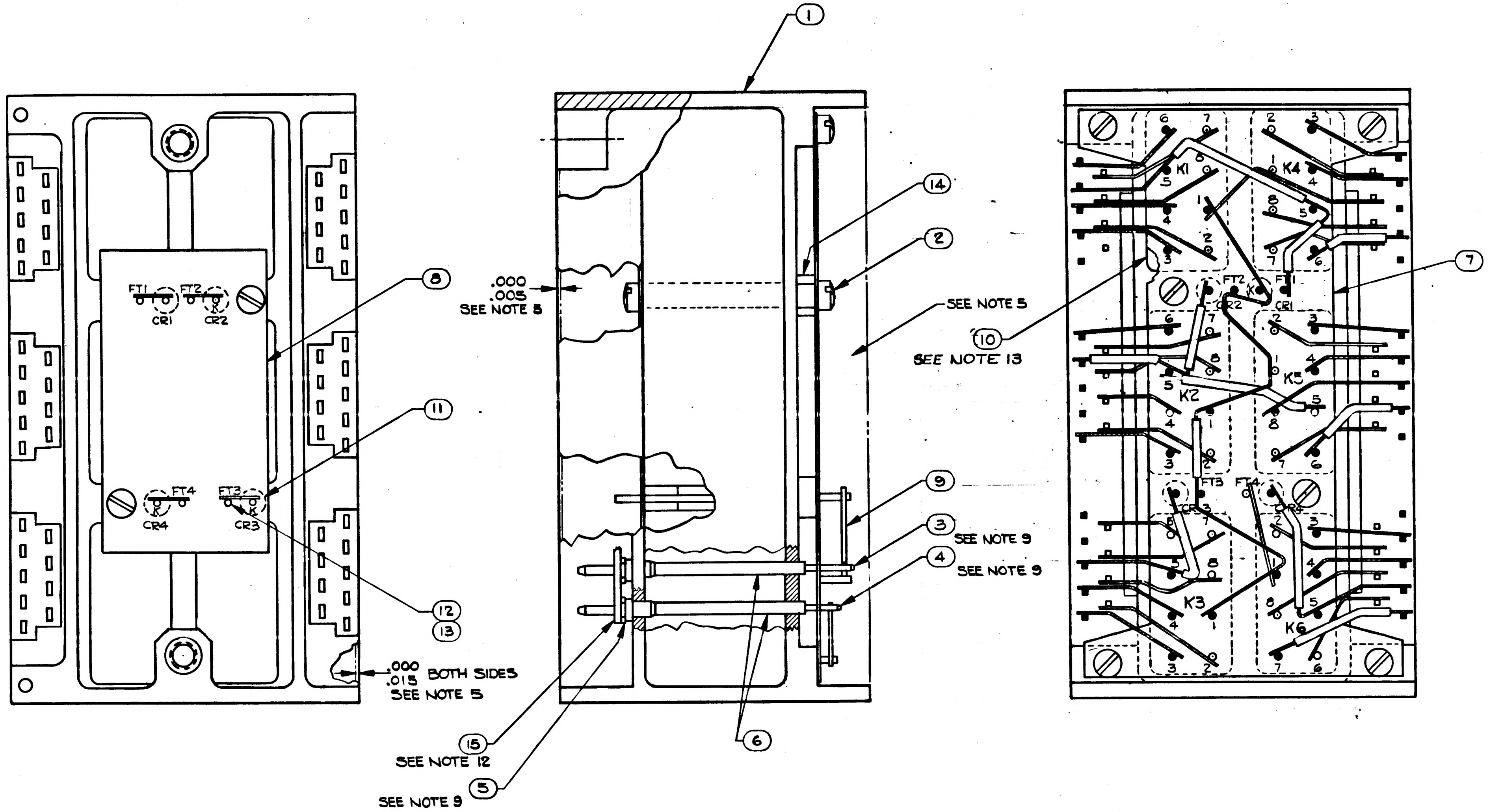
MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

MODULE ASSEMBLY
RELAY

CODE IDENT NO 80230
SIZE E
1007485
SCALE 4/1
SHEET 1 of 1

MIL 1077E-P

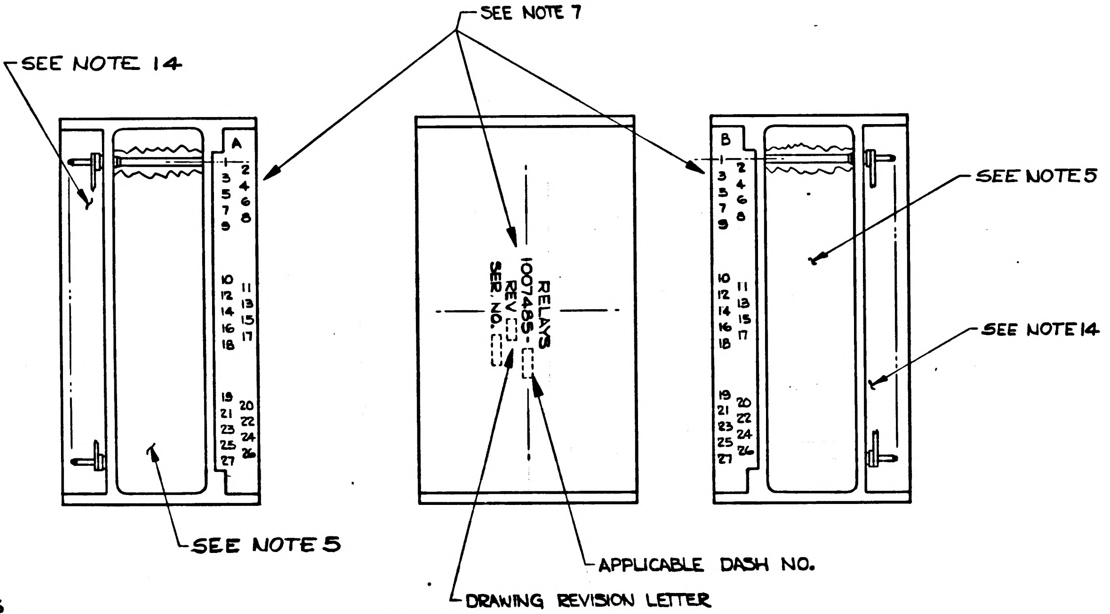
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
		REVISIONS			



1
14
2
8
.000
.005
SEE NOTE 8
SEE NOTE 5
10
SEE NOTE 13
7
FT1
FT2
CR1
CR2
FT3
FT4
CR3
CR4
K1
K2
K3
K4
K5
K6
11
9
3
SEE NOTE 9
4
SEE NOTE 9
12
13
.000
.015 BOTH SIDES
SEE NOTE 5
15
SEE NOTE 12
5
SEE NOTE 9
6

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE PER ND 1002005.
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK LENGTH AND WIDTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
6. ON ITEMS 7 AND 8
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT( ) INDICATES FEED THRU
7. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
8. PROCURE PER PS 1015137
9. ASSEMBLE PER ND 1002136.
10. AR DENOTES AS REQUIRED
11. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
12. BOND ITEM 15 TO ITEM 5 PER ND 1002237.
13. BOND ITEM 10 TO ITEM 7 PER ND 1002004 TYPE I
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND



SEE NOTE 14
SEE NOTE 7
SEE NOTE 5
SEE NOTE 14
SEE NOTE 5
A
B
1
2
3
4
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11
12
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16
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22
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24
25
26
27
RELAYS
1007485-
REV
SER. NO.
APPLICABLE DASH NO.
DRAWING REVISION LETTER

MARKING VIEWS
SCALE: 2/1

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			☒		REF	1015108	SCHEMATIC DIAGRAM ELEC
			6		15	1008554	GASKET, CONNECTOR MIN
			2		14	1015135 -015	SPACER NYLON
			AR		13	1006776 -21	INSULATION SLEEVING
			AR		12	1006787 -2	WIRE, FEED THRU
			4		11	1010362 -3	DIODE 1N649
			6		10	1010353 -4	RELAY
			AR		9	1006757-1	WIRE, NICKEL RIBBON
			1		8	1015144	WAFER BOARD, LOWER
			1		7	1015145	WAFER BOARD, UPPER
			AR		6	1006776-20	INSULATION SLEEVING
			54		5	1006775	INSULATOR WRAPOST-VA
			24		4	1006782-4	CONTACT, BLADE EDGE CONN
			30		3	1006782-5	CONTACT, BLADE EDGE CONN
			8		2	AN500D-2-4	SCREW #2-56 x 1/4 [illegible]
			1		1	1015143	FRAME RELAY MODULE

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		
1007458		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± ___ DECIMALS ± ___ ANGLES ± ___
DO NOT SCALE THIS DRAWING
MATERIAL ———
CONTRACT NAS-9-497

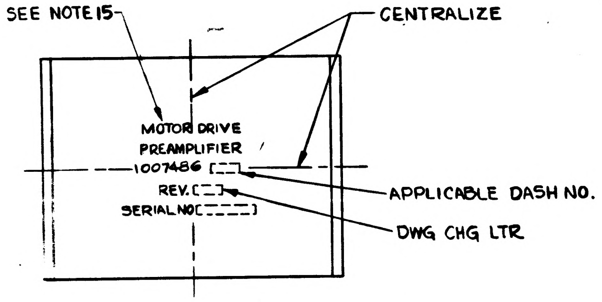
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN DATE 24 Sep 64
CHECKED C. Ulrich 25 SEP 64
APPROVAL
APPROVAL A. A. Test 10/19/64
NASA APPROVAL 10-20-64
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

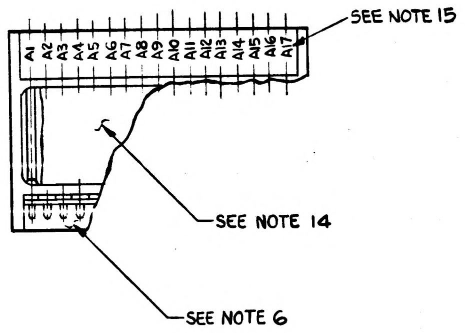
MODULE ASSEMBLY
RELAY

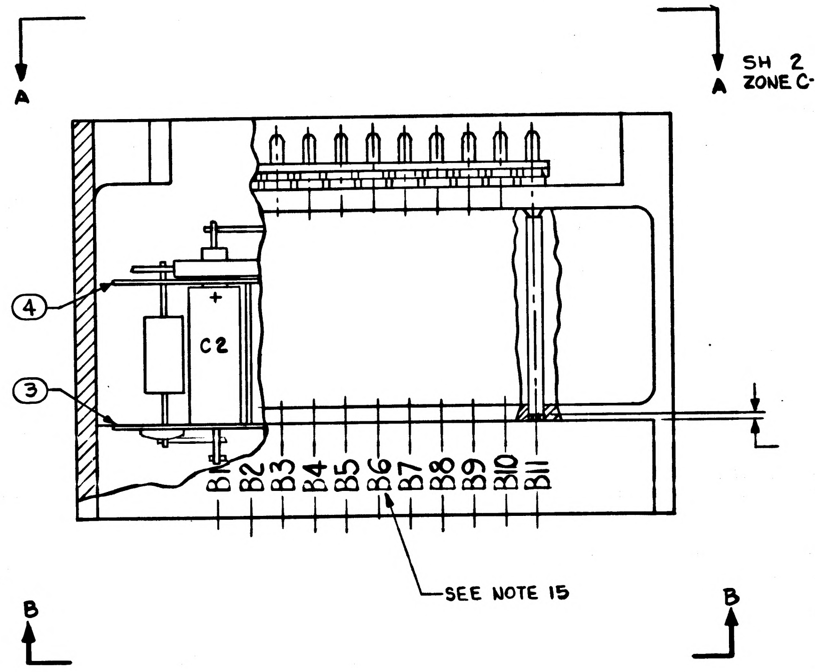
CODE IDENT NO. ———
SIZE E
1007485
SCALE 4/1
SHEET 1 OF 1

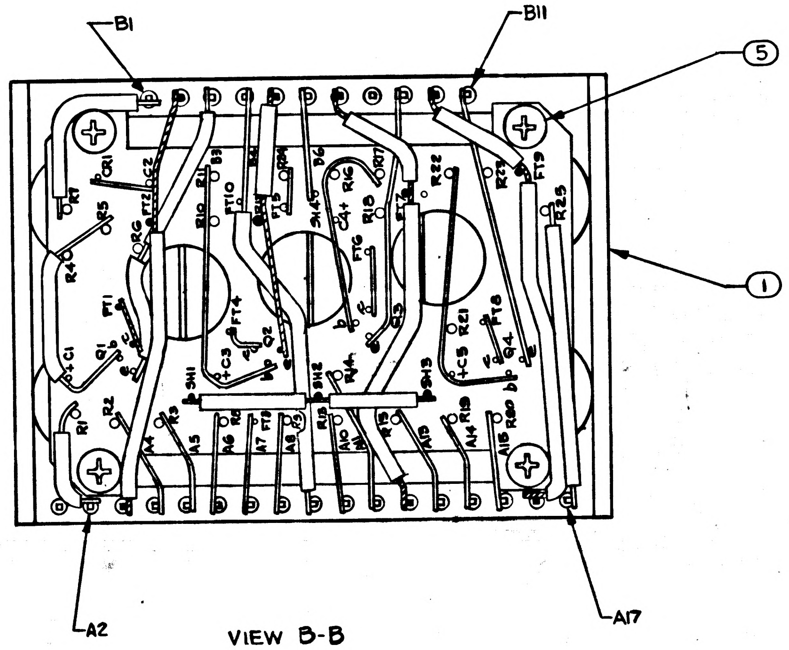
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 15147		30 DEC 64	


SEE NOTE 15
CENTRALIZE
MOTOR DRIVE
PREAMPLIFIER
1007486
REV.
SERIAL NO.
APPLICABLE DASH NO.
DWG CHG LTR

VIEW B-B
SCALE 2:1


A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17
SEE NOTE 15
SEE NOTE 14
SEE NOTE 6


A
A
SH 2
ZONE C-2
4
3
C2
+
B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11
SEE NOTE 15
B
B


B1
B11
5
1
A2
A17
R1
R2
R4
C1
Q1
CR1
C2
R10
R11
FT1
FT4
FT10
C3
R16
R15
C4
R21
R22
C5
R23
R24
R25
FT8
SH1
SH2
SH3
A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16

VIEW B-B

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED: COMPONENTS TO BE CENTRALIZED BETWEEN ITEMS 3 & 4.
3. PROCURE PER PS1007486
4. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005.
5. UNLESS OTHERWISE SPECIFIED: WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
6. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
7. ON ITEMS 3 AND 4:
   BROKEN PATHS INDICATE INSULATION SLEEVING
   K INDICATES CATHODE SIDE OF DIODE
   FT( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR
   c - INDICATES COLLECTOR LEAD OF TRANSISTOR
   b - INDICATES BASE LEAD OF TRANSISTOR
   e - INDICATES EMITTER LEAD OF TRANSISTOR
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
11. ASSEMBLE PER ND1002136.
12. BOND ITEMS 28 AND 29 TO ITEM 16 PER ND1002237
13. BOND ITEMS 13 TO ITEM 3 PER ND1002004 TYPE I.
14. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
15. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023, CENTRALIZE AS SHOWN.

					REF	1009533	SCHEMATIC, ELECTRICAL
			1		29	1008540-6	GASKET, CONNECTOR-MINAT
			2		28	1008540-11	GASKET, CONNECTOR-MINAT
			1		27	-683	
			1		26	-687	
			1		25	-533	
			1		24	-673	
			1		23	-727	
			1		22	1010364-513	RESISTOR, FIXED
			AR		21	1006776-20	SLEEVING, ELECT. INSULATING
			AR		20	1006757-1	WIRE, NICKEL RIBBON-.010x.020
			AR		19	1006776-22	SLEEVING, ELECT-INSULATING
			AR		18	1006776-21	SLEEVING, ELECT-INSULATING
			AR		17	1006787-2	WIRE, FEED THRU-#24 AWG
			28		16	1006775	INSULATOR WRAPOST-MALE MINAT
			28		15	1006782-5	CONTACT BLADE EDGE CONN.
			1		14	1010372-18	SEMICONDUCTOR DEVICE, DIODE
			4		13	1010397-1	TRANSISTOR
			1		12	1006755-79	CAPACITOR, FIXED
			4		11	1006755-65	CAPACITOR, FIXED
			1		10	1006760-50	
			4		9	1006750-67	
			8		8	1010364-769	
			2		7	1010374-20	
			4		6	1010364-739	RESISTOR FIXED
			4		5	MS35216-3	SCREW 1/4 #2-56NC
			1		4	1015132	WAFER BOARD, LOWER
			1		3	1015133	WAFER BOARD, UPPER
			3		2	1015118	SHIELD
			1		1	1015115	FRAME, MODULE
			.011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS ±.02 ±.005
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

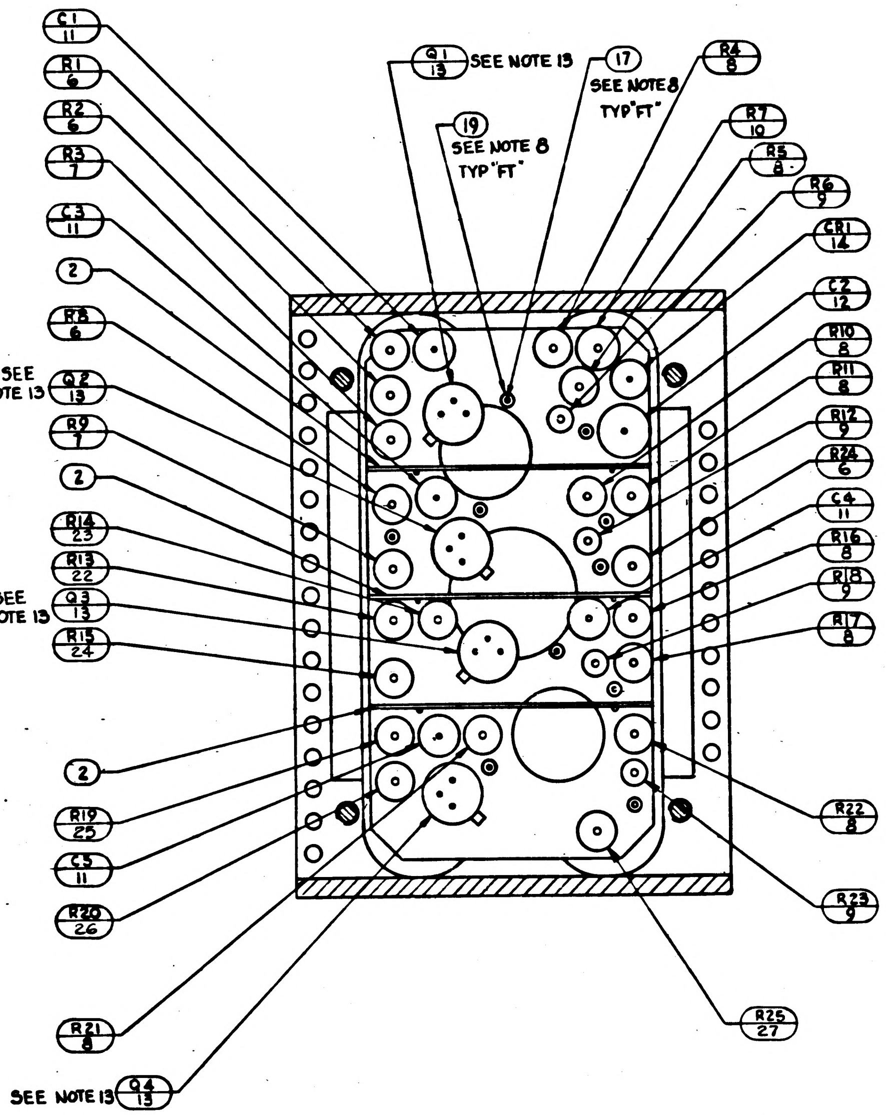
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN Orgel DATE 24 SEP 64
CHECKED 29 SEP 64
APPROVAL
APPROVAL 10/19/64
NASA APPROVAL 10-20-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SERVO MOTOR DRIVE PREAMPLIFIER
MODULE ASSEMBLY

CODE IDENT NO.
SIZE E
1007486
SCALE 4:1
SHEET 1 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 15147		20DEC64	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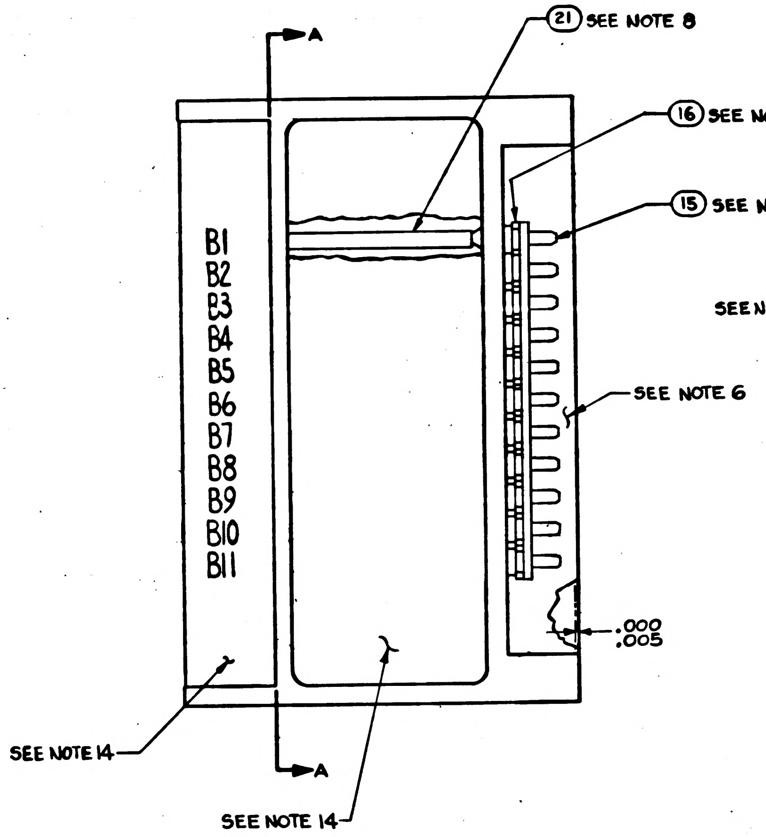
R1 6
R2 6
R3 7
C3 11
2
R8 6
SEE NOTE 13
Q2 13
R9 7
2
R14 23
R13 22
SEE NOTE 13
Q3 13
R15 24
2
R19 25
C5 11
R20 26
R21 8
SEE NOTE 13
Q4 13
Q1 13
SEE NOTE 13
17
SEE NOTE 8
TYP "FT"
19
SEE NOTE 8
TYP "FT"
R4 8
R7 10
R5 8
R6 9
CR1 14
C2 12
R10 8
R11 8
R12 9
R24 6
C4 11
R16 8
R18 9
R17 8
R22 8
R23 9
R25 27

SECTION A-A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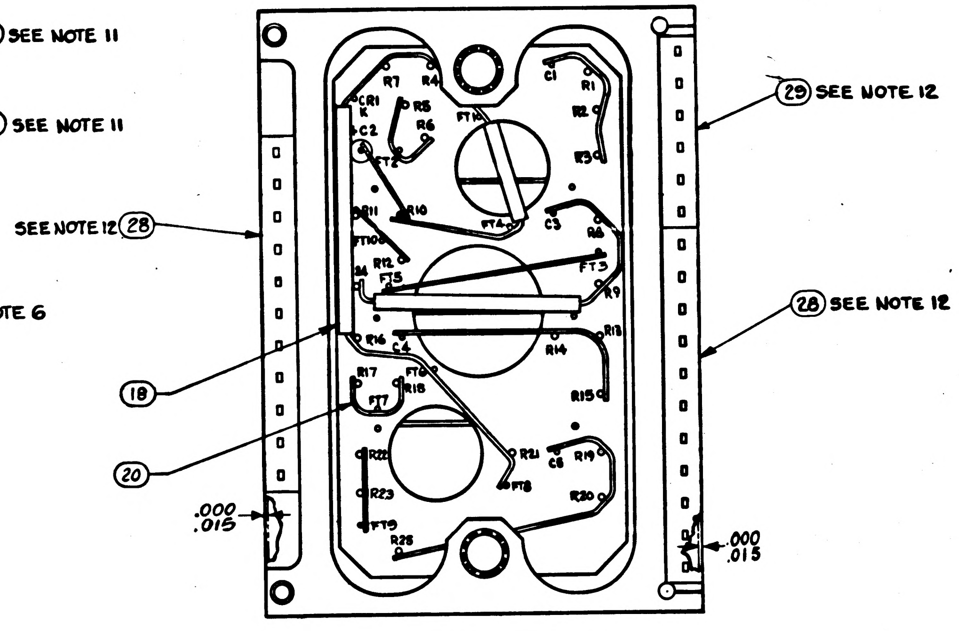
A
21 SEE NOTE 8
16 SEE NOTE 11
15 SEE NOTE 11
SEE NOTE 6
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
.000
.005
SEE NOTE 14
SEE NOTE 14


29 SEE NOTE 12
SEE NOTE 12 28
28 SEE NOTE 12
18
20
.000
.015
.000
.015
R7
R4
C1
R1
CR1
R5
R6
FT11
R2
C2
FT2
R3
R11
R10
FT4
C3
R8
FT10
R12
FT3
R9
FT5
R16
C4
R13
R14
R17
FT6
R18
FT7
R15
R22
R21
C5
R19
FT8
R23
R20
FT9
R25

VIEW A-A
ROTATED 90° CW.
SHEET 1
ZONE H-5

1007486 A

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
+ —	+ —	+ —
- —	- —	- —

DO NOT SCALE THIS DRAWING

MATERIAL —

CONTRACT NAS 9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN

ACSP PN

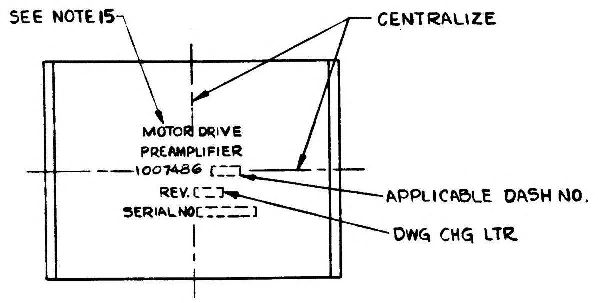
DRAWN Oegel 29 SEP '64 DATE
CHECKED 29 SEP 64
APPROVAL
APPROVAL 10/19/64
NASA APPROVAL 10-20-64
MIT APPROVAL 10/20/64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

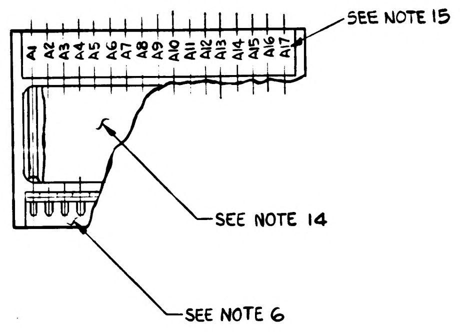
SERVO
MOTOR DRIVE PREAMPLIFIER
MODULE ASSEMBLY

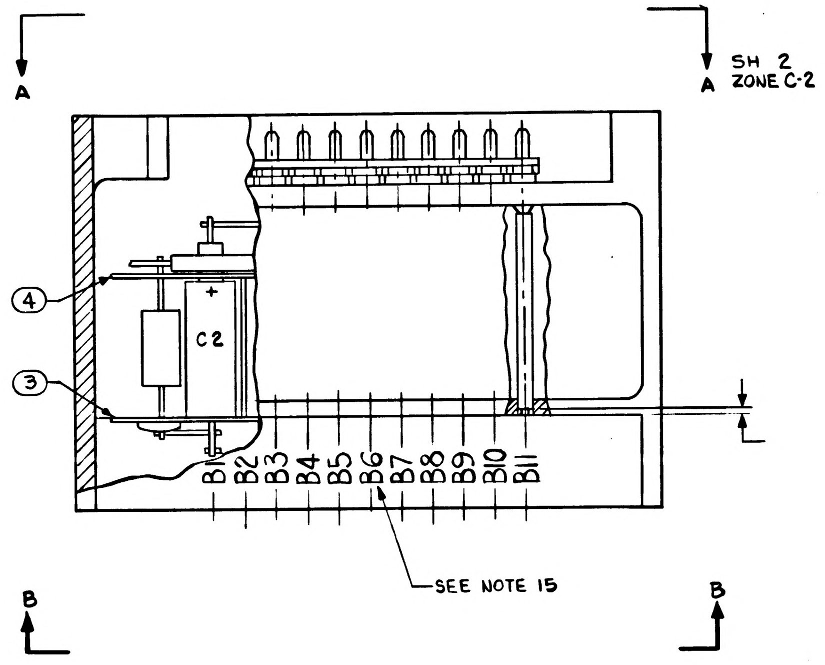
CODE IDENT NO.
SIZE E
1007486
SCALE 4:1
SHEET 2 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 15147		3-DE-64	
B		REVISED PER TDRR 16982	—	5-MAR-65	

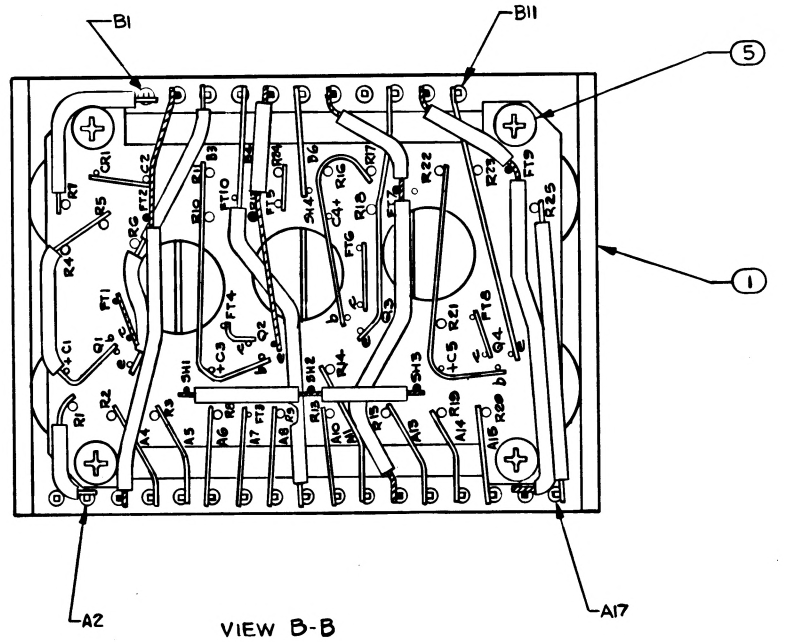

SEE NOTE 15
CENTRALIZE
MOTOR DRIVE
PREAMPLIFIER
1007486 [ ]
REV. [ ]
SERIAL NO [ ]
APPLICABLE DASH NO.
DWG CHG LTR

VIEW B-B
SCALE 2:1


A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17
SEE NOTE 15
SEE NOTE 14
SEE NOTE 6


A
A
SH 2
ZONE C-2
4
3
C2
B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11
SEE NOTE 15
B
B

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED: COMPONENTS TO BE CENTRALIZED BETWEEN ITEMS 3 & 4.
3. PROCURE -011 CONFIGURATION PER PS 1007486 AND -021 TO PS 1015149.
4. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005.
5. UNLESS OTHERWISE SPECIFIED: WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
6. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
7. ON ITEMS 3 AND 4:
   BROKEN PATHS INDICATE INSULATION SLEEVING
   K INDICATES CATHODE SIDE OF DIODE
   FT( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR
   c - INDICATES COLLECTOR LEAD OF TRANSISTOR
   b - INDICATES BASE LEAD OF TRANSISTOR
   e - INDICATES EMITTER LEAD OF TRANSISTOR
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
11. ASSEMBLE PER ND1002136.
12. BOND ITEMS 28 AND 29 TO ITEM 16 PER ND1002237
13. BOND ITEMS 13 TO ITEM 3 PER ND1002004 TYPE I.
14. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
15. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023, CENTRALIZE AS SHOWN.


B1
B11
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A2
A17
C2
R7
R5
R4
R1
R2
C1
Q1
FT1
R10
R11
FT10
FT4
C3
Q2
R16
R18
R21
R22
R23
R24
R25
FT9
FT8
C5
Q4
SH1
SH2
SH3
SH4
A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16
R15
R19
R20

VIEW B-B

			☒		REF	1009533	SCHEMATIC ELECTRICAL
		☒			REF	1015150	SCHEMATIC, ELECTRICAL
		1	1		29	1008540-6	GASKET, CONNECTOR-MINAT
		2	2		28	1008540-11	GASKET, CONNECTOR-MINAT
		–	1		27	↑ -683	↑
		–	1		26	-687	
		–	1		25	-533	
		–	1		24	-673	
		–	1		23	-727	
		–	1		22	1010364-513	RESISTOR, FIXED
		AR	AR		21	1006776-20	SLEEVING, ELECT. INSULATING
		AR	AR		20	1006757-1	WIRE, NICKEL RIBBON-.010 x .020
		AR	AR		19	1006776-22	SLEEVING, ELECT-INSULATING
		AR	AR		18	1006776-21	SLEEVING, ELECT-INSULATING
		AR	AR		17	1006787-2	WIRE, FEED THRU - #24 AWG
		28	28		16	1006775	INSULATOR WRAPOST-MAL - MINAT
		28	28		15	1006782-5	CONTACT BLADE EDGE CONN.
		1	1		14	1010372-18	SEMICONDUCTOR DEVICE, DIODE
		4	4		13	1010397-1	TRANSISTOR
		1	1		12	1006755-79	CAPACITOR, FIXED
		4	4		11	1006755-65	CAPACITOR, FIXED
		1	1		10	1006760-50	↑
		4	4		9	1006750-67	
		8	8		8	1010364-769	
		4	2		7	1010374-20	
		8	4		6	1010364-739	RESISTOR, FIXED
		4	4		5	MS35216-3	SCREW 1/4 #2-56NC
		1	1		4	1015132	WAFER BOARD, LOWER
		1	1		3	1015133	WAFER BOARD UPPER
		3	3		2	1015118	SHIELD
		1	1		1	1015115	FRAME, MODULE
		021	011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

1007459		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
+ –	±.02	+ –
– –	±.005	– –

DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

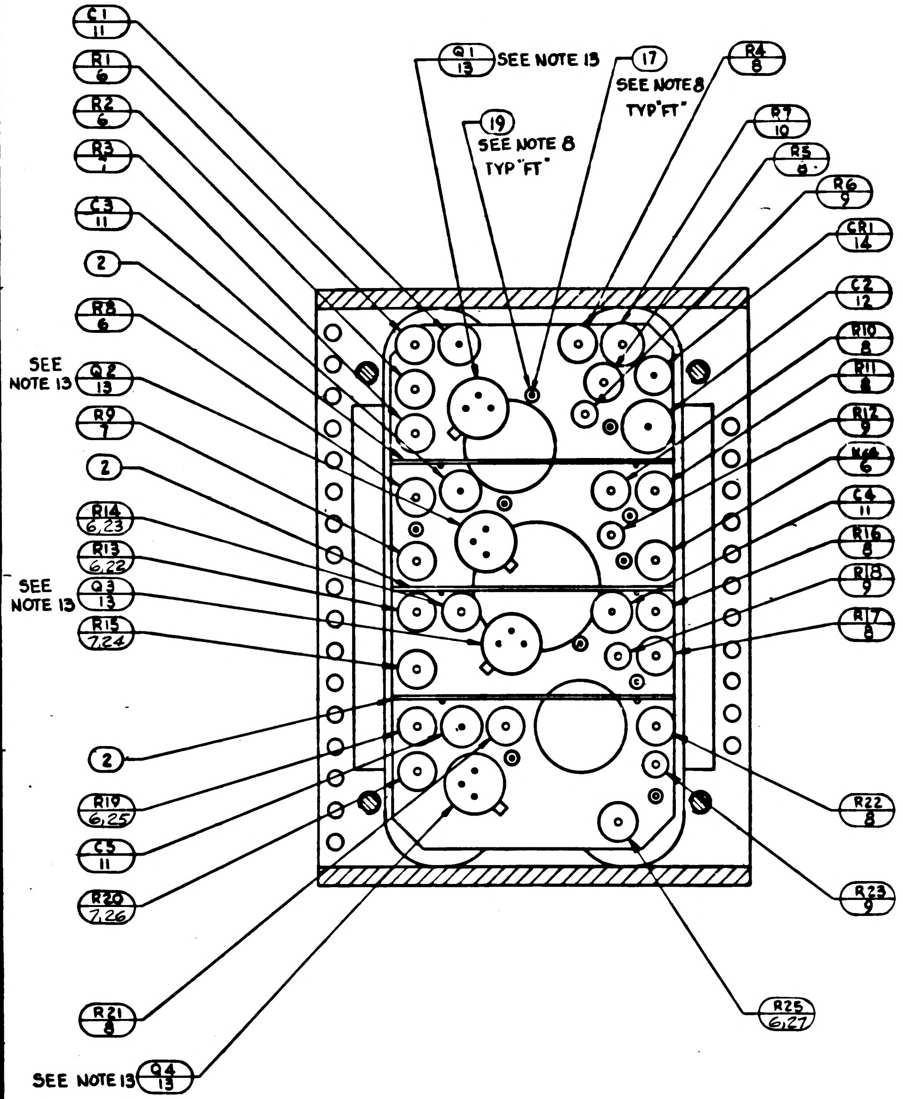
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN Orgel DATE 24 SEP 64
CHECKED W. Ososvich 29 SEP 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SERVO MOTOR DRIVE PREAMPLIFIER
MODULE ASSEMBLY

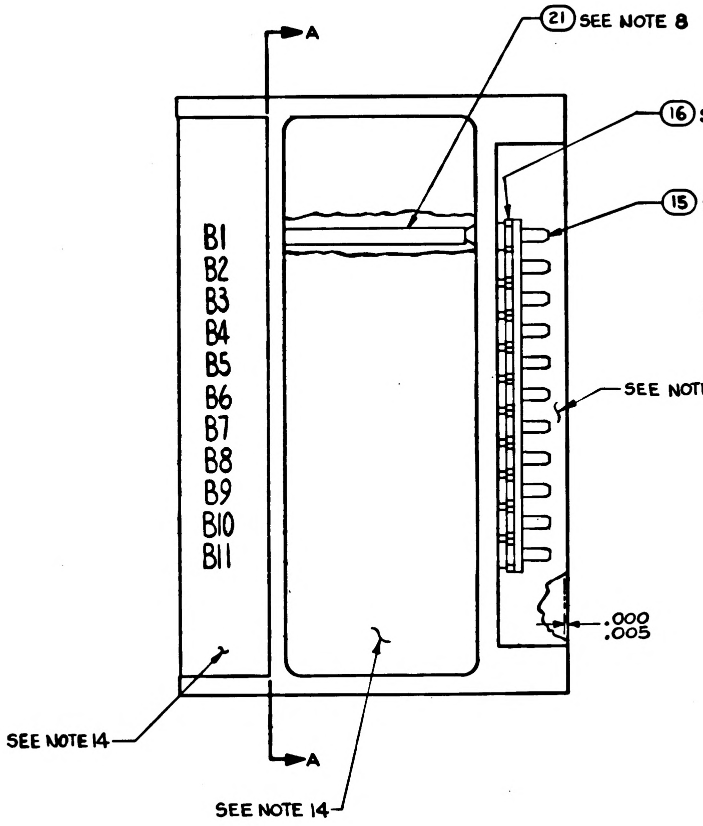
CODE IDENT NO
SIZE E
1007486
SCALE 4:1
SHEET 1 OF 2

REVISIONS 364					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD.
A		REVISED PER TDRR 15147		30 DEC 64	
B		REVISED PER TDRR 16982			



C1 11
R1 6
R2 6
R3 7
C3 11
2
R8 6
SEE NOTE 13
Q2 13
R9 7
2
R14 6,23
R13 6,22
SEE NOTE 13
Q3 13
R15 7,24
2
R19 6,25
C5 11
R20 7,26
R21 8
SEE NOTE 13
Q4 13
Q1 13
SEE NOTE 13
17
SEE NOTE 8
TYP "FT"
19
SEE NOTE 8
TYP "FT"
R4 8
R7 10
R5 8
R6 9
CR1 14
C2 12
R10 8
R11 8
R12 9
R16 6
C4 11
R16 8
R18 9
R17 8
R22 8
R23 9
R25 6,27

SECTION A-A



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A
21
SEE NOTE 8
16
SEE NOTE 11
15
SEE NOTE 11
B1
B2
B3
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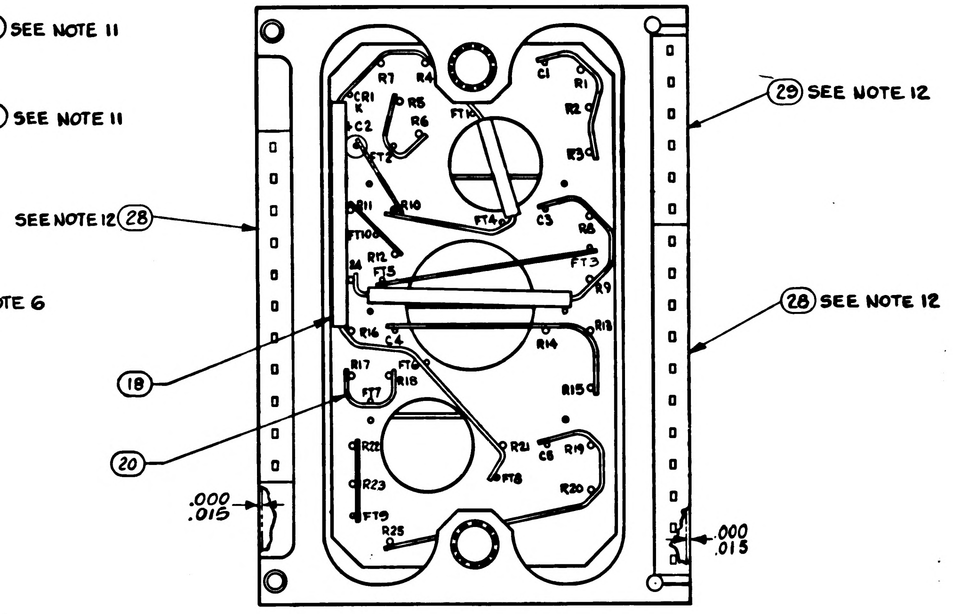
B8
B9
B10
B11
SEE NOTE 6
.000
.005
SEE NOTE 14
SEE NOTE 14



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SEE NOTE 12
SEE NOTE 12
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SEE NOTE 12
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.000
.015
.000
.015
R7
R4
CR1
K
R5
R6
C2
FT2
FT1
C1
R1
R2
R3
R11
R10
FT10
FT4
C3
R8
R12
24
FT5
FT3
R9
R16
C4
R14
R13
R17
FT6
R18
FT7
R15
R22
R21
C5
R19
R23
FT8
R20
FT9
R25

VIEW A-A
ROTATED 90° CW.
SHEET 1
ZONE H-5

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION GMC
MILWAUKEE WISCONSIN
ACSP PN
DRAWN Oegel DATE 29 SEP '64
CHECKED 29 SEP 64
APPROVAL
APPROVAL
NASA APPROVAL 10-20-64
MIT APPROVAL

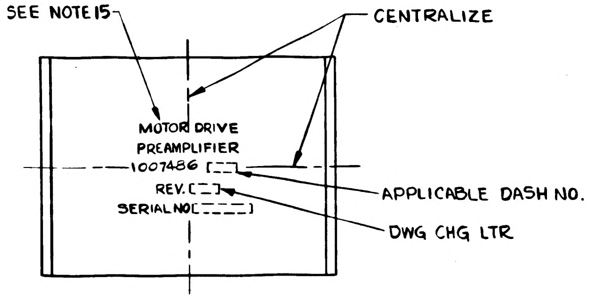
MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

SERVO
MOTOR DRIVE PREAMPLIFIER
MODULE ASSEMBLY

CODE IDENT NO.
SIZE E
1007486
SCALE 4:1
SHEET 2 OF 2

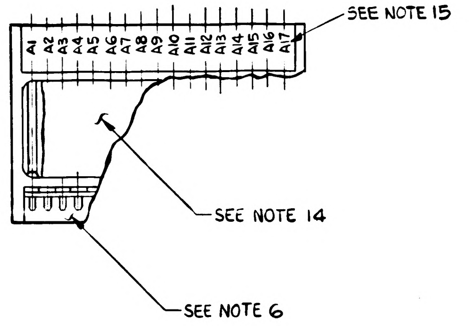
1007486 B

SYM	ZONE	REVISIONS DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 15147		3 DEC 64	WK
B		REVISED PER TDRR 16982	—	8-MAR-65	DAS
C		REVISED PER TDRR 19423		1 JUNE 65	JRD

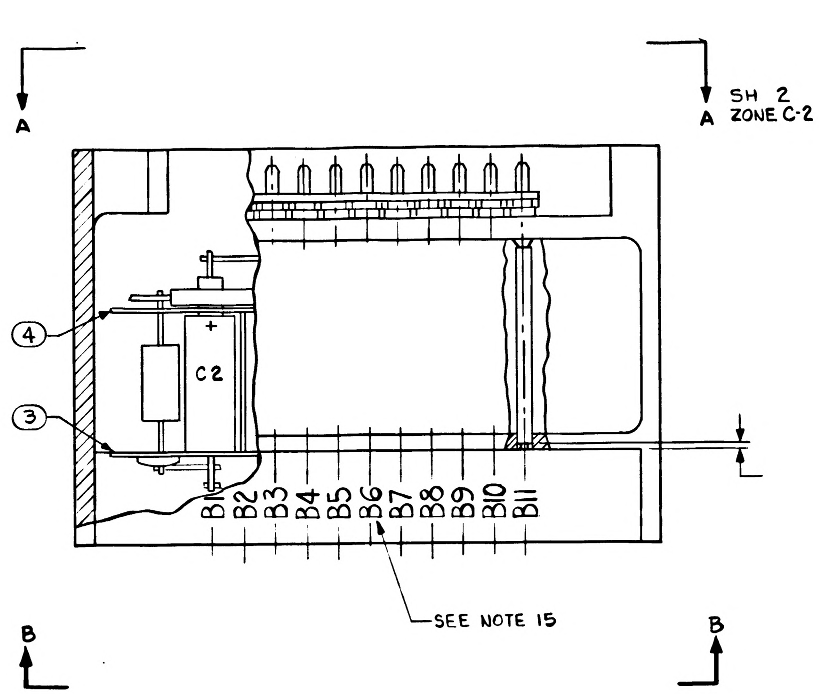


SEE NOTE 15
CENTRALIZE
MOTOR DRIVE
PREAMPLIFIER
1007486 [ ]
REV. [ ]
SERIAL NO. [ ]
APPLICABLE DASH NO.
DWG CHG LTR

VIEW B-B
SCALE 2:1

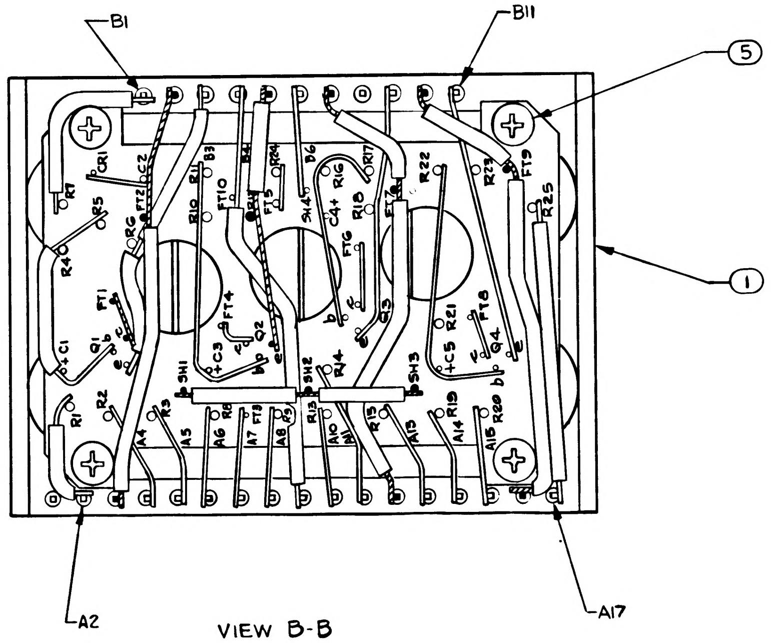


SEE NOTE 15
A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17
SEE NOTE 14
SEE NOTE 6



A
SH 2
A ZONE C-2
4
3
C2
B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11
SEE NOTE 15
B
B

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED: COMPONENTS TO BE CENTRALIZED BETWEEN ITEMS 3 & 4.
3. PROCURE -011 CONFIGURATION PER PS 1007486 AND -021 TO PS 1015149.
4. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005.
5. UNLESS OTHERWISE SPECIFIED: WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
6. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
7. ON ITEMS 3 AND 4:
   - BROKEN PATHS INDICATE INSULATION SLEEVING
   - K INDICATES CATHODE SIDE OF DIODE
   - FT( ) INDICATES FEED THRU
   - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
   - c - INDICATES COLLECTOR LEAD OF TRANSISTOR
   - b - INDICATES BASE LEAD OF TRANSISTOR
   - e - INDICATES EMITTER LEAD OF TRANSISTOR
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
11. ASSEMBLE PER ND1002136.
12. BOND ITEMS 28 AND 29 TO ITEM 16 PER ND1002237
13. BOND ITEMS 13 TO ITEM 3 PER ND1002004 TYPE I.
14. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
15. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023, CENTRALIZE AS SHOWN.
16. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ±.03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.



B1
B11
5
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A2
A17
R1 CR1 R5 FT2 C2 R10 R11 B3 R16 R24 D6 R17 R22 R27 FT9 R25
R40 FT1 R6 FT3 FT4 Q2 FT6 C4 R18 Q3 R21 FT8 Q4
C1 Q1 R2 R3 SH1 C3 SH2 R14 SH3 C5 R19 R20
A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16

VIEW B-B

		021	011	EFFECTIVITY	ITEM NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			☒		REF	1009533	SCHEMATIC, ELECTRICAL
		☒			REF	1015150	SCHEMATIC, ELECTRICAL
		1	1		29	1008540-6	GASKET, CONNECTOR-MINAT
		2	2		28	1008540-11	GASKET, CONNECTOR-MINAT
		–	1		27	↑ -683	↑
		–	1		26	-687	
		–	1		25	-533	
		–	1		24	-673	
		–	1		23	-727	
		–	1		22	1010364-513	RESISTOR, FIXED
		AR	AR		21	1006776-20	SLEEVING, ELECT. INSULATING
		AR	AR		20	1006757-1	WIRE, NICKEL RIBBON-.010×.020
		AR	AR		19	1006776-22	SLEEVING, ELECT-INSULATING
		AR	AR		18	1006776-21	SLEEVING, ELECT-INSULATING
		AR	AR		17	1006787-2	WIRE, FEED THRU #24 AWG
		28	28		16	1006775	INSULATOR, WRAPOST-MALE MINAT
		28	28		15	1006782-5	CONTACT, BLADE EDGE CONN.
		1	1		14	1010372-18	SEMICONDUCTOR DEVICE, DIODE
		4	4		13	1010397-1	TRANSISTOR
		1	1		12	1006755-79	CAPACITOR, FIXED
		4	4		11	1006755-65	CAPACITOR, FIXED
		1	1		10	1006760-50	↑
		4	4		9	1006750-67	
		8	8		8	1010364-769	
		4	2		7	1010374-20	
		8	4		6	1010364-739	RESISTOR, FIXED
		4	4		5	MS35216-3	SCREW 1/4 #2-56NC
		1	1		4	1015132	WAFER BOARD, LOWER
		1	1		3	1015133	WAFER BOARD, UPPER
		3	3		2	1015118	SHIELD
		1	1		1	1015115	FRAME, MODULE

QUANTITY REQUIRED
LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + – – –
DECIMALS ±.02 ±.005
ANGLES + – – –
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN Orsel 24 SEP 64 DATE
CHECKED 29 SEP 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

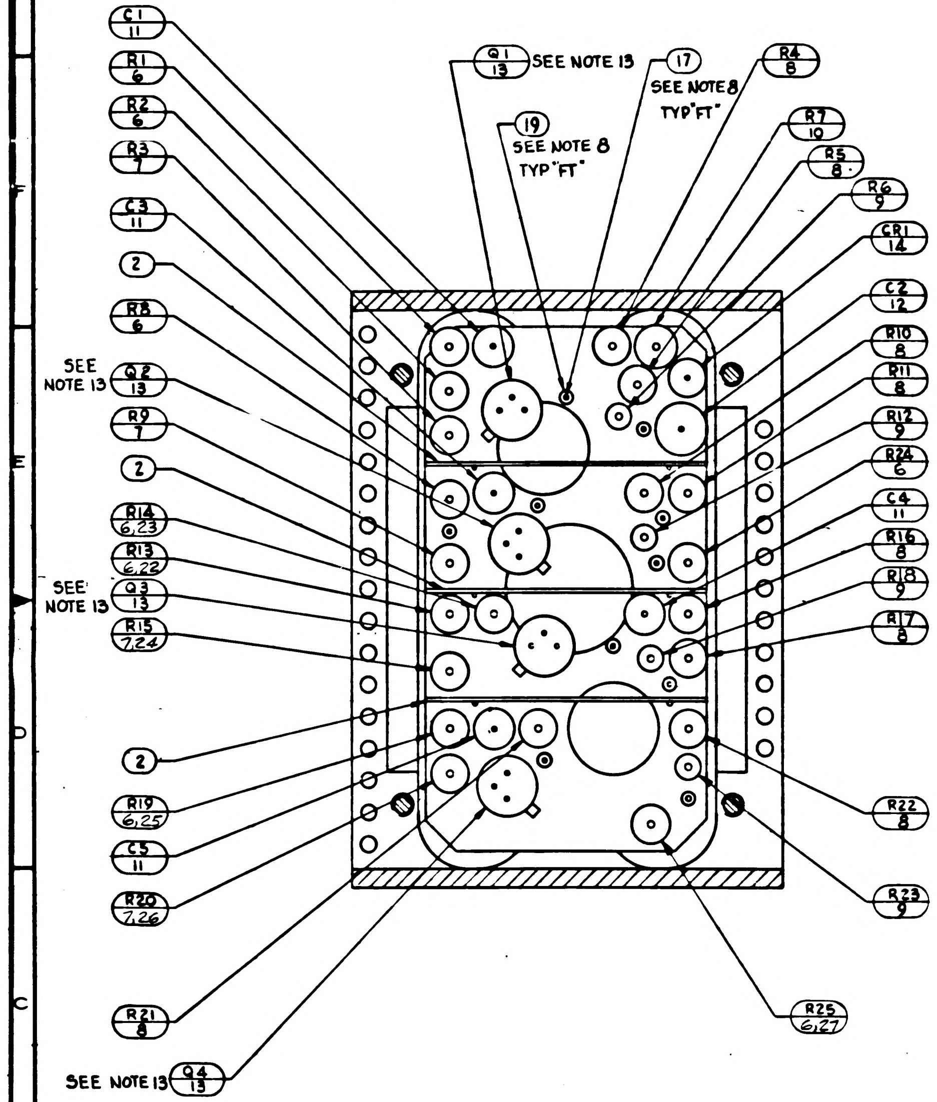
MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

SERVO MOTOR DRIVE PREAMPLIFIER
MODULE ASSEMBLY

CODE IDENT NO 80230
SIZE E
1007486
SCALE 4:1
SHEET 1 OF 2

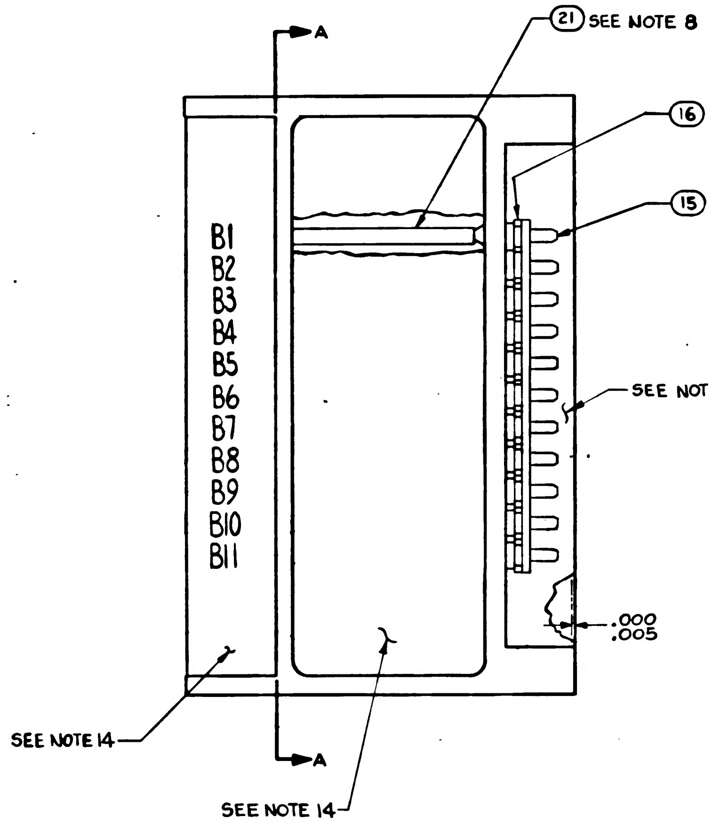
1007486 C

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 15147		30 DEC 64	WK
B		REVISED PER TDRR 16982		8 MAR 65	DAS
C		REVISED PER TDRR 19423		1 JUNE 65	JR

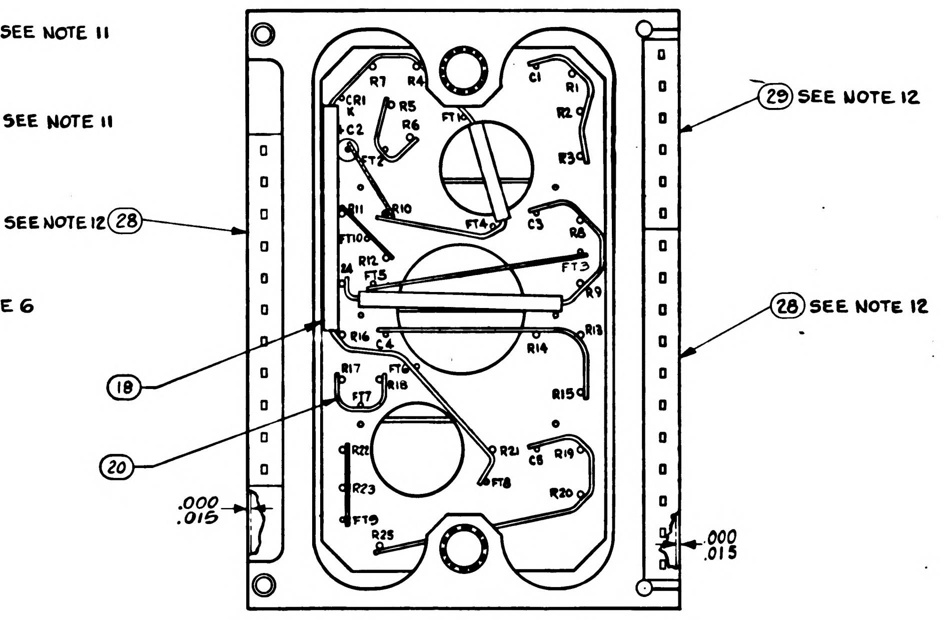


C1 11
R1 6
R2 6
R3 7
C3 11
2
R8 6
SEE NOTE 13 Q2 13
R9 7
2
R14 6,23
R13 6,22
SEE NOTE 13 Q3 13
R15 7,24
2
R19 6,25
C5 11
R20 7,26
R21 8
SEE NOTE 13 Q4 13
Q1 13 SEE NOTE 13
17 SEE NOTE 8 TYP "FT"
19 SEE NOTE 8 TYP "FT"
R4 8
R7 10
R5 8
R6 9
CR1 14
C2 12
R10 8
R11 8
R12 9
R24 6
C4 11
R16 8
R18 9
R17 8
R22 8
R23 9
R25 6,27

SECTION A-A



A
A
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
21 SEE NOTE 8
16 SEE NOTE 11
15 SEE NOTE 11
SEE NOTE 6
.000
.005
SEE NOTE 14
SEE NOTE 14



SEE NOTE 12 28
29 SEE NOTE 12
28 SEE NOTE 12
18
20
.000
.015
.000
.015
CR1
K
C2
R7
R4
R5
R6
FT1
FT2
C1
R1
R2
R3
R11
R10
FT10
R12
24
FT5
FT4
C3
R8
FT3
R9
R16
C4
R14
R13
R17
FT6
R18
FT7
R15
R22
R23
FT9
R25
R21
FT8
C5
R19
R20

VIEW A-A
ROTATED 90° C.W.
SHEET 1
ZONE H-5

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN Ozgel DATE 24 SEP '64
CHECKED A Vdomch 29 SEP 64
NASA APPROVAL 10-24-64
MIT APPROVAL 10/29/64

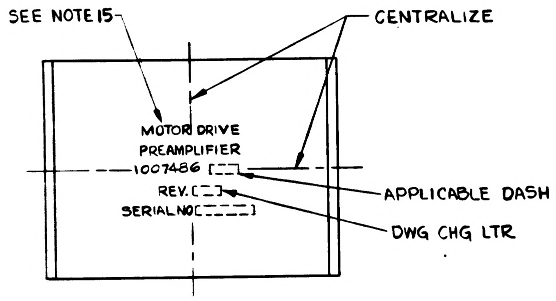
MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

SERVO
MOTOR DRIVE PREAMPLIFIER
MODULE ASSEMBLY

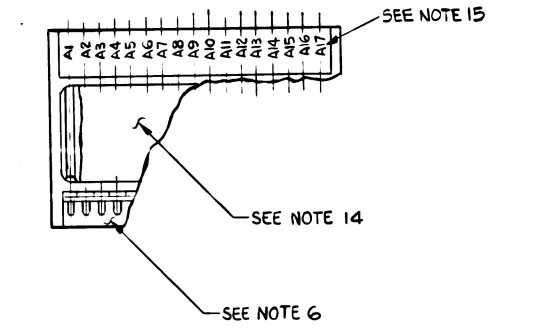
CODE IDENT NO 80230
SIZE E
1007486
SCALE 4:1
SHEET 2 OF 2

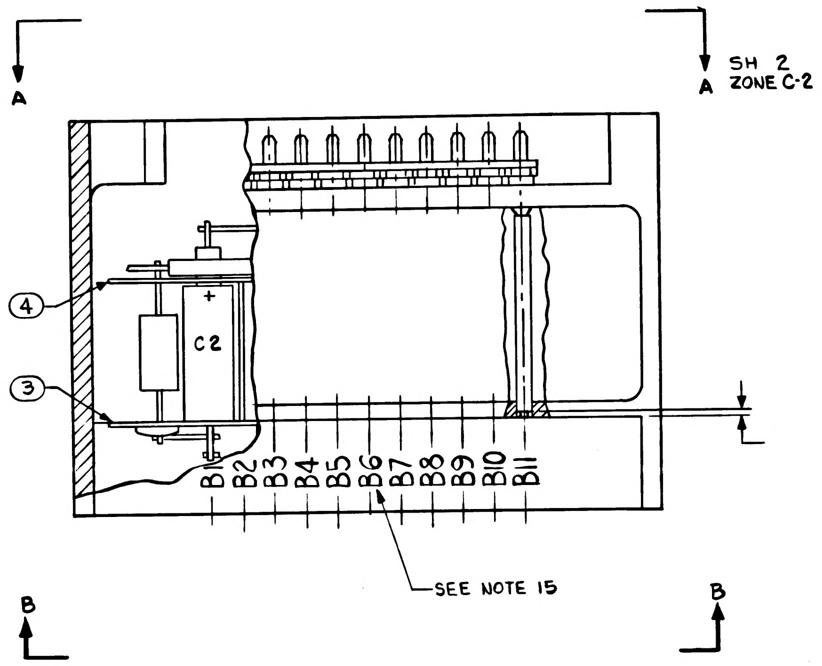
1007486 C

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 15147		3 DEC 64	
B		REVISED PER TDRR 16982	—	5 MAR 65	
C		REVISED PER TDRR 9423		1 JUNE 65	JRD
D		REVISED PER TDRR 19540		65	

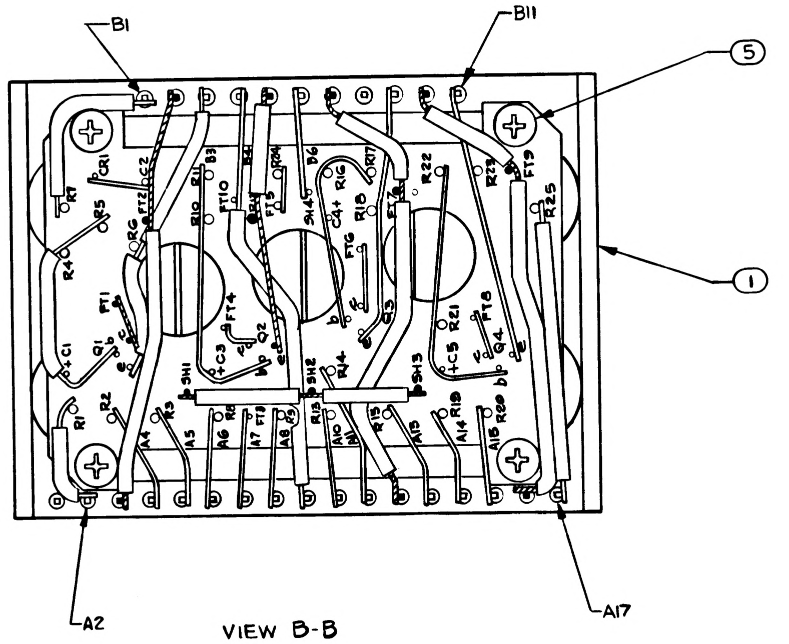

SEE NOTE 15
CENTRALIZE
MOTOR DRIVE
PREAMPLIFIER
1007486 [ ]
REV. [ ]
SERIAL NO. [ ]
APPLICABLE DASH NO.
DWG CHG LTR

VIEW B-B
SCALE 2:1


A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17
SEE NOTE 15
SEE NOTE 14
SEE NOTE 6


A
A
SH 2
ZONE C-2
4
3
C2
+
B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11
SEE NOTE 15
B
B

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED: COMPONENTS TO BE CENTRALIZED BETWEEN ITEMS 3 & 4.
3. PROCURE -011 CONFIGURATION PER PS 1007486 AND -021 TO PS 1015149.
4. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005.
5. UNLESS OTHERWISE SPECIFIED: WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
6. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
7. ON ITEMS 3 AND 4:
   - BROKEN PATHS INDICATE INSULATION SLEEVING
   - K INDICATES CATHODE SIDE OF DIODE
   - FT( ) INDICATES FEED THRU
   - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
   - c - INDICATES COLLECTOR LEAD OF TRANSISTOR
   - b - INDICATES BASE LEAD OF TRANSISTOR
   - e - INDICATES EMITTER LEAD OF TRANSISTOR
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
11. ASSEMBLE PER ND1002136.
12. BOND ITEMS 28 AND 29 TO ITEM 16 PER ND1002237
13. BOND ITEMS 13 TO ITEM 3 PER ND1002004 TYPE I.
14. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
15. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023, CENTRALIZE AS SHOWN.
16. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ±.03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.


B1
B11
5
1
A2
A17
R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14 R15 R16 R17 R18 R19 R20 R21 R22 R23 R24 R25
C1 C2 C3 C4 C5
Q1 Q2 Q3 Q4
CR1
SH1 SH2 SH3
FT1 FT4 FT9 FT10 FT16 FT18 FT19
A4 A5 A6 A7 A8 A9 A10 A11 A14 A15 A16
B3 B6

VIEW B-B

		021	.011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
					REF	1009533	SCHEMATIC, ELECTRICAL
					REF	1015150	SCHEMATIC, ELECTRICAL
		1	1		29	1008540-6	GASKET, CONNECTOR-MINIAT
		2	2		28	1008540-11	GASKET, CONNECTOR-MINIAT
		–	1		27	-683	
		–	1		26	-687	
		–	1		25	-533	
		–	1		24	-673	
		–	1		23	-727	
		–	1		22	1010364-513	RESISTOR, FIXED
		AR	AR		21	1006776-20	SLEEVING, ELECT. INSULATING
		AR	AR		20	1006757-1	WIRE, NICKEL RIBBON-.010 x .020
		AR	AR		19	1006776-22	SLEEVING, ELECT-INSULATING
		AR	AR		18	1006776-21	SLEEVING, ELECT-INSULATING
		AR	AR		17	1006787-2	WIRE, FEED THRU - #24 AWG
		28	28		16	1006775	INSULATOR WRAPOST-MALE MINIAT
		28	28		15	1006782-5	CONTACT, BLADE EDGE CONN.
		1	1		14	1010372-18	SEMICONDUCTOR DEVICE, DIODE
		4	4		13	1010397-1	TRANSISTOR
		1	1		12	1006755-79	CAPACITOR, FIXED
		4	4		11	1006755-65	CAPACITOR, FIXED
		1	1		10	1006760-50	
		4	4		9	1006750-67	
		8	8		8	1010364-769	
		4	2		7	1010374-20	
		8	4		6	1010364-739	RESISTOR, FIXED
		4	4		5	MS35216-3	SCREW 1/4 #2-56NC
		1	1		4	1015132	WAFER BOARD, LOWER
		1	1		3	1015133	WAFER BOARD, UPPER
		3	3		2	1015118	SHIELD
		1	1		1	1015115	FRAME, MODULE

QUANTITY REQUIRED
LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + – – –
DECIMALS ±.02 ±.005
ANGLES + – – –
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN Orzel 24 SEP 64 DATE
CHECKED Udovich 29 SEP 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

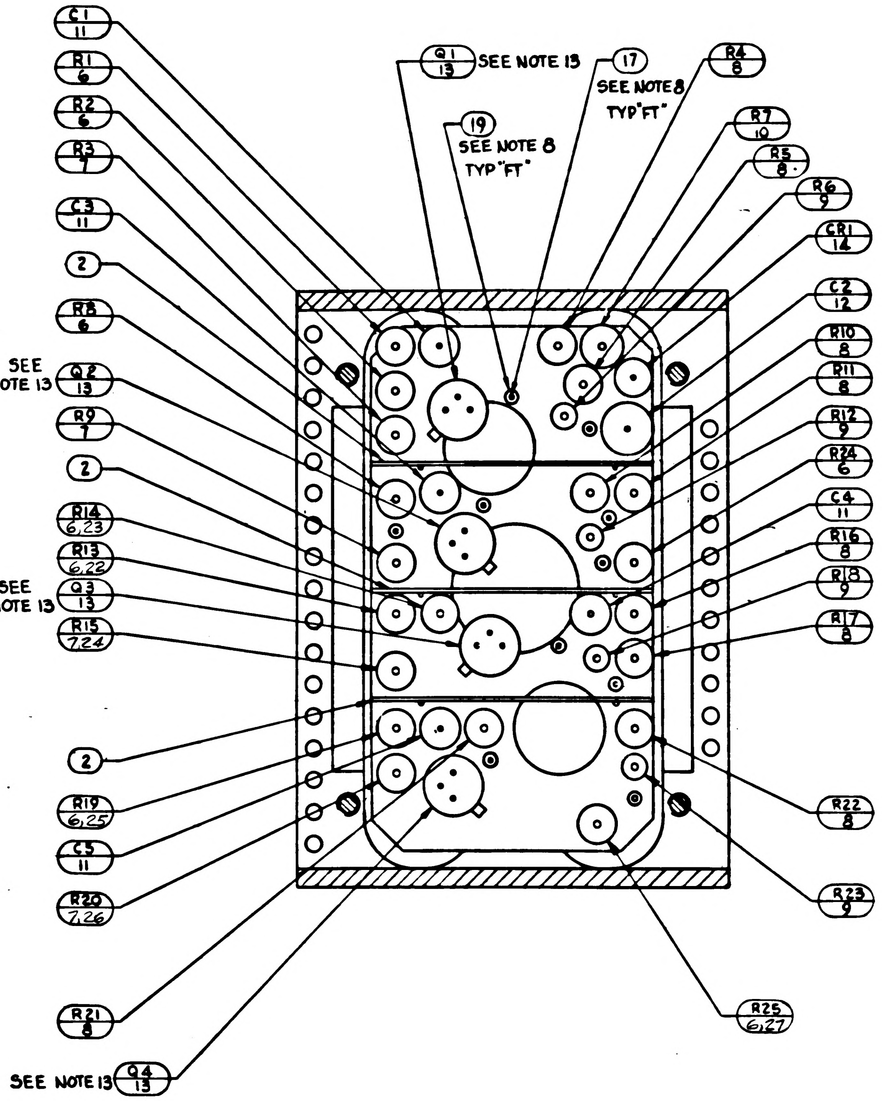
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

SERVO MOTOR DRIVE PREAMPLIFIER
MODULE ASSEMBLY

CODE IDENT NO 80230
SIZE E
1007486
SCALE 4:1
SHEET 1 OF 2

MIL 1077E-P

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 15147		30 DEC 64	
B		REVISED PER TDRR 16982		8 MAR 65	
C		REVISED PER TDRR 19423			
D		REVISION STATUS CHANGED		9 65	



C1 11
R1 6
R2 6
R3 7
C3 11
2
R8 6
SEE NOTE 13 Q2 13
R9 7
2
R14 6,23
R13 6,22
SEE NOTE 13 Q3 13
R15 7,24
2
R19 6,25
C5 11
R20 7,26
R21 8
SEE NOTE 13 Q4 13
Q1 13 SEE NOTE 13
17 SEE NOTE 8 TYP "FT"
19 SEE NOTE 8 TYP "FT"
R4 8
R7 10
R5 8
R6 9
CR1 14
C2 12
R10 8
R11 8
R12 9
R24 6
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R16 8
R18 9
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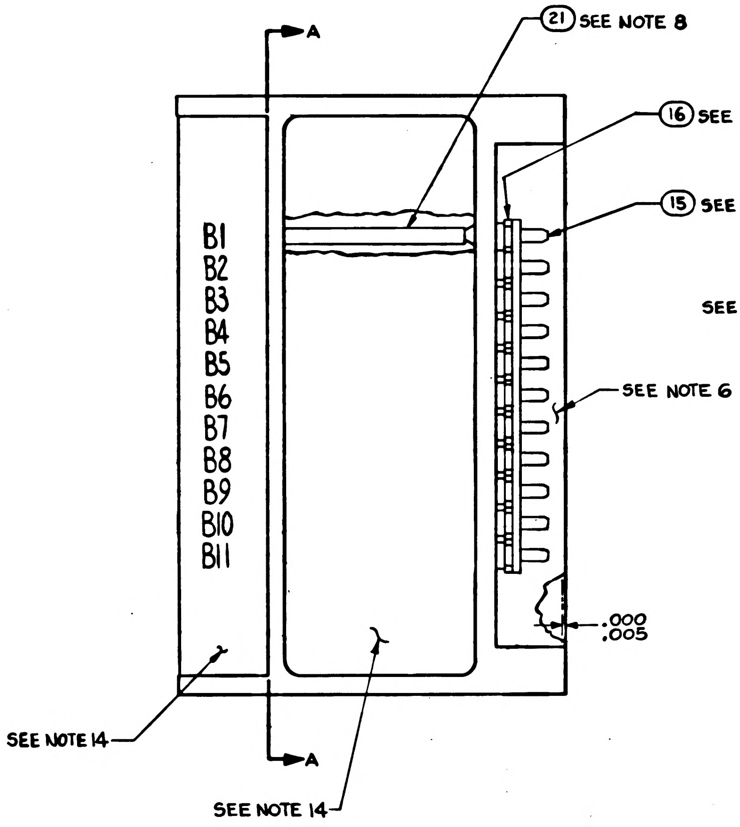
R22 8
R23 9
R25 6,27

SECTION A-A



A
A
21 SEE NOTE 8
16 SEE NOTE 11
15 SEE NOTE 11
B1
B2
B3
B4
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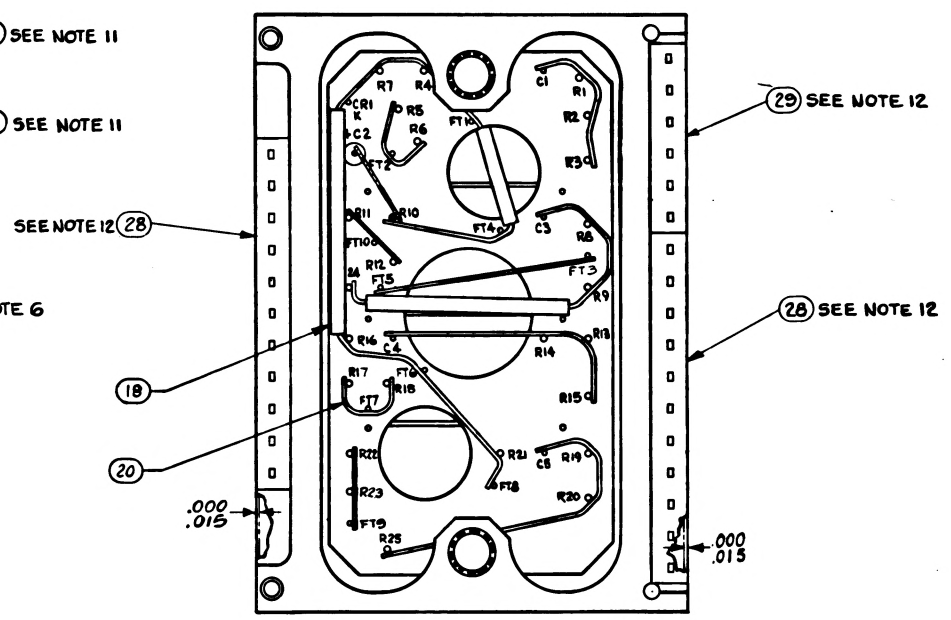
B7
B8
B9
B10
B11
SEE NOTE 6
.000
.005
SEE NOTE 14
SEE NOTE 14

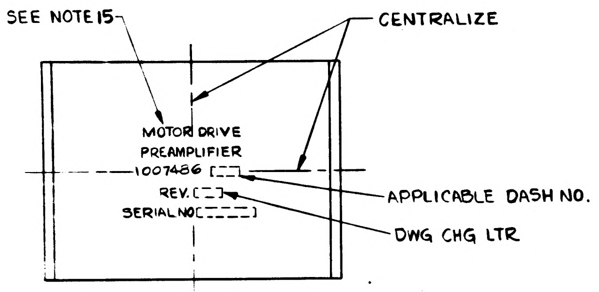


29 SEE NOTE 12
SEE NOTE 12 28
28 SEE NOTE 12
18
20
.000
.015
.000
.015
CR1
C2
R7
R4
R5
R6
FT1
FT2
C1
R1
R2
R3
R11
R10
FT10
FT4
C3
R8
R12
FT5
FT3
R9
R16
C4
R13
R14
R17
FT6
R18
FT7
R15
R22
R21
C5
R19
R23
FT8
R20
FT9
R25

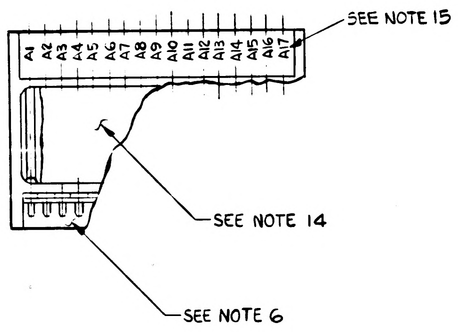
VIEW A-A
ROTATED 90° CW.
SHEET 1
ZONE H-5

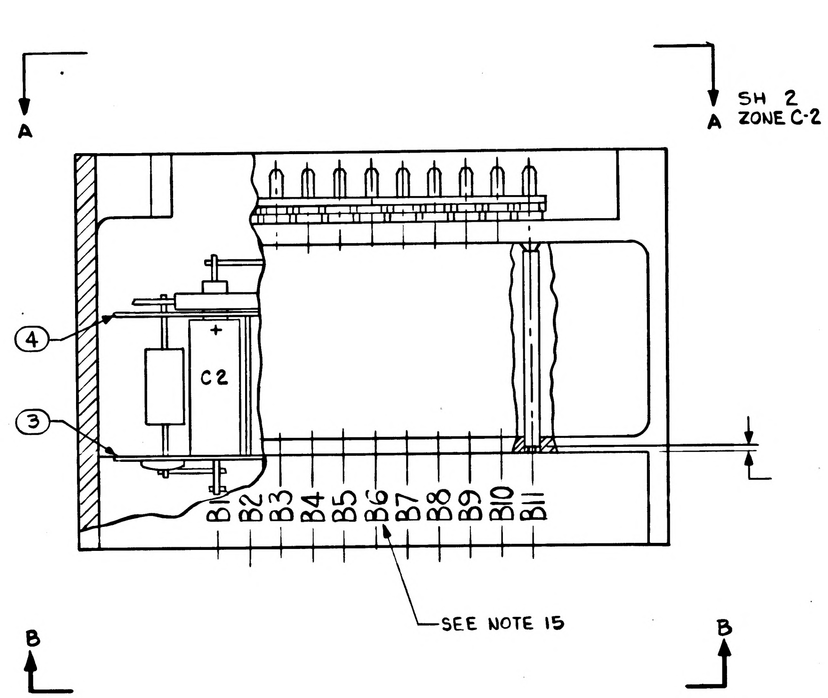
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ±	M I T INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON TEXAS
DO NOT SCALE THIS DRAWING	DRAWN Ozel DATE 29 SEP '64 CHECKED 29 SEP 64 APPROVAL APPROVAL	SERVO MOTOR DRIVE PREAMPLIFIER MODULE ASSEMBLY
MATERIAL —	NASA APPROVAL 10-22-64	CODE IDENT NO. 80230 SIZE E 1007486
CONTRACT NAS 9-497	MIT APPROVAL	SCALE 4:1 SHEET 2 OF 2

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 15147			
B		REVISED PER TDRR 16982		65	
C		REVISED PER TDRR 9423		1 JUNE 65	
D		REVISED PER TDRR 19540			
E		REVISED PER TDRR 20 43		65	

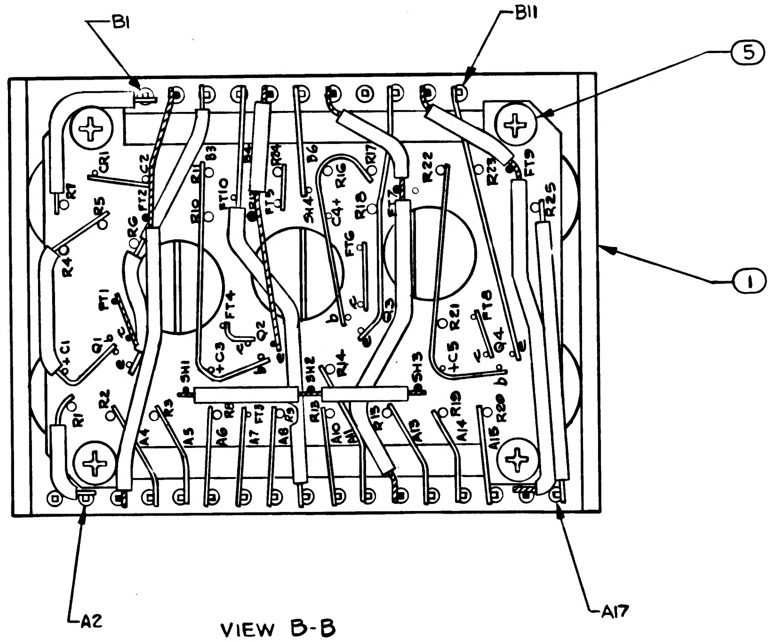


VIEW B-B
SCALE 2:1





1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED: COMPONENTS TO BE CENTRALIZED BETWEEN ITEMS 3 & 4.
3. PROCURE -011 CONFIGURATION PER PS 1007486 AND -021 TO PS 1015149.
4. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005.
5. UNLESS OTHERWISE SPECIFIED: WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
6. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
7. ON ITEMS 3 AND 4:
   - BROKEN PATHS INDICATE INSULATION SLEEVING
   - K INDICATES CATHODE SIDE OF DIODE
   - FT( ) INDICATES FEED THRU
   - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
   - c - INDICATES COLLECTOR LEAD OF TRANSISTOR
   - b - INDICATES BASE LEAD OF TRANSISTOR
   - e - INDICATES EMITTER LEAD OF TRANSISTOR
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
11. ASSEMBLE PER ND1002136.
12. ~~BOND ITEMS 28 AND 29 TO ITEM 16 PER ND1002237~~
13. BOND ITEMS 13 TO ITEM 3 PER ND1002004 TYPE I.
14. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
15. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023, CENTRALIZE AS SHOWN.
16. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ±.03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.



VIEW B-B

		QUANTITY REQUIRED 021	QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			☒		REF	1009533	SCHEMATIC, ELECTRICAL
		☒			REF	1015150	SCHEMATIC, ELECTRICAL
		1	1		29	1008540-6	GASKET, CONNECTOR-MINAT
		2	2		28	1008540-11	GASKET, CONNECTOR-MINAT
		–	1		27	-683	↑
		–	1		26	-687	
		–	1		25	-533	
		–	1		24	-673	
		–	1		23	-727	
		–	1		22	1010364-513	RESISTOR, FIXED
		AR	AR		21	1006776-20	SLEEVING, ELECT. INSULATING
		AR	AR		20	1006757-1	WIRE, NICKEL RIBBON-.010 x .020
		AR	AR		19	1006776-22	SLEEVING, ELECT-INSULATING
		AR	AR		18	1006776-21	SLEEVING, ELECT-INSULATING
		AR	AR		17	1006787-2	WIRE, FEED THRU - #24 AWG
		28	28		16	1006775	INSULATOR WRAPOST-MALE MIN
		28	28		15	1006782-5	CONTACT BLADE EDGE CONN.
		1	1		14	1010372-18	SEMICONDUCTOR DEVICE, DIODE
		4	4		13	1010397-1	TRANSISTOR
		1	1		12	1006755-79	CAPACITOR, FIXED
		4	4		11	1006755-65	CAPACITOR, FIXED
		1	1		10	1006760-50	↑
		4	4		9	1006750-67	
		8	8		8	1010364-769	
		4	2		7	1010374-20	
		8	4		6	1010364-739	RESISTOR, FIXED
		4	4		5	MS35216-3	SCREW 1/4 #2-56NC
		1	1		4	1015132	WAFER BOARD, LOWER
		1	1		3	1015133	WAFER BOARD, UPPER
		3	3		2	1015118	SHIELD
		1	1		1	1015115	FRAME, MODULE

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + – DECIMALS ±.02 ±.005 ANGLES + –
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN Oegal 29 SEP 64
CHECKED Osovich 29 SEP 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

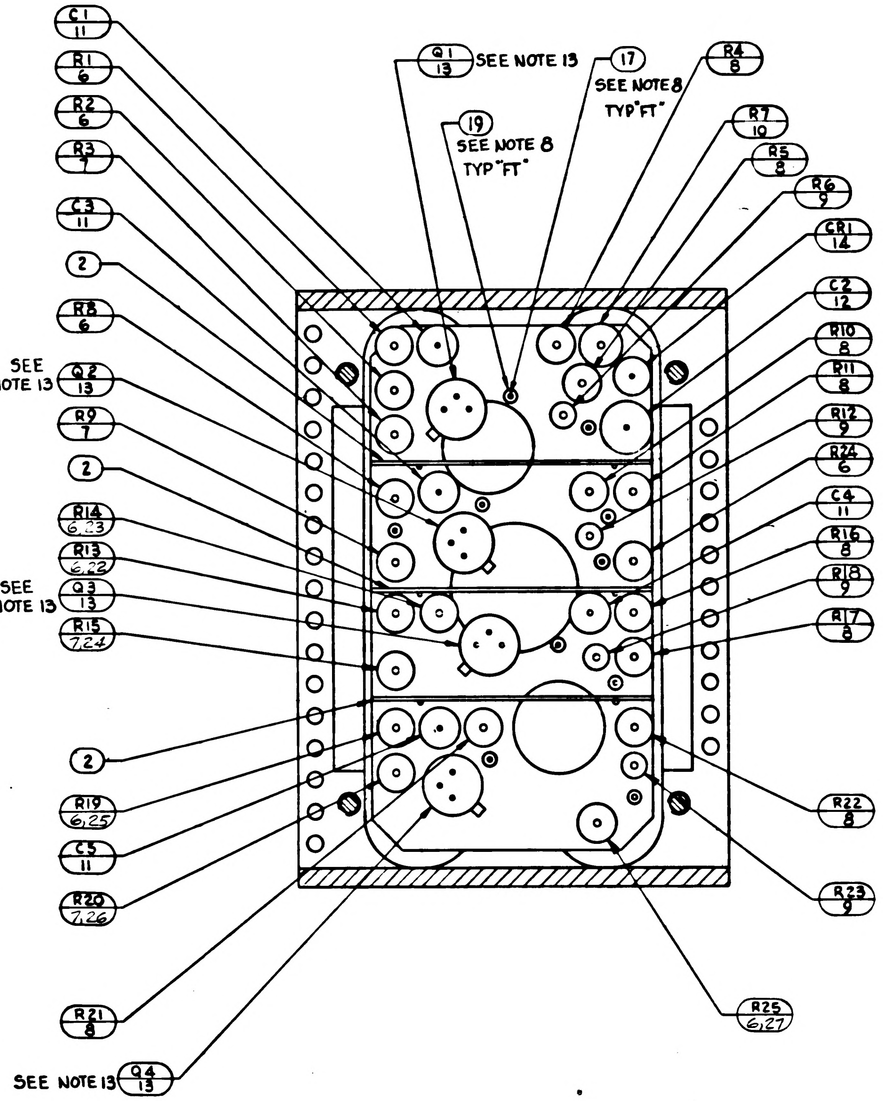
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

SERVO MOTOR DRIVE PREAMPLIFIER
MODULE ASSEMBLY

CODE IDENT NO 80230
SIZE E
1007486
SCALE 4:1
SHEET 1 OF 2

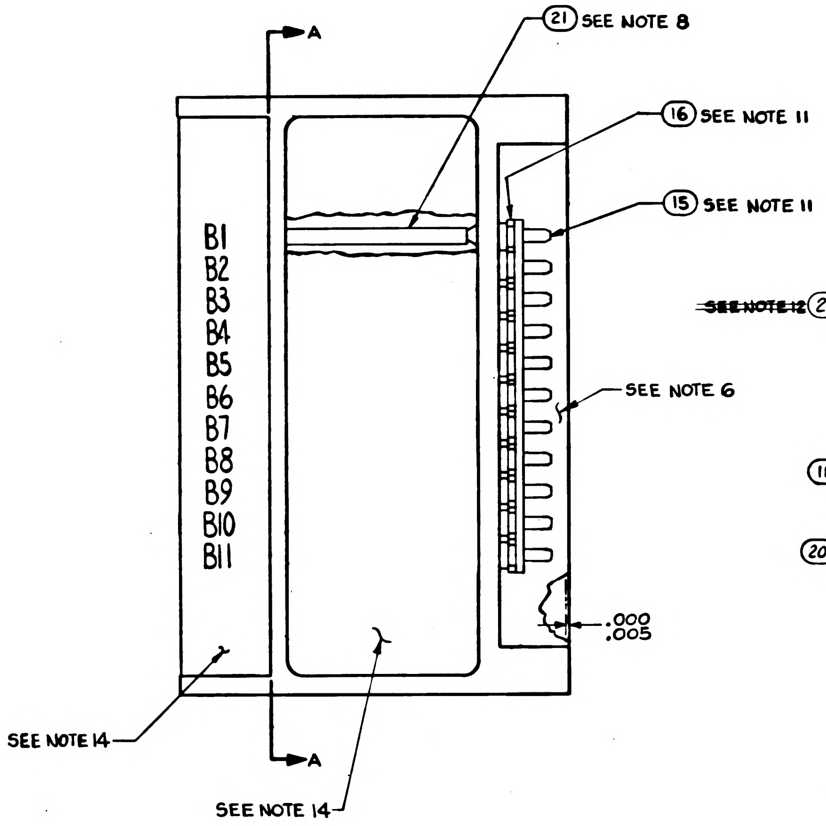
MIL 10772-P

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 15147		DEC 69	
B		REVISED PER TDRR 16983		MAR 5	DAS
C		REVISED PER TDRR 19422			
D		REVISION STATUS CHANGED			
E		REVISED PER TDRR 20143		5	

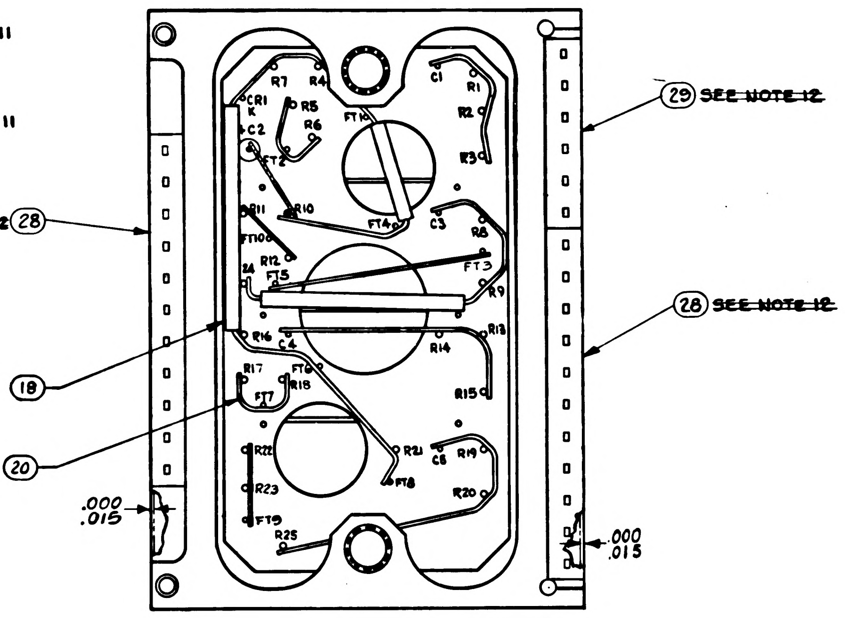


C1 11
R1 6
R2 6
R3 7
C3 11
2
R8 6
SEE NOTE 13 Q2 13
R9 7
2
R14 6,23
R13 6,22
SEE NOTE 13 Q3 13
R15 7,24
2
R19 6,25
C5 11
R20 7,26
R21 8
SEE NOTE 13 Q4 13
Q1 13 SEE NOTE 13
17 SEE NOTE 8 TYP "FT"
19 SEE NOTE 8 TYP "FT"
R4 8
R7 10
R5 8
R6 9
CR1 14
C2 12
R10 8
R11 8
R12 9
R24 6
C4 11
R16 8
R18 9
R17 8
R22 8
R23 9
R25 6,27

SECTION A-A



A
A
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
21 SEE NOTE 8
16 SEE NOTE 11
15 SEE NOTE 11
SEE NOTE 6
.000
.005
SEE NOTE 14
SEE NOTE 14

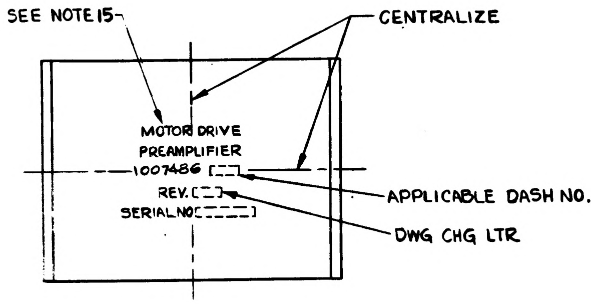


29 ~~SEE NOTE 12~~
~~SEE NOTE 12~~ 28
28 ~~SEE NOTE 12~~
18
20
.000
.015
.000
.015
R7
R4
C1
R1
R2
R3
CR1
K
R15
FT11
C2
R6
FT2
R10
R11
FT10
R12
C3
R5
FT4
FT3
R9
FT5
R16
C4
R13
R14
R17
FT6
R18
FT7
R15
R22
R21
C5
R19
R23
FT8
R20
FT9
R25

VIEW A-A
ROTATED 90° C.W.
SHEET 1
ZONE H-5

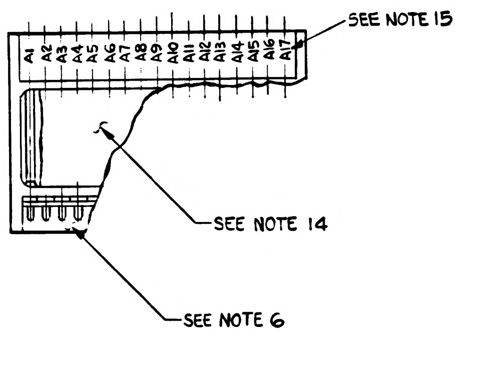
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ±	MIT INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON TEXAS	
DO NOT SCALE THIS DRAWING	DRAWN Ozgel DATE 24 SEP '64 CHECKED 29 SEP 64 APPROVAL APPROVAL	SERVO MOTOR DRIVE PREAMPLIFIER MODULE ASSEMBLY	
MATERIAL —	NASA APPROVAL 10-20-64	CODE IDENT NO 80230	SIZE E 1007486
CONTRACT NAS 9-497	MIT APPROVAL 10/29/64	SCALE 4:1	SHEET 2 OF 2

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPD.
		CHG NO.		

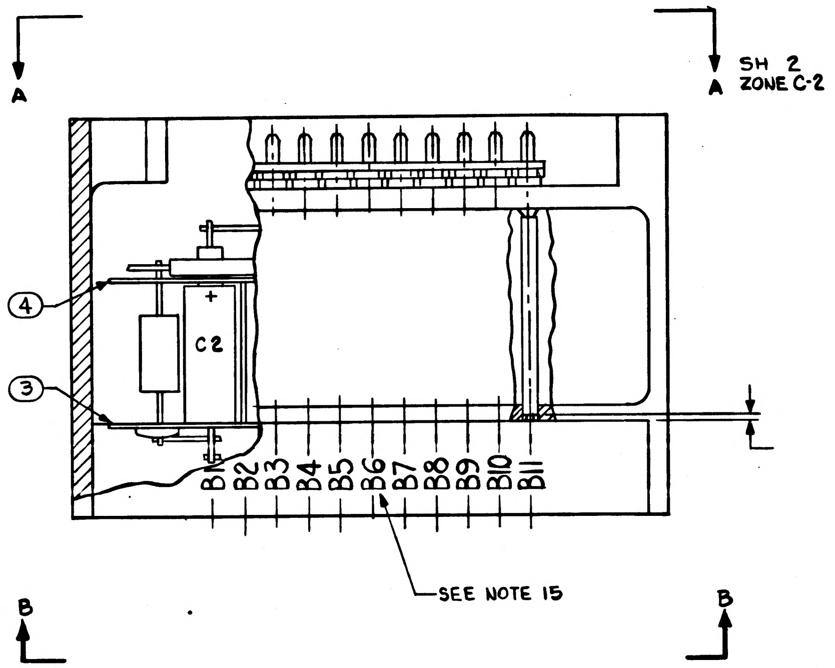


SEE NOTE 15
CENTRALIZE
MOTOR DRIVE
PREAMPLIFIER
1007486
REV.
SERIAL NO.
APPLICABLE DASH NO.
DWG CHG LTR

VIEW B-B
SCALE 2:1

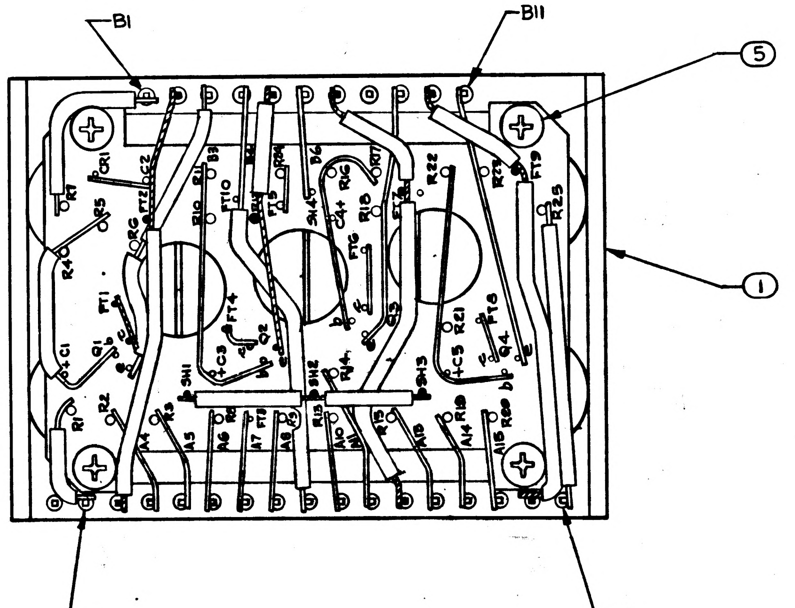


SEE NOTE 15
A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17
SEE NOTE 14
SEE NOTE 6



A
A
SH 2
ZONE C-2
4
3
C2
B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11
SEE NOTE 15
B
B

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED: COMPONENTS TO BE CENTRALIZED BETWEEN ITEMS 3 & 4.
3. PROCURE PER PS1007486
4. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005.
5. UNLESS OTHERWISE SPECIFIED: WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
6. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
7. ON ITEMS 3 AND 4:
   BROKEN PATHS INDICATE INSULATION SLEEVING
   K INDICATES CATHODE SIDE OF DIODE
   FT( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR
   c - INDICATES COLLECTOR LEAD OF TRANSISTOR
   b - INDICATES BASE LEAD OF TRANSISTOR
   e - INDICATES EMITTER LEAD OF TRANSISTOR
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
11. ASSEMBLE PER ND1002136.
12. BOND ITEMS 28 AND 29 TO ITEM 16 PER ND1002237
13. BOND ITEMS 13 TO ITEM 3 PER ND1002004 TYPE I.
14. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
15. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023, CENTRALIZE AS SHOWN.



B1
B11
5
1
A2
A17
CR1 R1 R2 R3 R4 R5 R6 C1 C2 C3 C4 C5 Q1 Q2 Q3 Q4 FT1 FT4 FT8 FT9 FT10 R10 R13 R15 R18 R19 R21 R22 R25 SH1 SH2 SH3
A4 A5 A6 A7 A8 A10 A11 A14 A15 A16

VIEW B-B

			QUANTITY REQUIRED	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			☒		REF	1009533	SCHEMATIC, ELECTRICAL
			1		29	1008540-6	GASKET, CONNECTOR-MINAT
			2		28	1008540-11	GASKET, CONNECTOR-MINAT
			1		27	-683	
			1		26	-687	
			1		25	-533	
			1		24	-673	
			1		23	-727	
			1		22	1010364-513	RESISTOR, FIXED
			AR		21	1006776-20	SLEEVING, ELECT. INSULATING
			AR		20	1006757-1	WIRE, NICKEL RIBBON-.010x.020
			AR		19	1006776-22	SLEEVING, ELECT-INSULATING
			AR		18	1006776-21	SLEEVING, ELECT-INSULATING
			AR		17	1006787-2	WIRE, FEED THRU-#24AWG
			28		16	1006775	INSULATOR WRAPOST-MALE MINAT
			28		15	1006782-5	CONTACT BLADE EDGE CONN.
			1		14	1010372-18	SEMICONDUCTOR DEVICE, DIODE
			4		13	1010397-1	TRANSISTOR
			1		12	1006755-79	CAPACITOR, FIXED
			4		11	1006755-65	CAPACITOR, FIXED
			1		10	1006760-50	
			4		9	1006750-67	
			8		8	1010364-769	
			2		7	1010374-20	
			4		6	1010364-739	RESISTOR, FIXED
			4		5	MS35216-3	SCREW 1/4 #2-56NC
			1		4	1015132	WAFER BOARD, LOWER
			1		3	1015133	WAFER BOARD, UPPER
			3		2	1015118	SHIELD
			1		1	1015115	FRAME, MODULE
			.011				

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + − − −
DECIMALS ±.02 ±.005
ANGLES + − − −
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS 9-497

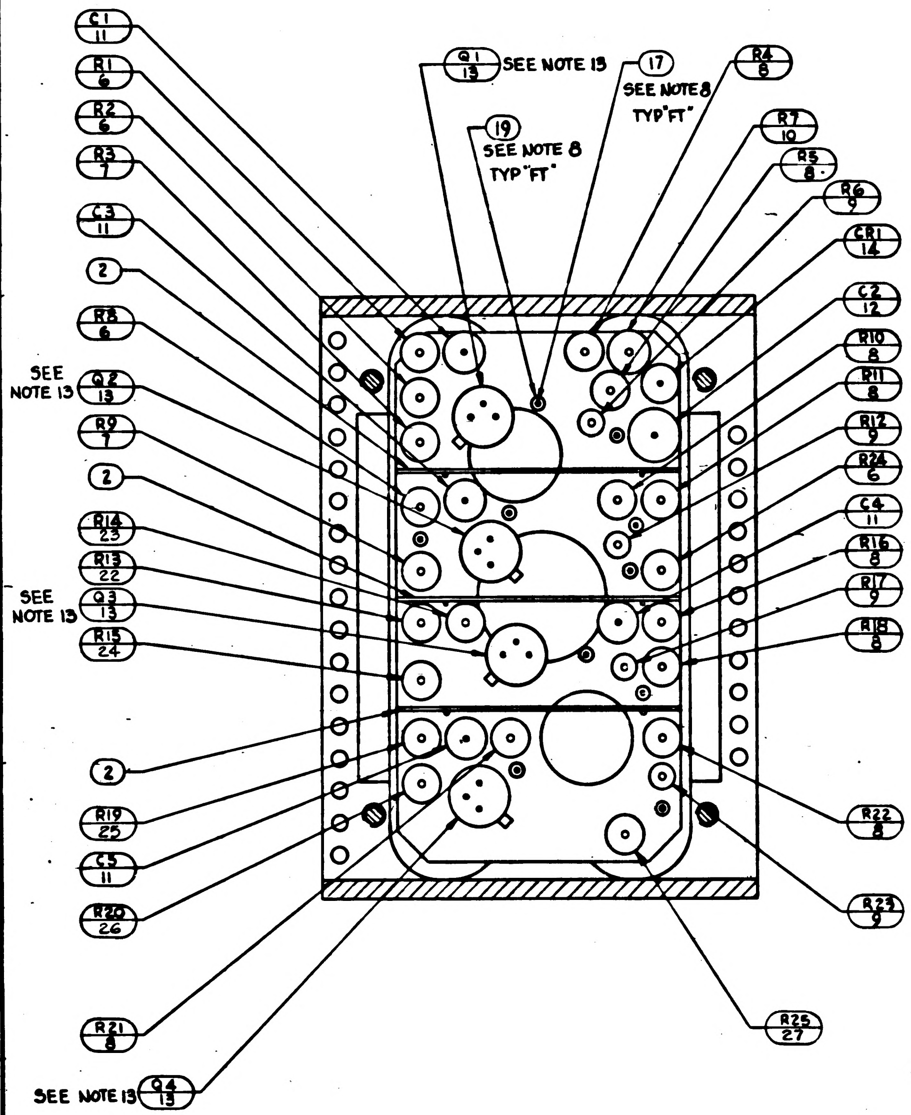
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN [illegible] DATE 24 SEP 64
CHECKED [illegible] 29 SEP 64
APPROVAL [illegible]
APPROVAL [illegible] 10/19/64
NASA APPROVAL 10-20-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

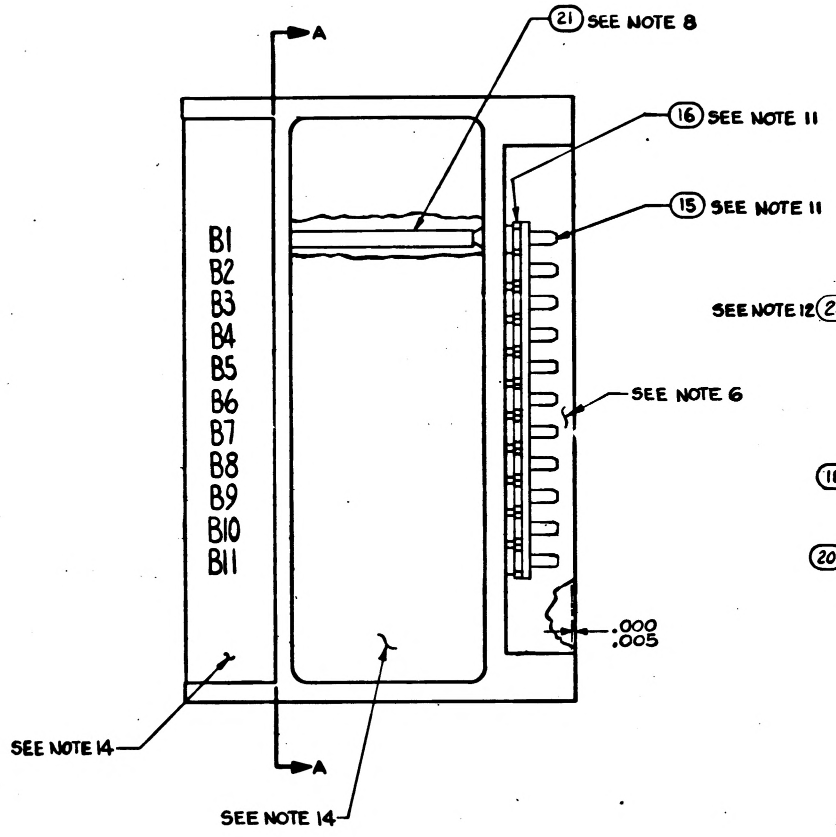
SERVO MOTOR DRIVE PREAMPLIFIER
MODULE ASSEMBLY

CODE IDENT NO.
SIZE E
1007486
SCALE 4:1
SHEET . OF 2

REVISIONS 3641				
SYM	ZONE	DESCRIPTION	DATE	APPD.
		CHG NO.		


C1 11
R1 6
R2 6
R3 7
C3 11
2
R8 6
SEE NOTE 13 Q2 13
R9 7
2
R14 23
R13 22
SEE NOTE 13 Q3 13
R15 24
2
R19 25
C5 11
R20 26
R21 8
SEE NOTE 13 Q4 13
Q1 13 SEE NOTE 13
19 SEE NOTE 8 TYP "FT"
17 SEE NOTE 8 TYP "FT"
R4 8
R7 10
R5 8
R6 9
CR1 14
C2 12
R10 8
R11 8
R12 9
R24 6
C4 11
R16 8
R17 9
R18 8
R22 8
R23 9
R25 27

SECTION A-A


A
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B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
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16 SEE NOTE 11
15 SEE NOTE 11
SEE NOTE 6
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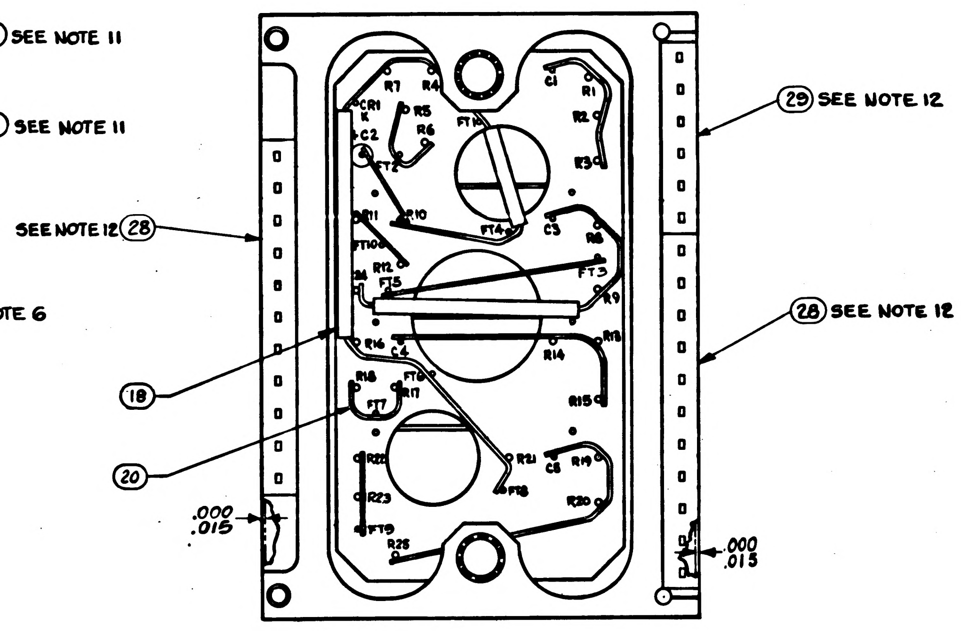
.005
SEE NOTE 14
SEE NOTE 14


SEE NOTE 12 28
29 SEE NOTE 12
28 SEE NOTE 12
18
20
.000
.015
.000
.015
R7
R4
CR1
K
R5
C2
R6
FT1
FT2
C1
R1
R2
R3
R11
R10
FT4
C3
R8
FT10
R12
24
FT5
FT3
R9
R16
C4
R14
R13
R18
FT6
R17
FT7
R15
R22
R21
C5
R19
R23
FT8
R20
FT9
R25

VIEW A-A
ROTATED 90° CW.
SHEET 1
ZONE H-5

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
+ —	+ —	+ —
- —	- —	- —

DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS 9-497

AC SPARK PLUG DIVISION. GMC
MILWAUKEE. WISCONSIN
ACSP PN
DRAWN Oezyh DATE 29 SEP 64
CHECKED 29 SEP 64
APPROVAL
APPROVAL D. R. 10/19/64
NASA APPROVAL 10-20-64
MIT APPROVAL 10/29/64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

SERVO
MOTOR DRIVE PREAMPLIFIER
MODULE ASSEMBLY

CODE IDENT NO.
SIZE E
1007486
SCALE 4:1
SHEET 2 OF 2

B 1007486

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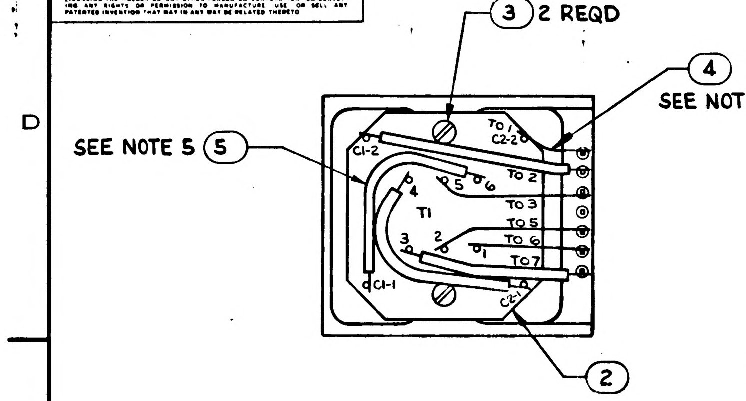
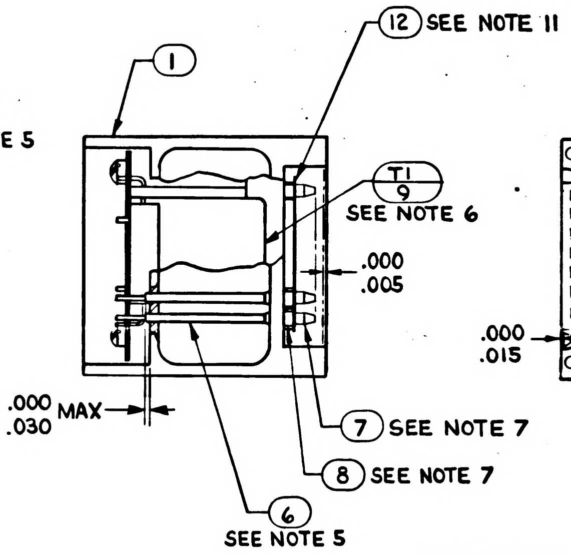
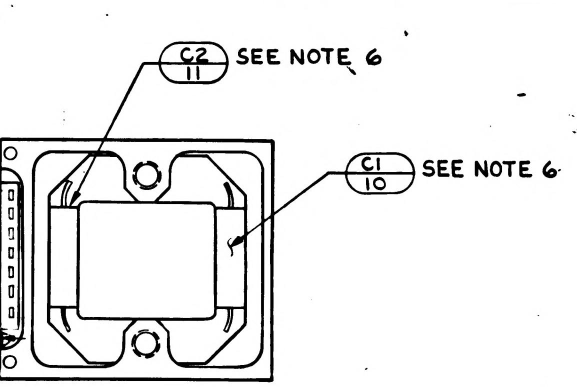
A 1007487

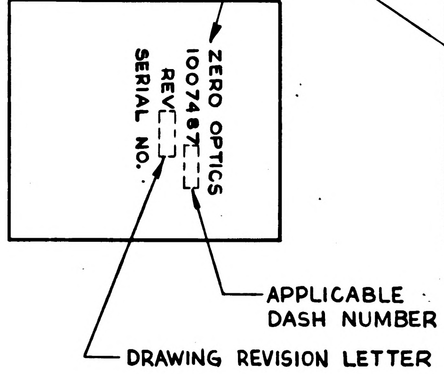
REVISIONS 13402

SYM	ZONE	DESCRIPTION	CHG NO.	DATE	APPD
A		REVISED PER TDRR 19424		1 JUN 65	EF


3 2 REQD
4 SEE NOTE 5
SEE NOTE 5 5
TO 1
C2-2
C1-2
5
6
TO 2
4
T1
TO 3
TO 5
3
2
1
TO 6
TO 7
C1-1
C2-1
2


1
12 SEE NOTE 11
T1 9 SEE NOTE 6
.000 .005
.000 .015
.000 .030 MAX
7 SEE NOTE 7
8 SEE NOTE 7
6 SEE NOTE 5


C2 11 SEE NOTE 6
C1 10 SEE NOTE 6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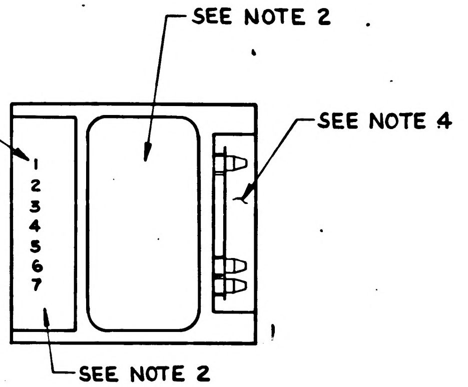
REV
SERIAL NO.
APPLICABLE DASH NUMBER
DRAWING REVISION LETTER


SEE NOTE 3
SEE NOTE 2
SEE NOTE 4
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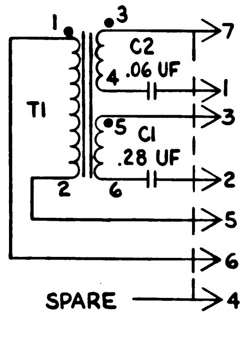
SEE NOTE 2

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM), UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005 WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
3. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
4. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
5. AR DENOTES AS REQUIRED
6. COMPONENTS TO BE CEMENTED IN PLACE PER ND1002004, TYPE I
7. ASSEMBLE PER ND1002136.
8. ALL WELDED CONNECTIONS TO BE MADE PER ND1002005.
9. PROCURE PER PS1015154.
10. UNLESS OTHERWISE SPECIFIED:
    WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
11. BOND ITEM 12 TO ITEM 8 PER ND1002237.
12. ON ITEM 2 BROKEN PATHS INDICATE INSULATION SLEEVING.
13. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ±.03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN. IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.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C1
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SPARE
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SCHEMATIC

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			1		12	1008540-7	GASKET CONNECTOR MINIATURE
			1		11	1010279-217	CAPACITOR
			1		10	1010279-225	CAPACITOR
			1		9	1010473	TRANSFORMER
			7		8	1006775	INSULATOR, WRAPOST MALE
			7		7	1006782-5	CONTACT, BLADE EDGE CONN
			AR		6	1006776-20	INSULATION SLEEVING
			AR		5	1006776-21	INSULATION SLEEVING
			AR		4	1006757-1	WIRE NICKEL RIBBON
			2		3	AN500D-4-4	SCREW PAN HEAD
			1		2	1015166	WAFER BOARD
			1		1	1015158	FRAME ASSEMBLY

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007458		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
+ —	±.005	+ 2°
— —	±.02	−

DO NOT SCALE THIS DRAWING

MATERIAL –

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN E. Miller DATE 21 SEP 64
CHECKED A. Udovich 23 SEP 64
APPROVAL
APPROVAL 10-9-64
NASA APPROVAL 12-4-64
MIT APPROVAL 10/14/64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ZERO OPTICS
MODULE ASSEMBLY

CODE IDENT NO 80230
SIZE D
1007487
SCALE 2:1
SHEET 1 OF 1

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
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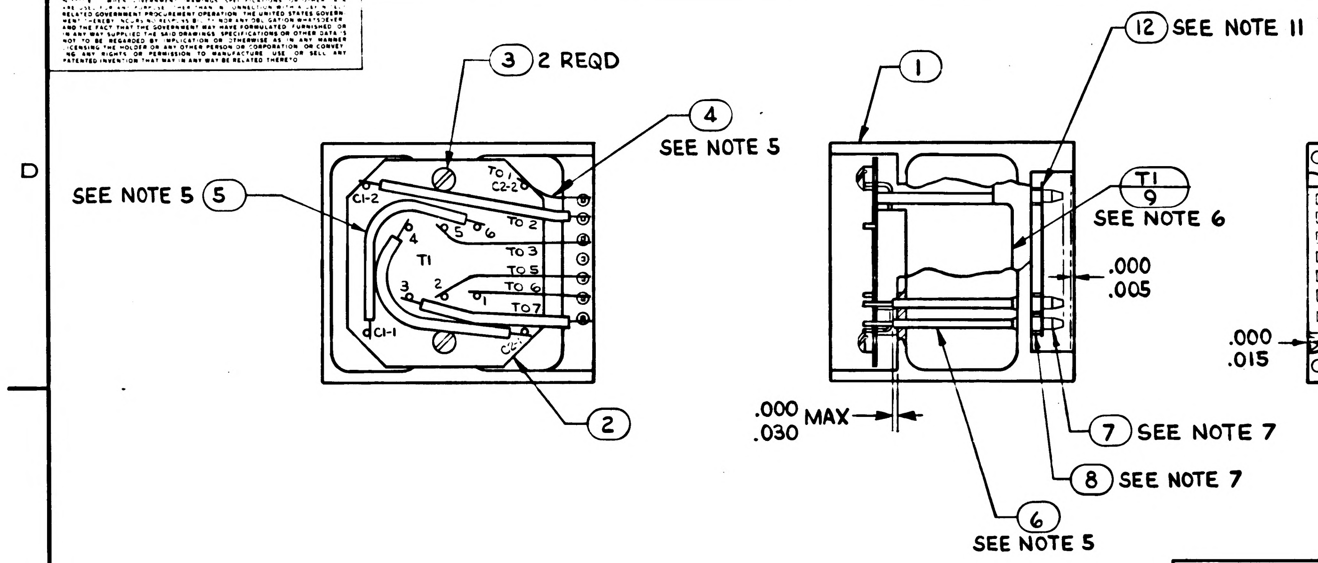
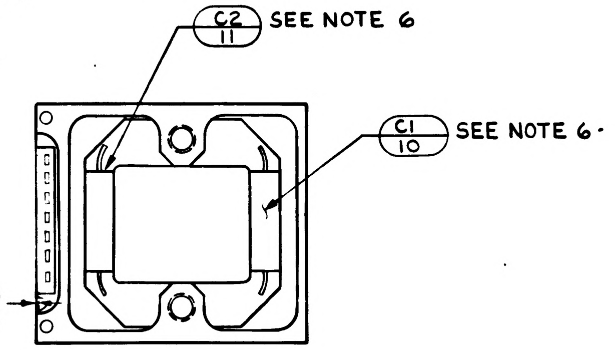
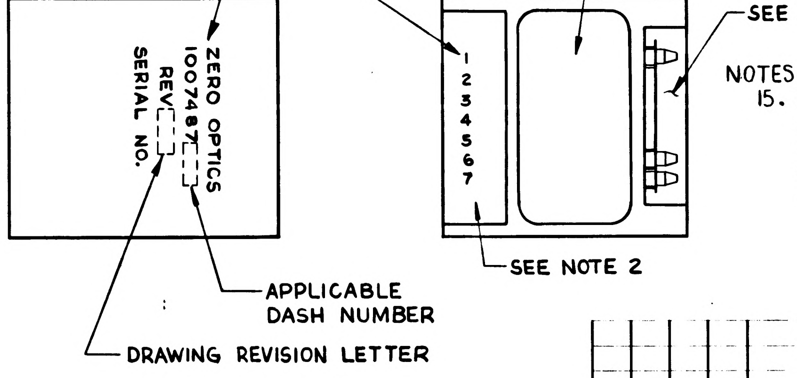
B		REVISED PER TDRR 19541		2 JUN 65	B.N.T.







NOTES:

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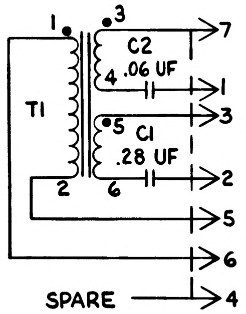
14. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.

NOTES-(CONTINUED)

15. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F AT 8 HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.



SCHEMATIC

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			1		12	1008540-7	GASKET CONNECTOR MINIATURE
			1		11	1010279-217	CAPACITOR
			1		10	1010279-225	CAPACITOR
			1		9	1010473	TRANSFORMER
			7		8	1006775	INSULATOR, WRAPOST MALE
			7		7	1006782-5	CONTACT, BLADE EDGE CONN
			AR		6	1006776-20	INSULATION SLEEVING
			AR		5	1006776-21	INSULATION SLEEVING
			AR		4	1006757-1	WIRE NICKEL RIBBON
			2		3	AN500D-4-4	SCREW PAN HEAD
			1		2	1015166	WAFER BOARD
			1		1	1015158	FRAME ASSEMBLY

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007458		

APPLICATION

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UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —; DECIMALS ±.005, ±.02; ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO / CONTRACT
DRAWN E. Miller DATE 21 SEP 64
CHECKED A. Ulrich 23 SEP 64
APPROVAL
APPROVAL D. B. Test 10-8-64
NASA APPROVAL 10-4-64
MIT APPROVAL 10/14/64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ZERO OPTICS
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE D
1007487
SCALE 2:1
SHEET 1 OF 1

MIL 10780-F

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
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B		REVISED PER TDRR 19541		2 JUN 65	B.N.T.
C		REVISED PER TDRR 20143		JUN 65	Y.N.

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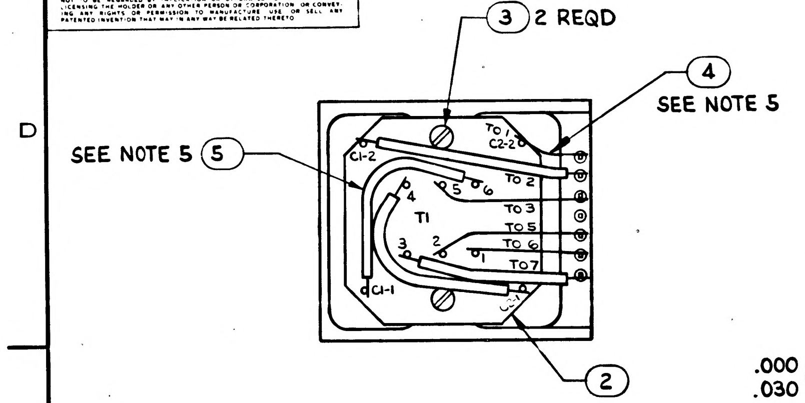

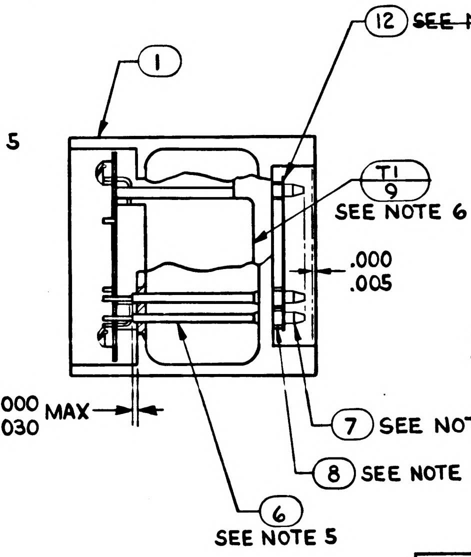

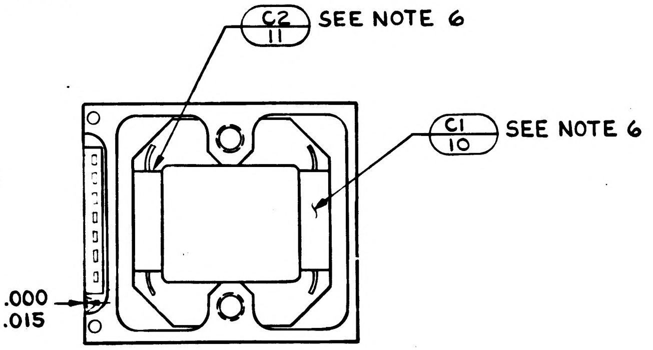

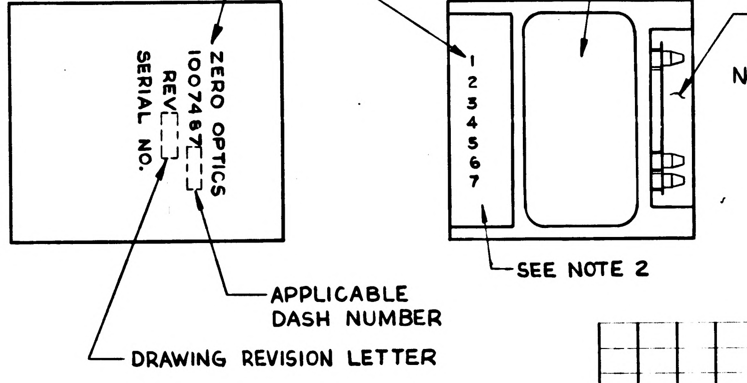

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NOTES-(CONTINUED)

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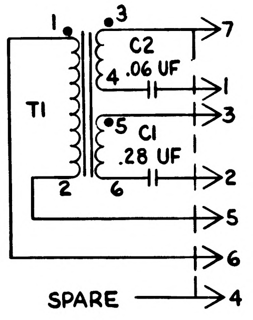

SCHEMATIC

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			1		12	1008540-7	GASKET CONNECTOR MINIATURE
			1		11	1010279-217	CAPACITOR
			1		10	1010279-225	CAPACITOR
			1		9	1010473	TRANSFORMER
			7		8	1006775	INSULATOR, WRAPOST MALE
			7		7	1006782-5	CONTACT, BLADE EDGE CONN
			AR		6	1006776-20	INSULATION SLEEVING
			AR		5	1006776-21	INSULATION SLEEVING
			AR		4	1006757-1	WIRE NICKEL RIBBON
			2		3	AN500D-4-4	SCREW PAN HEAD
			1		2	1015166	WAFER BOARD
			1		1	1015158	FRAME ASSEMBLY

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007458		

APPLICATION

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UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
+ —	±.005	+ 2°
— —	±.02	−

DO NOT SCALE THIS DRAWING

MATERIAL

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DWG NO
CONTRACT

DRAWN E. Miller DATE 21 SEP 64
CHECKED A. Udovich 23 SEP 64
APPROVAL
APPROVAL D. B. [illegible] 10-8-64
NASA APPROVAL W. J. [illegible]
MIT APPROVAL [illegible] 10/14/64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ZERO OPTICS
MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE D
1007487
SCALE 2:1
SHEET 1 OF 1

MIL 10780-P

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1007487

REVISIONS /3403					
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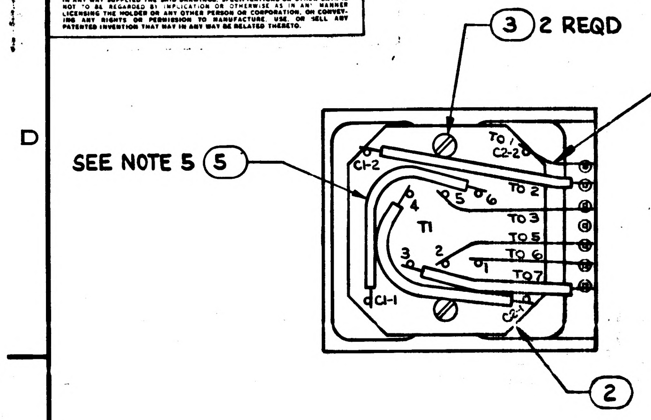
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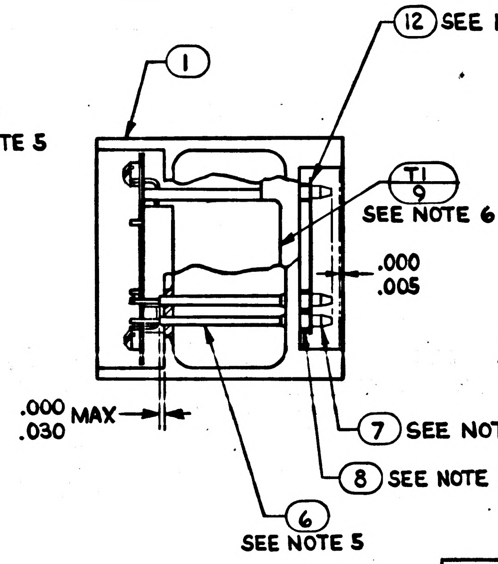
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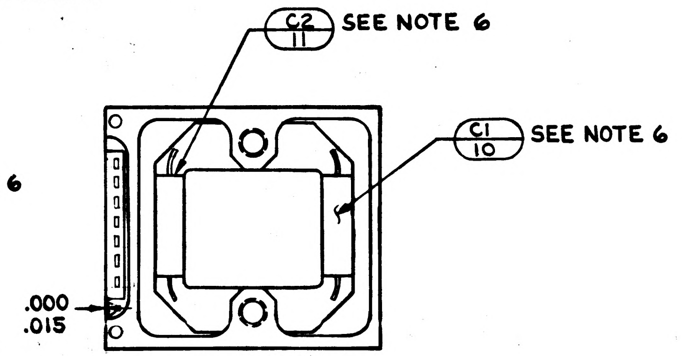
⑥ SEE NOTE 5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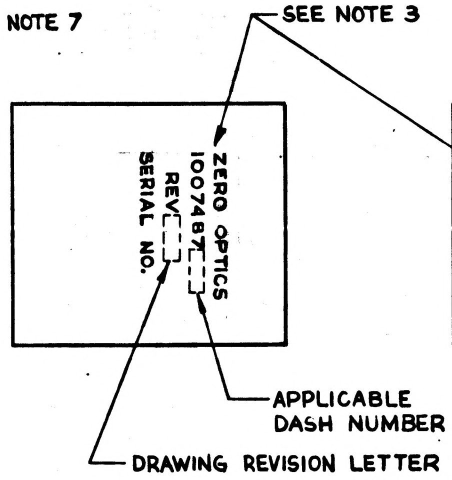
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1007487
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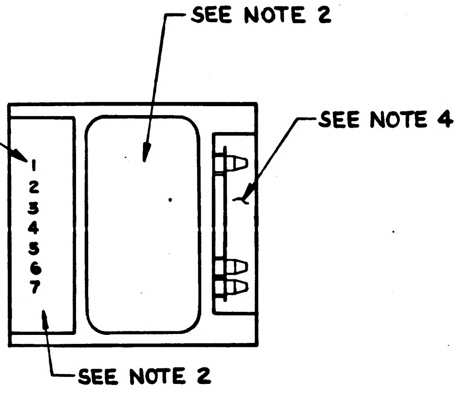
SERIAL NO.
APPLICABLE DASH NUMBER
DRAWING REVISION LETTER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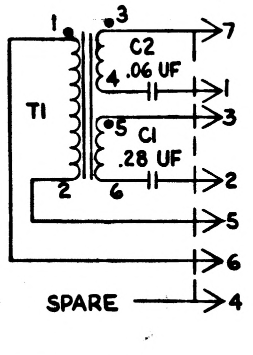
SEE NOTE 2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SPARE
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SCHEMATIC

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LIST OF PARTS AND MATERIALS

QUANTITY REQUIRED 011	EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
1		12	1008540-7	GASKET CONNECTOR MINIATURE
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1		10	1010279-225	CAPACITOR
1		9	1010473	TRANSFORMER
7		8	1006775	INSULATOR, WRAPOST MALE
7		7	1006782-5	CONTACT, BLADE EDGE CONN
AR		6	1006776-20	INSULATION SLEEVING
AR		5	1006776-21	INSULATION SLEEVING
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APPLICATION		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007458		

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TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
+ —	±.005	+ 2°
− —	±.02	−

DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN E. Miller DATE 21 SEP 64
CHECKED A. Ulmrich 23 SEP 64
APPROVAL [illegible]
APPROVAL D. B. Stat 10-8-64
NASA APPROVAL W J Rhine 10-14-64
MIT APPROVAL L Vogel 10/14/64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

ZERO OPTICS
MODULE ASSEMBLY

CODE IDENT NO.
SIZE D
1007487
SCALE 2:1
SHEET 1 OF 1

REVISIONS 13402					
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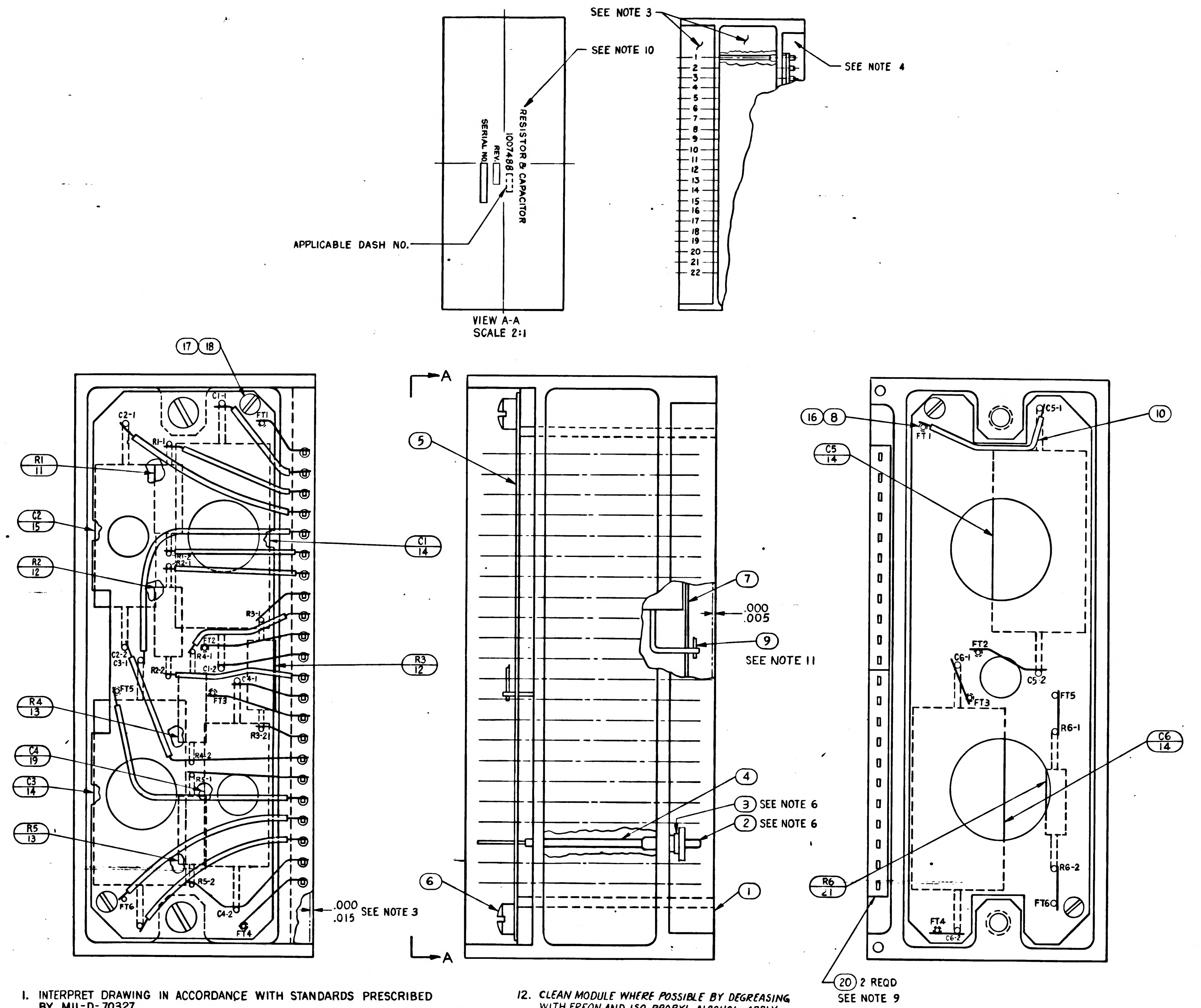
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SEE NOTE 10
SEE NOTE 4
RESISTOR & CAPACITOR
1007488[ ]
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FT2
R4-1
C2-2
C3-1
R2-2
C1-2
C4-1
R3 12
FT5
FT3
R4 13
R3-2
R4-2
C4 19
R5-1
C3 14
R5 13
R5-2
FT6
C4-2
FT4
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SEE NOTE 3
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.005
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SEE NOTE 11
4
3 SEE NOTE 6
2 SEE NOTE 6
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16 8
FT1
C5-1
10
C5 14
FT2
C6-1
C5-2
FT3
FT5
R6-1
C6 14
R6 21
R6-2
FT6
FT4
C6-2
20 2 REQD
SEE NOTE 9

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL WELDED CONNECTIONS TO BE MADE PER ND 1002005. RESISTORS AND CAPACITORS TO BE CEMENTED IN PLACE PER ND 1002004. TYPE I
3. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
4. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
5. ON ITEMS 5 AND 7, FT( ) INDICATES FEED THRU.
6. ASSEMBLE PER ND 1002136.
7. PROCURE PER PS1015155.
8. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
9. BOND ITEM 20 TO ITEM 3 PER ND1002237.
10. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
11. AR DENOTES AS REQUIRED
12. *CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN. IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.*

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			1		21	1010364-495	RESISTOR
			X		REF	1015161	SCHEMATIC DIAGRAM ELECTRICAL
			2		20	1008540-11	GASKET-CONNECTOR MINIATURE
			1		19	1010264-19	CAPACITOR
			4		18	AN500D-2-4	SCREW PAN HD
			2		17	1015135-018	SPACER
			AR		16	1006776-22	INSULATION SLEEVING
			1		15	1010264-28	CAPACITOR
			4		14	1010264-34	CAPACITOR
			2		13	1010364-443	RESISTOR
			2		12	1010364-739	RESISTOR
			1		11	1010364-635	RESISTOR
			AR		10	1006776-21	INSULATION SLEEVING
			AR		9	1006757-1	.010 × .020 NICKEL RIBBON
			AR		8	1006787-2	WIRE, FEED THRU
			1		7	1015165	WAFER BOARD, LOWER
			2		6	AN500D-4-4	SCREW PAN HD
			1		5	1015164	WAFER BOARD, UPPER
			AR		4	1006776-20	INSULATION SLEEVING
			22		3	1006775	INSULATOR, WRAPOST-MALE MINIATURE
			22		2	1006782-5	CONTACT, WRAPOST-MALE MINIATURE
			1		1	1015163	FRAME

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + −
DECIMALS XX ± .02 XXX ± .005
ANGLES + −
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

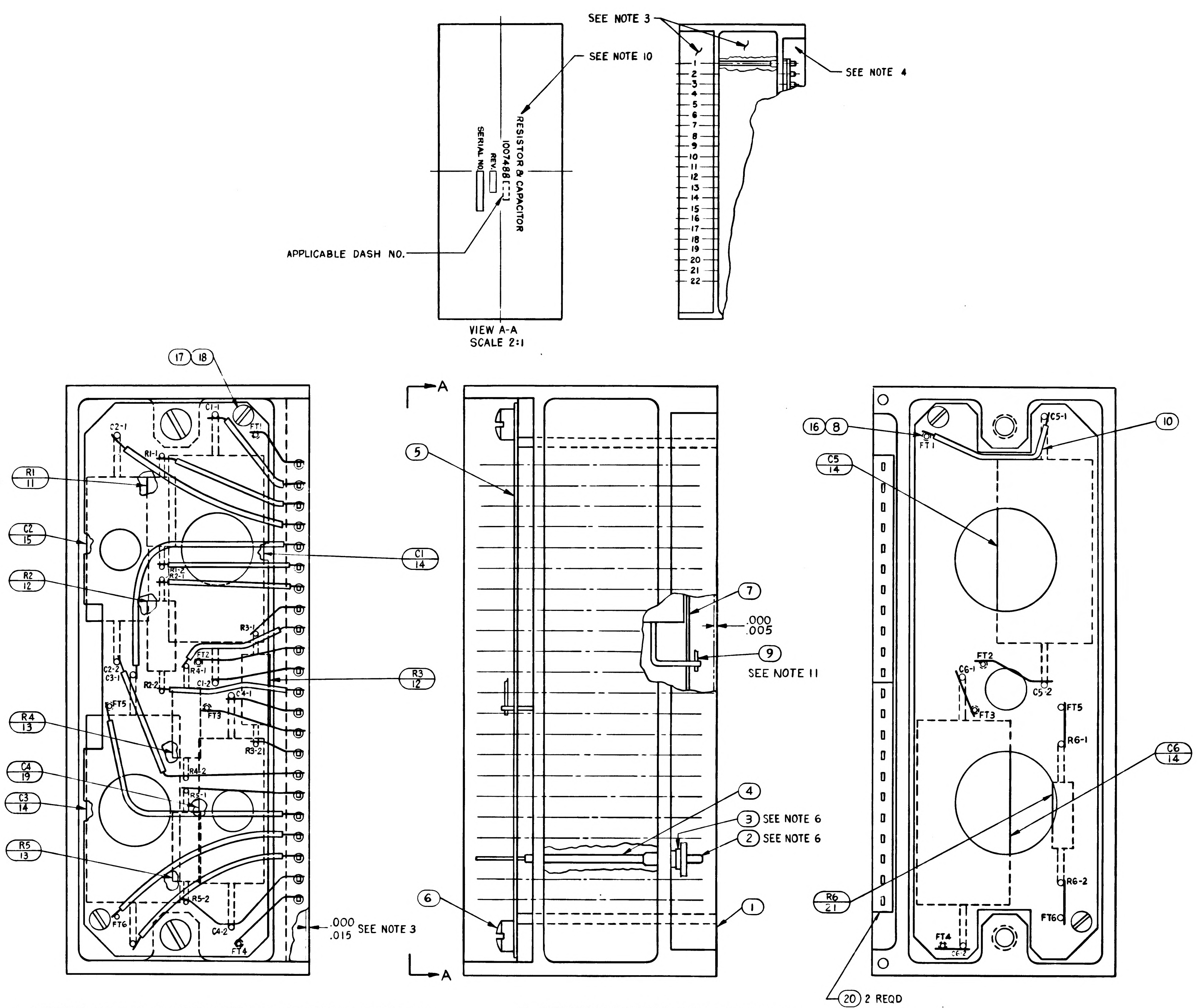
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN Toro DATE 24 SEP 64
CHECKED A. Udorach 25 SEP 64
APPROVAL
APPROVAL 11-8-64
NASA APPROVAL W.J.
MIT APPROVAL 12/11/64

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

MODULE ASSEMBLY
RESISTOR & CAPACITOR

CODE IDENT NO 80230
SIZE E
1007488
SCALE 4:1
SHEET 1 OF 1

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 9425			
B		REVISED PER TDRR 9542			



SEE NOTE 3
SEE NOTE 10
SEE NOTE 4
RESISTOR & CAPACITOR
1007488[ ]
REV
SERIAL NO
APPLICABLE DASH NO.
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VIEW A-A
SCALE 2:1
17 18
R1 11
C2 15
R2 12
R4 13
C4 19
C3 14
R5 13
C1 14
R3 12
C1-1
FT1
C2-1
R1-1
R1-2
R2-1
R3-1
FT2
R4-1
C1-2
C2-2
C3-1
R2-2
FT5
C4-1
FT3
R3-2
R4-2
R5-1
R5-2
FT6
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SEE NOTE 3
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SEE NOTE 11
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16 8
C5 14
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C5-1
FT2
C6-1
C5-2
FT3
FT5
R6-1
C6 14
R6-2
R6 21
FT6
FT4
C6-2
20 2 REQD
SEE NOTE 9

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
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3. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
4. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
5. ON ITEMS 5 AND 7, FT( ) INDICATES FEED THRU.
6. ASSEMBLE PER ND 1002136.
7. PROCURE PER PS1015155.
8. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
9. BOND ITEM 20 TO ITEM 3 PER ND1002237.
10. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
11. AR DENOTES AS REQUIRED
12. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN. IN FROM EDGES. USE ADHESIVE PER ND1002107 TYPE II.~~
13. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
14. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			1		21	1010364-495	RESISTOR
			X		REF	1015161	SCHEMATIC DIAGRAM ELECTRICAL
			2		20	1008540-11	GASKET-CONNECTOR MINIATURE
			1		19	1010264-19	CAPACITOR
			4		18	AN500D-2-4	SCREW PAN HD
			2		17	1015135-018	SPACER
			AR		16	1006776-22	INSULATION SLEEVING
			1		15	1010264-28	CAPACITOR
			4		14	1010264-34	CAPACITOR
			2		13	1010364-443	RESISTOR
			2		12	1010364-739	RESISTOR
			1		11	1010364-635	RESISTOR
			AR		10	1006776-21	INSULATION SLEEVING
			AR		9	1006757-1	.010 × .020 NICKEL RIBBON
			AR		8	1006787-2	WIRE, FEED THRU
			1		7	1015165	WAFER BOARD, LOWER
			2		6	AN500D-4-4	SCREW PAN HD
			1		5	1015164	WAFER BOARD, UPPER
			AR		4	1006776-20	INSULATION SLEEVING
			22		3	1006775	INSULATOR, WRAPOST-MALE MINIATURE
			22		2	1006782-5	CONTACT, WRAPOST-MALE MINIATURE
			1		1	1015163	FRAME

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
+ XX ± .02 +−
− XXX ± .005 −
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

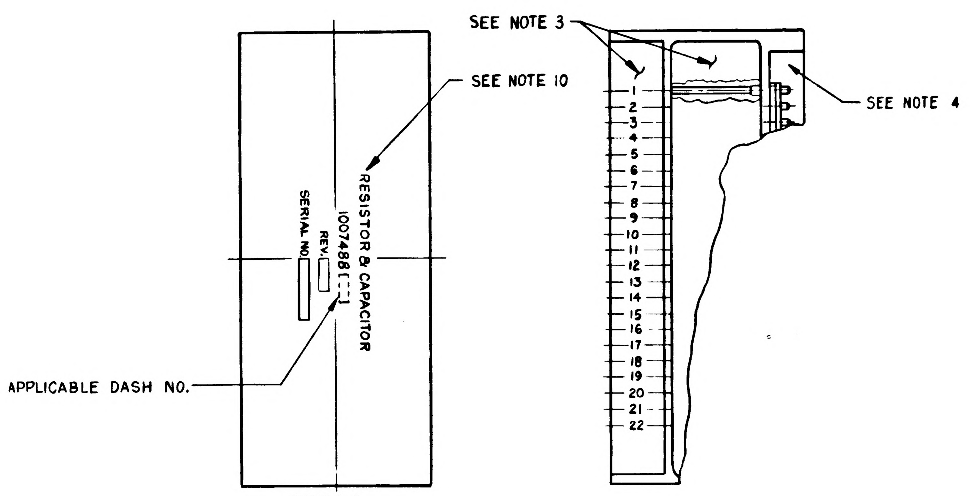
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN Foro DATE 24 SEP 64
CHECKED A. Udorich 25 SEP 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

MODULE ASSEMBLY RESISTOR & CAPACITOR

CODE IDENT NO 80230
SIZE E
1007488
SCALE 4:1
SHEET

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		REVISED PER TDRR 9425		[illegible] 65	
B		REVISED PER TDRR 9542		[illegible]	
C		REVISED PER TDRR 20 43		[illegible] 65	



SEE NOTE 3
SEE NOTE 10
SEE NOTE 4
RESISTOR & CAPACITOR
1007488[ ]
REV.[ ]
SERIAL NO.[ ]
APPLICABLE DASH NO.
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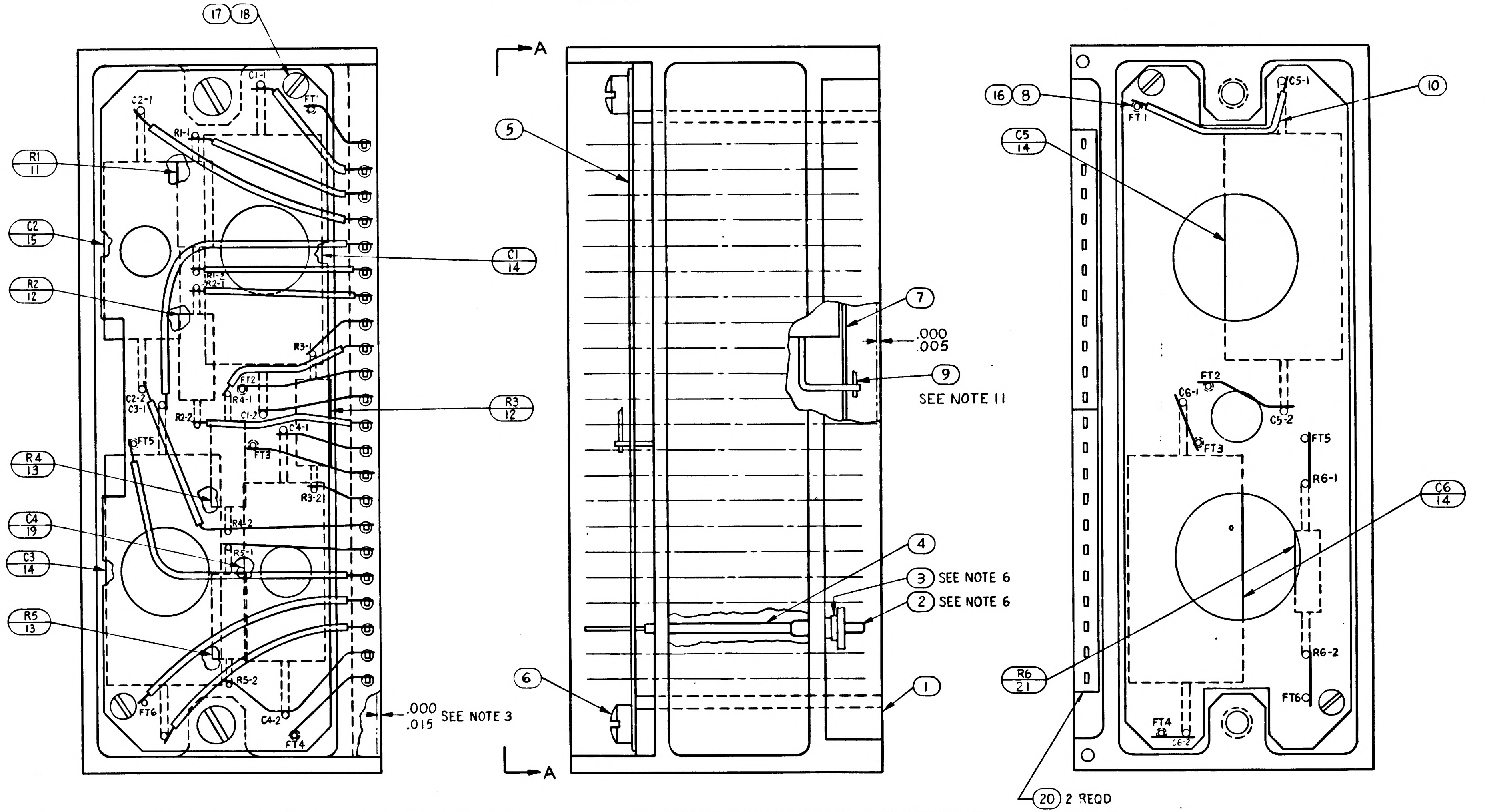
VIEW A-A
SCALE 2:1



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R1 11
C2 15
R2 12
R4 13
C4 19
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R5 13
C1 14
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C1-1
FT1
R1-1
R2-1
R3-1
FT2
R4-1
C1-2
C2-2
C3-1
R2-2
FT5
C4-1
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R4-2
R5-1
R5-2
C4-2
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SEE NOTE 3
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SEE NOTE 11
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3 SEE NOTE 6
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C5 14
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FT2
C6-1
C5-2
FT3
FT5
R6-1
C6 14
R6-2
R6 21
FT6
FT4
C6-2
20 2 REQD
~~SEE NOTE 9~~

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL WELDED CONNECTIONS TO BE MADE PER ND 1002005. RESISTORS AND CAPACITORS TO BE CEMENTED IN PLACE PER ND 1002004. TYPE I
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4. AREA TO BE FREE OF ENCAPSULATING COMPOUND.
5. ON ITEMS 5 AND 7, FT( ) INDICATES FEED THRU.
6. ASSEMBLE PER ND 1002136.
7. PROCURE PER PS1015155.
8. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
9. ~~BOND ITEM 20 TO ITEM 3 PER ND1002237.~~
10. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
11. AR DENOTES AS REQUIRED
12. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN. IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
13. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
14. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			1		21	1010364-495	RESISTOR
			X		REF	1015161	SCHEMATIC DIAGRAM ELECTRICAL
			2		20	1008540-11	GASKET-CONNECTOR MINIATURE
			1		19	1010264-19	CAPACITOR
			4		18	AN500D-2-4	SCREW PAN HD
			2		17	1015135-018	SPACER
			AR		16	1006776-22	INSULATION SLEEVING
			1		15	1010264-28	CAPACITOR
			4		14	1010264-34	CAPACITOR
			2		13	1010364-443	RESISTOR
			2		12	1010364-739	RESISTOR
			1		11	1010364-635	RESISTOR
			AR		10	1006776-21	INSULATION SLEEVING
			AR		9	1006757-1	.010 × .020 NICKEL RIBBON
			AR		8	1006787-2	WIRE, FEED THRU
			1		7	1015165	WAFER BOARD, LOWER
			2		6	AN500D-4-4	SCREW PAN HD
			1		5	1015164	WAFER BOARD, UPPER
			AR		4	1006776-20	INSULATION SLEEVING
			22		3	1006775	INSULATOR, WRAPOST-MALE MINIATURE
			22		2	1006782-5	CONTACT, WRAPOST-MALE MINIATURE
			1		1	1015163	FRAME

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + − DECIMALS XX ± .02 XXX ± .005 ANGLES + −
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT
DRAWN Foro DATE 24 SEP 64
CHECKED A. Udorich 25 SEP 64
APPROVAL
APPROVAL 10-8-64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

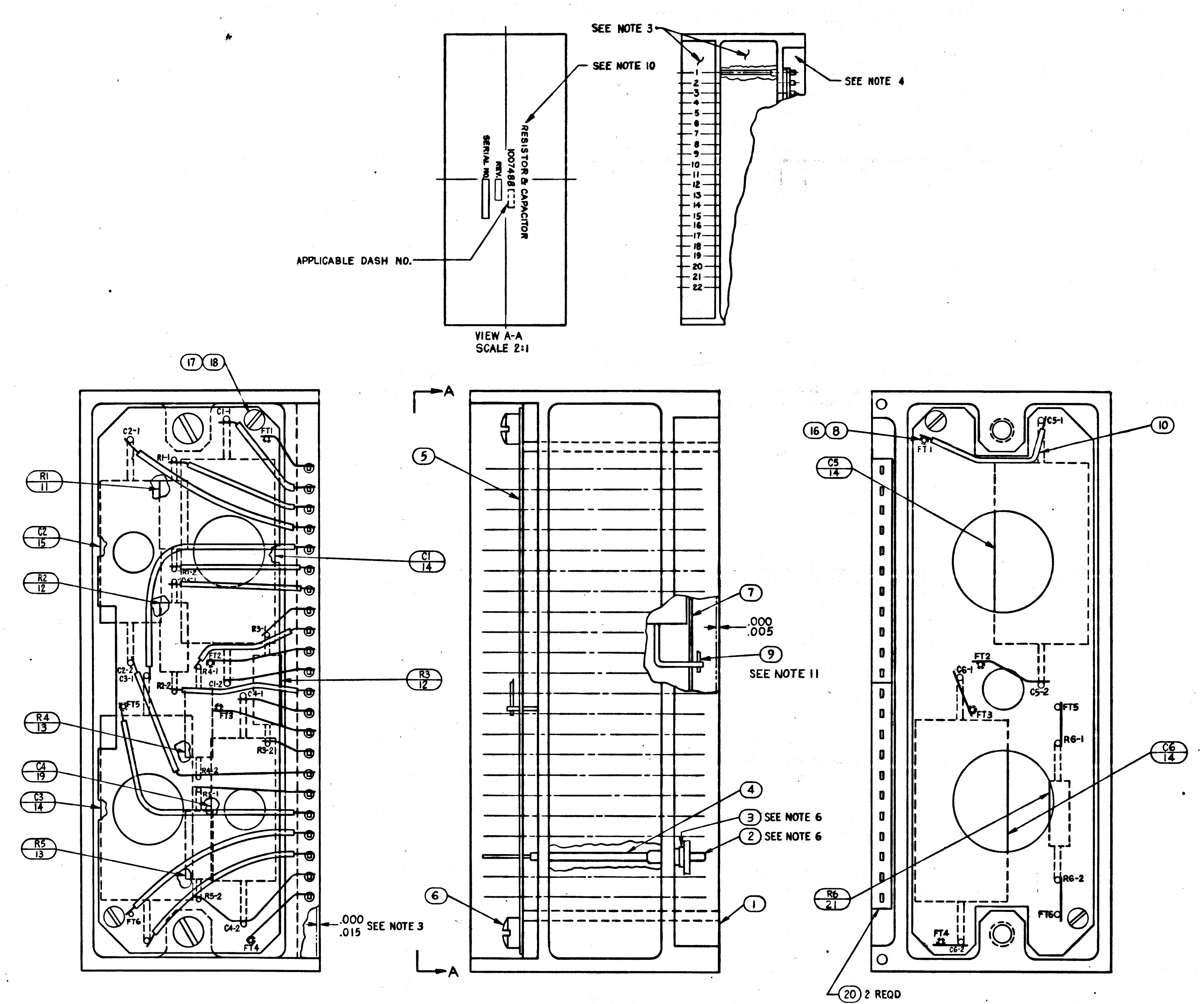
MODULE ASSEMBLY
RESISTOR & CAPACITOR

CODE IDENT NO. 80230
SIZE E
1007488
SCALE 4:1
SHEET

MIL 1077E-P

88AT001

SYM	ZONE	REVISIONS DESCRIPTION	CHG NO	DATE	APPD.


SEE NOTE 3
SEE NOTE 10
SEE NOTE 4
RESISTOR & CAPACITOR
1007488 [ ]
REV. [ ]
SERIAL NO. [ ]
APPLICABLE DASH NO.
VIEW A-A
SCALE 2:1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
17 18
C1-1
FT1
C2-1
R1-1
R1
11
C2
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C1
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R2
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R1-2
R3-1
FT2
R4-1
R3
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C2-2
C3-1
R2-2
C1-2
C4-1
FT3
R3-2
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FT5
R4-2
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SEE NOTE 3
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FT1
C5
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FT2
C6-1
C5-2
FT3
FT5
R6-1
C6
14
R6-2
R6
21
FT6
FT4
C6-2
20 2 REQD
SEE NOTE 9

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
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11. AR DENOTES AS REQUIRED

QUANTITY REQUIRED				EFFECTIVITY	ITEM NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			011				
			1		21	1010364-495	RESISTOR
			X		REF	1015161	SCHEMATIC DIAGRAM ELECTRICAL
			2		20	1008540 - 11	GASKET-CONNECTOR MINIATURE
			1		19	1010264 - 19	CAPACITOR
			4		18	AN500D-2-4	SCREW PAN HD
			2		17	1015135 - 018	SPACER
			AR		16	1006776-22	INSULATION SLEEVING
			1		15	1010264-28	CAPACITOR
			4		14	1010264 - 34	CAPACITOR
			2		13	1010364 -443	RESISTOR
			2		12	1010364 -739	RESISTOR
			1		11	1010364 -635	RESISTOR
			AR		10	1006776 -21	INSULATION SLEEVING
			AR		9	1006757 -1	.010 × .020 NICKEL RIBBON
			AR		8	1006787 -2	WIRE, FEED THRU
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			1		5	1015164	WAFER BOARD, UPPER
			AR		4	1006776-20	INSULATION SLEEVING
			22		3	1006775	INSULATOR, WRAPOST-MALE MINIATURE
			22		2	1006782 -5	CONTACT, WRAPOST-MALE MINIATURE
			1		1	1015163	FRAME

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007459		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
+ XX ± .02 +−
− XXX ± .005 −
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN Toro DATE 24 SEP 64
CHECKED A. Udovich 26 SEP 64
APPROVAL Spunagle
APPROVAL 11-8-64
NASA APPROVAL W G 10-14-64
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

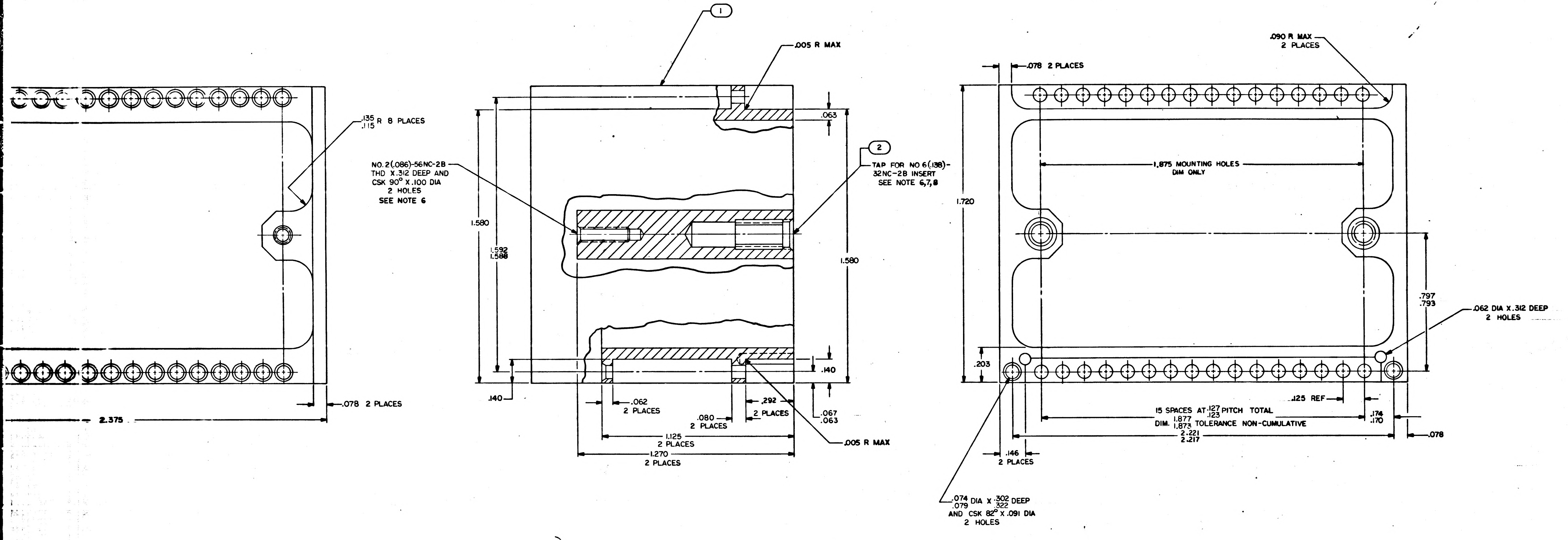
MODULE ASSEMBLY RESISTOR & CAPACITOR

CODE IDENT NO
SIZE E
1007488
SCALE 4:1
SHEET OF

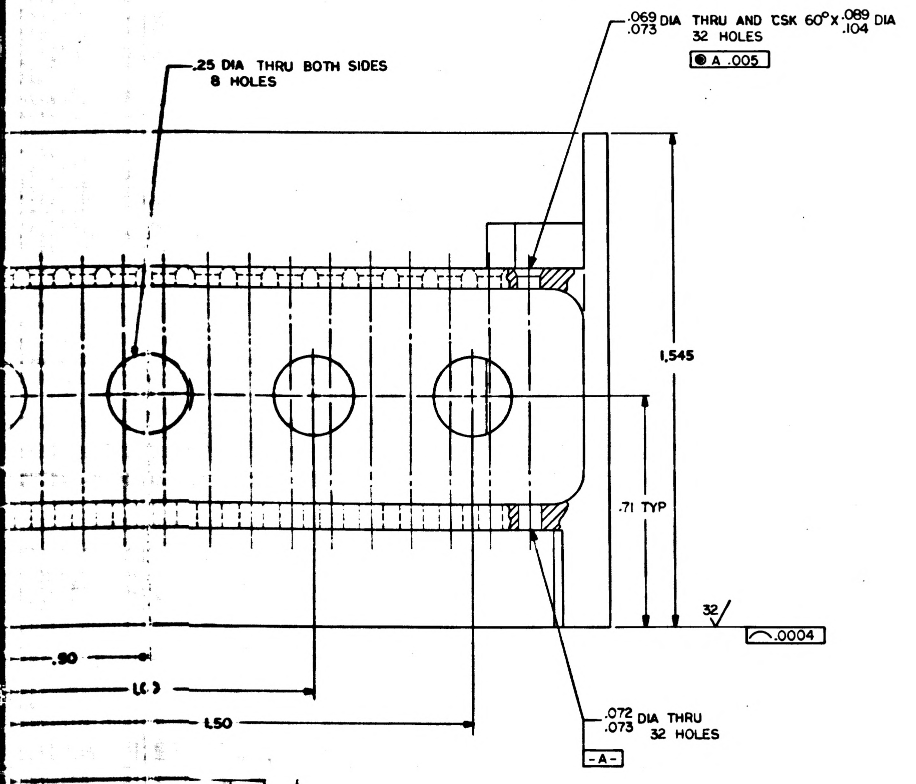
1007488

	1007505		

REVISIONS 13401			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 40[illegible]		



1
.005 R MAX
.063
2
TAP FOR NO 6(.138)-32NC-2B INSERT SEE NOTE 6,7,8
NO.2(.086)-56NC-2B THD X.312 DEEP AND CSK 90° X.100 DIA 2 HOLES SEE NOTE 6
1.580
1.592 1.588
1.580
.140
.140
.062 2 PLACES
.080 2 PLACES
.292 2 PLACES
.067 .063
1.125 2 PLACES
1.270 2 PLACES
.005 R MAX
.135 .115 R 8 PLACES
.078 2 PLACES
2.375
.078 2 PLACES
.090 R MAX 2 PLACES
1.875 MOUNTING HOLES DIM ONLY
1.720
.797 .793
.062 DIA X.312 DEEP 2 HOLES
.203
.125 REF
15 SPACES AT .127 .123 PITCH TOTAL DIM. 1.877 1.873 TOLERANCE NON-CUMULATIVE
2.221 2.217
.174 .170
.078
.146 2 PLACES
.074 .079 DIA X .302 .322 DEEP AND CSK 82° X.091 DIA 2 HOLES



.069 .073 DIA THRU AND CSK 60° X .089 .104 DIA 32 HOLES
A .005
.25 DIA THRU BOTH SIDES 8 HOLES
1.545
.71 TYP
32
.0004
.90
1.0
1.50
.072 .073 DIA THRU 32 HOLES
-A-

1007505

MASTER

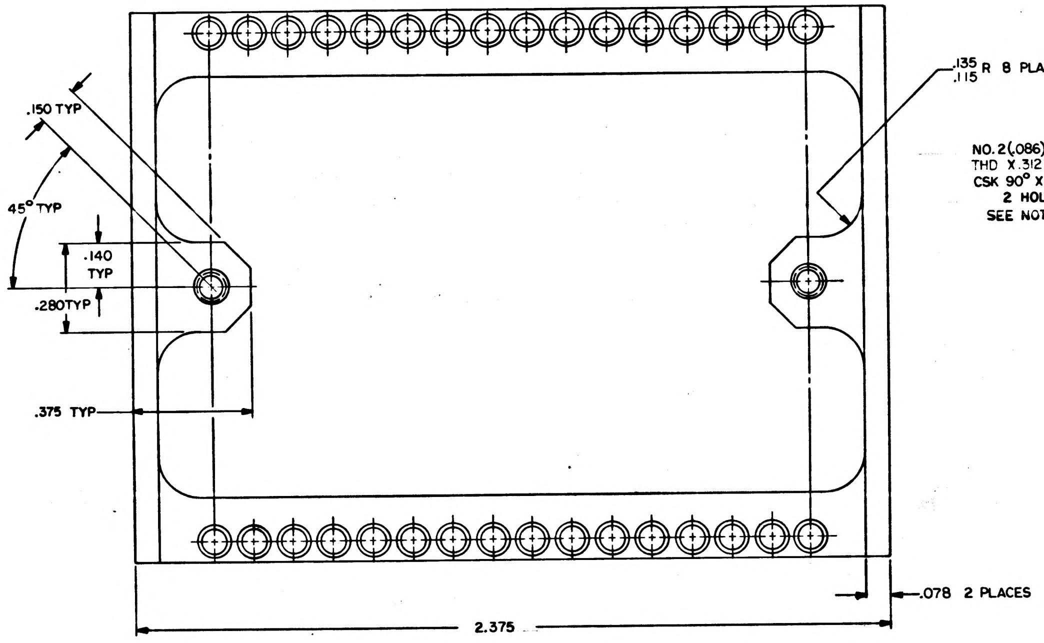
2	MS21209-C0620	INSERT-SCREWTHD,LOCKING,CRES	2
1	1007505-001	FRAME	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

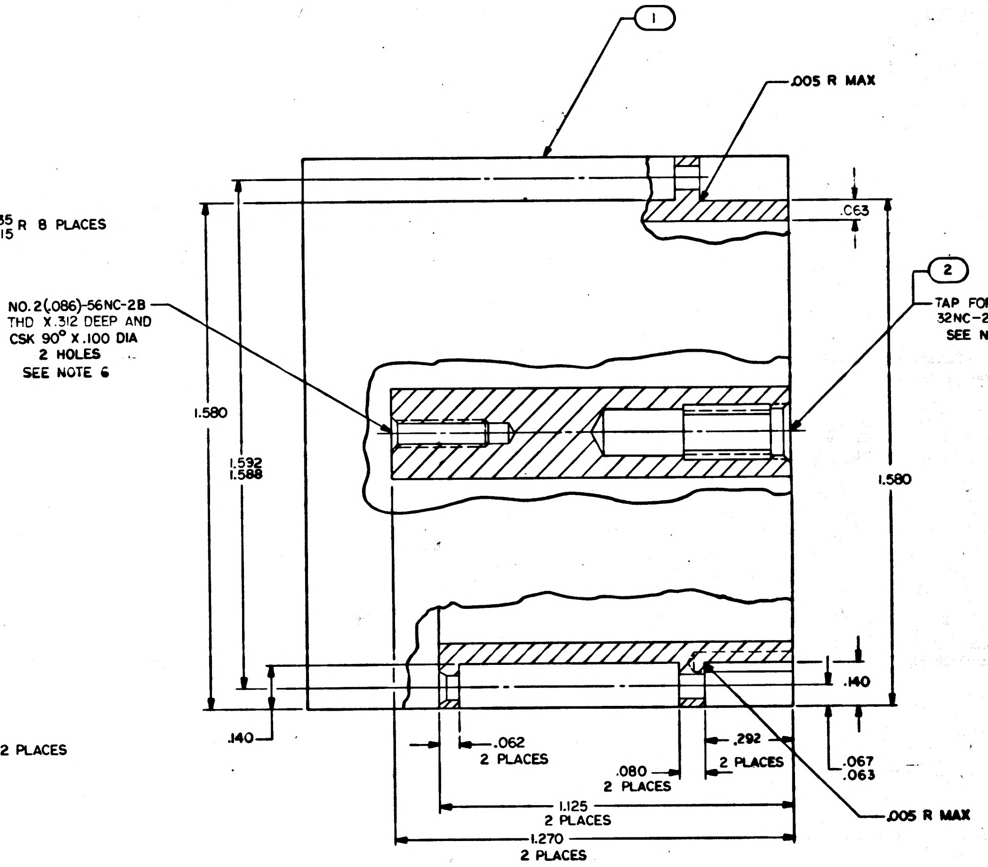
LIST OF MATERIALS

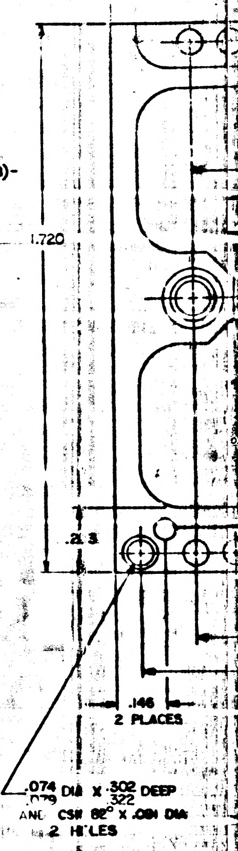
1007528		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS — ± DECIMALS XXX ±.005 XX .02 ANGLES ± 1° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL SEE NOTE 2	DRAWN DATE CHECKED 1 SEP 64 APPROVAL 7 OCT 64 APPROVAL 10-8-64	FRAME, SCT MODING
APPLICATION		HEAT TREATMENT ——— FINAL FINISH SEE NOTE 6	NASA APPROVAL 10-14-64 MIT APPROVAL	CODE IDENT NO. — SIZE J NASA DRAWING NO. 1007505 SCALE 5/1 WT — SHEET 1 OF 1

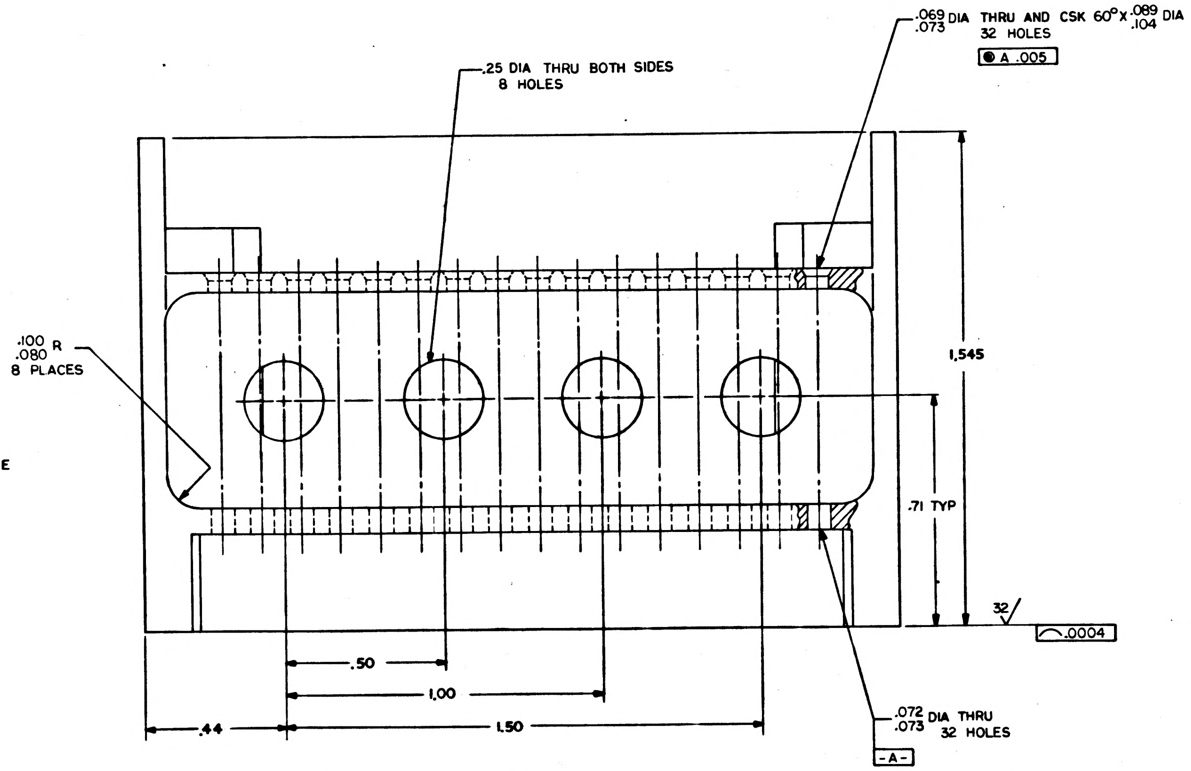
2#

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


.150 TYP
45° TYP
.140 TYP
.280 TYP
.375 TYP
.135 .115 R 8 PLACES
.078 2 PLACES
2.375

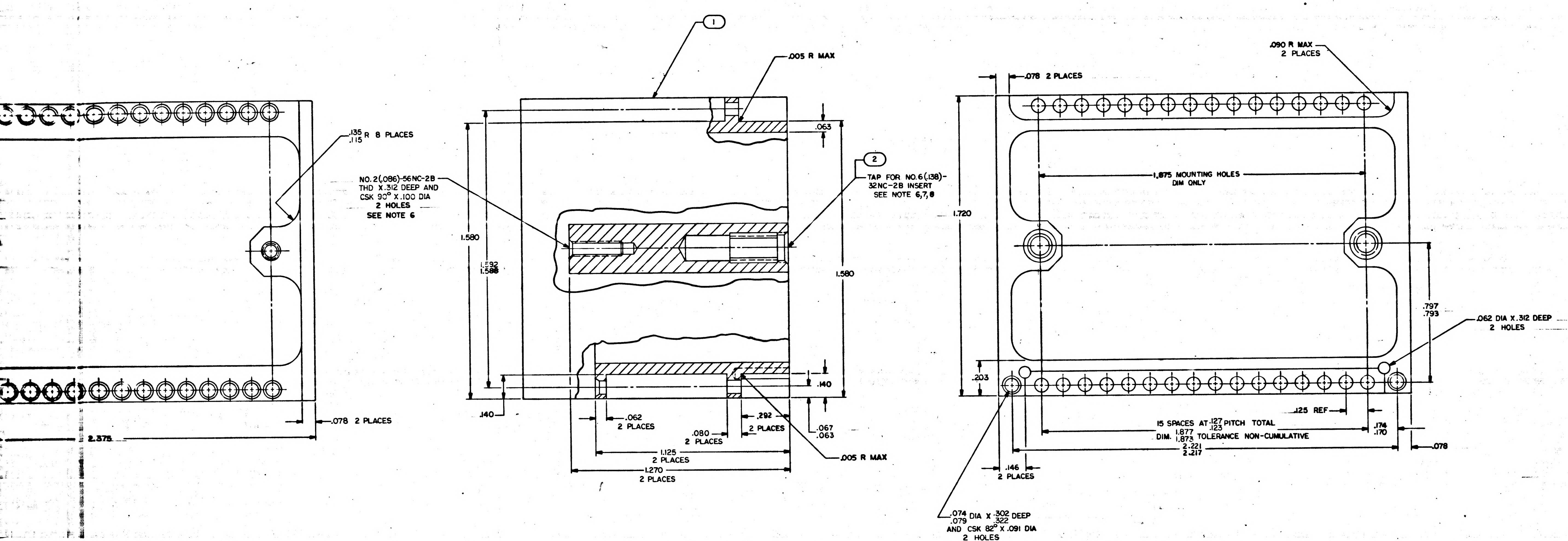

1
.005 R MAX
.063
2
TAP FOR NO.6(.138)-32NC-2B INSERT SEE NOTE 6,7,8
NO.2(.086)-56NC-2B THD X.312 DEEP AND CSK 90° X.100 DIA 2 HOLES SEE NOTE 6
1.580
1.592 1.588
1.580
.140
.140
.062 2 PLACES
.080 2 PLACES
.292 2 PLACES
.067 .063
.005 R MAX
1.125 2 PLACES
1.270 2 PLACES

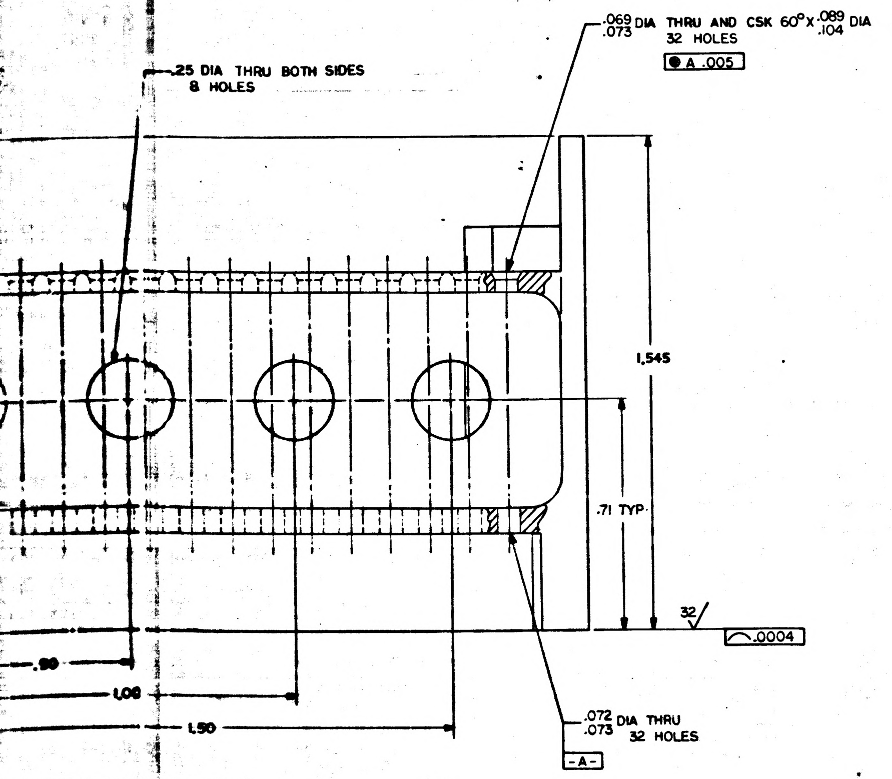

.078 2
1.720
.213
.146 2 PLACES
.074 .079 DIA X .302 .322 DEEP AND CSK 82° X .091 DIA 2 HOLES


.25 DIA THRU BOTH SIDES 8 HOLES
.069 .073 DIA THRU AND CSK 60° X .089 .104 DIA 32 HOLES
● A .005
.100 .080 R 8 PLACES
1.545
.71 TYP
32
⌒ .0004
.50
1.00
.44
1.50
.072 .073 DIA THRU 32 HOLES
-A-

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ALLOY ZK-60A-T5 PER QQ-M-31
3. REMOVE ALL BURRS AND BREAK SHARP EDGES .005/.015
4. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .010 MAX
5. UNLESS OTHERWISE SPECIFIED $\overset{125}{\vee}$ ALL OVER
6. FINISH: ANODIZE PER MIL-M-3171, TYPE IV, ALL THREADED HOLES TO BE FREE OF ANODIZE
7. INSTALL FIND NO. 2 PER MS33646, EXCEPT DIM. F TO BE .594, BREAK OFF DRIVING TANG
8. COAT THREADS AND FIND NO.2 WITH MIL-P-8585, WET ZINC CHROMATE PRIMER
9. IDENTIFY PER ND 1002019


①
.005 R MAX
.063
②
TAP FOR NO.6(.138)-
32NC-2B INSERT
SEE NOTE 6,7,8
NO.2(.086)-56NC-2B
THD X.312 DEEP AND
CSK 90° X.100 DIA
2 HOLES
SEE NOTE 6
.135 .115 R 8 PLACES
1.580
1.592 1.588
1.580
.140
.140
.062 2 PLACES
.080 2 PLACES
.292 2 PLACES
.067 .063
.005 R MAX
1.125 2 PLACES
1.270 2 PLACES
.078 2 PLACES
2.375
.090 R MAX 2 PLACES
.078 2 PLACES
1.875 MOUNTING HOLES DIM ONLY
1.720
.797 .793
.062 DIA X.312 DEEP 2 HOLES
.203
.125 REF
15 SPACES AT .127 .123 PITCH TOTAL
DIM. 1.877 1.873 TOLERANCE NON-CUMULATIVE
2.221 2.217
.174 .170
.078
.146 2 PLACES
.074 .079 DIA X .302 .322 DEEP
AND CSK 82° X .091 DIA
2 HOLES


.069 .073 DIA THRU AND CSK 60° X .089 .104 DIA
32 HOLES
● A .005
.25 DIA THRU BOTH SIDES
8 HOLES
1.545
.71 TYP
32
.0004
.90
1.00
1.50
.072 .073 DIA THRU
32 HOLES
-A-

1007505

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	MS21209-C0620	INSERT-SCREWTHD, LOCKING, CRES	2
1	1007505-001	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007528	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XXX ±.005 XX .02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
HEAT TREATMENT ———
FINAL FINISH SEE NOTE 6

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 1 SEP 64
APPROVAL [illegible] 7-[illegible]-64
APPROVAL [illegible] 10-8-64
NASA APPROVAL [illegible] 10-14-64
MIT APPROVAL [illegible] 10/14/64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

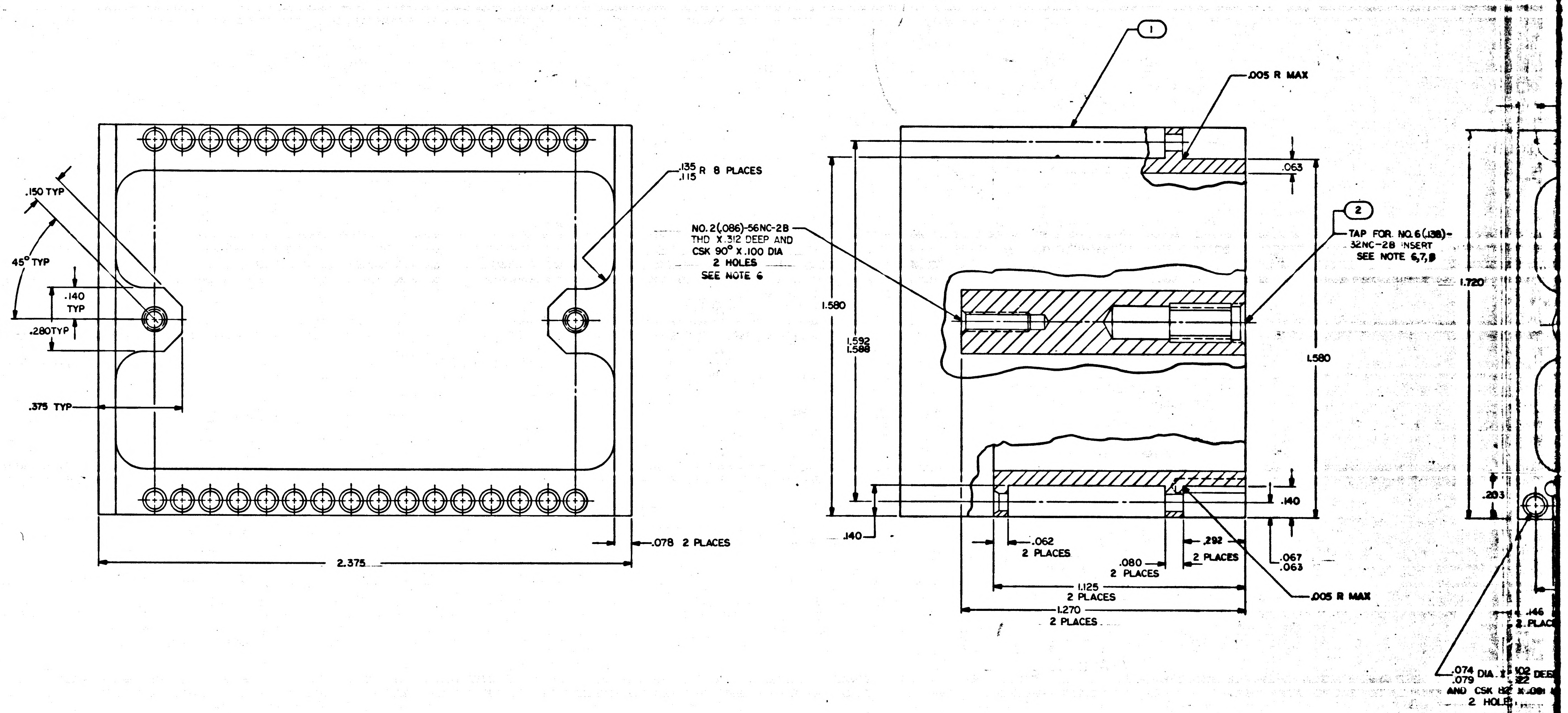
FRAME,
SCT MODING

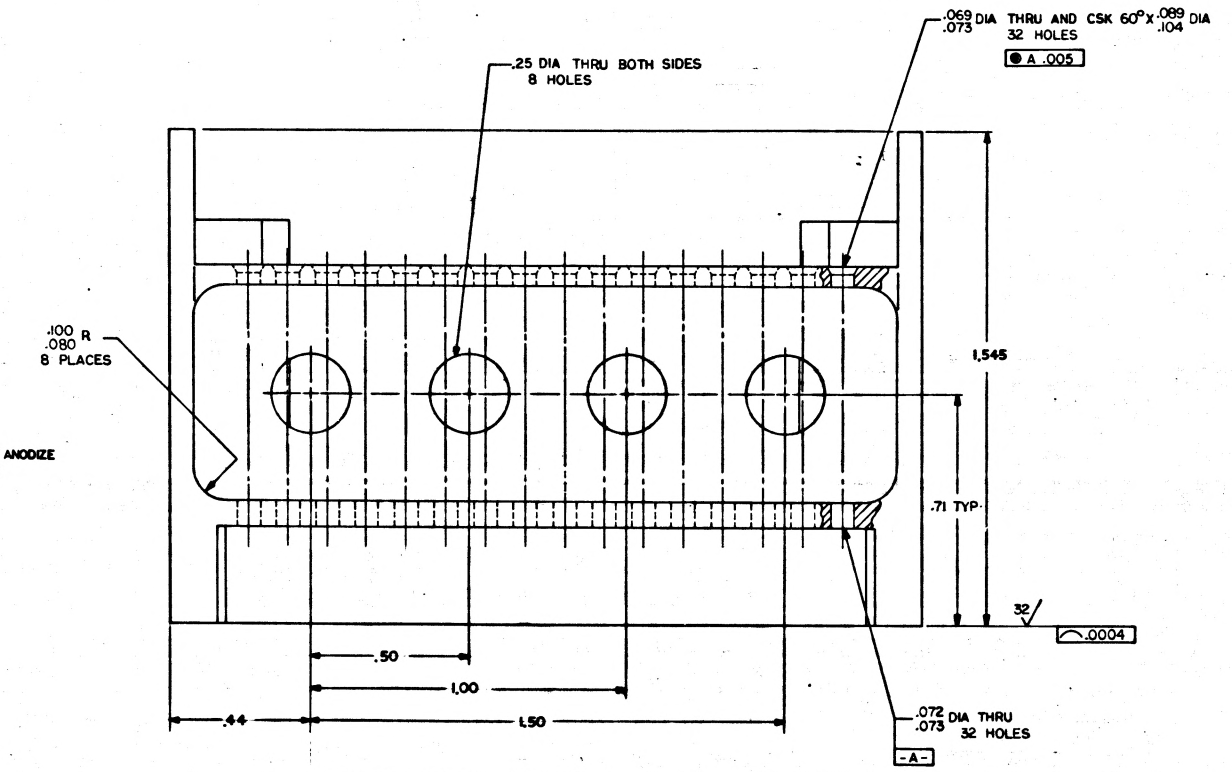
CODE IDENT NO. ——— SIZE J NASA DRAWING NO. 1007505
SCALE 5/1 WT ——— SHEET 1 OF 1

1007505

MASTER

2#


1
.005 R MAX
.150 TYP
45° TYP
.140
TYP
.280 TYP
.375 TYP
.135
.115 R 8 PLACES
NO. 2 (.086)-56NC-2B
THD X .312 DEEP AND
CSK 90° X .100 DIA
2 HOLES
SEE NOTE 6
2
TAP FOR NO. 6 (.138)-
32NC-2B INSERT
SEE NOTE 6,7,8
.063
1.580
1.592
1.588
1.580
1.720
.140
.140
.203
.078 2 PLACES
2.375
.062
2 PLACES
.080
2 PLACES
.292
2 PLACES
.067
.063
1.125
2 PLACES
1.270
2 PLACES
.005 R MAX
.146
2 PLACES
.074
.079 DIA
AND CSK
2 HOLES

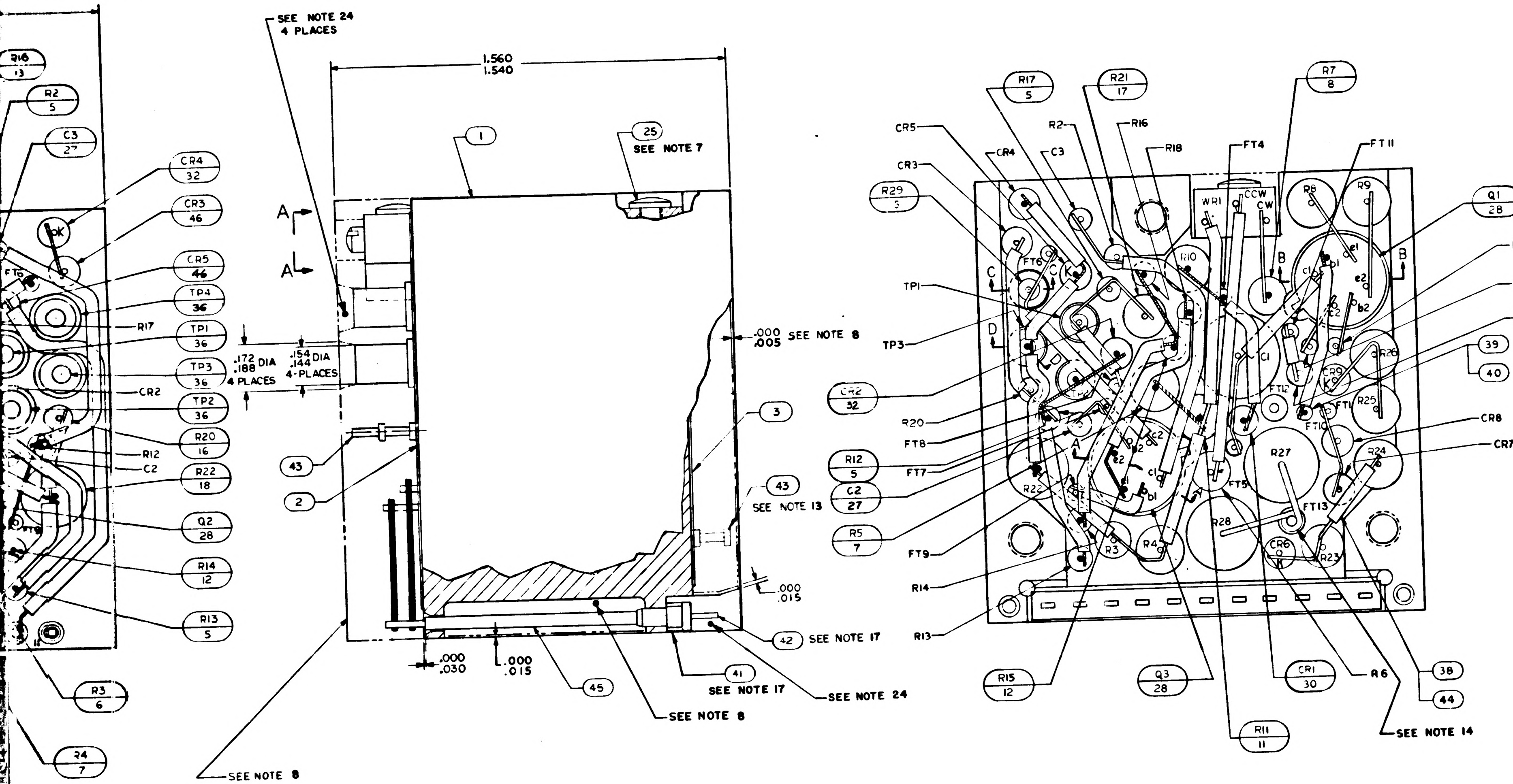

.25 DIA THRU BOTH SIDES
8 HOLES
.069
.073 DIA THRU AND CSK 60° X .089
.104 DIA
32 HOLES
● A .005
.100
.080 R
8 PLACES
1.545
.71 TYP
32
⌒ .0004
.50
1.00
.44
1.50
.072
.073 DIA THRU
32 HOLES
-A-

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ALLOY ZK-60A-T5 PER QQ-M-31
3. REMOVE ALL BURRS AND BREAK SHARP EDGES .005/.015
4. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .010 MAX
5. UNLESS OTHERWISE SPECIFIED 125/ALL OVER
6. FINISH: ANODIZE PER MIL-M-45202, TYPE I, CLASS C. ALL THREADED HOLES TO BE FREE OF ANODIZE
7. INSTALL FIND NO. 2 PER MS33646, EXCEPT DIM. F TO BE .594, BREAK OFF DRIVING TANG
8. COAT THREADS AND FIND NO. 2 WITH MIL-P-8585, WET ZINC CHROMATE PRIMER
9. IDENTIFY PER ND 1002019

1007505

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17324		5 JAN 65	RS



R16 13
R2 5
C3 27
CR4 32
CR3 46
CR5 46
TP4 36
R17
TP1 36
TP3 36
CR2
TP2 36
R20 16
R12
C2
R22 18
Q2 28
R14 12
R13 5
R3 6
R4 7
SEE NOTE 24 4 PLACES
1.560
1.540
1
25 SEE NOTE 7
A
A
.172 .188 DIA 4 PLACES
.154 .144 DIA 4-PLACES
.000 .005 SEE NOTE 8
3
43
43 SEE NOTE 13
2
.000 .015
42 SEE NOTE 17
41 SEE NOTE 17
SEE NOTE 24
45
SEE NOTE 8
.000 .030
.000 .015
SEE NOTE 8
R17 5
R21 17
R7 8
CR5
CR4
C3
R2
R16
R18
FT4
FT11
CR3
R29 5
WR1
CCW CW
R8
R9
Q1 28
FT2
FT3
R19 15
39
40
TP1
TP3
CR2 32
R20
FT8
R12 5
C2 27
FT7
R5 7
FT9
R14
R13
CR8
CR7
R15 12
Q3 28
CR1 30
R6
38
44
SEE NOTE 14
R11 11

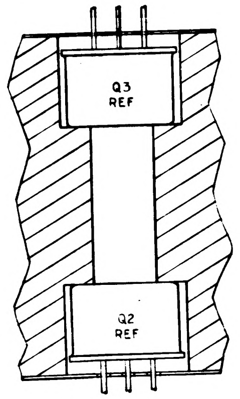
CHART A			
PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B	
PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0 Ω

CHART C	
PART NO.	VALUE
1010254-1	100Ω
-2	120
-3	140
-4	160
-5	180
-6	200
-7	220
-8	240
-9	260
-10	280
-11	300
-12	320
-13	340
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500

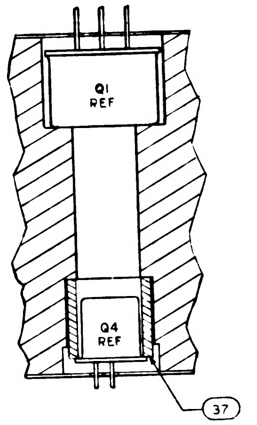
.156 .188 DIA CLEARANCE FOR SCREW ADJUSTMENT SEE NOTE 24

VIEW A-A



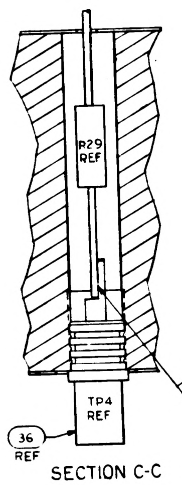
Q3 REF
Q2 REF

SECTION A-A



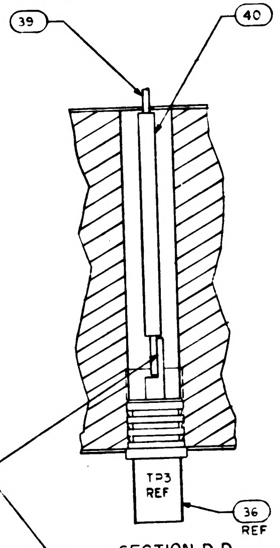
Q1 REF
Q4 REF
37

SECTION B-B



R29 REF
TP4 REF
36 REF

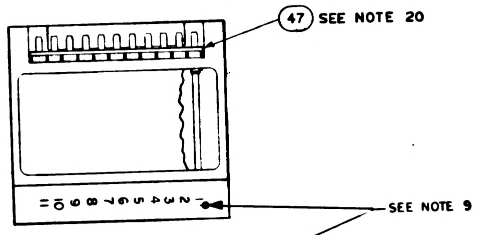
SECTION C-C



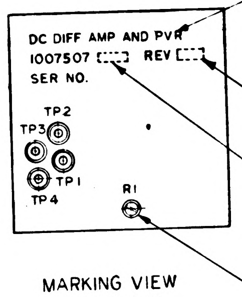
39
40
TP3 REF
36 REF

SECTION D-D
TYP 3 PLACES

SEE NOTE 3



47 SEE NOTE 20
SEE NOTE 9



DC DIFF AMP AND PVR
1007507
REV
SER NO.
TP2
TP3
TP1
TP4
R1
DWG REV LTR
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			☒		1010008	ELEC SCHEMATIC DIAGRAM	REF
			1		1008540-11	GASKET, CONNECTOR MINIATURE	47
			2		1010286-26	DIODE	46
			AR		1006776-20	INSULATION SLEEVING	45
			AR		1006776-21	INSULATION SLEEVING	44
			2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
			11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
			11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
			AR		1006776-22	INSULATOR, SLEEVING	40
			AR		1006757-8	WIRE, ELEC .020 DIA	39
			AR		1006757-1	WIRE, ELEC .010 X .020	38
			1		1008025-1	INSULATOR, BUSHING	37
			4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
			1		1008152	DIODE	35
			1		1010372-19	DIODE	34
			2		1010372-15	DIODE	33
			2		1010286-27	DIODE	32
							31
							30
			1		1010372-3	DIODE	29
			1		1010357-1	TRANSISTOR	28
			3		1010376-3	TRANSISTOR	27
			2		1006777-6	CAPACITOR, CER	26
			1		1010264-24	CAPACITOR, MYLAR	25
			2		1010618-3	SCREW, BUTTON HD	24
			1		1010254-22	RESISTOR, FIXED	23
			1		SEE NOTE 13	RESISTOR, FIXED	22
			1		SEE NOTE 12	RESISTOR, FIXED	21
			1		SEE NOTE 11	RESISTOR, FIXED	20
			1		1010377-25	RESISTOR, FIXED	19
			1		1006760-30	RESISTOR, FIXED	18
			1		1010399-49	RESISTOR, FIXED	17
			1		1006760-46	RESISTOR, FIXED	16
			1		1006750-68	RESISTOR, FIXED	15
			1		1006750-1	RESISTOR, FIXED	14
			1		1006750-84	RESISTOR, FIXED	13
			1		1006750-66	RESISTOR, FIXED	12
			2		1006750-16	RESISTOR, FIXED	11
			1		1006760-48	RESISTOR, FIXED	10
			1		1010377-36	RESISTOR, FIXED	9
			2		1010377-23	RESISTOR, FIXED	8
			2		1010364-681	RESISTOR, FIXED	7
			2		1010377-39	RESISTOR, FIXED	6
			1		1010374-126	RESISTOR, FIXED	5
			5		1006750-80	RESISTOR, FIXED	4
			1		1010373-12	RESISTOR, VARIABLE	3
			1		1008010-2	INSULATOR BOTTOM	2
			1		1008010-1	INSULATOR TOP	1
			1		1007003	HEATSINK	

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ± .02 XXX ± .005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

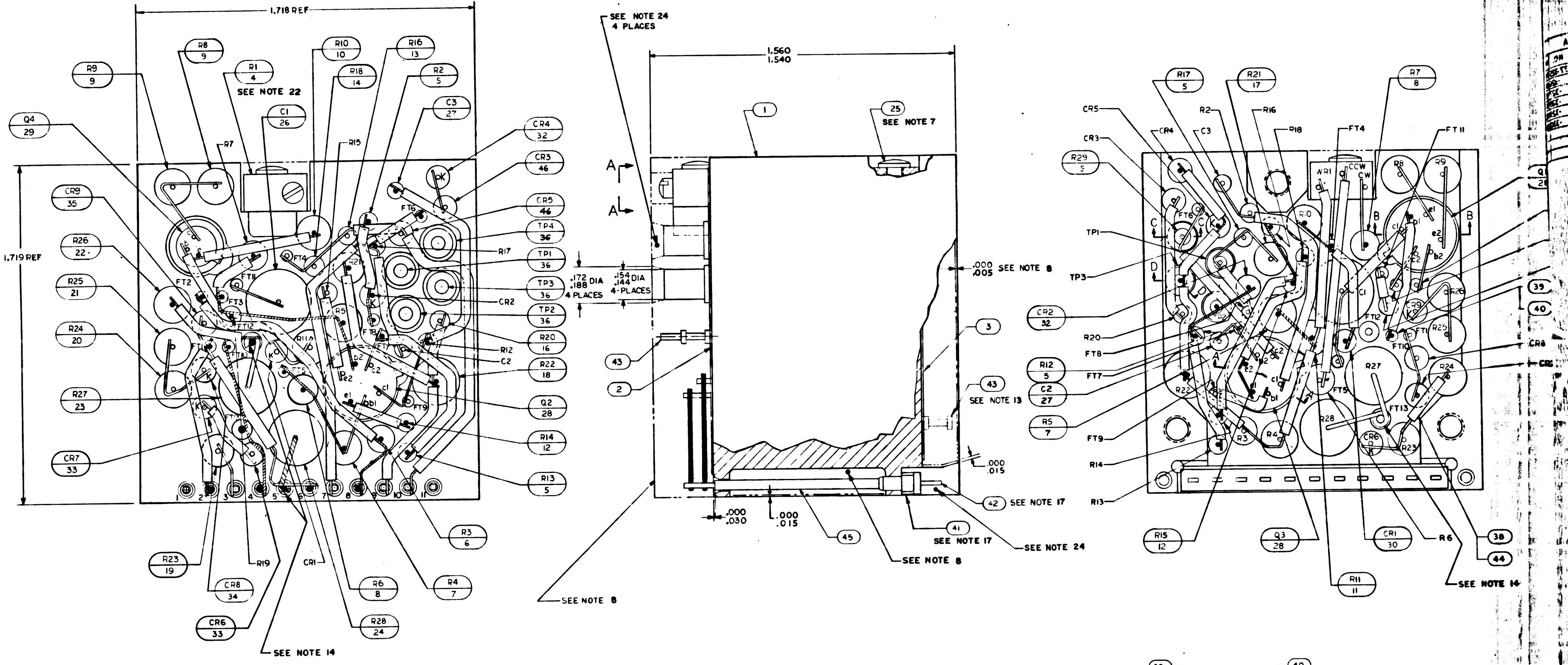
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Oygal DATE 4 SEP 64
CHECKED 16 Sep 64
APPROVAL
APPROVAL 10-5-64
NASA APPROVAL
MIT APPROVAL Oct 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ASSEMBLY
DC DIFFERENTIAL AMPLIFIER
AND PVR

CODE IDENT NO. | SIZE J | NASA DRAWING NO. 1007507
SCALE 5:1 | WT | SHEET 1 OF 2

1007507 A


1.718 REF
1.719 REF
R9
9
R8
9
R1
4
SEE NOTE 22
R10
10
R16
13
R18
14
R2
5
C1
26
C3
27
Q4
29
R7
R15
CR4
32
CR3
46
CR9
35
CR5
46
TP4
36
R17
TP1
36
R26
22
TP3
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CR2
R25
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TP2
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R20
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R24
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R12
C2
R22
18
R27
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Q2
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R14
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CR7
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R13
5
R3
6
R23
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R19
CR1
R6
8
R4
7
CR8
34
CR6
33
R28
24
SEE NOTE 14
SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
.000
.005
SEE NOTE 8
.172
.188
DIA
4 PLACES
.154
.144
DIA
4 PLACES
3
43
2
43
SEE NOTE 13
.000
.015
42
SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
.000
.030
.000
.015
45
SEE NOTE 8
SEE NOTE 8
R17
5
R21
17
R7
8
CR5
R2
R16
CR4
C3
R18
FT4
FT 11
CR3
R29
5
TP1
TP3
CR2
32
R20
FT8
R12
5
FT7
C2
27
R5
7
FT9
R14
R13
R15
12
Q3
28
R11
11
CR1
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R6
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SEE NOTE 14
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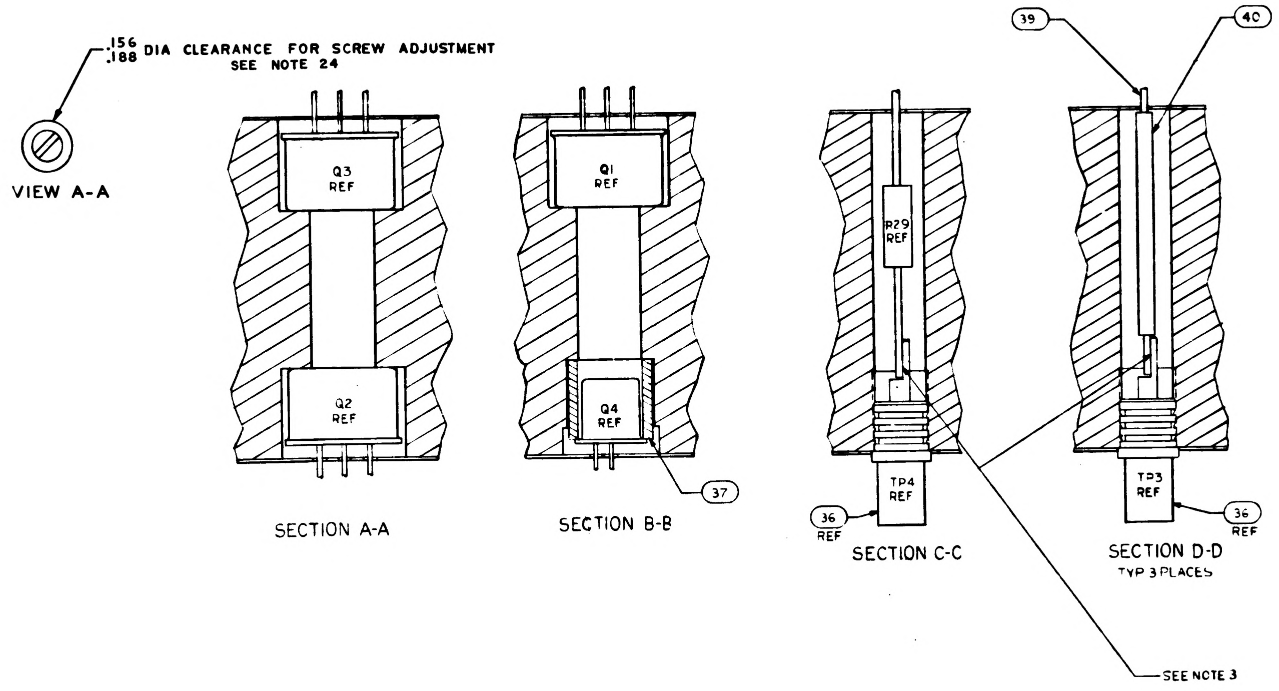
40
CR8
R27
R28
R24
R25
CCW
CW
B
C
D


.156
.188
DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24
VIEW A-A
Q3
REF
Q2
REF
SECTION A-A
Q1
REF
Q4
REF
37
SECTION B-B
R29
REF
TP4
REF
36
REF
SECTION C-C
39
40
TP3
REF
36
REF
SECTION D-D
TYP 3 PLACES
SEE NOTE 3

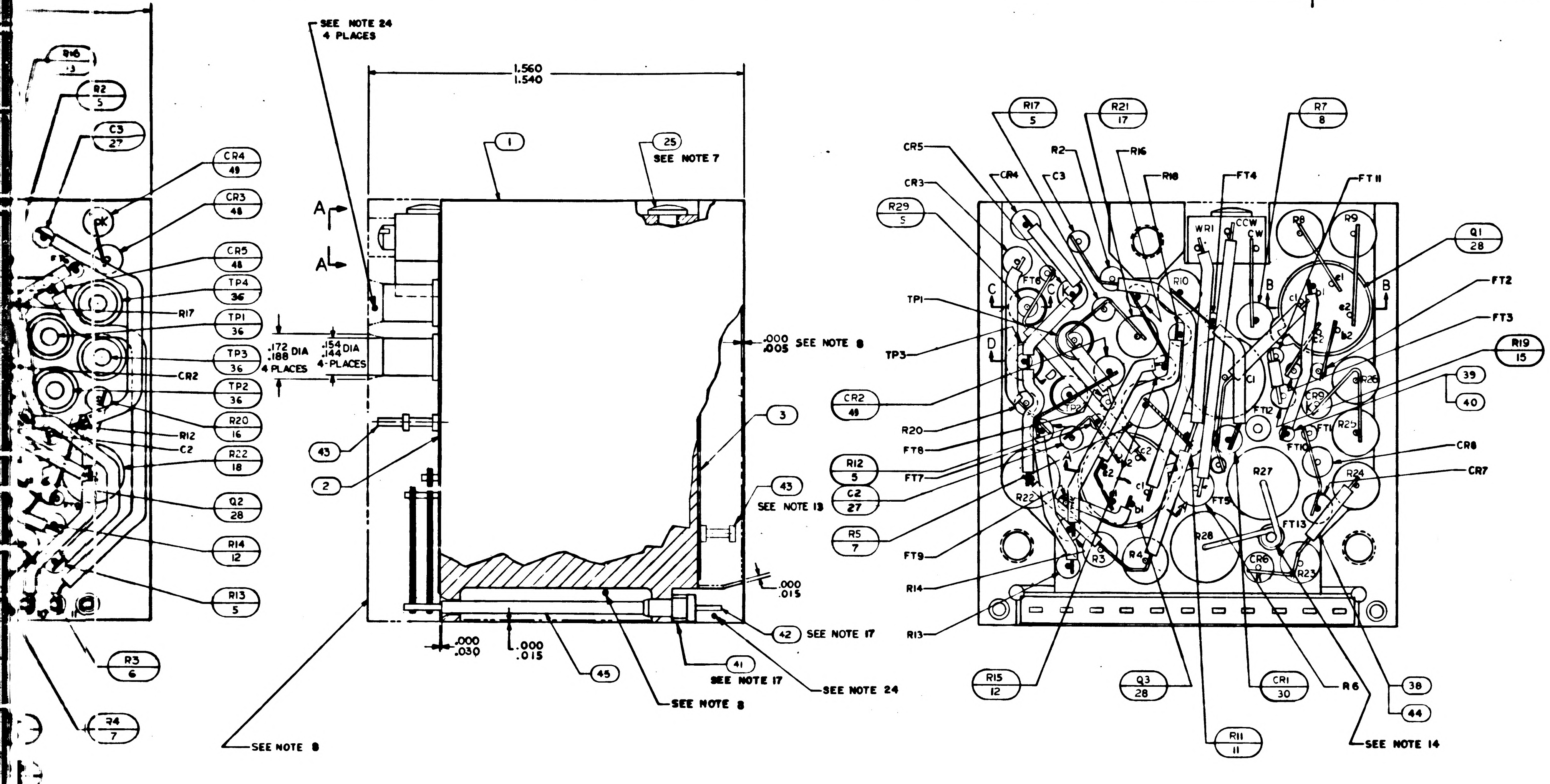
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD C
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007
20. BOND FIND NO 47 TO FIND NO 41 PER ND1002237

21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND 1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.

1007507

1771007507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C3 / 27
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CR3 / 48
CR5 / 48
TP4 / 36
TP1 / 36
TP3 / 36
TP2 / 36
R17
CR2
R12
C2
R20 / 16
R22 / 18
Q2 / 28
R14 / 12
R13 / 5
R3 / 6
R4 / 7
SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
A
.172
.188 DIA
4 PLACES
.154
.144 DIA
4 PLACES
.000
.005 SEE NOTE 8
3
43
2
43
SEE NOTE 13
42 SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
.000
.015
.000
.030
.000
.015
45
SEE NOTE 8
SEE NOTE 8
R17 / 5
R21 / 17
R7 / 8
CR5
CR3
CR4
C3
R2
R16
R18
FT4
FT11
R29 / 5
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TP3
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C2 / 27
FT7
R5 / 7
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R13
WR1
CCW
CW
R8
R9
R10
FT6
C
D
B
B
C1
FT12
FT1
FT10
FT5
FT13
R22
R27
R28
R24
R25
R26
CR9
CR6
R23
R3
R4
TP2
Q1 / 28
FT2
FT3
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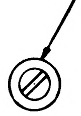
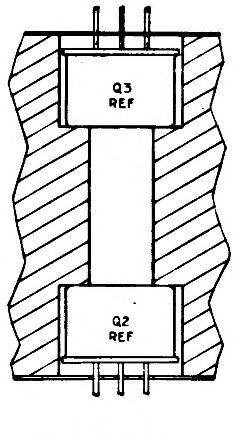
44
SEE NOTE 14
R11 / 11



.156
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

VIEW A-A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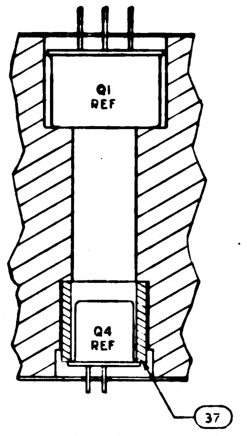
Q2
REF

SECTION A-A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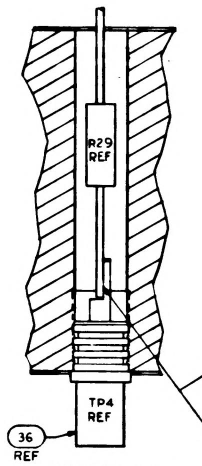
SECTION B-B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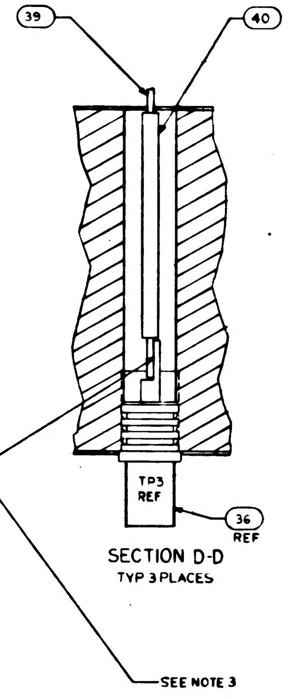
SECTION C-C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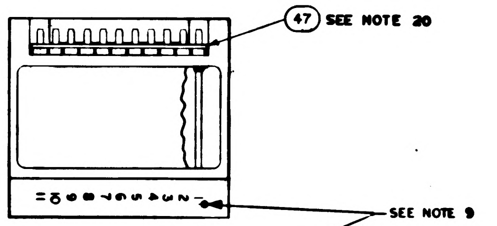
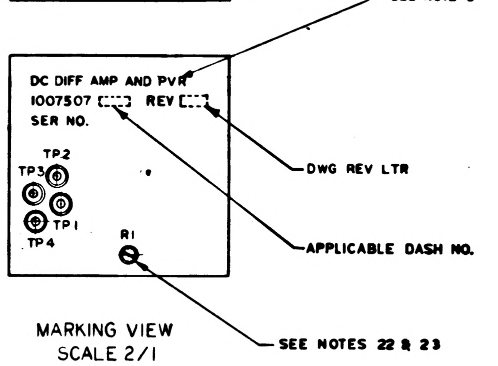
REF
SEE NOTE 3

SECTION D-D
TYP 3 PLACES


47 SEE NOTE 20
SEE NOTE 9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1007507
REV
SER NO.
TP2
TP3
TP1
TP4
R1
DWG REV LTR
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17524		2 MAR 65	RS EF
B		REVISED PER TDRR 18124		2 APR 65	HTQ EF

CHART A

PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B

PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0 Ω

CHART C

PART NO.	VALUE
1010254-1	100Ω
-2	120
-3	140
-4	160
-5	180
-6	200
-7	220
-8	240
-9	260
-10	280
-11	300
-12	320
-13	340
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			011				
			2		1010830-27	DIODE	49
			2		1010830-26	DIODE	48
			╳		1010008	ELEC SCHEMATIC DIAGRAM	REF
			1		1008540-11	GASKET, CONNECTOR MINIATURE	47
			~~2~~		~~1010286-26~~	~~DIODE~~	46
			AR		1006776-20	INSULATION SLEEVING	45
			AR		1006776-21	INSULATION SLEEVING	44
			2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
			11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
			11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
			AR		1006776-22	INSULATOR, SLEEVING	40
			AR		1006757-8	WIRE, ELEC ,020 DIA	39
			AR		1006757-1	WIRE, ELEC ,010 X ,020	38
			1		1008025-1	INSULATOR, BUSHING	37
			4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
			1		1008152	DIODE	35
			1		1010372-19	DIODE	34
			2		1010372-15	DIODE	33
			~~2~~		~~1010286-27~~	~~DIODE~~	32
							31
			1		1010372-3	DIODE	30
			1		1010357-1	TRANSISTOR	29
			3		1010376-3	TRANSISTOR	28
			2		1006777-6	CAPACITOR, CER	27
			1		1010264-24	CAPACITOR, MYLAR	26
			2		1010618-3	SCREW, BUTTON HD	25
			1		1010254-22	RESISTOR, FIXED	24
			1		SEE NOTE 13	RESISTOR, FIXED	23
			1		SEE NOTE 12	RESISTOR, FIXED	22
			1		SEE NOTE 11	RESISTOR, FIXED	21
			1		1010377-25	RESISTOR, FIXED	20
			1		1006760-30	RESISTOR, FIXED	19
			1		1010399-49	RESISTOR, FIXED	18
			1		1006760-46	RESISTOR, FIXED	17
			1		1006750-68	RESISTOR, FIXED	16
			1		1006750-1	RESISTOR, FIXED	15
			1		1006750-84	RESISTOR, FIXED	14
			1		1006750-66	RESISTOR, FIXED	13
			2		1006750-16	RESISTOR, FIXED	12
			1		1006760-48	RESISTOR, FIXED	11
			1		1010377-36	RESISTOR, FIXED	10
			2		1010377-23	RESISTOR, FIXED	9
			2		1010364-681	RESISTOR, FIXED	8
			2		1010377-39	RESISTOR, FIXED	7
			1		1010374-126	RESISTOR, FIXED	6
			5		1006750-80	RESISTOR, FIXED	5
			1		1010373-12	RESISTOR, VARIABLE	4
			1		1008010-2	INSULATOR BOTTOM	3
			1		1008010-1	INSULATOR TOP	2
			1		1007003	HEATSINK	1

LIST OF MATERIALS

1007507B

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Oxyal DATE
CHECKED W. Adonak 14 SEP 64
APPROVAL Shewaugh
APPROVAL D. R. Hist 10-5-64
NASA APPROVAL W J Rhine 10-6-64
MIT APPROVAL W Kupfer Oct 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

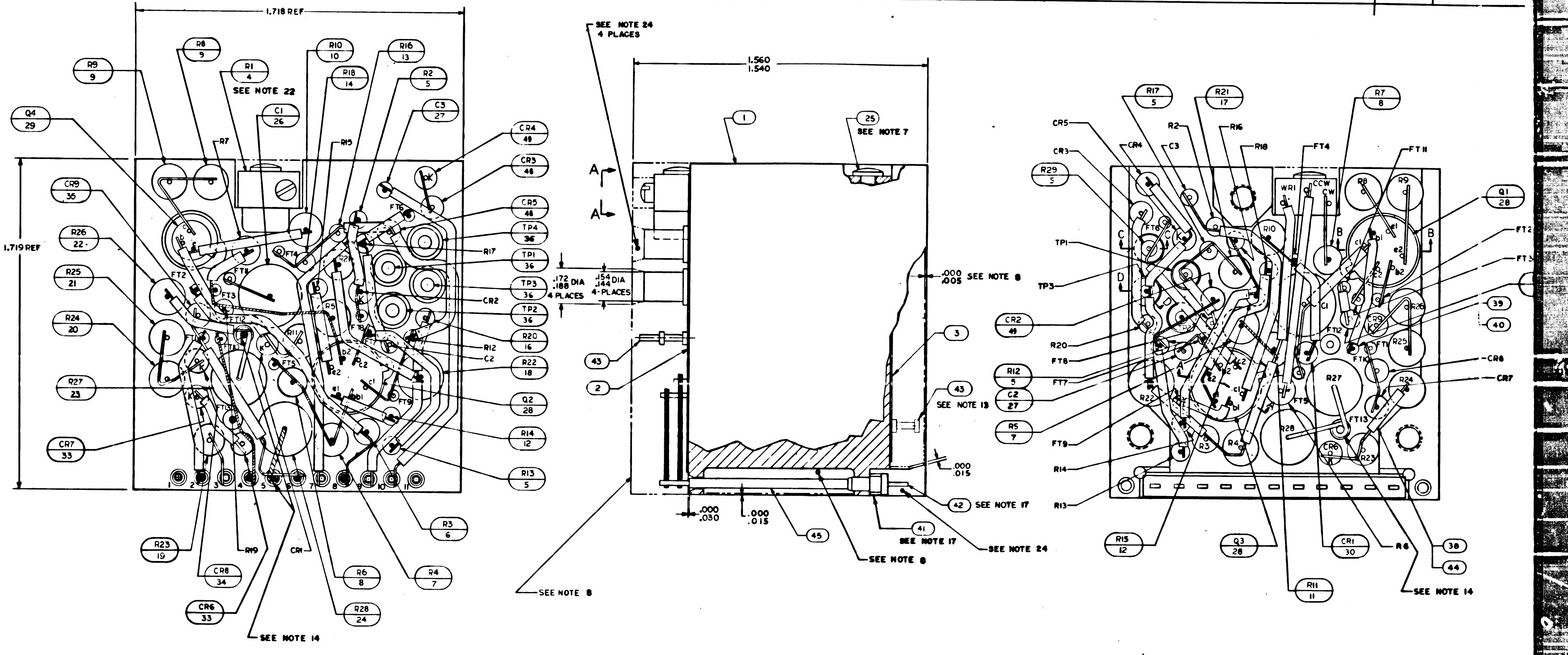
ASSEMBLY
DC DIFFERENTIAL AMPLIFIER
AND PVR

CODE IDENT NO. | SIZE J | NASA DRAWING NO. 1007507
SCALE 5:1 | WT | SHEET 1 OF 1

1007507 | REV LTR B | SH 1

2/1007507

1007507


1.718 REF
1.719 REF
R9 9
R8 9
R1 4
SEE NOTE 22
R10 10
R18 14
R16 13
R2 5
C1 26
C3 27
Q4 29
CR4 49
CR3 48
CR5 48
CR9 35
R26 22
R25 21
R24 20
R27 23
CR7 33
TP4 36
TP1 36
TP3 36
TP2 36
R20 16
R22 18
Q2 28
R14 12
R13 5
R3 6
R4 7
R6 8
R28 24
R23 19
CR8 34
CR6 33
R19
CR1
SEE NOTE 14
SEE NOTE 24 4 PLACES
1.560 1.540
SEE NOTE 7
.172 .188 DIA 4 PLACES
.154 .144 DIA 4-PLACES
.000 .005 SEE NOTE 8
SEE NOTE 13
.000 .015
42 SEE NOTE 17
41 SEE NOTE 17
SEE NOTE 24
SEE NOTE 8
.000 .030
.000 .015
45
43
SEE NOTE 8
R17 5
R21 17
R7 8
R29 5
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R5 7
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Q3 28
CR1 30
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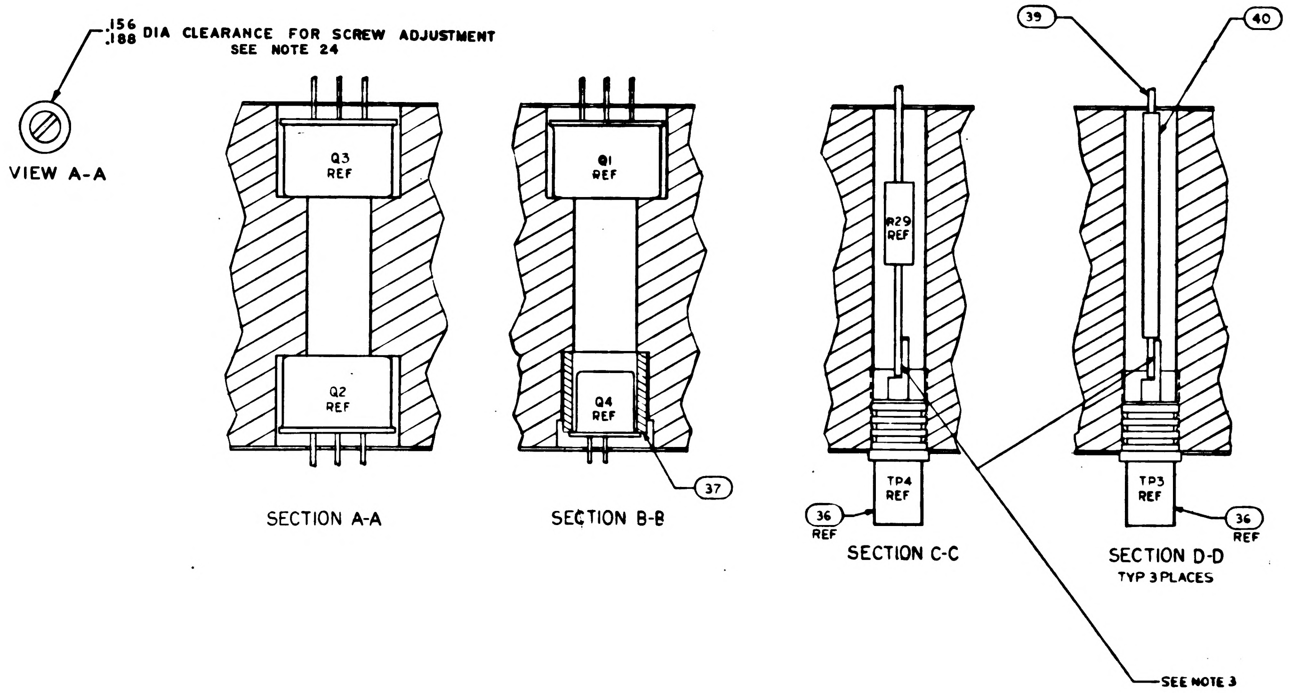
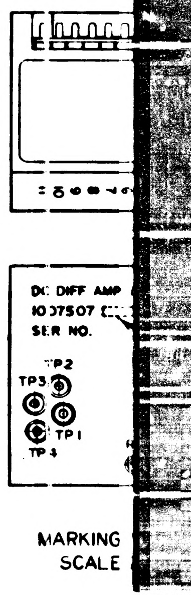
38
44
39
40
SEE NOTE 14


.156 .188 DIA CLEARANCE FOR SCREW ADJUSTMENT SEE NOTE 24
VIEW A-A
Q3 REF
Q2 REF
SECTION A-A
Q1 REF
Q4 REF
37
SECTION B-B
R29 REF
TP4 REF
36 REF
SECTION C-C
39
40
TP3 REF
36 REF
SECTION D-D
TYP 3 PLACES
SEE NOTE 3


DC DIFF AMP
1007507
SER NO.
TP2
TP3
TP1
TP4
MARKING
SCALE

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD C
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007
20. BOND FIND NO 47 TO FIND NO 41 PER ND1002237

21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND 1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.

1007507 B 1

1/1007507

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17324		12 MAR 65	RS EF
B		REVISED PER TDRR 18124		12 APR 65	HTO EF
C		REVISED PER TDRR 18936		14 MAY 65	JJ

CR4 49
CR3 48
CR5 48
TP4 36
R17
TP1 36
TP3 36
CR2
TP2 36
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R12
C2
R22 18
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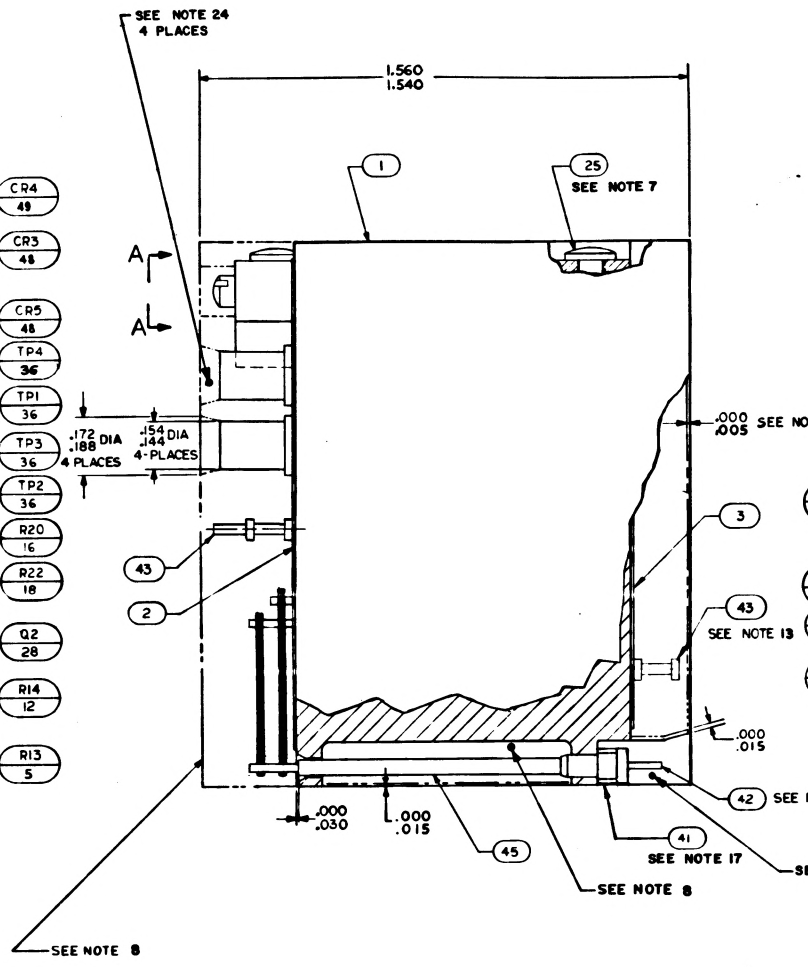
R14 12
R13 5
R15 6


SEE NOTE 24 4 PLACES
1.560
1.540
1
25 SEE NOTE 7
A
A
.000
.005 SEE NOTE 8
.172
.188 DIA 4 PLACES
.154
.144 DIA 4-PLACES
3
43
2
43 SEE NOTE 13
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.015
42 SEE NOTE 17
41 SEE NOTE 17
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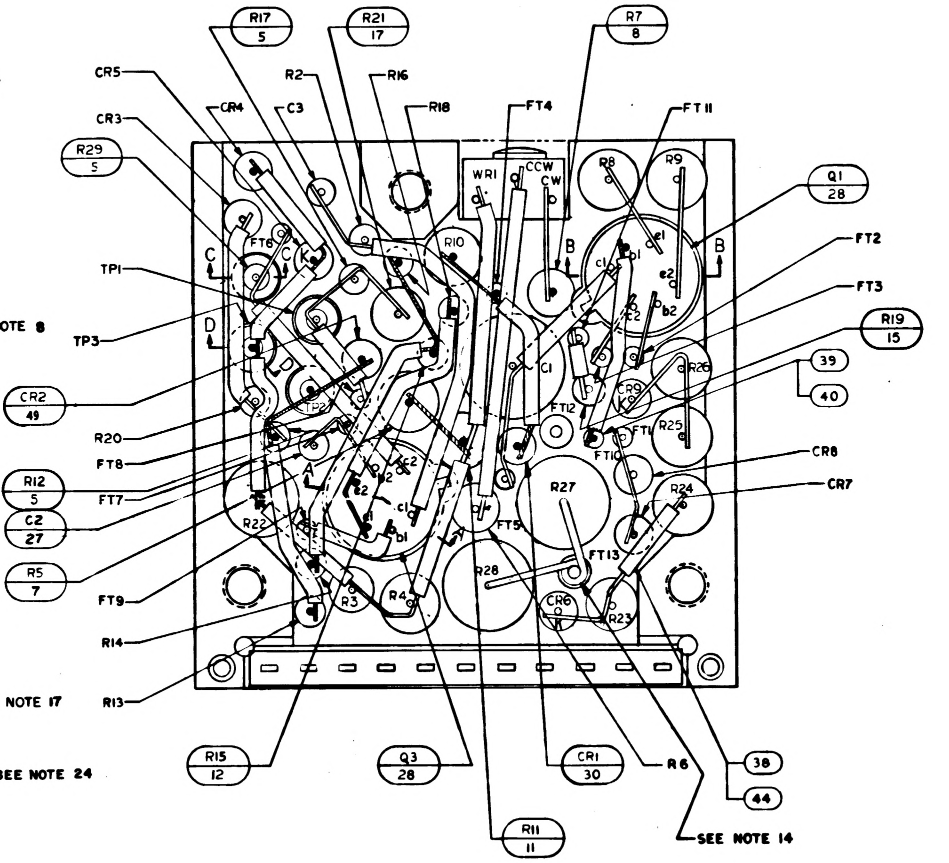
.015
45
SEE NOTE 8
SEE NOTE 24
SEE NOTE 8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R9
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D
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R10
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CR7
R27
R24
R22
FT5
R4
R3
R28
CR6
FT13
R23
R15 12
Q3 28
CR1 30
R6
38
44
R11 11
SEE NOTE 14

CHART A			
PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B	
PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0Ω

CHART C	
PART NO.	VALUE
1010254-1	100Ω
-2	120
-3	140
-4	160
-5	180
-6	200
-7	220
-8	240
-9	260
-10	280
-11	300
-12	320
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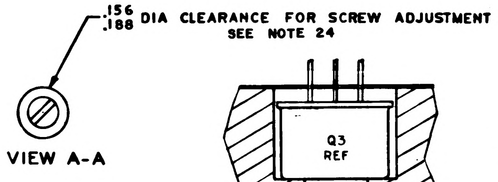
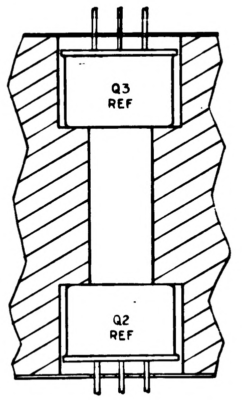
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500


.156
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

VIEW A-A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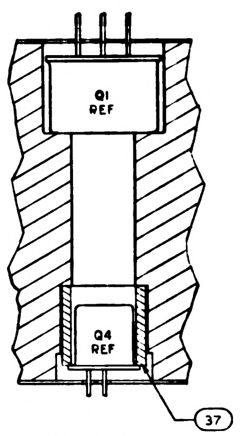
Q2 REF

SECTION A-A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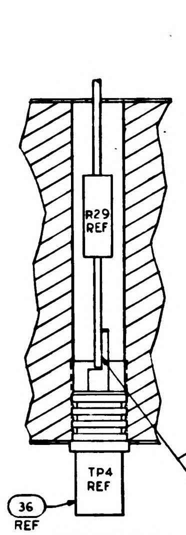
Q4 REF
37

SECTION B-B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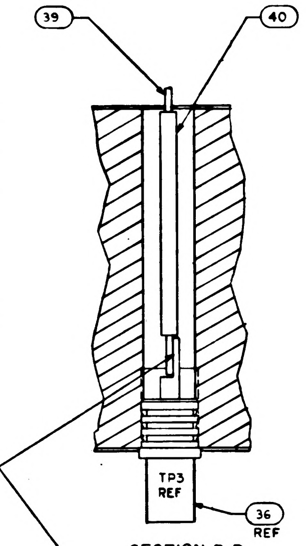
R29 REF
TP4 REF
36 REF

SECTION C-C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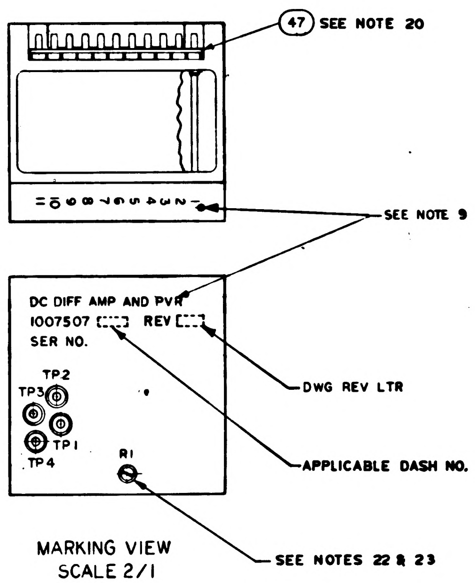
TP3 REF
36 REF
SEE NOTE 3

SECTION D-D
TYP 3 PLACES


47 SEE NOTE 20
1 2 3 4 5 6 7 8 9 10 11
SEE NOTE 9
DC DIFF AMP AND PVR
1007507
REV
SER NO.
TP2
TP3
TP1
TP4
R1
DWG REV LTR
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		021	011				
		☒			PS1007007 TYPE III	PROCUREMENT SPEC.	REF
			☒		PS1007007 TYPE I	PROCUREMENT SPEC.	REF
		2	2		1010830-27	DIODE	49
		2	2		1010830-26	DIODE	48
		☒	☒		1010008	ELEC SCHEMATIC DIAGRAM	REF
		1	1		1008540-11	GASKET, CONNECTOR MINIATURE	47
			~~2~~		~~1010286-26~~	~~DIODE~~	46
		AR	AR		1006776-20	INSULATION SLEEVING	45
		AR	AR		1006776-21	INSULATION SLEEVING	44
		2	2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
		11	11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
		11	11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
		AR	AR		1006776-22	INSULATOR, SLEEVING	40
		AR	AR		1006757-8	WIRE, ELEC .020 DIA	39
		AR	AR		1006757-1	WIRE, ELEC .010 X .020	38
		1	1		1008025-1	INSULATOR, BUSHING	37
		4	4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
		1	1		1008152	DIODE	35
		1	1		1010372-19	DIODE	34
		2	2		1010372-15	DIODE	33
			~~2~~		~~1010286-27~~	~~DIODE~~	32
							31
		1	1		1010372-3	DIODE	30
		1	1		1010357-1	TRANSISTOR	29
		3	3		1010376-3	TRANSISTOR	28
		2	2		1006777-6	CAPACITOR, CER	27
		1	1		1010264-24	CAPACITOR, MYLAR	26
		2	2		1010618-3	SCREW, BUTTON HD	25
		1	1		1010254-22	RESISTOR, FIXED	24
		1	1		SEE NOTE 13	RESISTOR, FIXED	23
		1	1		SEE NOTE 12	RESISTOR, FIXED	22
		1	1		SEE NOTE 11	RESISTOR, FIXED	21
		1	1		1010377-25	RESISTOR, FIXED	20
		1	1		1006760-30	RESISTOR, FIXED	19
		1	1		1010399-49	RESISTOR, FIXED	18
		1	1		1006760-46	RESISTOR, FIXED	17
		1	1		1006750-68	RESISTOR, FIXED	16
		1	1		1006750-1	RESISTOR, FIXED	15
		1	1		1006750-84	RESISTOR, FIXED	14
		1	1		1006750-66	RESISTOR, FIXED	13
		2	2		1006750-16	RESISTOR, FIXED	12
		1	1		1006760-48	RESISTOR, FIXED	11
		1	1		1010377-36	RESISTOR, FIXED	10
		2	2		1010377-23	RESISTOR, FIXED	9
		2	2		1010364-681	RESISTOR, FIXED	8
		2	2		1010377-39	RESISTOR, FIXED	7
		1	1		1010374-126	RESISTOR, FIXED	6
		5	5		1006750-80	RESISTOR, FIXED	5
		1	1		1010373-12	RESISTOR, VARIABLE	4
		1	1		1008010-2	INSULATOR BOTTOM	3
		1	1		1008010-1	INSULATOR TOP	2
		1	1		1007003	HEATSINK	1

LIST OF MATERIALS

1007507 C

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ±.02 XXX ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN [illegible] DATE [illegible] SEP 64
CHECKED [illegible] Sep 64
APPROVAL [illegible]
APPROVAL [illegible] 10-5-64
NASA APPROVAL [illegible] 10-6-64
MIT APPROVAL [illegible]

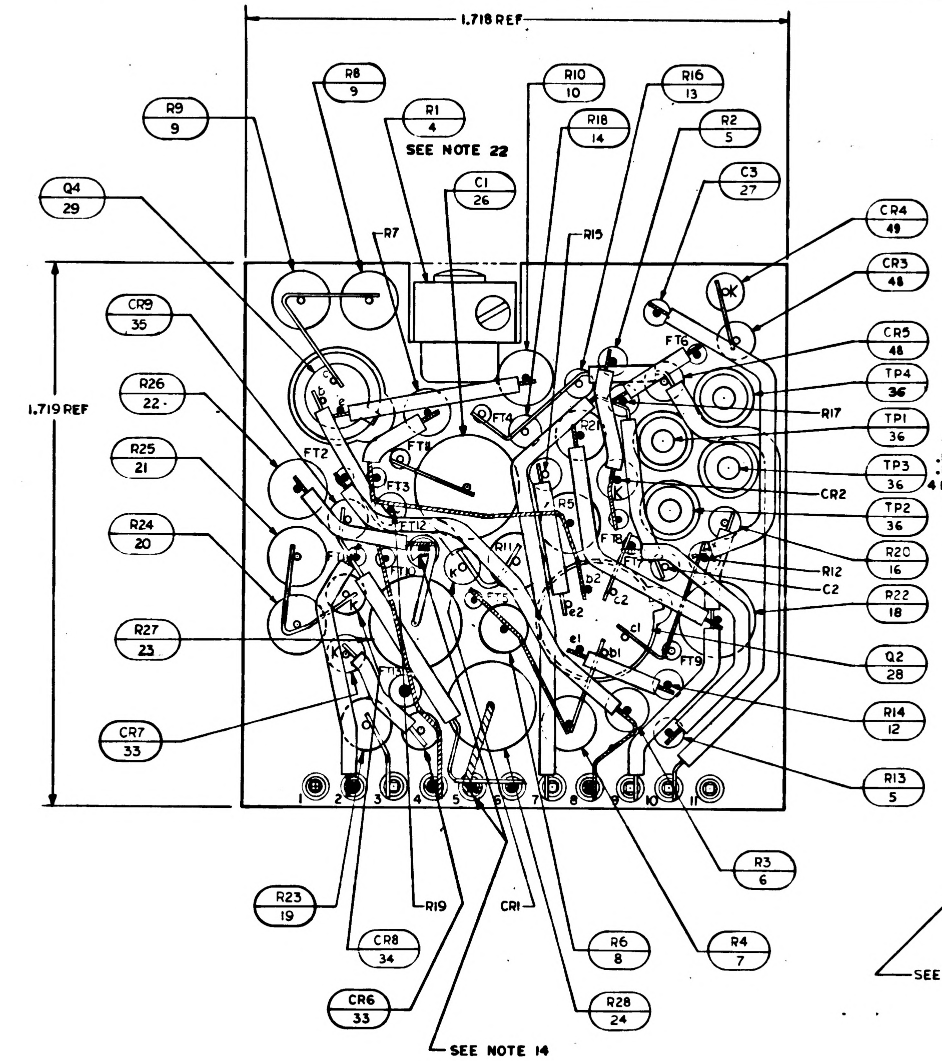
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ASSEMBLY
DC DIFFERENTIAL AMPLIFIER
AND PVR

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007507
SCALE 5:1
WT
SHEET 1 OF 1

1007507 | REV LTR C | SH 1

2/1007507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1.719 REF
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R9 9
R1 4
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R10 10
R16 13
R18 14
R2 5
C1 26
C3 27
Q4 29
R7
R15
CR4 49
CR3 48
CR9 35
CR5 48
TP4 36
TP1 36
TP3 36
TP2 36
R17
CR2
R26 22
R25 21
R24 20
R27 23
CR7 33
R20 16
R12
C2
R22 18
Q2 28
R14 12
R13 5
R3 6
R4 7
R6 8
R28 24
R23 19
R19
CR1
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CR6 33
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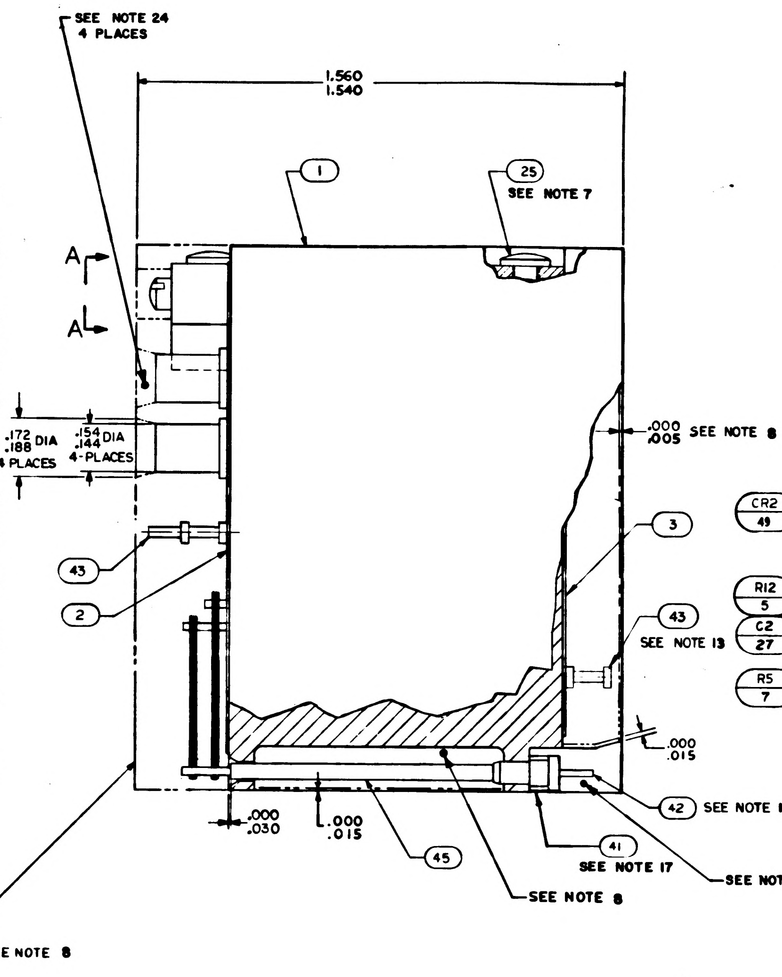
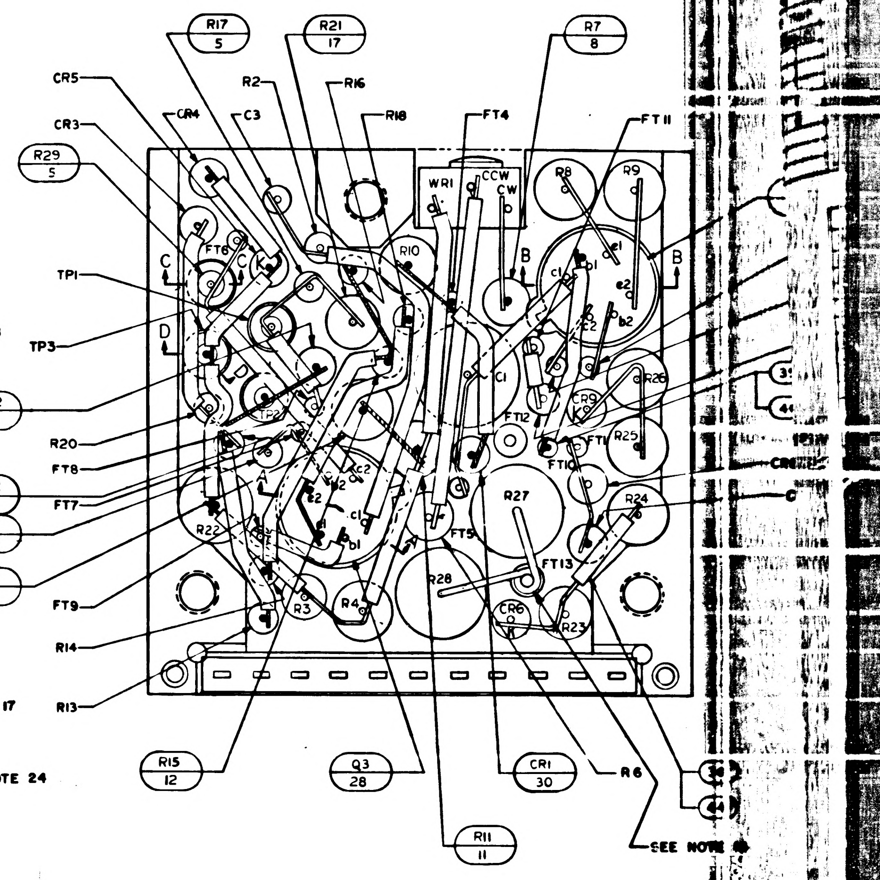
FT2
FT3
FT4
FT6
FT11
FT12
1 2 3 4 5 6 7 8 9 10 11


SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
A
.172 .188 DIA 4 PLACES
.154 .144 DIA 4-PLACES
.000 .005 SEE NOTE 8
3
43
2
43
SEE NOTE 13
.000 .015
42 SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
.000 .030
.000 .015
45
SEE NOTE 8
SEE NOTE 8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CR5
CR4
C3
R2
R16
R18
FT4
FT11
CR3
R29 5
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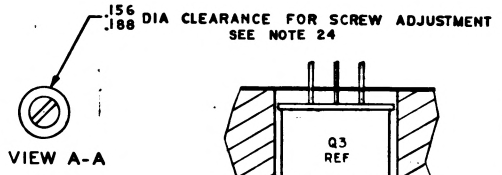
CCW
CW
TP1
TP3
C
D
B
CR2 49
R20
FT8
R12 5
FT7
C2 27
R5 7
FT9
R14
R13
R15 12
Q3 28
R11 11
CR1 30
R6
SEE NOTE

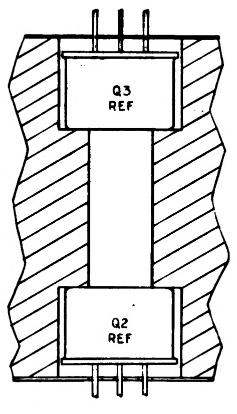
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD C
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007(SEE PARTS LIST)
20. BOND FIND NO 47 TO FIND NO 41 PER ND1002237

21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.


.156 .188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

VIEW A-A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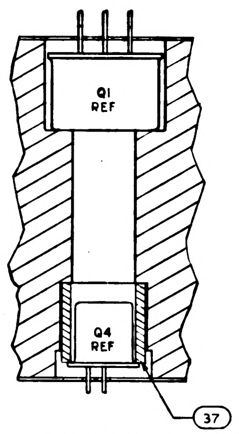
Q2 REF

SECTION A-A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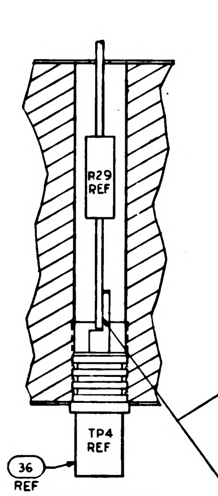
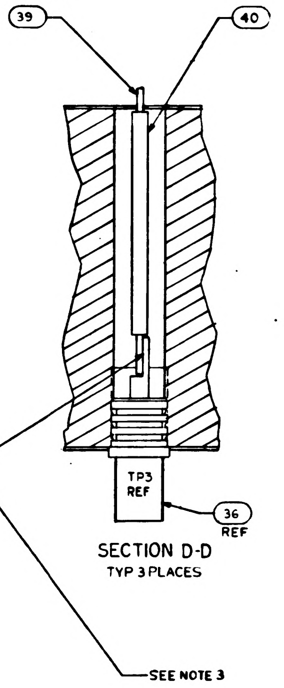
Q4 REF
37

SECTION B-B


R29 REF
TP4 REF
36 REF

SECTION C-C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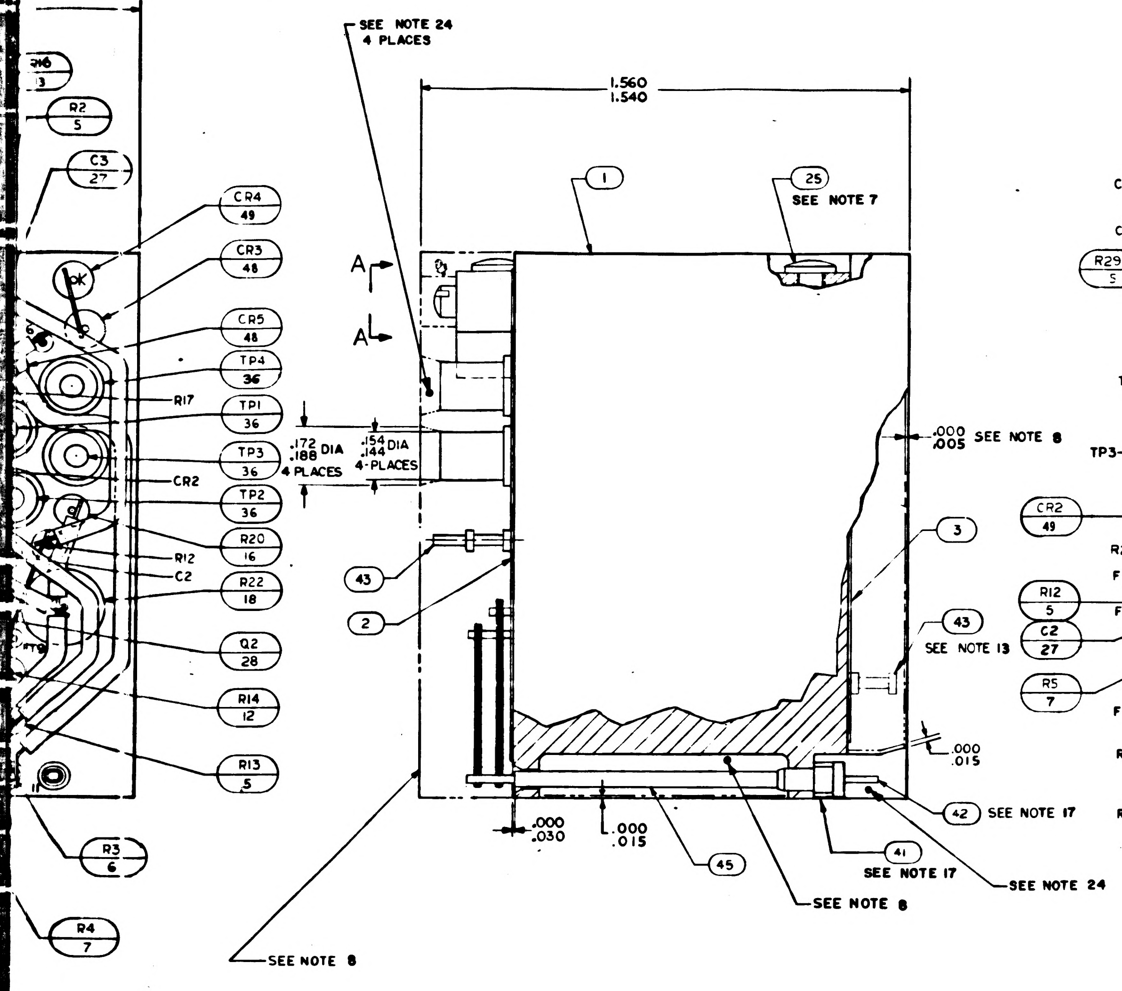
TP3 REF
36 REF
SEE NOTE 3

SECTION D-D
TYP 3 PLACES

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17324		12 MAR 65	RS EF
B		REVISED PER TDRR 18124		12 APR 65	HTO EF
C		REVISED PER TDRR 18936		14 MAY 65	JJ
D		REVISED PER TDRR 19394		1 JUN 65	HTO



R16
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C3
27
CR4
49
CR3
48
CR5
48
TP4
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R17
TP1
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TP3
36
CR2
TP2
36
R20
16
R12
C2
R22
18
Q2
28
R14
12
R13
5
R3
6
R4
7
SEE NOTE 8
SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
A
.172
.188 DIA
4 PLACES
.154
.144 DIA
4-PLACES
.000
.005 SEE NOTE 8
3
43
2
43
SEE NOTE 13
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.015
42 SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
SEE NOTE 8
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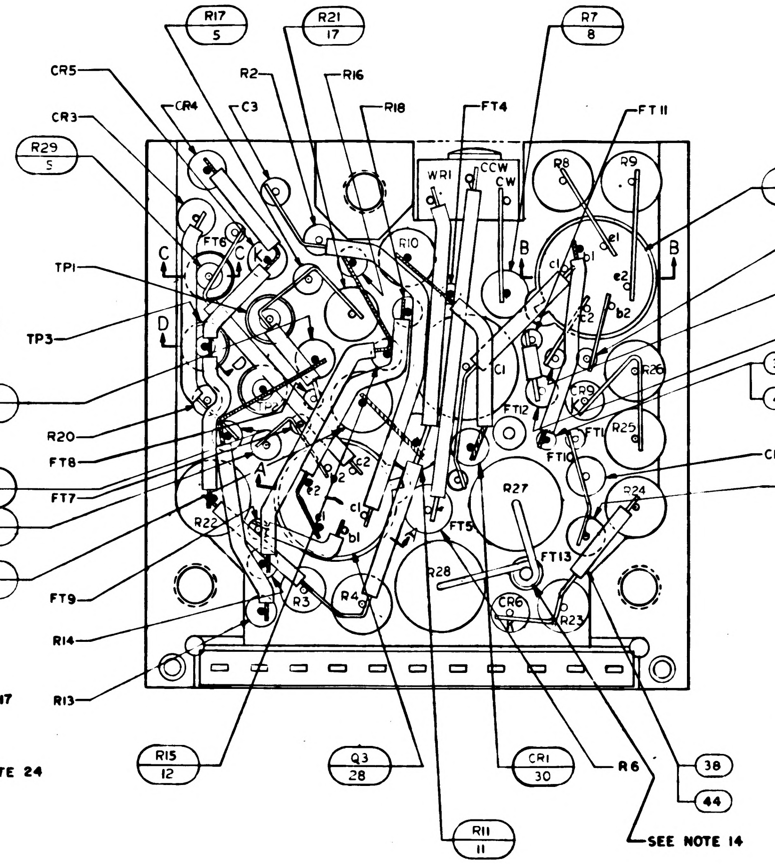
.030
.000
.015



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R16
CR4
C3
R18
FT4
FT11
CR3
R29
5
WR1
CCW
CW
R8
R9
Q1
28
C
C
K
FT6
R10
B
B
e1
b1
c1
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c2
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TP1
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R24
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c1
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R3
R4
CR6
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R15
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Q3
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R6
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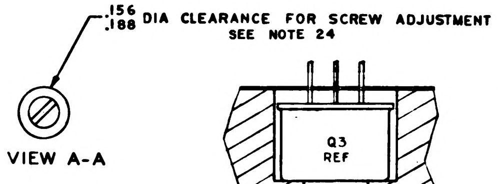
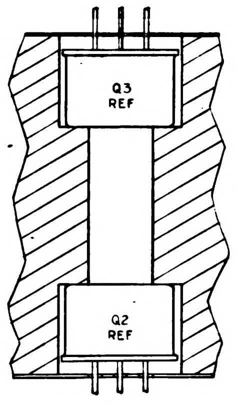
44
R11
11
SEE NOTE 14



.156
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

VIEW A-A



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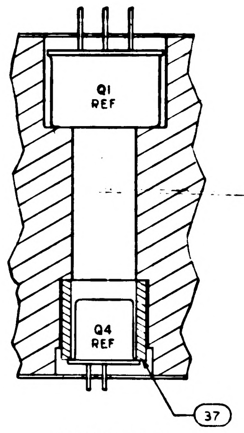
Q2
REF

SECTION A-A



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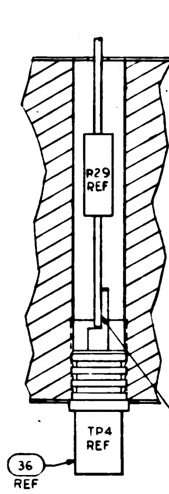
37

SECTION B-B



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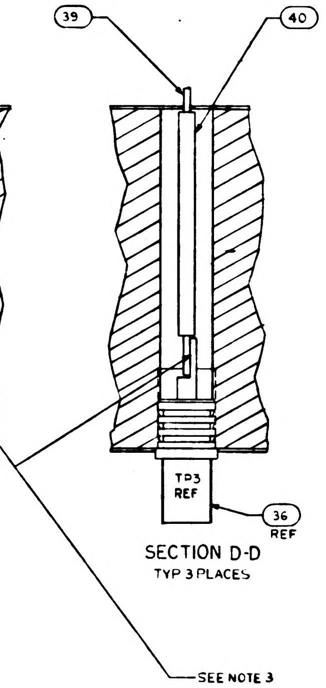
REF

SECTION C-C



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TP3
REF
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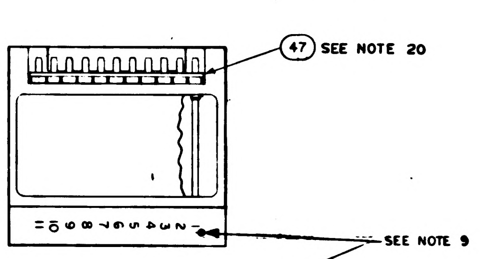
REF
SEE NOTE 3

SECTION D-D

TYP 3 PLACES



47 SEE NOTE 20
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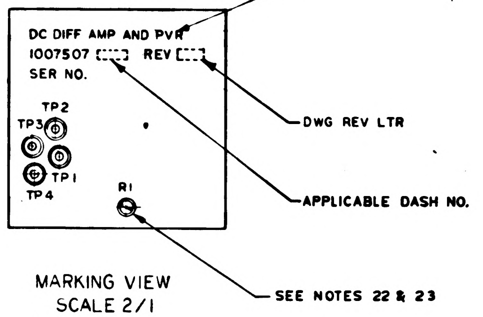
SEE NOTE 9



DC DIFF AMP AND PVR
1007507
REV
SER NO.
TP2
TP3
TP1
TP4
R1
DWG REV LTR
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

TABLE I

CONFIGURATION	MAT	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER AT PERIMETER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	ADHESIVE	.12 MIN 100% OF PERIMETER .25 MIN 80% OF PERIMETER	.25 MIN 100% OF PERIMETER	N/A
WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE	ADHESIVE	CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	.25 MIN 100% OF PERIMETER	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	PRIMER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03 TO .06 OF EXTERNAL EDGE

CHART A			
PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B	
PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0Ω

CHART C	
PART NO.	VALUE
1010254-1	100Ω
-2	120
-3	140
-4	160
-5	180
-6	200
-7	220
-8	240
-9	260
-10	280
-11	300
-12	320
-13	340
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500

		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		X			PS1007007 TYPE III	PROCUREMENT SPEC.	REF
			X		PS1007007 TYPE I	PROCUREMENT SPEC.	REF
		2	2		1010830-27	DIODE	49
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		X	X		1010008	ELEC SCHEMATIC DIAGRAM	REF
		1	1		1008540-11	GASKET, CONNECTOR MINIATURE	47
			~~2~~		~~1010286-26~~	~~DIODE~~	46
		AR	AR		1006776-20	INSULATION SLEEVING	45
		AR	AR		1006776-21	INSULATION SLEEVING	44
		2	2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
		11	11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
		11	11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
		AR	AR		1006776-22	INSULATOR, SLEEVING	40
		AR	AR		1006757-8	WIRE, ELEC .020 DIA	39
		AR	AR		1006757-1	WIRE, ELEC .010 X .020	38
		1	1		1008025-1	INSULATOR, BUSHING	37
		4	4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
		1	1		1008152	DIODE	35
		1	1		1010372-19	DIODE	34
		2	2		1010372-15	DIODE	33
			~~2~~		~~1010286-27~~	~~DIODE~~	32
							31
		1	1		1010372-3	DIODE	30
		1	1		1010357-1	TRANSISTOR	29
		3	3		1010376-3	TRANSISTOR	28
		2	2		1006777-6	CAPACITOR, CER	27
		1	1		1010264-24	CAPACITOR, MYLAR	26
		2	2		1010618-3	SCREW, BUTTON HD	25
		1	1		1010254-22	RESISTOR, FIXED	24
		1	1		SEE NOTE 13	RESISTOR, FIXED	23
		1	1		SEE NOTE 12	RESISTOR, FIXED	22
		1	1		SEE NOTE 11	RESISTOR, FIXED	21
		1	1		1010377-25	RESISTOR, FIXED	20
		1	1		1006760-30	RESISTOR, FIXED	19
		1	1		1010399-49	RESISTOR, FIXED	18
		1	1		1006760-46	RESISTOR, FIXED	17
		1	1		1006750-68	RESISTOR, FIXED	16
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		1	1		1006750-84	RESISTOR, FIXED	14
		1	1		1006750-66	RESISTOR, FIXED	13
		2	2		1006750-16	RESISTOR, FIXED	12
		1	1		1006760-48	RESISTOR, FIXED	11
		1	1		1010377-36	RESISTOR, FIXED	10
		2	2		1010377-23	RESISTOR, FIXED	9
		2	2		1010364-681	RESISTOR, FIXED	8
		2	2		1010377-39	RESISTOR, FIXED	7
		1	1		1010374-126	RESISTOR, FIXED	6
		5	5		1006750-80	RESISTOR, FIXED	5
		1	1		1010373-12	RESISTOR, VARIABLE	4
		1	1		1008010-2	INSULATOR BOTTOM	3
		1	1		1008010-1	INSULATOR TOP	2
		1	1		1007003	HEATSINK	1

QUANTITY REQUIRED

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ± .02 XXX ± .005 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

HEAT TREATMENT

FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497

DRAWN Oygel DATE 4 SEP 64
CHECKED Adornch 16 SEP 64
APPROVAL
APPROVAL 10-5-64
NASA APPROVAL 10-6-64
MIT APPROVAL Oct 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ASSEMBLY
DC DIFFERENTIAL AMPLIFIER
AND PVR

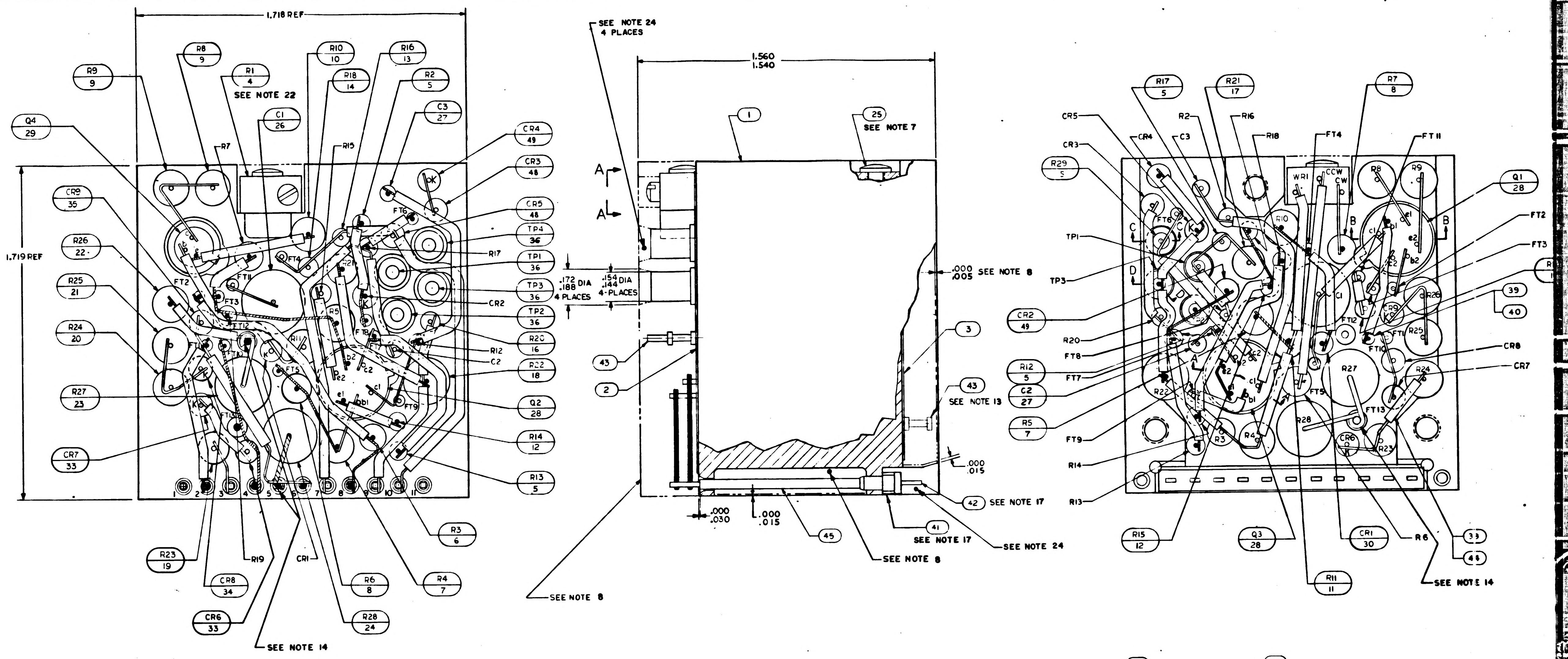
CODE IDENT NO. 80230 | SIZE J | NASA DRAWING NO. 1007507

SCALE 5:1 | WT | SHEET 1 OF 1

1007507 D

1007507 | REV LTR D | SH 1

2/1007507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SEE NOTE 22
SEE NOTE 24
4 PLACES
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1.540
SEE NOTE 7
.172 .188 DIA 4 PLACES
.154 .144 DIA 4 PLACES
.000 .005 SEE NOTE 8
SEE NOTE 13
.000 .015
.000 .030
.000 .015
SEE NOTE 17
SEE NOTE 24
SEE NOTE 8
SEE NOTE 14
A
A
B
B
C
C
D
D
R9 9
R8 9
R1 4
R10 10
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R18 14
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C1 26
Q4 29
R7
R15
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CR3 48
CR5 48
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TP1 36
TP3 36
TP2 36
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R24 20
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CR2
R12
C2
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CR1 30
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FT3
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SEE NOTE 14
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FT7
FT8
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TP3
CR5
CR3
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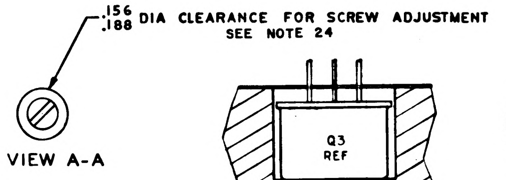
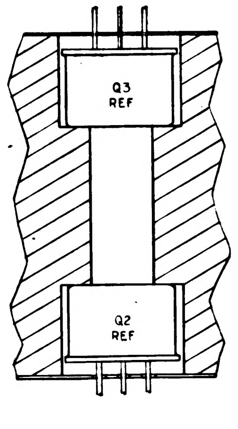

.156 .188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

VIEW A-A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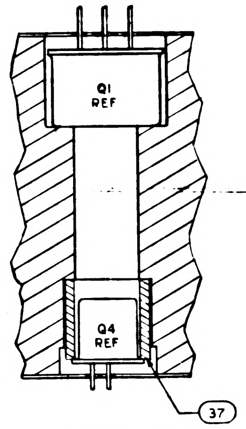
SECTION A-A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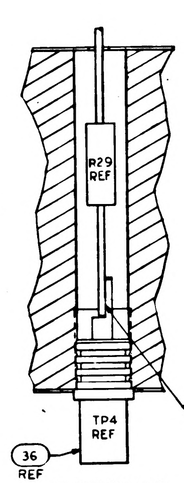
SECTION B-B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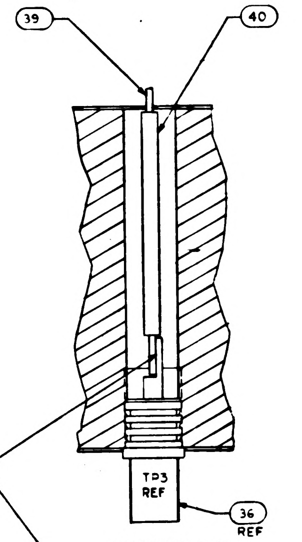
36 REF

SECTION C-C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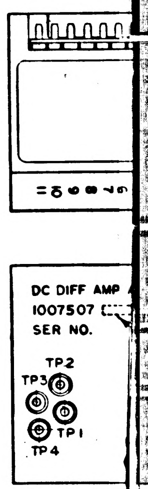
36 REF
SEE NOTE 3

SECTION D-D
TYP 3 PLACES


DC DIFF AMP
1007507
SER NO.
TP2
TP3
TP1
TP4

MARKING
SCALE

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD C
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER NB 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007(SEE PARTS LIST)
20. BOND FIND NO 47 TO FIND NO 41 PER ND1002237

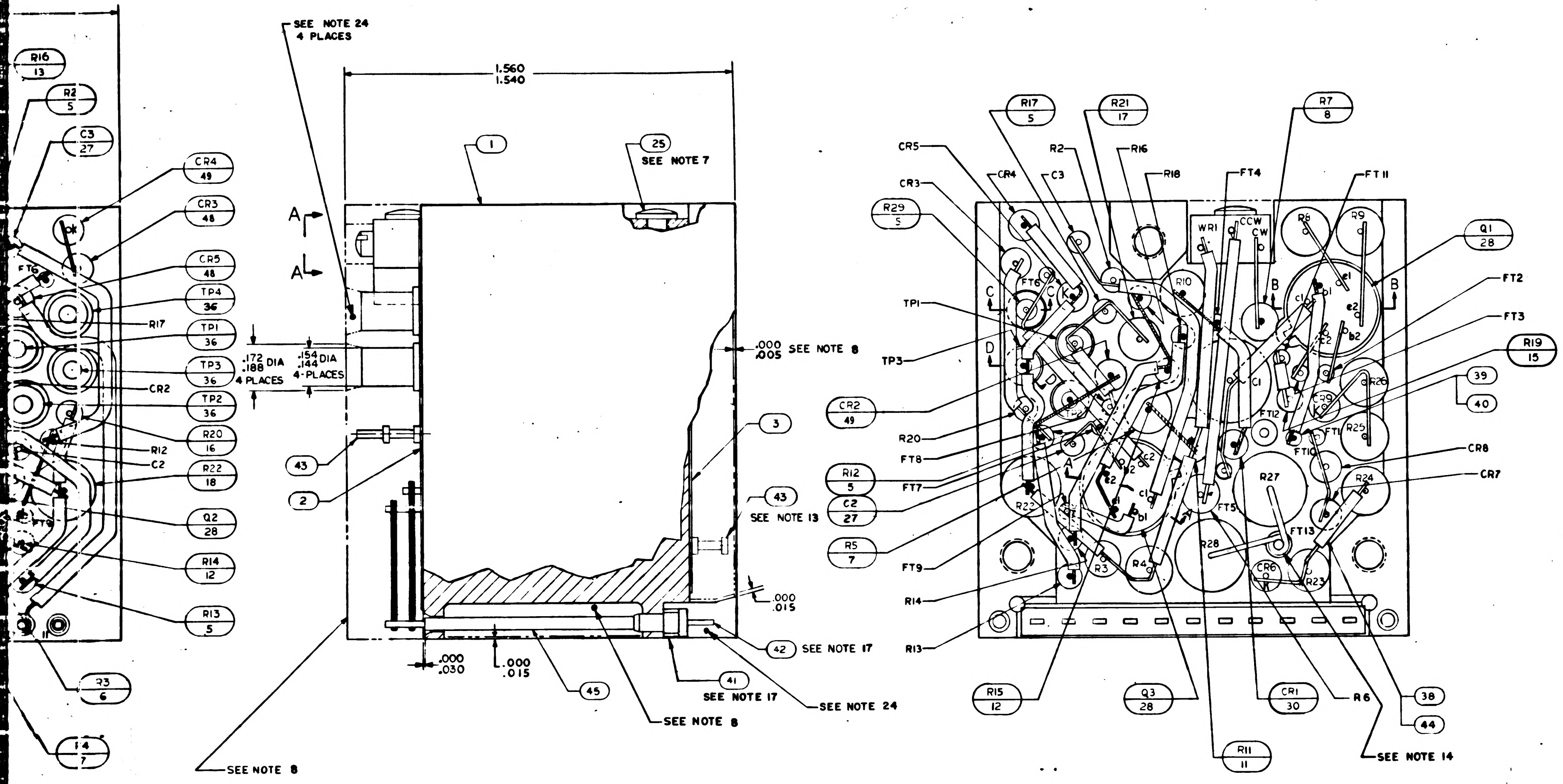
21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND 1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. ~~BOND A .25MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
26. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF PRIMER BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND 1002187 TYPE I. PRIMER TO CONSIST OF SIX PARTS BY VOLUME OF 1012504-1 AND ONE PART BY VOLUME OF 1012504-2. APPLY MATERIAL AND PRIMER AS INDICATED IN TABLE I.

TABLE I

CONFIGURATION	MAT	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER AT PERIMETER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	ADHESIVE	.12 MIN 100% OF PERIMETER .25 MIN 80% OF PERIMETER	.25 MIN 100% OF PERIMETER	N/A
WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE	ADHESIVE	CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	.25 MIN 100% OF PERIMETER	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	PRIMER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03 TO .06 OF EXTERNAL EDGE

1007507 D 1

SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17324		12 MAR 65	RS EF
B		REVISED PER TDRR 18124		12 APR 65	HTO EF
C		REVISED PER TDRR 18936		14 MAY 65	JJ
D		REVISED PER TDRR 19394		1 JUN 65	HTO
E		REVISED PER TDRR 19430		2-JUN 65	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R2
5
C3
27
CR4
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CR5
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TP1
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TP2
36
R20
16
R22
18
Q2
28
R14
12
R13
5
R3
6
R4
7
R17
CR2
R12
C2
FT6
SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
.172
.188 DIA
4 PLACES
.154
.144 DIA
4-PLACES
.000
.005 SEE NOTE 8
3
43
2
43
SEE NOTE 13
.000
.015
42 SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
45
SEE NOTE 8
.000
.030
.000
.015
SEE NOTE 8
R17
5
R21
17
R7
8
CR5
CR3
CR4
C3
R2
R16
R18
FT4
FT11
R29
5
WR1
CCW
CW
Q1
28
FT2
FT3
R19
15
TP1
TP3
39
40
CR2
49
R20
FT8
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R12
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C2
27
R5
7
FT9
R14
R13
CR8
CR7
R27
R28
R24
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CR1
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R6
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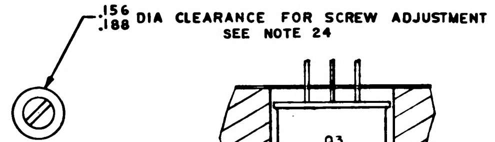
44
R11
11
SEE NOTE 14
B
C
D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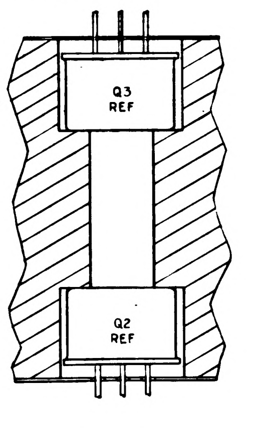
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

VIEW A-A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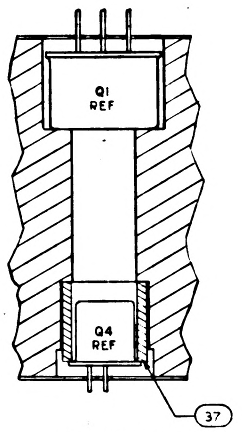
Q2
REF

SECTION A-A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Q4
REF
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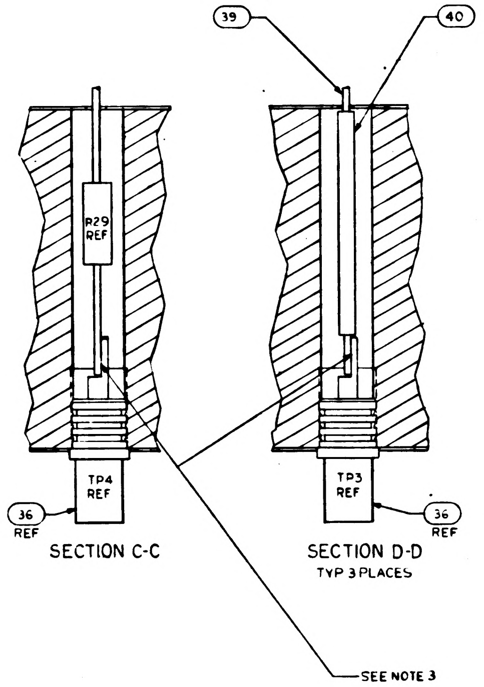
SECTION B-B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R29
REF
TP4
REF
36
REF
TP3
REF
36
REF
SEE NOTE 3

SECTION C-C

SECTION D-D
TYP 3 PLACES

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE

CHART A

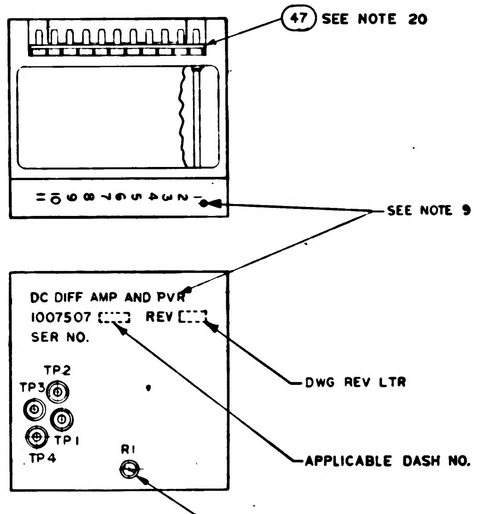
PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B

PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0Ω

CHART C

PART NO.	VALUE
1010254-1	100Ω
-2	120
-3	140
-4	160
-5	180
-6	200
-7	220
-8	240
-9	260
-10	280
-11	300
-12	320
-13	340
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500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SEE NOTE 9
DC DIFF AMP AND PVR
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REV
SER NO.
TP2
TP3
TP1
TP4
R1
DWG REV LTR
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED 021	QUANTITY REQUIRED 011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
X			PS1007007 TYPE III	PROCUREMENT SPEC.	REF
	X		PS1007007 TYPE I	PROCUREMENT SPEC.	REF
2	2		1010830-27	DIODE	49
2	2		1010830-26	DIODE	48
X	X		1010008	ELEC SCHEMATIC DIAGRAM	REF
1	1		1008540-11	GASKET, CONNECTOR MINIATURE	47
	~~2~~		~~1010288-26~~	~~DIODE~~	46
AR	AR		1006776-20	INSULATION SLEEVING	45
AR	AR		1006776-21	INSULATION SLEEVING	44
2	2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
11	11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
11	11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
AR	AR		1006776-22	INSULATOR, SLEEVING	40
AR	AR		1006757-8	WIRE, ELEC .020 DIA	39
AR	AR		1006757-1	WIRE, ELEC .010 X .020	38
1	1		1008025-1	INSULATOR, BUSHING	37
4	4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
1	1		1008152	DIODE	35
1	1		1010372-19	DIODE	34
2	2		1010372-15	DIODE	33
	~~2~~		~~1010288-27~~	~~DIODE~~	32
					31
1	1		1010372-3	DIODE	30
1	1		1010357-1	TRANSISTOR	29
3	3		1010376-3	TRANSISTOR	28
2	2		1006777-6	CAPACITOR, CER	27
1	1		1010264-24	CAPACITOR, MYLAR	26
2	2		1010618-3	SCREW, BUTTON HD	25
1	1		1010254-22	RESISTOR, FIXED	24
1	1		SEE NOTE 13	RESISTOR, FIXED	23
1	1		SEE NOTE 12	RESISTOR, FIXED	22
1	1		SEE NOTE 11	RESISTOR, FIXED	21
1	1		1010377-25	RESISTOR, FIXED	20
1	1		1006760-30	RESISTOR, FIXED	19
1	1		1010399-49	RESISTOR, FIXED	18
1	1		1006760-46	RESISTOR, FIXED	17
1	1		1006750-68	RESISTOR, FIXED	16
1	1		1006750-1	RESISTOR, FIXED	15
1	1		1006750-84	RESISTOR, FIXED	14
1	1		1006750-66	RESISTOR, FIXED	13
2	2		1006750-16	RESISTOR, FIXED	12
1	1		1006760-48	RESISTOR, FIXED	11
1	1		1010377-36	RESISTOR, FIXED	10
2	2		1010377-23	RESISTOR, FIXED	9
2	2		1010364-681	RESISTOR, FIXED	8
2	2		1010377-39	RESISTOR, FIXED	7
1	1		1010374-126	RESISTOR, FIXED	6
5	5		1006750-80	RESISTOR, FIXED	5
1	1		1010373-12	RESISTOR, VARIABLE	4
1	1		1008010-2	INSULATOR BOTTOM	3
1	1		1008010-1	INSULATOR TOP	2
1	1		1007003	HEATSINK	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ± .02 XXX ± .005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN Orgel DATE 11 SEP 64
CHECKED 16 SEP 64
APPROVAL
APPROVAL 10-5-64
NASA APPROVAL
MIT APPROVAL

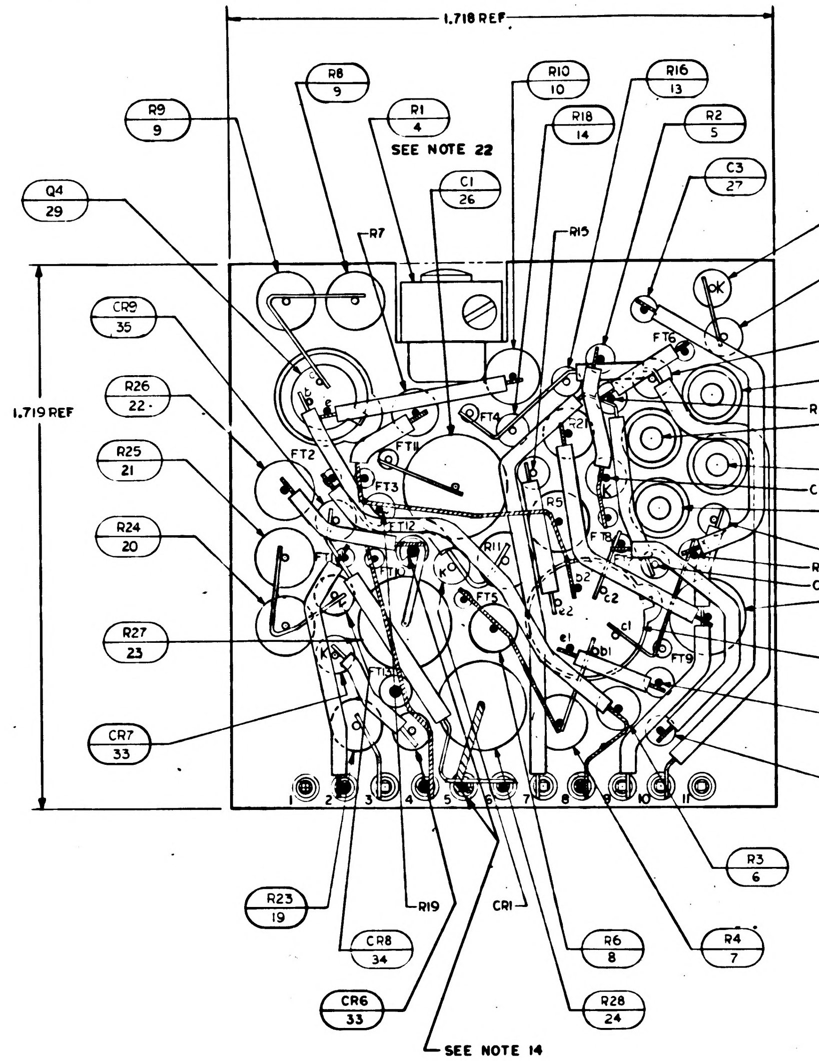
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ASSEMBLY
DC DIFFERENTIAL AMPLIFIER
AND PVR

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007507
SCALE 5:1
WT
SHEET 1 OF 3

1007507 E

27 1007507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R9 9
R1 4
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R18 14
R2 5
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Q4 29
R7
R15
CR4 49
CR3 48
CR9 35
CR5 48
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R17
TP1 36
R26 22
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TP3 36
CR2
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Q2 28
R14 12
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R13 5
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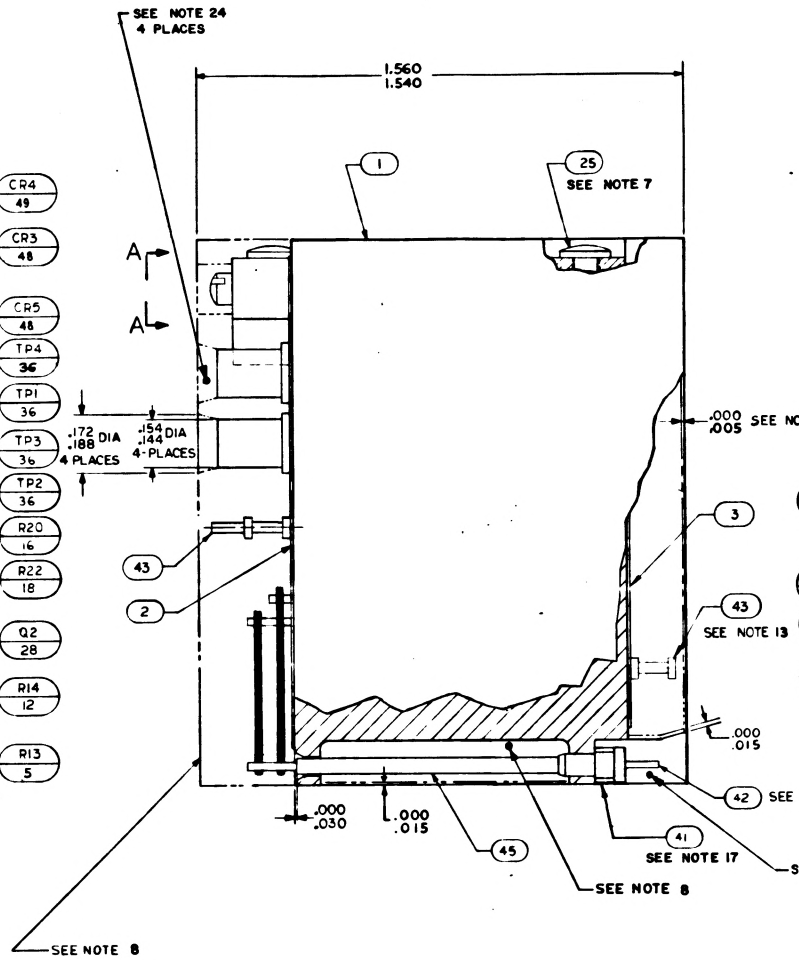
SEE NOTE 24
4 PLACES
1.560
1.540
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25
SEE NOTE 7
A
A
.000
.005 SEE NOTE 8
.172
.188 DIA
4 PLACES
.154
.144 DIA
4-PLACES
3
43
2
43
SEE NOTE 13
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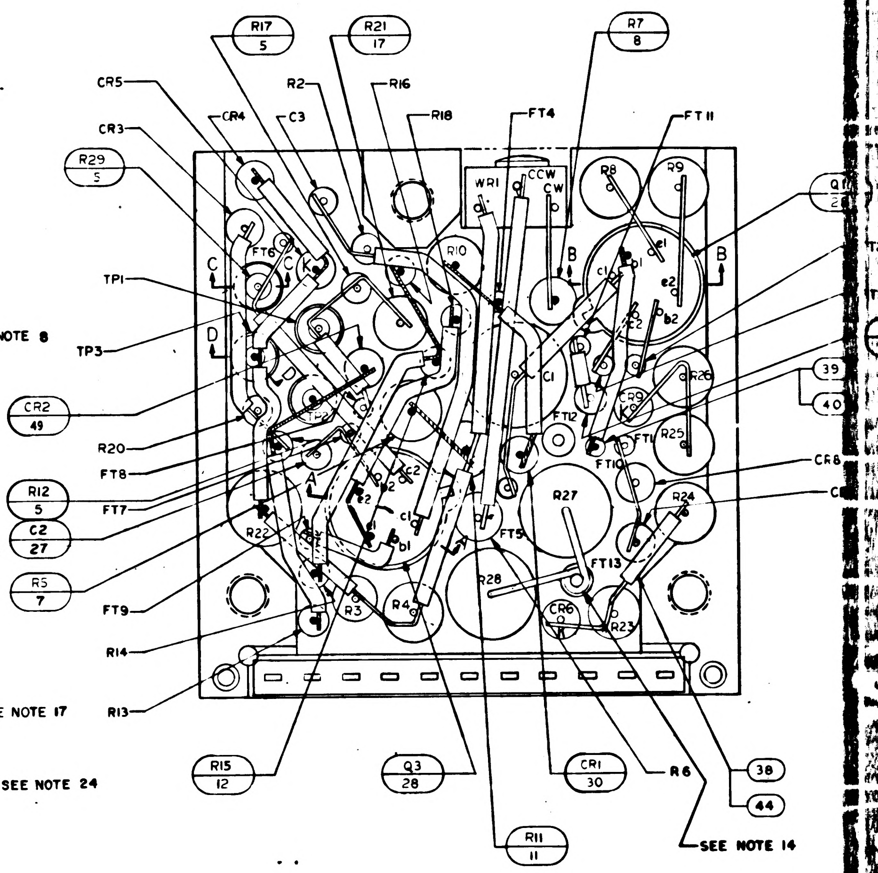
.015
45
41
SEE NOTE 17
42 SEE NOTE 17
SEE NOTE 8
SEE NOTE 24
SEE NOTE 8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R18
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FT11
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R20
FT8
R12 5
FT7
C2 27
R5 7
FT9
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CR8
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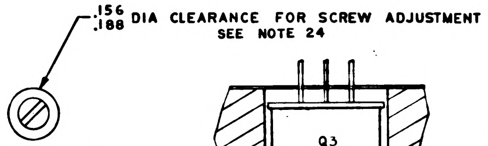
B
D
SEE NOTE 14


.156
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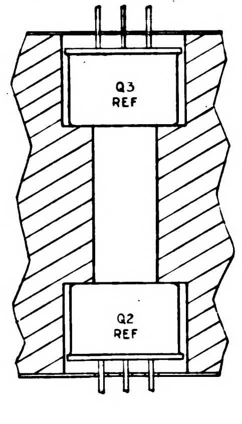
SEE NOTE 24

VIEW A-A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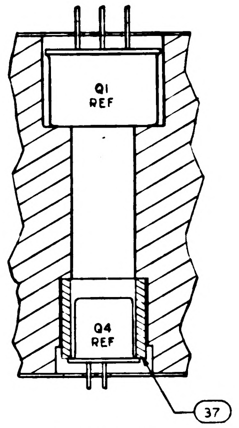
Q2
REF

SECTION A-A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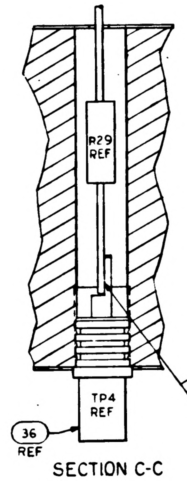
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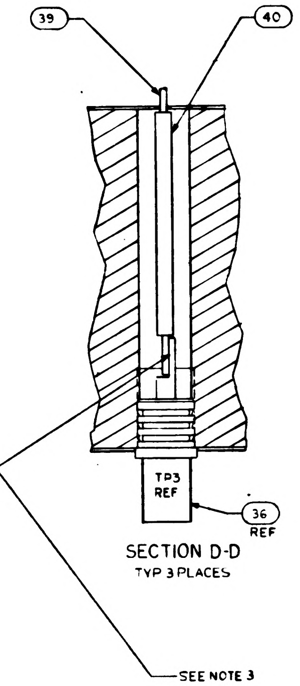
SECTION C-C


39
40
TP3
REF
36
REF
SEE NOTE 3

SECTION D-D

TYP 3 PLACES

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD C
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007(SEE PARTS LIST)
20. BOND FIND NO 47 TO FIND NO 41 PER ND1002237

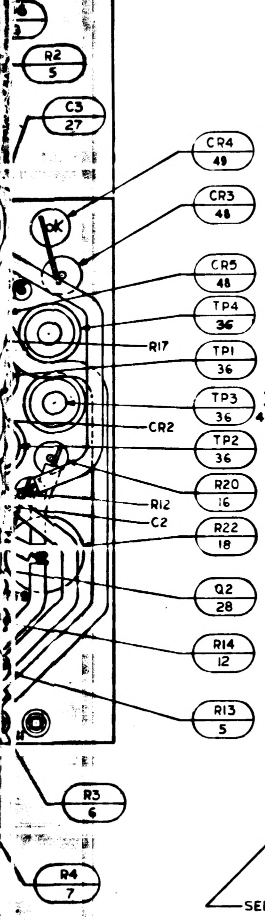
21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. ~~BOND A .25MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE 1.~~
26. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE

1007507 E SH 1

1/1007507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C3
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CR4
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CR3
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CR5
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TP4
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R17
TP1
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TP3
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CR2
TP2
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R20
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R12
C2
R22
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Q2
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R14
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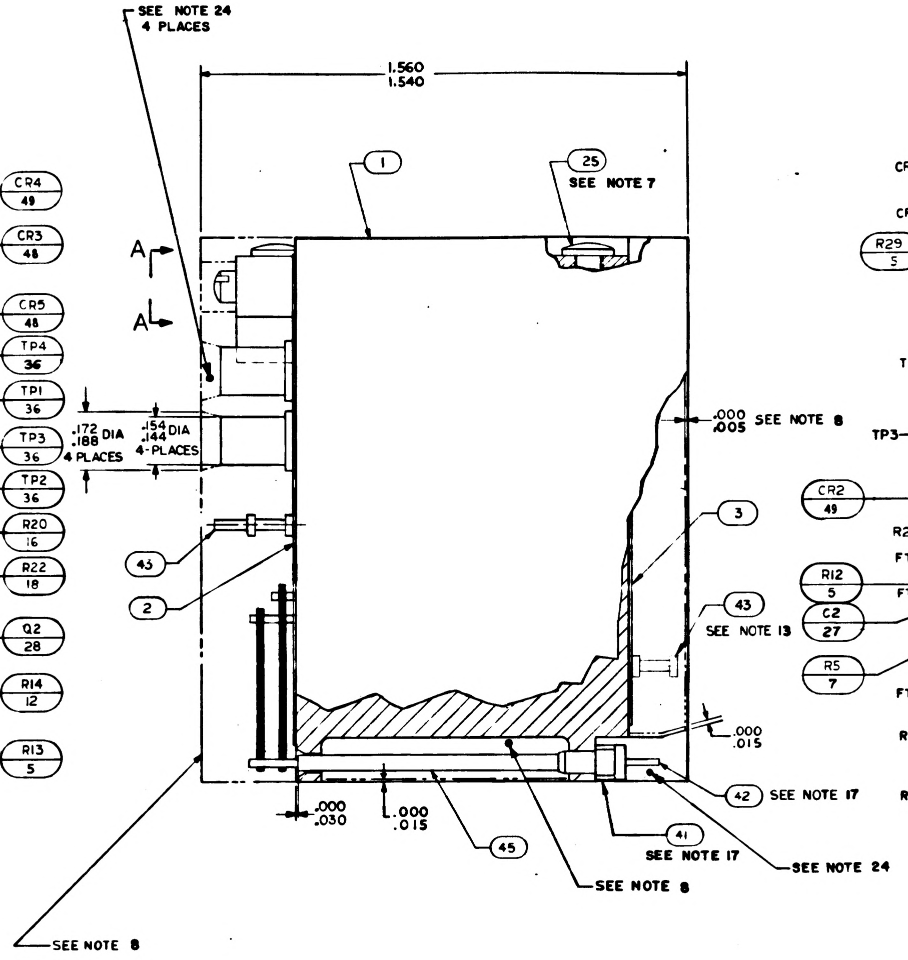
R13
5
R3
6
R4
7


SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
A
.000
.005 SEE NOTE 8
.172
.188 DIA
4 PLACES
.154
.144 DIA
4-PLACES
3
43
2
43
SEE NOTE 13
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42 SEE NOTE 17
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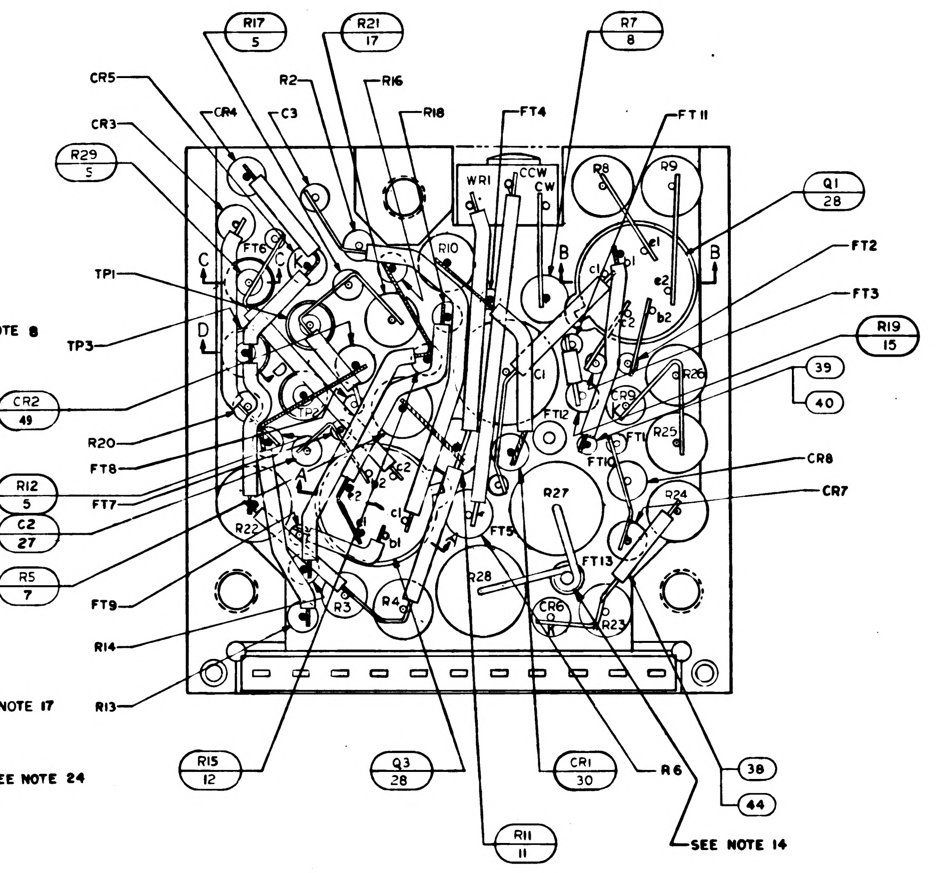
SEE NOTE 17
SEE NOTE 24
SEE NOTE 8
.000
.030
.000
.015
45
SEE NOTE 8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R7
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CR5
CR3
CR4
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R18
FT4
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5
Q1
28
WR1
CCW
CW
R8
R9
FT2
FT3
R10
TP1
TP3
FT6
C
C
B
B
D
R19
15
39
40
CR2
49
R20
FT8
FT7
FT12
R26
R25
FT10
CR8
CR7
R12
5
C2
27
R5
7
FT9
R22
R27
R24
FT5
FT13
R28
R14
R13
R3
R4
CR6
R23
R15
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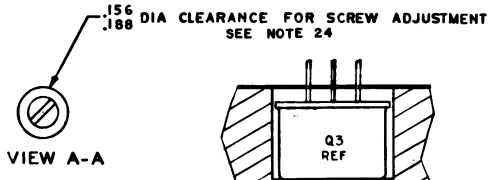
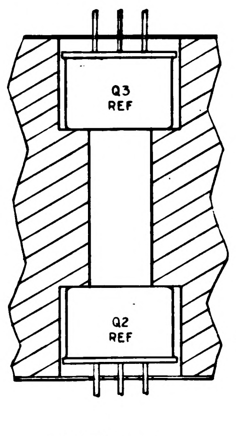
Q3
28
CR1
30
R6
38
44
R11
11
SEE NOTE 14


.156
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

VIEW A-A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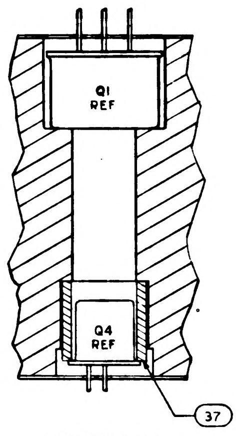
SECTION A-A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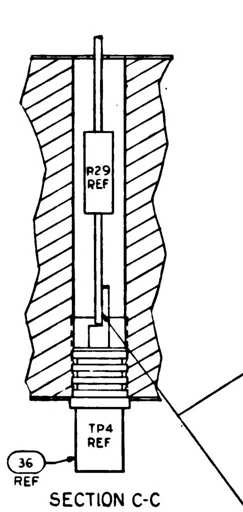
SECTION B-B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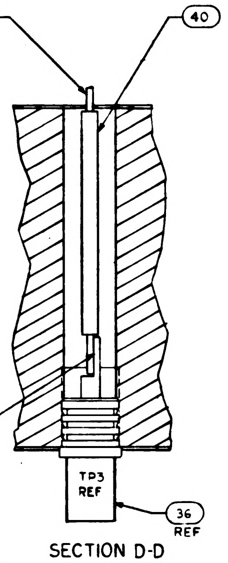
REF
SEE NOTE 3

SECTION C-C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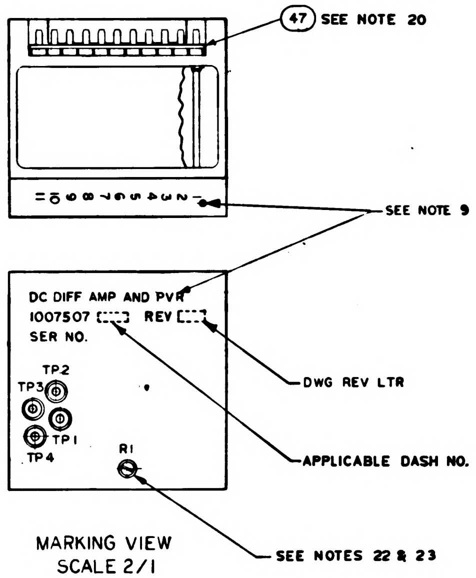
SECTION D-D
TYP 3 PLACES


47 SEE NOTE 20
SEE NOTE 9
DC DIFF AMP AND PVR
1007507
SER NO.
REV
TP2
TP3
TP1
TP4
R1
DWG REV LTR
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

CHART A			
PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B	
PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0Ω

CHART C	
PART NO.	VALUE
1010254- 1	100Ω
- 2	120
- 3	140
- 4	160
- 5	180
- 6	200
- 7	220
- 8	240
- 9	260
-10	280
-11	300
-12	320
-13	340
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17324		2 MAR 65	RS EF
B		REVISED PER TDRR 18124		2 APR 65	HTO EF
C		REVISED PER TDRR 18936		4 MAY 65	
D		REVISED PER TDRR 19394		JUN 65	HTO
E		REVISED PER TDRR 19430		2-JUN 65	
F		REVISED PER TDRR 19498		9 JUN 65	WJK

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FORM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FORM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE

					PS1007007 TYPE III	PROCUREMENT SPEC.	REF
					PS1007007 TYPE I	PROCUREMENT SPEC.	REF
		2	2		1010830-27	DIODE	49
		2	2		1010830-26	DIODE	48
					1010008	ELEC SCHEMATIC DIAGRAM	REF
		1	1		1008540-11	GASKET, CONNECTOR MINIATURE	47
			~~2~~		~~1010286-26~~	~~DIODE~~	46
		AR	AR		1006776-20	INSULATION SLEEVING	45
		AR	AR		1006776-21	INSULATION SLEEVING	44
		2	2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
		11	11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
		11	11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
		AR	AR		1006776-22	INSULATOR, SLEEVING	40
		AR	AR		1006757-8	WIRE, ELEC .020 DIA	39
		AR	AR		1006757-1	WIRE, ELEC .010 X .020	38
		1	1		1008025-1	INSULATOR, BUSHING	37
		4	4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
		1	1		1008152	DIODE	35
		1	1		1010372-19	DIODE	34
		2	2		1010372-15	DIODE	33
			~~2~~		~~1010286-27~~	~~DIODE~~	32
							31
		1	1		1010372-3	DIODE	30
		1	1		1010357-1	TRANSISTOR	29
		3	3		1010376-3	TRANSISTOR	28
		2	2		1006777-6	CAPACITOR, CER	27
		1	1		1010264-24	CAPACITOR, MYLAR	26
		2	2		1010618-3	SCREW, BUTTON HD	25
		1	1		1010254-22	RESISTOR, FIXED	24
		1	1		SEE NOTE 13	RESISTOR, FIXED	23
		1	1		SEE NOTE 12	RESISTOR, FIXED	22
		1	1		SEE NOTE 11	RESISTOR, FIXED	21
		1	1		1010377-25	RESISTOR, FIXED	20
		1	1		1006760-30	RESISTOR, FIXED	19
		1	1		1010399-49	RESISTOR, FIXED	18
		1	1		1006760-46	RESISTOR, FIXED	17
		1	1		1006750-68	RESISTOR, FIXED	16
		1	1		1006750-1	RESISTOR, FIXED	15
		1	1		1006750-84	RESISTOR, FIXED	14
		1	1		1006750-66	RESISTOR, FIXED	13
		2	2		1006750-16	RESISTOR, FIXED	12
		1	1		1006760-48	RESISTOR, FIXED	11
		1	1		1010377-36	RESISTOR, FIXED	10
		2	2		1010377-23	RESISTOR, FIXED	9
		2	2		1010364-681	RESISTOR, FIXED	8
		2	2		1010377-39	RESISTOR, FIXED	7
		1	1		1010374-126	RESISTOR, FIXED	6
		5	5		1006750-80	RESISTOR, FIXED	5
		1	1		1010373-12	RESISTOR, VARIABLE	4
		1	1		1008010-2	INSULATOR BOTTOM	3
		1	1		1008010-1	INSULATOR TOP	2
		1	1		1007003	HEATSINK	1
QUANTITY REQUIRED		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX±.02 XXX±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Ozyal DATE 4 SEP 64
CHECKED U Adorack 16 SEP 64
APPROVAL
APPROVAL 10-5-64
NASA APPROVAL 10-6-64
MIT APPROVAL Oct 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

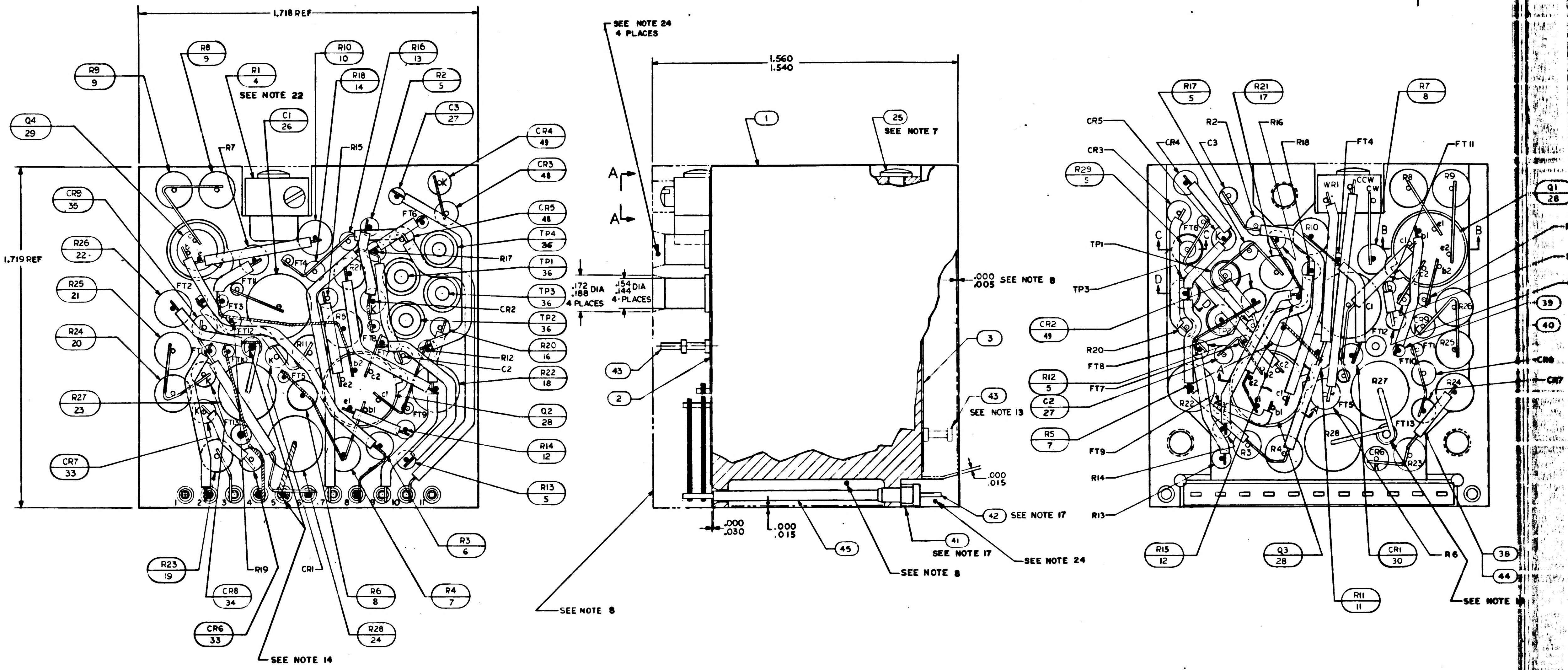
ASSEMBLY
DC DIFFERENTIAL AMPLIFIER AND PVR

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007507
SCALE 5:1
WT
SHEET 1 OF 1

1007507 F SH 1

1007507 F

2-1007507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SEE NOTE 22
C1 26
R10 10
R18 14
R16 13
R2 5
C3 27
CR4 49
CR3 48
CR5 48
TP4 36
TP1 36
TP3 36
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R23 19
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CR6 33
R19
CR1
SEE NOTE 14
R7
R15
R17
CR2
R12
C2
FT1 FT2 FT3 FT4 FT5 FT6 FT7 FT8 FT9 FT10 FT11 FT12 FT13 FT14 FT15 FT16 FT17 FT18
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SEE NOTE 24 4 PLACES
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SEE NOTE 7
A A
.172 .188 DIA 4 PLACES
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.000 .015
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SEE NOTE 24
SEE NOTE 8
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.000 .030
.000 .015
SEE NOTE 8
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R21 17
R7 8
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CR3
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Q1 28
TP1
TP3
CR2 49
R20
FT8
R12 5
C2 27
FT7
R5 7
FT9
R14
R13
R15 12
Q3 28
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CR1 30
R6
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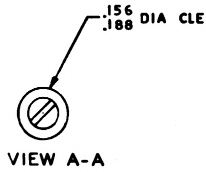
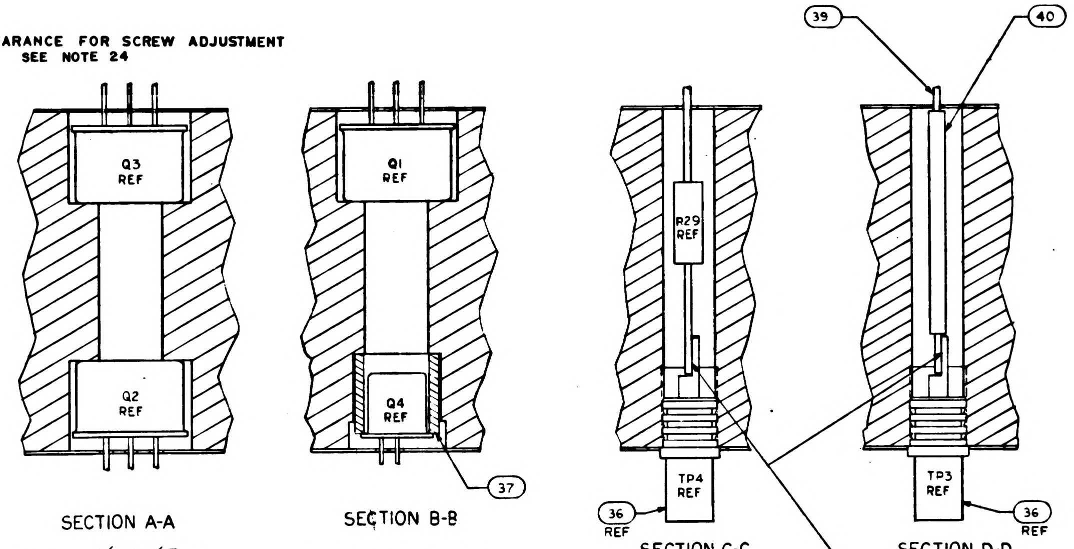
40
CR8
CR7
WR1 CCW CW
SEE NOTE


.156 .188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

VIEW A-A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Q2 REF
Q1 REF
Q4 REF
37
R29 REF
TP4 REF
36 REF
39
40
TP3 REF
36 REF
SEE NOTE 3

SECTION A-A

SECTION B-B

SECTION C-C

SECTION D-D
TYP 3 PLACES

TABLE I

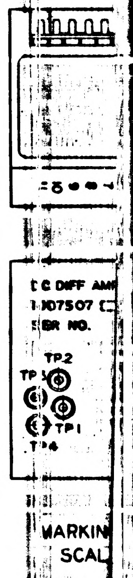
~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FORM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE~~

28. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD H
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007(SEE PARTS LIST)
20. BOND FIND NO 47 TO FIND NO 41 PER ND1002237

21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. ~~BOND A .25MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
26. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
27. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.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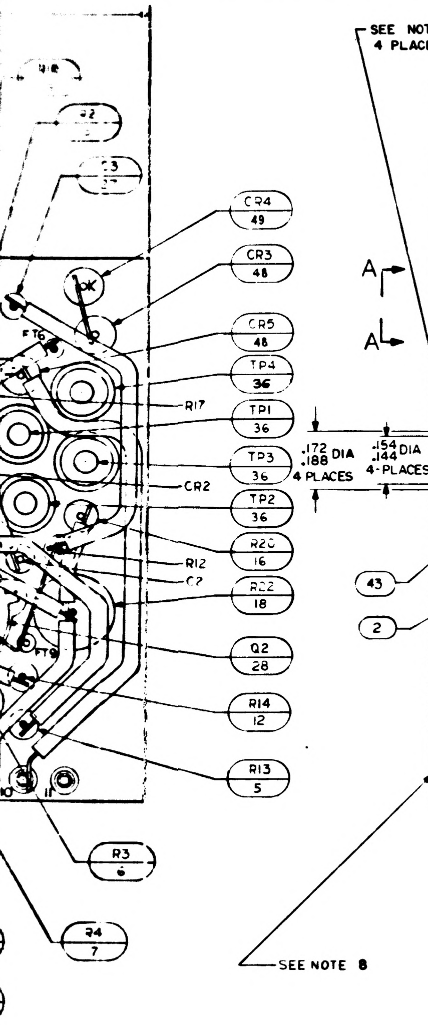
SCAL

1007507 F SH 1

17 1007507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TP2
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R20
16
R12
C2
R22
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Q2
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R14
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R13
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FT8
R3
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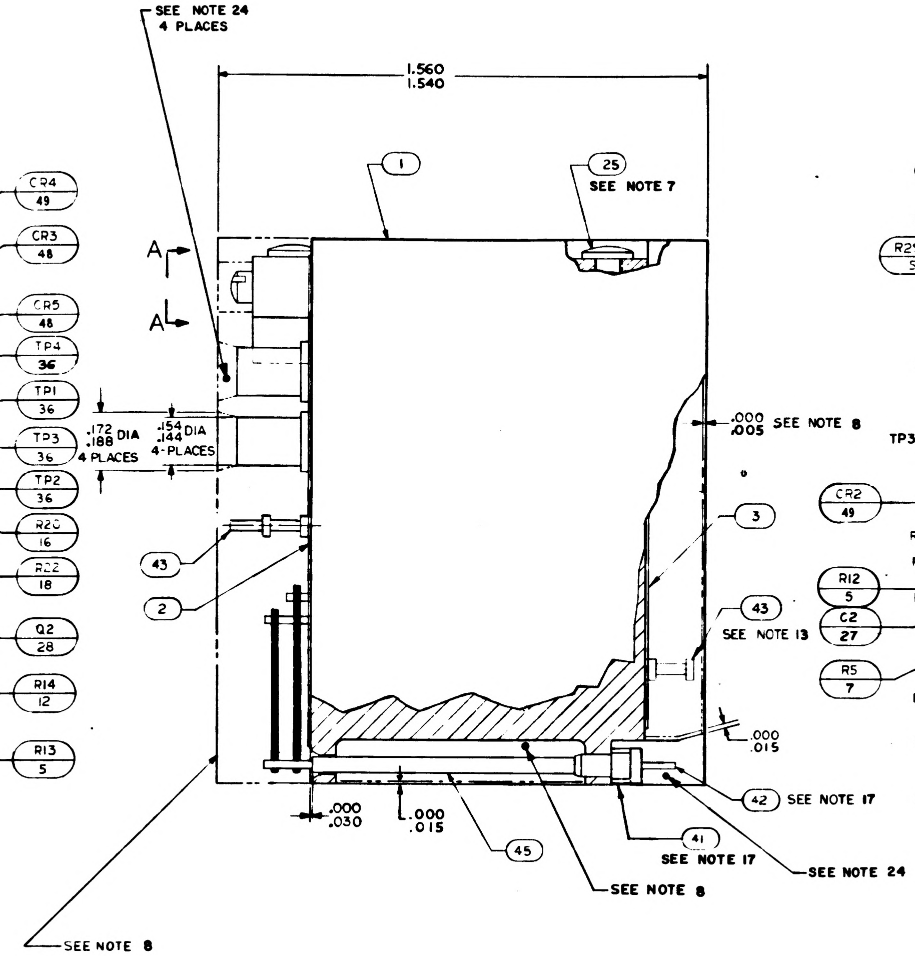
R4
7
SEE NOTE 8


SEE NOTE 24
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1.540
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SEE NOTE 7
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.188 DIA
4 PLACES
.154
.144 DIA
4-PLACES
.000
.005 SEE NOTE 8
3
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SEE NOTE 13
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.015
42 SEE NOTE 17
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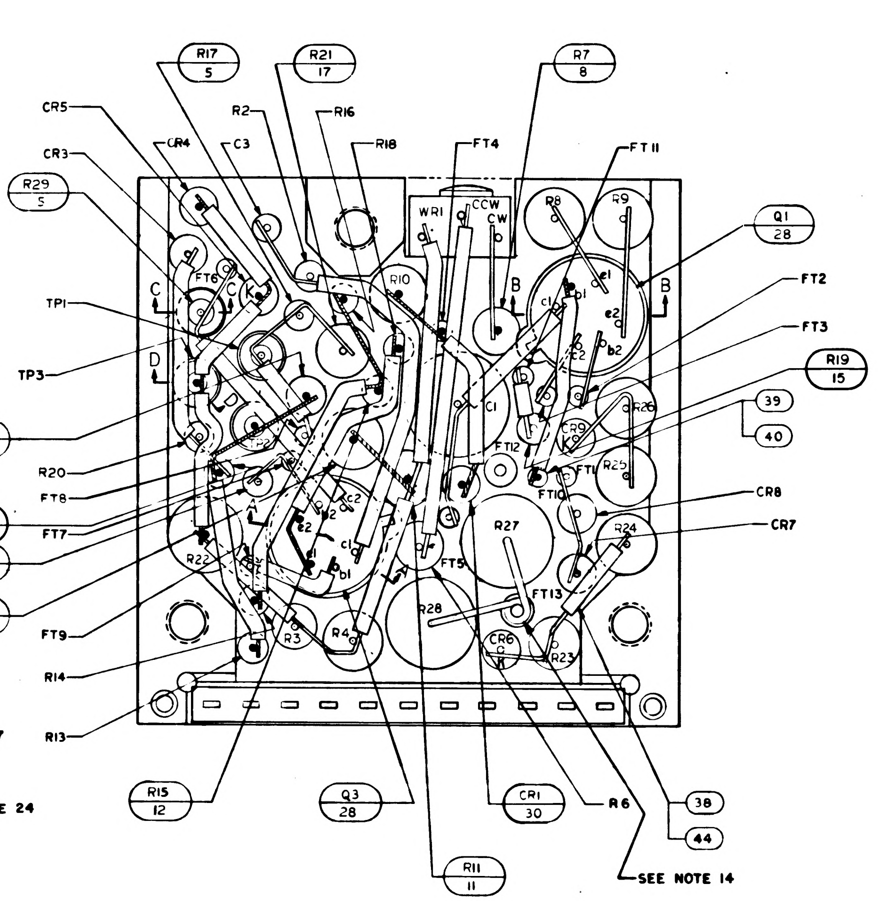
SEE NOTE 17
SEE NOTE 24
.000
.030
.000
.015
45
SEE NOTE 8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WR1
CCW
CW
R8
R9
C
C
B
B
D
D
TP1
TP3
FT6
R10
C1
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CR2
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R27
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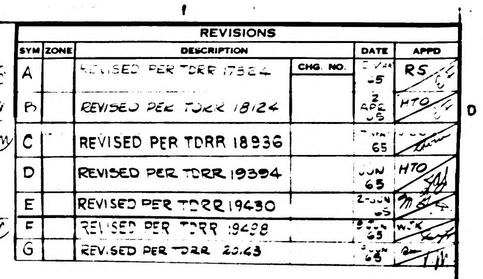
R11
11
SEE NOTE 14



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C		REVISED PER TDRR 18936		MAY 65	
D		REVISED PER TDRR 19394		JUN 65	HTO
E		REVISED PER TDRR 19430		2-JUN 65	
F		REVISED PER TDRR 19498		JUN 65	WJK
G		REVISED PER TDRR 20143		JUN 65	

CHART A

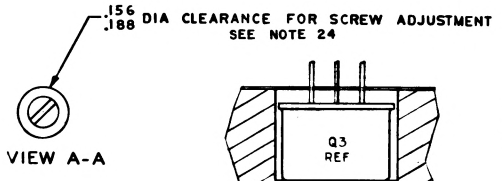
PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B

PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0Ω

CHART C

PART NO.	VALUE
1010254-1	100Ω
-2	120
-3	140
-4	160
-5	180
-6	200
-7	220
-8	240
-9	260
-10	280
-11	300
-12	320
-13	340
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500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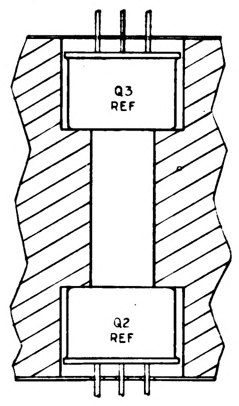
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

VIEW A-A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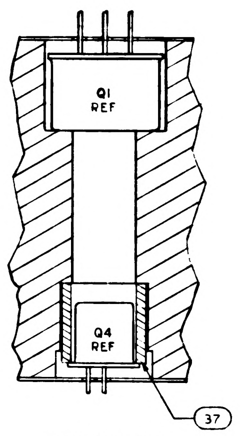
SECTION A-A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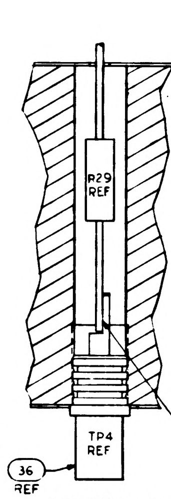
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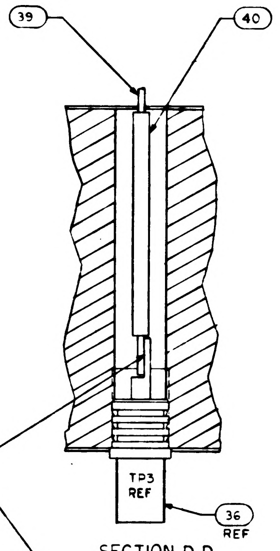
SEE NOTE 3

SECTION C-C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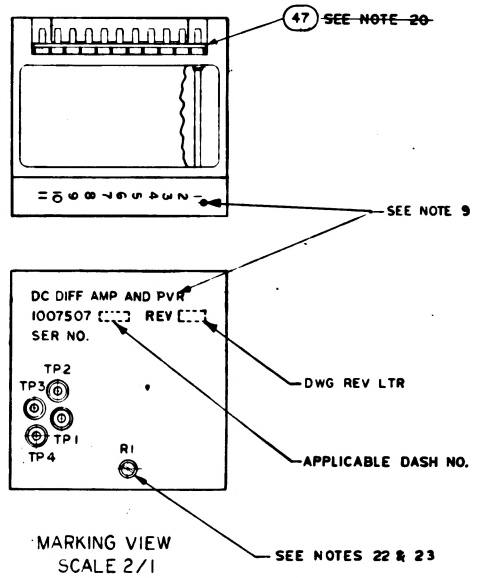
SECTION D-D
TYP 3 PLACES


47 ~~SEE NOTE 20~~
SEE NOTE 9
DC DIFF AMP AND PVR
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REV
SER NO.
TP2
TP3
TP1
TP4
R1
DWG REV LTR
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		021	011				
		X			PS1007007 TYPE III	PROCUREMENT SPEC.	REF
			X		PS1007007 TYPE I	PROCUREMENT SPEC.	REF
		2	2		1010830-27	DIODE	49
		2	2		1010830-26	DIODE	48
		X	X		1010008	ELEC SCHEMATIC DIAGRAM	REF
		1	1		1008540-11	GASKET, CONNECTOR MINIATURE	47
			~~2~~		~~1010286-26~~	~~DIODE~~	46
		AR	AR		1006776-20	INSULATION SLEEVING	45
		AR	AR		1006776-21	INSULATION SLEEVING	44
		2	2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
		11	11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
		11	11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
		AR	AR		1006776-22	INSULATOR, SLEEVING	40
		AR	AR		1006757-8	WIRE, ELEC .020 DIA	39
		AR	AR		1006757-1	WIRE, ELEC .010 X .020	38
		1	1		1008025-1	INSULATOR, BUSHING	37
		4	4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
		1	1		1008152	DIODE	35
		1	1		1010372-19	DIODE	34
		2	2		1010372-15	DIODE	33
			~~2~~		~~1010286-27~~	~~DIODE~~	32
							31
		1	1		1010372-3	DIODE	30
		1	1		1010357-1	TRANSISTOR	29
		3	3		1010376-3	TRANSISTOR	28
		2	2		1006777-6	CAPACITOR, CER	27
		1	1		1010264-24	CAPACITOR, MYLAR	26
		2	2		1010618-3	SCREW, BUTTON HD	25
		1	1		1010254-22	RESISTOR, FIXED	24
		1	1		SEE NOTE 13	RESISTOR, FIXED	23
		1	1		SEE NOTE 12	RESISTOR, FIXED	22
		1	1		SEE NOTE 11	RESISTOR, FIXED	21
		1	1		1010377-25	RESISTOR, FIXED	20
		1	1		1006760-30	RESISTOR, FIXED	19
		1	1		1010399-49	RESISTOR, FIXED	18
		1	1		1006760-46	RESISTOR, FIXED	17
		1	1		1006750-68	RESISTOR, FIXED	16
		1	1		1006750-1	RESISTOR, FIXED	15
		1	1		1006750-84	RESISTOR, FIXED	14
		1	1		1006750-66	RESISTOR, FIXED	13
		2	2		1006750-16	RESISTOR, FIXED	12
		1	1		1006760-48	RESISTOR, FIXED	11
		1	1		1010377-36	RESISTOR, FIXED	10
		2	2		1010377-23	RESISTOR, FIXED	9
		2	2		1010364-681	RESISTOR, FIXED	8
		2	2		1010377-39	RESISTOR, FIXED	7
		1	1		1010374-126	RESISTOR, FIXED	6
		5	5		1006750-80	RESISTOR, FIXED	5
		1	1		1010373-12	RESISTOR, VARIABLE	4
		1	1		1008010-2	INSULATOR BOTTOM	3
		1	1		1008010-1	INSULATOR TOP	2
		1	1		1007003	HEATSINK	1

LIST OF MATERIALS

1007507 (G)

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX±.02 XXX±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Orgel DATE SEP 64
CHECKED Ulrich 14 Sep 64
APPROVAL
APPROVAL 10-5-64
NASA APPROVAL 10-6-64
MIT APPROVAL Oct 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ASSEMBLY
DC DIFFERENTIAL AMPLIFIER
AND PVR

CODE IDENT NO. 80230
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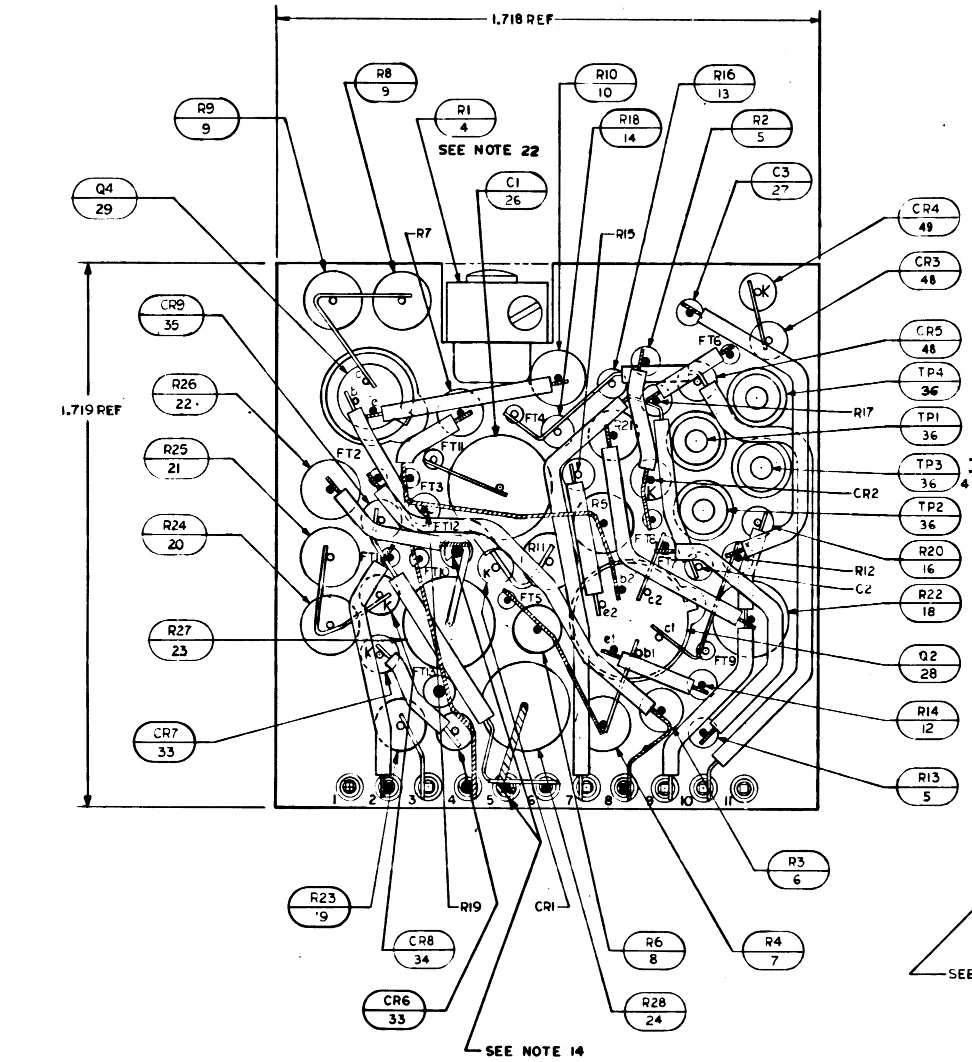
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R7
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C3 27
Q4 29
CR4 49
CR3 48
CR9 35
CR5 48
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R26 22
R17
TP1 36
R25 21
TP3 36
CR2
TP2 36
R24 20
R20 16
R12
C2
R22 18
R27 23
Q2 28
R14 12
CR7 33
R13 5
R3 6
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CR6 33
R28 24
SEE NOTE 14
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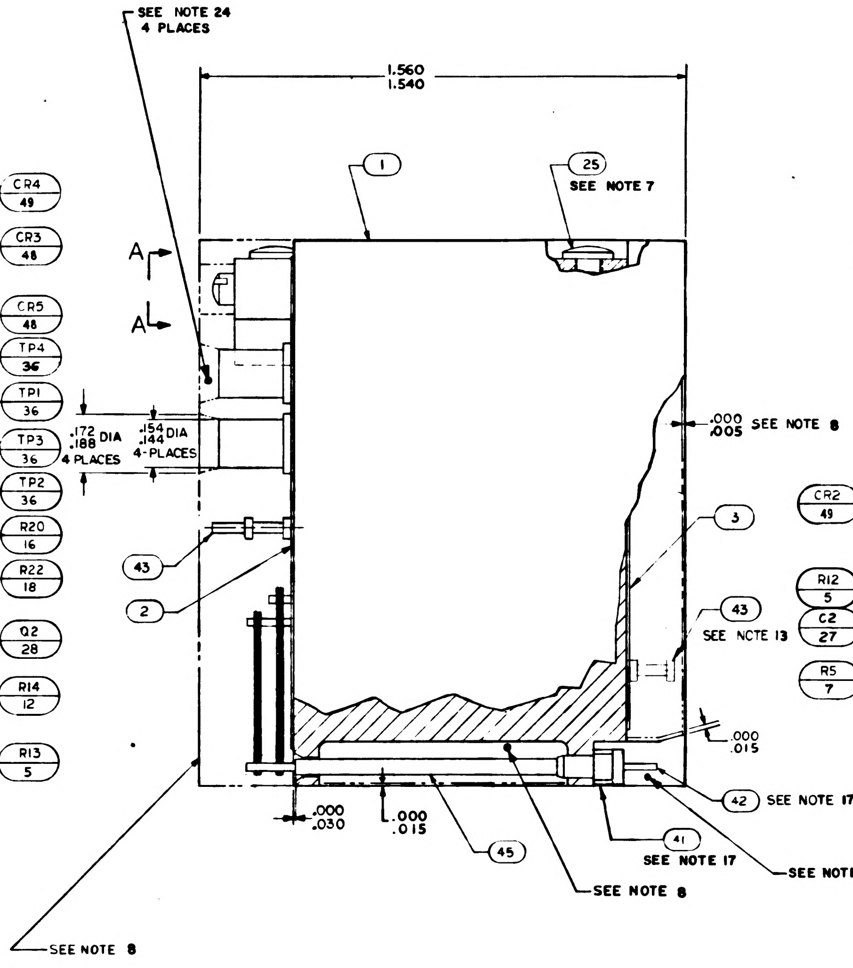
SEE NOTE 24
4 PLACES
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1.540
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25
SEE NOTE 7
A
A
.172 .188 DIA 4 PLACES
.154 .144 DIA 4-PLACES
.000 .005 SEE NOTE 8
3
43
2
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SEE NCTE 13
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42 SEE NOTE 17
.000 .030
.000 .015
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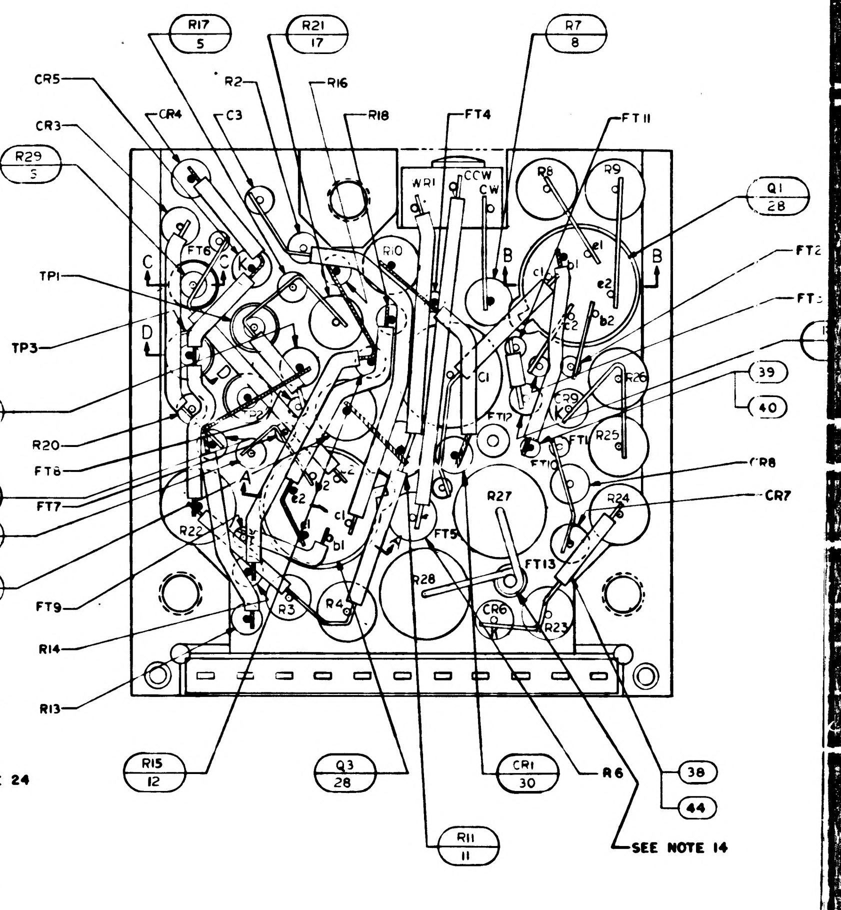
41
SEE NOTE 17
SEE NOTE 24
SEE NOTE 8
SEE NOTE 8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CR9
R24
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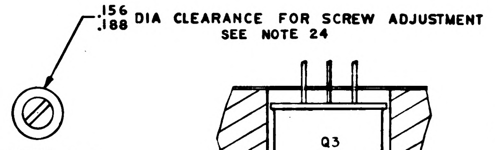
R28
R3
R4
FT5
FT13
CR6
R23
R15 12
Q3 28
CR1 30
R6
38
44
R11 11
SEE NOTE 14

28. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD H
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007(SEE PARTS LIST)
20. ~~BOND FIND NO 47 TO FIND NO 41 PER ND1002237~~

21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND 1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. ~~BOND A .25MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
26. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
27. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.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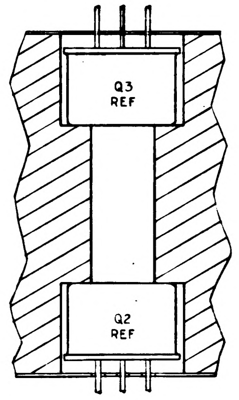
SEE NOTE 24

VIEW A-A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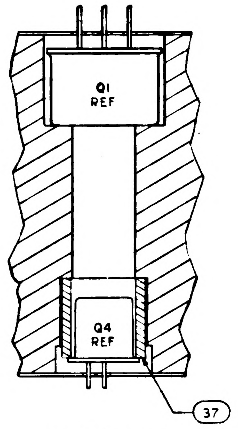
SECTION A-A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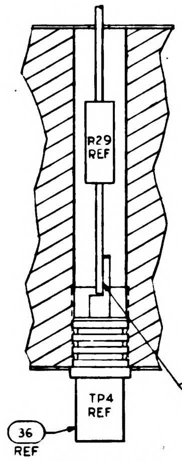
SECTION B-B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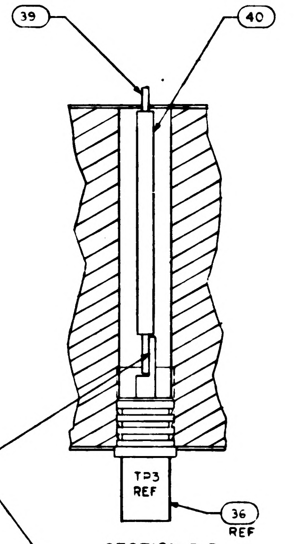
TP4 REF
36 REF

SECTION C-C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TP3 REF
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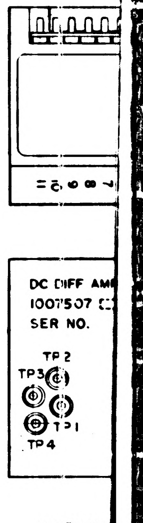
SECTION D-D
TYP 3 PLACES

SEE NOTE 3

~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE~~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SER NO.
TP 2
TP3
TP 1
TP 4

MARKIN
SCAL

1007507 G SH 1

REVISIONS					
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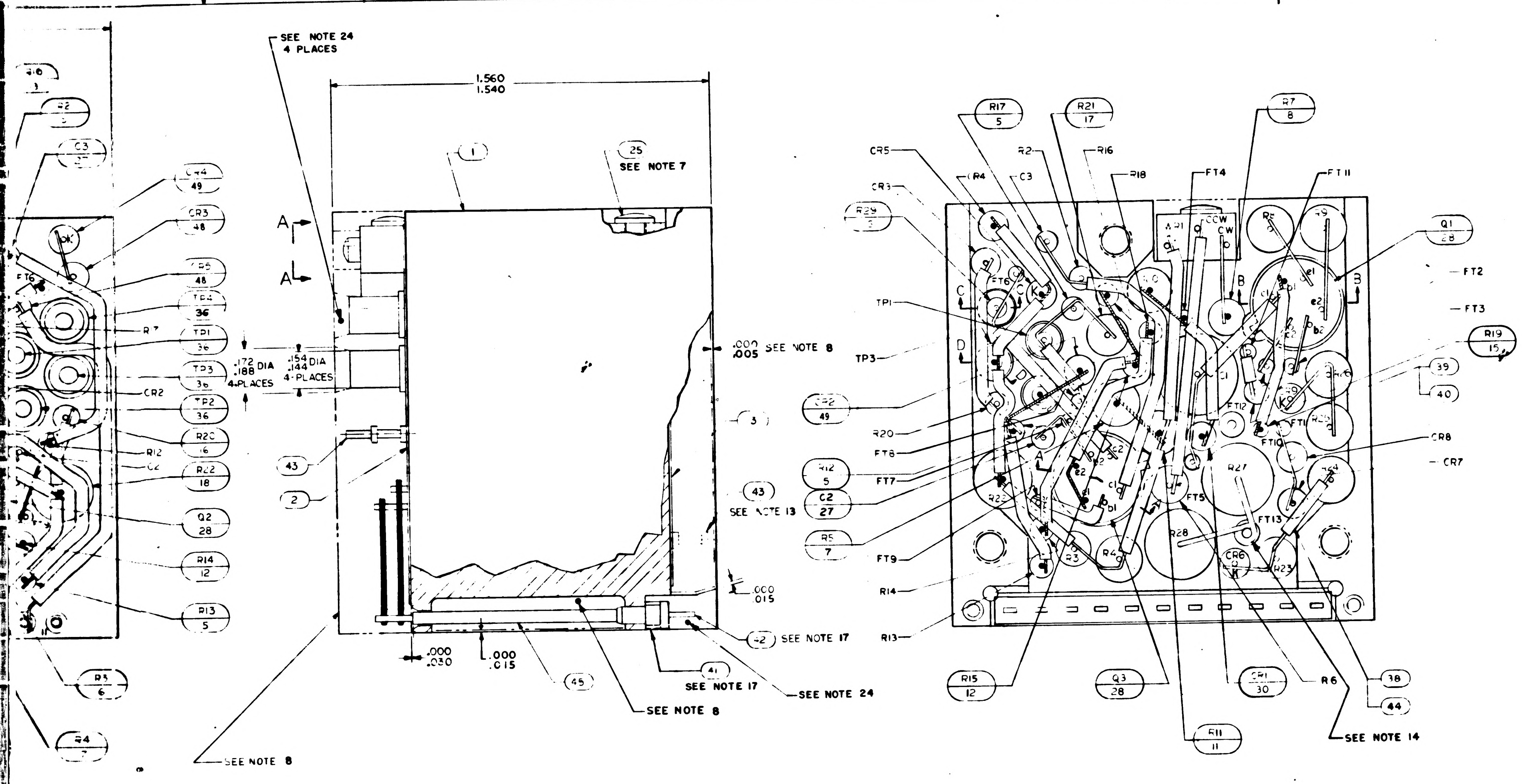
C		REVISED PEP TDRP 18936		65	
D		REVISED PER TDRR 19394		JUN 65	HTO
E		REVISED PER TDRR 19430		2-JUN 65	
F		REVISED PER TDRR 19495		JUN 65	
G		REVISED PER TDRR 20143		JUN 65	
H		REVISED PER TDRR 21124		31 JUL 65	

CHART A			
PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B	
PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0 Ω

CHART C	
PART NO.	VALUE
1010254- 1	100Ω
- 2	120
- 3	140
- 4	160
- 5	180
- 6	200
- 7	220
- 8	240
- 9	260
-10	280
-11	300
-12	320
-13	340
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500


SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
A
.172
.188 DIA
4 PLACES
.154
.144 DIA
4 PLACES
.000
.005 SEE NOTE 8
3
43
2
43
SEE NOTE 13
.000
.015
42 SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
45
SEE NOTE 8
.000
.030
.000
.015
SEE NOTE 8
R6
3
R2
5
C3
CR4
49
CR3
48
CR5
48
TP4
36
R7
TP1
36
TP3
36
CR2
TP2
36
R20
16
R12
C2
R22
18
Q2
28
R14
12
R13
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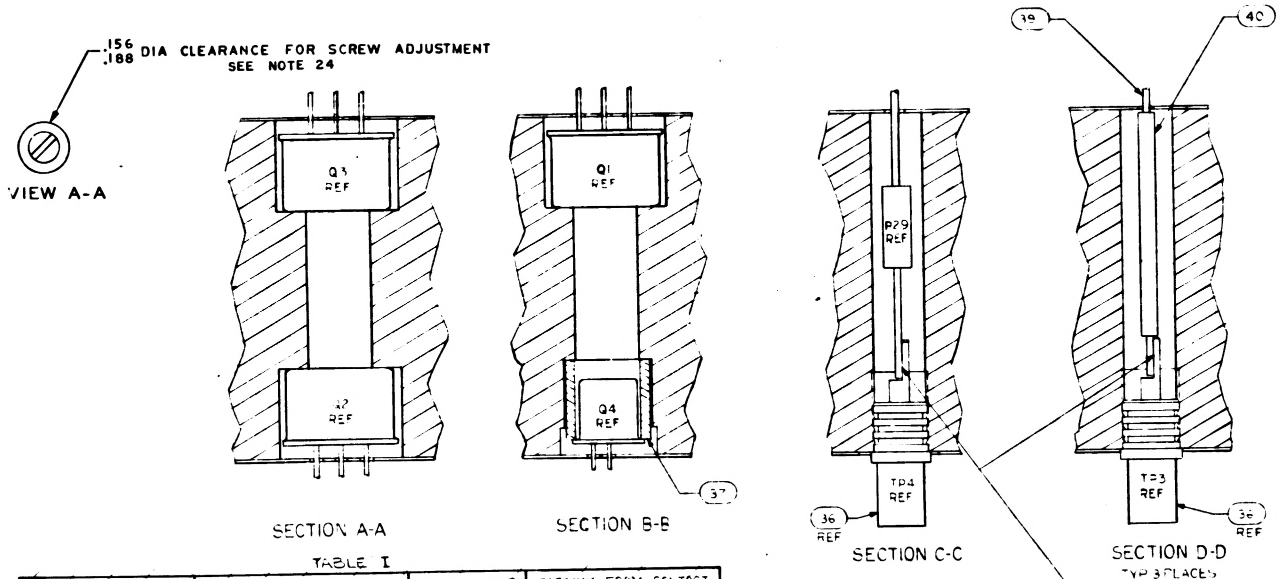
R3
6
R4
7
FT6
R17
5
R21
17
R7
8
CR5
CR3
CR4
C3
R2
R16
R18
FT4
FT11
R29
3
TP1
TP3
CR2
49
R20
FT8
FT7
R12
5
C2
27
R5
7
FT9
R14
R13
R15
12
Q3
28
CR1
30
FT2
FT3
Q1
28
R19
15
39
40
CR8
CR7
R27
R28
FT12
FT10
FT5
FT13
CR6
R23
R6
38
44
SEE NOTE 14
R11
11
B
B
C
C
D
D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.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24
VIEW A-A
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SECTION A-A
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REF
37
SECTION B-B
R29
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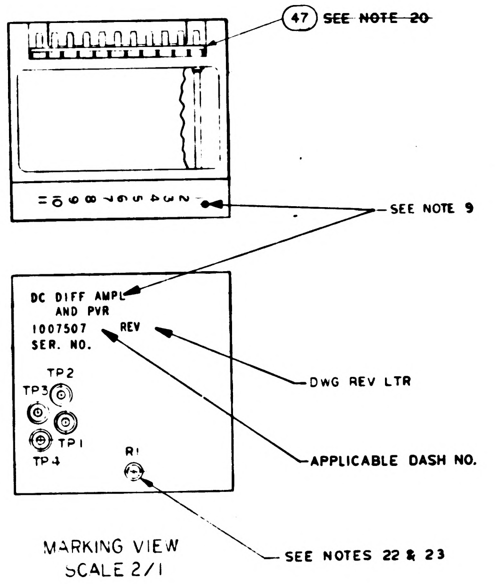
SECTION C-C
39
40
TP3
REF
36
REF
SECTION D-D
TYP 3 PLACES
SEE NOTE 3


47 ~~SEE NOTE 20~~
SEE NOTE 9
DC DIFF AMPL
AND PVR
1007507
SER. NO.
REV
TP2
TP3
TP1
TP4
R1
DWG REV LTR
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FORM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FORM CONTACT SURFACE PERIMETER	N/A	N/A	.23 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE

					PS1007007 TYPE III	PROCUREMENT SPEC.	REF
					PS1007007 TYPE I	PROCUREMENT SPEC.	REF
		2	2		1010830-27	DIODE	49
		2	2		1010830-26	DIODE	48
					1010008	ELEC SCHEMATIC DIAGRAM	REF
		1	1		1008540-11	GASKET, CONNECTOR MINIATURE	47
			~~2~~		~~1010286-26~~	~~DIODE~~	46
		AR	AR		1006776-20	INSULATION SLEEVING	45
		AR	AR		1006776-21	INSULATION SLEEVING	44
		2	2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
		11	11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
		11	11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
		AR	AR		1006776-22	INSULATOR, SLEEVING	40
		AR	AR		1006757-8	WIRE, ELEC .020 DIA	39
		AR	AR		1006757-1	WIRE, ELEC .010 X .020	38
		1	1		1008025-1	INSULATOR, BUSHING	37
		4	4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
		1	1		1008152	DIODE	35
		1	1		1010372-19	DIODE	34
		2	2		1010372-15	DIODE	33
			~~2~~		~~1010286-27~~	~~DIODE~~	32
							31
		1	1		1010372-3	DIODE	30
		1	1		1010357-1	TRANSISTOR	29
		3	3		1010376-3	TRANSISTOR	28
		2	2		1006777-6	CAPACITOR, CER	27
		1	1		1010264-24	CAPACITOR, MYLAR	26
		2	2		1010618-3	SCREW, BUTTON HD	25
		1	1		1010254-22	RESISTOR, FIXED	24
		1	1		SEE NOTE 13	RESISTOR, FIXED	23
		1	1		SEE NOTE 12	RESISTOR, FIXED	22
		1	1		SEE NOTE 11	RESISTOR, FIXED	21
		1	1		1010377-25	RESISTOR, FIXED	20
		1	1		1006760-30	RESISTOR, FIXED	19
		1	1		1010399-49	RESISTOR, FIXED	18
		1	1		1006760-46	RESISTOR, FIXED	17
		1	1		1006750-68	RESISTOR, FIXED	16
		1	1		1006750-1	RESISTOR, FIXED	15
		1	1		1006750-84	RESISTOR, FIXED	14
		1	1		1006750-66	RESISTOR, FIXED	13
		2	2		1006750-16	RESISTOR, FIXED	12
		1	1		1006760-48	RESISTOR, FIXED	11
		1	1		1010377-36	RESISTOR, FIXED	10
		2	2		1010377-23	RESISTOR, FIXED	9
		2	2		1010364-681	RESISTOR, FIXED	8
		2	2		1010377-39	RESISTOR, FIXED	7
		1	1		1010374-126	RESISTOR, FIXED	6
		5	5		1006750-80	RESISTOR, FIXED	5
		1	1		1010373-12	RESISTOR, VARIABLE	4
		1	1		1008010-2	INSULATOR BOTTOM	3
		1	1		1008010-1	INSULATOR TOP	2
			1		1007003	HEATSINK	1
		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO
1007574 1007573		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

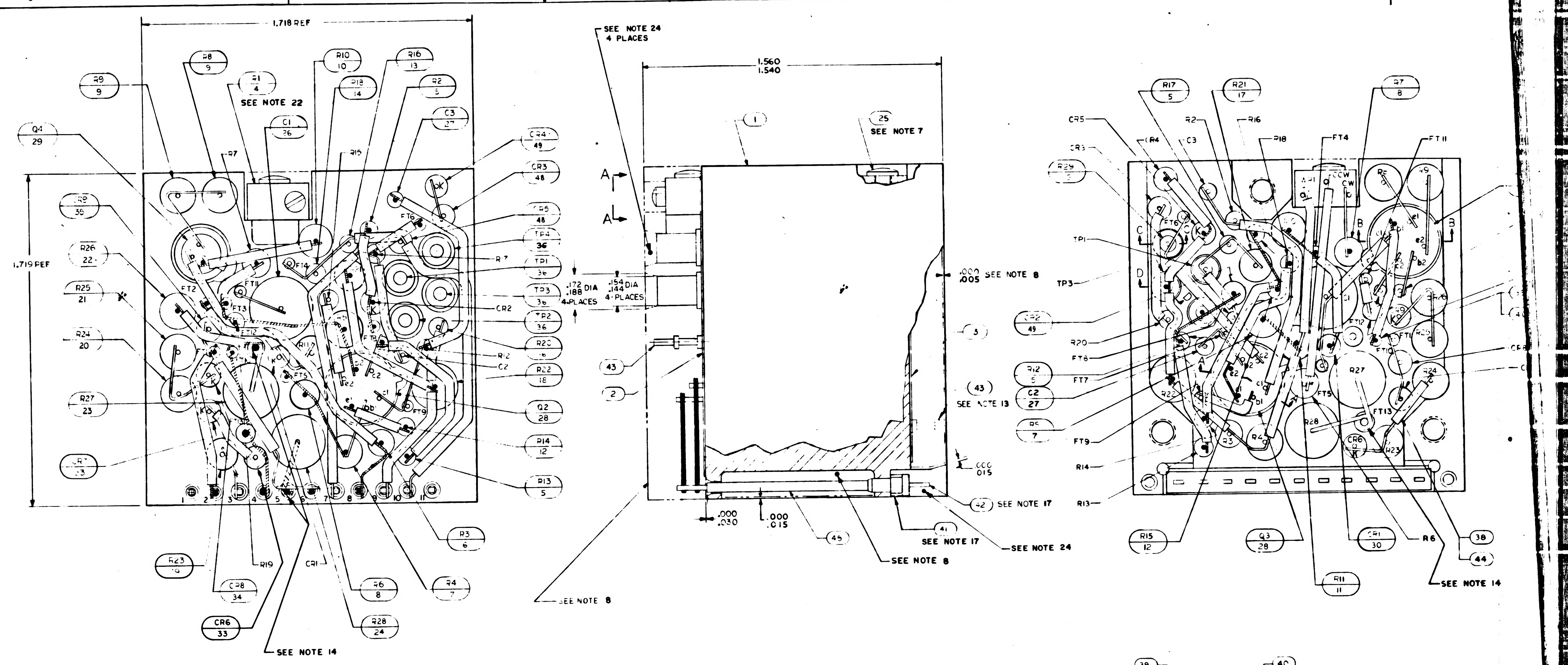
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ± .02 XXX ± .005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN Orgel DATE 16 SEP 64
CHECKED 16 SEP 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ASSEMBLY
DC DIFFERENTIAL AMPLIFIER
AND PVR

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO. 1007507
SCALE 5:1
WT
SHEET 1 OF 1

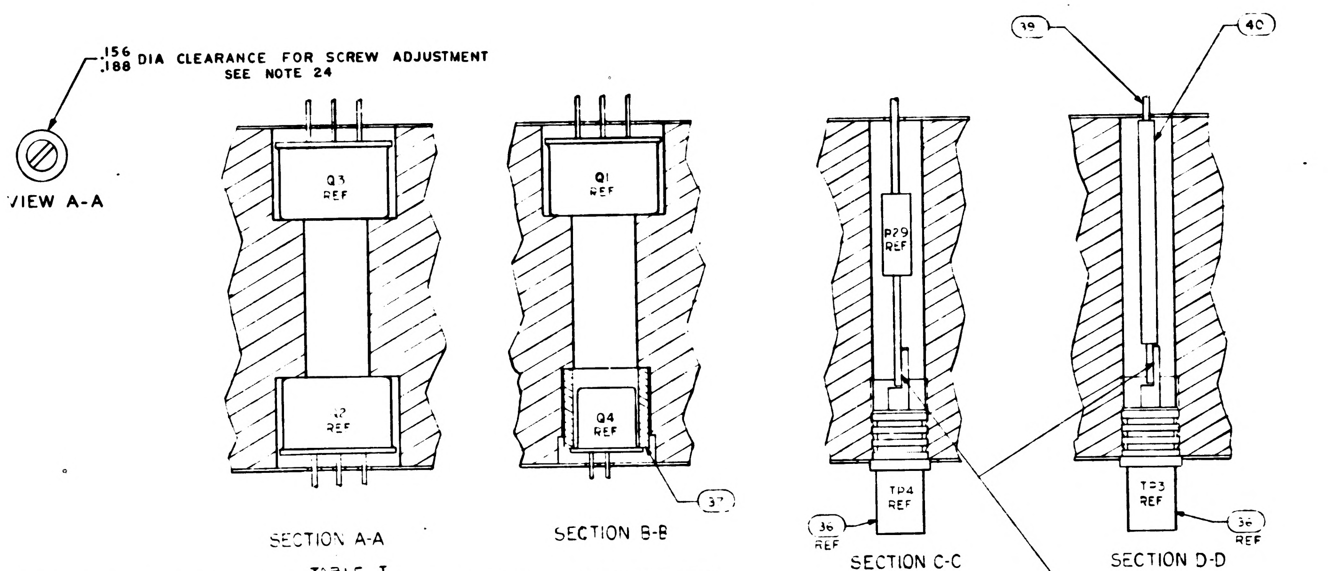

1.718 REF
1.719 REF
1.560
1.540
SEE NOTE 22
SEE NOTE 24
4 PLACES
SEE NOTE 7
SEE NOTE 8
SEE NOTE 13
SEE NOTE 14
SEE NOTE 17
.172 DIA
.188
4-PLACES
.154 DIA
.144
4-PLACES
.000
.005
.000
.030
.000
.015
.000
.015
A
A
R8 9
R9 9
R1 4
R10 10
R16 13
R18 14
R2 5
C3 37
C1 36
Q4 29
CR4 49
CR3 48
CR5 48
TP4 36
TP1 36
TP3 36
TP2 36
CR2
R20 16
R22 18
Q2 28
R14 12
R13 5
R3 6
R4 7
R6 8
R28 24
R26 22
R25 21
R24 20
R27 23
R23 19
CR8 34
CR6 33
R19
CR1
R17 5
R21 17
R7 8
R12 5
C2 27
R5 7
R15 12
Q3 28
CR1 30
R11 11
R6
38
44
43
2
1
25
3
41
42
45
FT1
FT2
FT3
FT4
FT5
FT6
FT7
FT8
FT9
FT11
FT12
FT13
FT14
TP1
TP3
1 2 3 4 5 6 7 8 9 10 11

28. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II. AFTER ENCAPSULATION, USING BLACK PAINT PER 1002120-4 CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD H
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007(SEE PARTS LIST)
20. ~~BOND FIND NO 47 TO FIND NO 41 PER ND1002237~~

21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002197 TYPE I.~~
26. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BONDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL ADHESIVE AND COATING MATERIAL PER ND1002197 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
27. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.


.156
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24
VIEW A-A
Q3 REF
Q2 REF
Q1 REF
Q4 REF
37
R29 REF
TP4 REF
TP3 REF
36 REF
36 REF
39
40
SEE NOTE 3

SECTION A-A

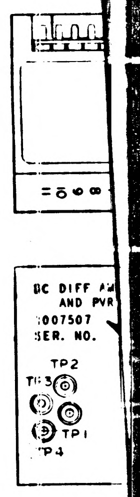
SECTION B-B

SECTION C-C

SECTION D-D
TYP 3 PLACES

TABLE I

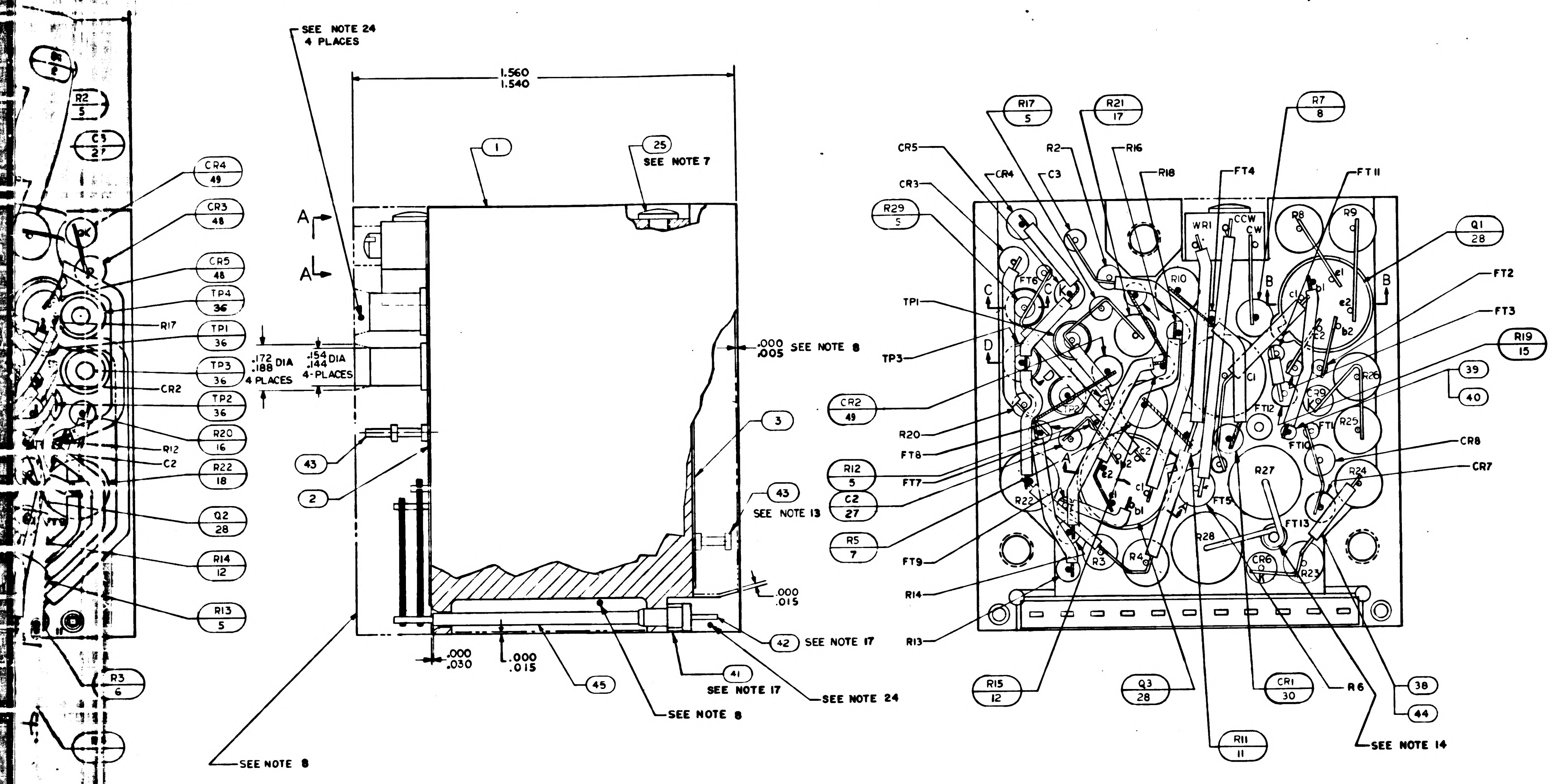
CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.23 MIN WIDTH OF TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE


DC DIFF AM
AND PWR
1007507
SER. NO.
TP2
TP3
TP1
TP4

MARKING
SCALE

1007507 H 1

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17824		2 MAR 65	RS
B		REVISED PER TDRR 18124		2 APR 65	HTO
C		REVISED PER TDRR 18936		65	
D		REVISED PER TDRR 19394		JUN 65	HTO
E		REVISED PER TDRR 19430		2-JUN 65	
F		REVISED PER TDRR 19498		JUN 65	WJK
G		REVISED PER TDRR 20143		19 JUN 65	
H		REVISED PER TDRR 21124		3 JUL 65	
J		REVISED PER TDRR 21271		2 AUG 65	



SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
A
.172 DIA
.188
4 PLACES
.154 DIA
.144
4-PLACES
.000
.005
SEE NOTE 8
3
43
2
43
SEE NOTE 13
.000
.015
42
SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
SEE NOTE 8
45
.000
.030
.000
.015
SEE NOTE 8
CR4 49
CR3 48
CR5 48
TP4 36
TP1 36
TP3 36
TP2 36
R20 16
R22 18
Q2 28
R14 12
R13 5
R3 6
R17
CR2
R12
C2
R17 5
R21 17
R7 8
R29 5
CR5
CR3
CR4
C3
R2
R16
R18
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CR7
TP1
TP3
CR2 49
R20
FT8
R12 5
C2 27
FT7
R5 7
FT9
R14
R13
R15 12
Q3 28
R11 11
CR1 30
R6
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44
SEE NOTE 14
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R8
R9
R10
B
B
C
C
D
D
C1
R26
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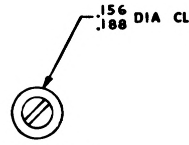
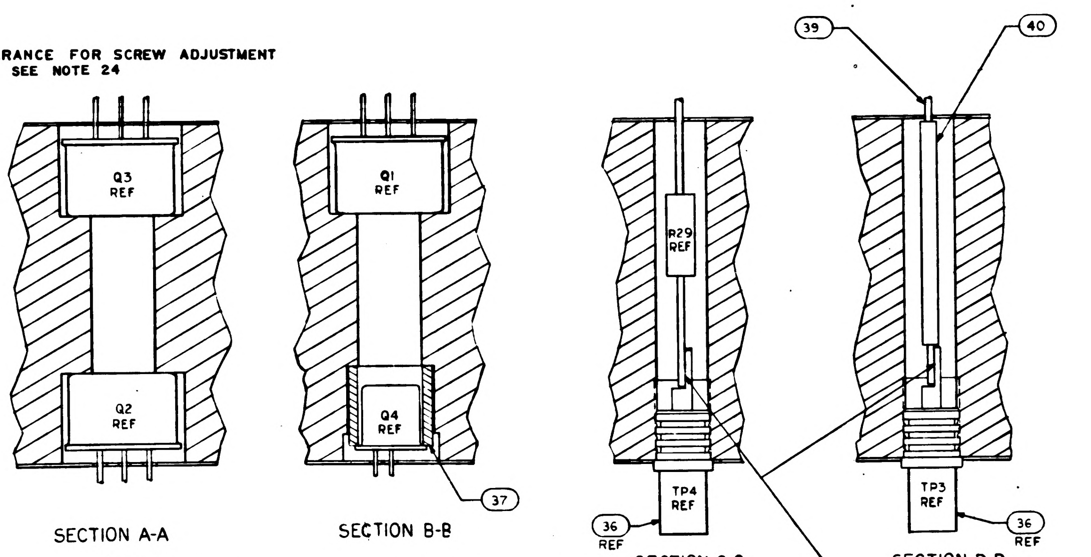
R23
CR6
R4
R3


.156 DIA CLEARANCE FOR SCREW ADJUSTMENT
.188
SEE NOTE 24

VIEW A-A



Q3
REF
Q2
REF
Q1
REF
Q4
REF
37
39
40
R29
REF
TP4
REF
TP3
REF
36
REF
36
REF

SECTION A-A

SECTION B-B

SECTION C-C

SECTION D-D
TYP 3 PLACES

SEE NOTE 3

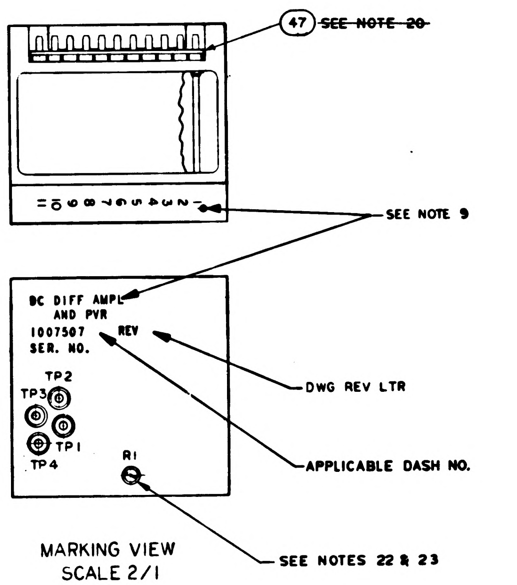
TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE

CHART A			
PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B	
PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0Ω

CHART C	
PART NO.	VALUE
1010254- 1	100Ω
- 2	120
- 3	140
- 4	160
- 5	180
- 6	200
- 7	220
- 8	240
- 9	260
-10	280
-11	300
-12	320
-13	340
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500



47
~~SEE NOTE 20~~
SEE NOTE 9
DC DIFF AMPL
AND PVR
1007507
SER. NO.
REV
TP2
TP3
TP1
TP4
R1
DWG REV LTR
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

		☒			PS1007007 TYPE III	PROCUREMENT SPEC.	REF
			☒		PS1007007 TYPE I	PROCUREMENT SPEC.	REF
		2	2		1010830-27	DIODE	49
		2	2		1010830-26	DIODE	48
		☒	☒		1010008	ELEC SCHEMATIC DIAGRAM	REF
		1	1		1008540-11	GASKET, CONNECTOR MINIATURE	47
			~~2~~		~~1010286-26~~	~~DIODE~~	46
		AR	AR		1006776-20	INSULATION SLEEVING	45
		AR	AR		1006776-21	INSULATION SLEEVING	44
		2	2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
		11	11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
		11	11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
		AR	AR		1006776-22	INSULATOR, SLEEVING	40
		AR	AR		1006757-8	WIRE, ELEC .020 DIA	39
		AR	AR		1006757-1	WIRE, ELEC .010 X .020	38
		1	1		1008025-1	INSULATOR, BUSHING	37
		4	4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
		1	1		1008152	DIODE	35
		1	1		1010372-19	DIODE	34
		2	2		1010372-15	DIODE	33
			~~2~~		~~1010286-27~~	~~DIODE~~	32
							31
		1	1		1010372-3	DIODE	30
		1	1		1010357-1	TRANSISTOR	29
		3	3		1010376-3	TRANSISTOR	28
		2	2		1006777-6	CAPACITOR, CER	27
		1	1		1010264-24	CAPACITOR, MYLAR	26
		2	2		1010618-3	SCREW, BUTTON HD	25
		1	1		1010254-22	RESISTOR, FIXED	24
		1	1		SEE NOTE 12	RESISTOR, FIXED	23
		1	1		SEE NOTE 11	RESISTOR, FIXED	22
		1	1		SEE NOTE 10	RESISTOR, FIXED	21
		1	1		1010377-25	RESISTOR, FIXED	20
		1	1		1006760-30	RESISTOR, FIXED	19
		1	1		1010399-49	RESISTOR, FIXED	18
		1	1		1006760-46	RESISTOR, FIXED	17
		1	1		1006750-68	RESISTOR, FIXED	16
		1	1		1006750-1	RESISTOR, FIXED	15
		1	1		1006750-84	RESISTOR, FIXED	14
		1	1		1006750-66	RESISTOR, FIXED	13
		2	2		1006750-16	RESISTOR, FIXED	12
		1	1		1006760-48	RESISTOR, FIXED	11
		1	1		1010377-36	RESISTOR, FIXED	10
		2	2		1010377-23	RESISTOR, FIXED	9
		2	2		1010364-681	RESISTOR, FIXED	8
		2	2		1010377-39	RESISTOR, FIXED	7
		1	1		1010374-126	RESISTOR, FIXED	6
		5	5		1006750-80	RESISTOR, FIXED	5
		1	1		1010373-12	RESISTOR, VARIABLE	4
		1	1		1008010-2	INSULATOR BOTTOM	3
		1	1		1008010-1	INSULATOR TOP	2
		1	1		1007003	HEATSINK	1
		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

1007507 J

1007574		
1007573		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX±.02 XXX±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Orgel DATE 4 SEP 64
CHECKED 14 Sep 64
APPROVAL
APPROVAL 10-5-64
NASA APPROVAL 10-6-64
MIT APPROVAL Oct 64

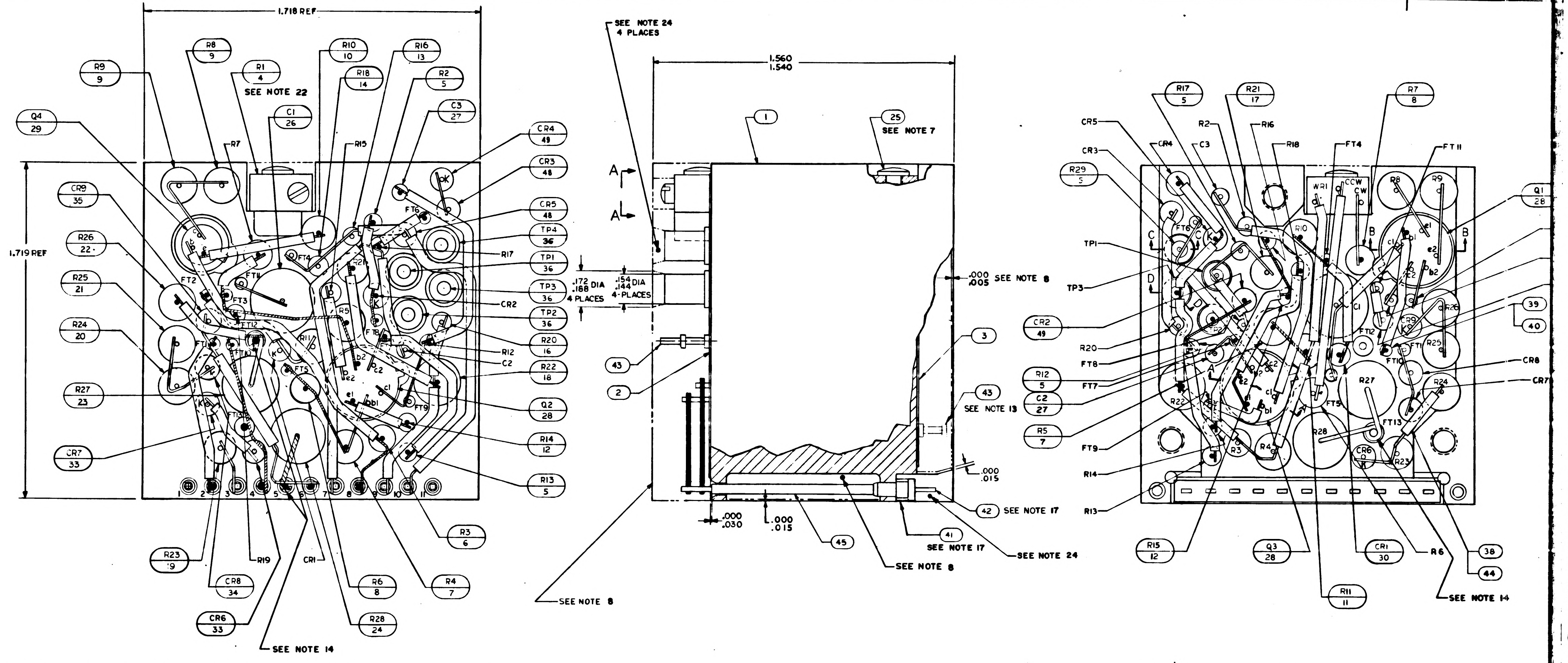
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ASSEMBLY
DC DIFFERENTIAL AMPLIFIER
AND PVR

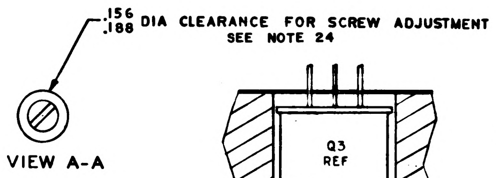
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	1007507
SCALE 5:1	WT	SHEET 1 OF 3

1007507	REV J	SH 1

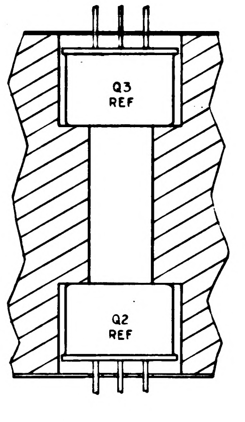
271007507


1.718 REF
1.719 REF
R8 9
R1 4
SEE NOTE 22
R10 10
R16 13
R18 14
R2 5
R9 9
C1 26
C3 27
Q4 29
R7
R15
CR4 49
CR3 48
CR9 35
CR5 48
TP4 36
R26 22
TP1 36
R17
R25 21
TP3 36
CR2
TP2 36
R24 20
R20 16
R12
C2
R22 18
R27 23
Q2 28
R14 12
CR7 33
R13 5
R3 6
R23 9
R19
CR1
R6 8
R4 7
CR8 34
CR6 33
R28 24
SEE NOTE 14
SEE NOTE 24 4 PLACES
1.560
1.540
1
25 SEE NOTE 7
A
.172 DIA .188 4 PLACES
.154 DIA .144 4-PLACES
.000 .005 SEE NOTE 8
3
43
2
43 SEE NOTE 13
.000 .015
42 SEE NOTE 17
41 SEE NOTE 17
SEE NOTE 24
45
SEE NOTE 8
.000 .030
.000 .015
SEE NOTE 8
R17 5
R21 17
R7 8
CR5
CR4
C3
R2
R16
R18
FT4
FT11
CR3
R29 5
WR1
CCW
CW
Q1 28
TP1
TP3
CR2 49
39
40
R20
FT8
FT7
R12 5
C2 27
CR8
CR7
R5 7
FT9
R14
R13
R15 12
Q3 28
CR1 30
R6
38
44
R11 11
SEE NOTE 14

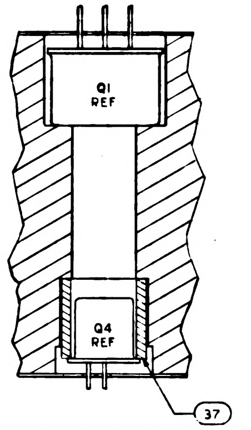
28. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.


.156 DIA CLEARANCE FOR SCREW ADJUSTMENT
.188
SEE NOTE 24

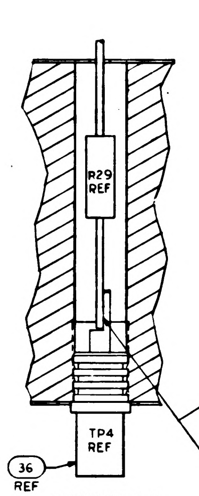
VIEW A-A


Q3 REF
Q2 REF

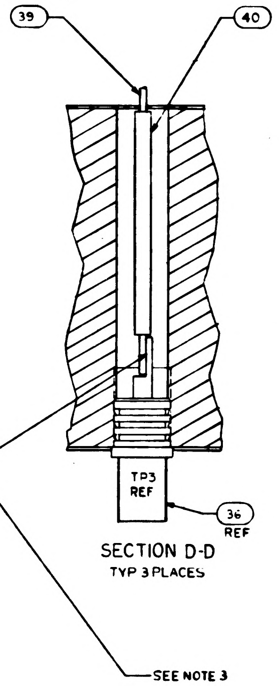
SECTION A-A


Q1 REF
Q4 REF
37

SECTION B-B


R29 REF
TP4 REF
36 REF

SECTION C-C


39
40
TP3 REF
36 REF
SEE NOTE 3

SECTION D-D
TYP 3 PLACES

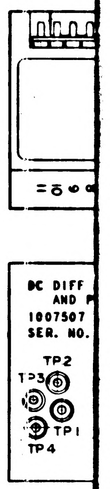
TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE~~

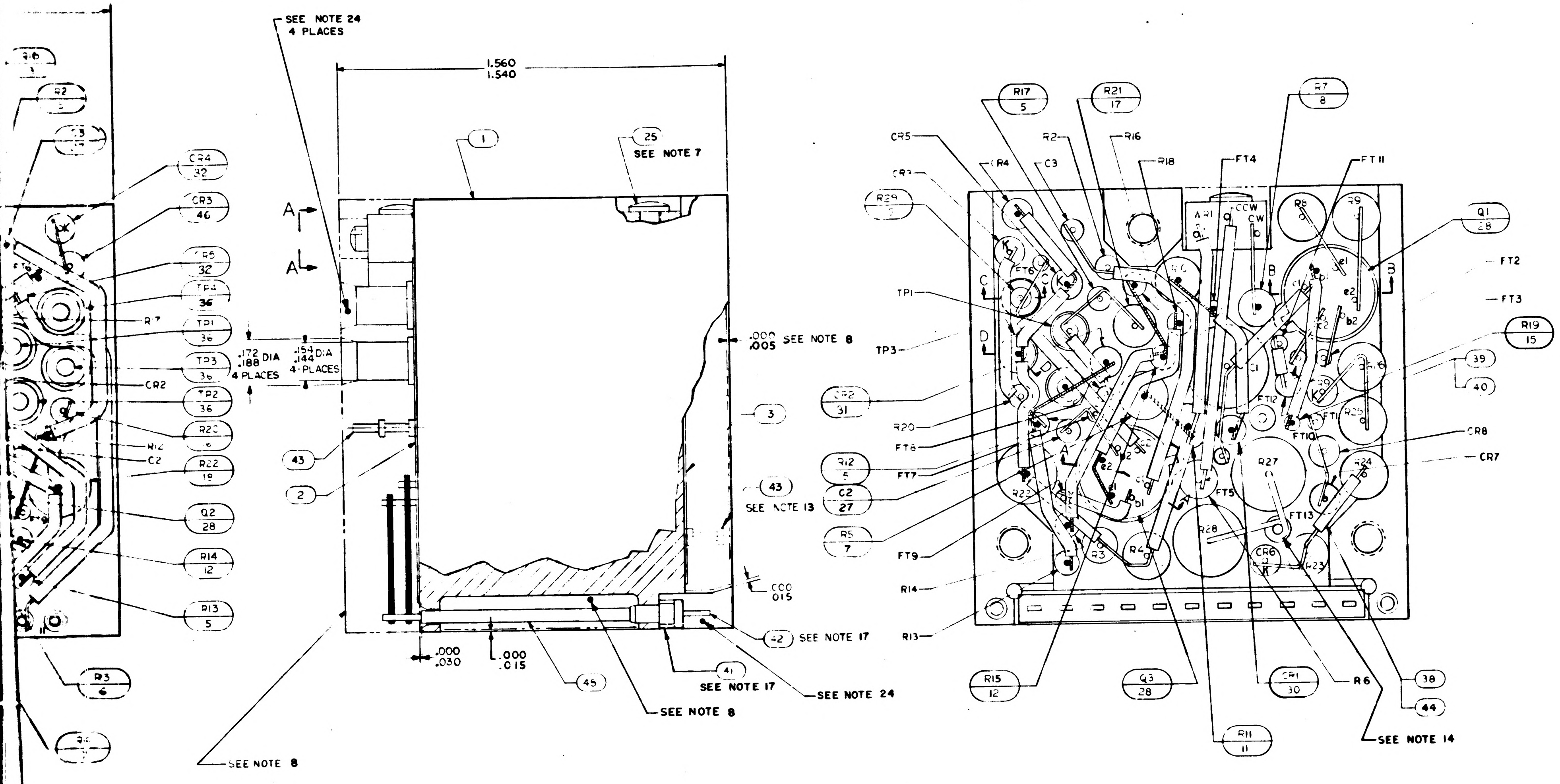
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD H
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007(SEE PARTS LIST)
20. ~~BOND FIND NO 47 TO FIND NO 41 PER ND1002237~~

21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND 1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. ~~BOND A .25MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
26. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
27. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.

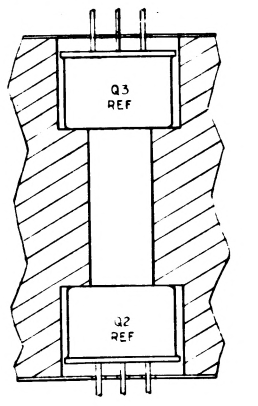

DC DIFF
AND
1007507
SER. NO.
TP2
TP3
TP1
TP4

MARKI
SCA

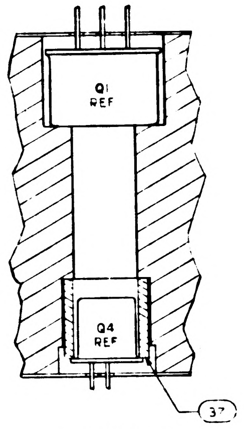

SEE NOTE 24
4 PLACES
1.560
1.540
25
SEE NOTE 7
1
A
A
.172
.188 DIA
4 PLACES
.154
.144 DIA
4 PLACES
.000
.005 SEE NOTE 8
3
43
SEE NOTE 13
2
43
.000
.030
.000
.015
45
41
SEE NOTE 17
SEE NOTE 24
SEE NOTE 8
42 SEE NOTE 17
.000
.015
SEE NOTE 8
CR4 32
CR3 46
CR5 32
TP4 36
TP1 36
TP3 36
TP2 36
R2
R22 16
Q2 28
R14 12
R13 5
R3 6
R7
CR2
R12
C2
R17 5
R21 17
R7 8
R29
R2
R16
R18
CR4
C3
CR5
CR3
FT4
FT11
FT2
FT3
FT5
FT6
FT7
FT9
FT10
FT12
FT13
Q1 28
R19 15
39
40
CR8
CR7
TP1
TP3
CR2 31
R20
R12 5
C2 27
R5 7
R14
R13
R15 12
Q3 28
R11 11
CR1 30
R6
38
44
R27
R28
R24
R23
CR6
SEE NOTE 14
B
C
D

.156
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

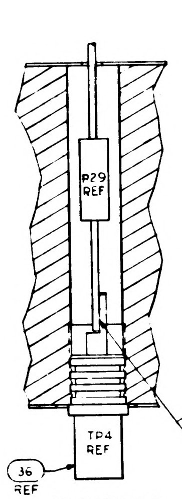
VIEW A-A


Q3
REF
Q2
REF

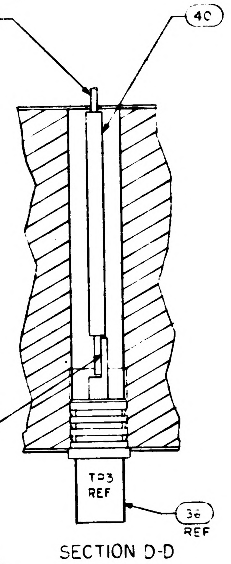
SECTION A-A


Q1
REF
Q4
REF
37

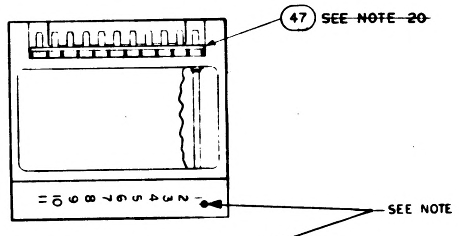
SECTION B-B

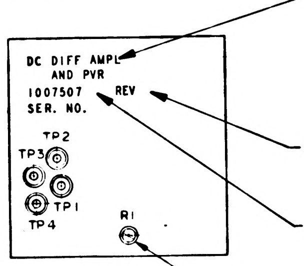

39
R29
REF
TP4
REF
36
REF

SECTION C-C


40
TP3
REF
36
REF
SEE NOTE 3

SECTION D-D
TYP 3 PLACES


47 ~~SEE NOTE 20~~
SEE NOTE 9


DC DIFF AMPL
AND PVR
1007507 REV
SER. NO.
TP2
TP3
TP1
TP4
R1
DWG REV LTR
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FORM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.23 MIN WIDTH OF TOTAL AVAILABLE ON 50 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A		[illegible] PER TDRR 17[illegible]		5	RS
B		REVISED PER TDRR 18124		2 [illegible]	HTO
C		REVISED PEP TDRR 18936		65	
D		REVISED PER TDRR 19394		1 JUN 65	HTO
E		REVISED PER TDRR 19430		2-JUN 65	
F		REVISED PER TDRR 19496		9 JUN 65	WJK
G		REVISED PER TDRR 20143		19 JUN 65	
H		REVISED PER TDRR 21124		31 JUL 65	PLP
J		REVISED PER TDRR 21271		2 AUG 65	KLP
K		REVISED PER TDRR 21491		3 AUG 65	DKD

CHART A			
PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B	
PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0Ω

CHART C	
PART NO.	VALUE
1010254- 1	100Ω
- 2	120
- 3	140
- 4	160
- 5	180
- 6	200
- 7	220
- 8	240
- 9	260
-10	280
-11	300
-12	320
-13	340
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		021	011				
		☒			PS1007007 TYPE III	PROCUREMENT SPEC.	REF
			☒		PS1007007 TYPE I	PROCUREMENT SPEC.	REF
		~~2~~	~~2~~		~~1010830-27~~	~~DIODE~~	49
		~~2~~	~~2~~		~~1010830-28~~	~~DIODE~~	48
		☒	☒		1010008	ELEC SCHEMATIC DIAGRAM	REF
		1	1		1008540-11	GASKET, CONNECTOR MINIATURE	47
		1	1		1010286-26	DIODE	46
		AR	AR		1006776-20	INSULATION SLEEVING	45
		AR	AR		1006776-21	INSULATION SLEEVING	44
		2	2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
		11	11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
		11	11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
		AR	AR		1006776-22	INSULATOR, SLEEVING	40
		AR	AR		1006757-8	WIRE, ELEC .020 DIA	39
		AR	AR		1006757-1	WIRE, ELEC .010 X .020	38
		1	1		1008025-1	INSULATOR, BUSHING	37
		4	4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
		1	1		1008152	DIODE	35
		1	1		1010372-19	DIODE	34
		2	2		1010372-15	DIODE	33
		2	2		1010286-27	DIODE	32
		1	1		1010372-32	DIODE	31
		1	1		1010372-3	DIODE	30
		1	1		1010357-1	TRANSISTOR	29
		3	3		1010376-3	TRANSISTOR	28
		2	2		1006777-6	CAPACITOR, CER	27
		1	1		1010264-24	CAPACITOR, MYLAR	26
		2	2		1010618-3	SCREW, BUTTON HD	25
		1	1		1010254-22	RESISTOR, FIXED	24
		1	1		SEE NOTE 12	RESISTOR, FIXED	23
		1	1		SEE NOTE 11	RESISTOR, FIXED	22
		1	1		SEE NOTE 10	RESISTOR, FIXED	21
		1	1		1010377-25	RESISTOR, FIXED	20
		1	1		1006760-30	RESISTOR, FIXED	19
		1	1		1010399-49	RESISTOR, FIXED	18
		1	1		1006760-46	RESISTOR, FIXED	17
		1	1		1006750-68	RESISTOR, FIXED	16
		1	1		1006750-1	RESISTOR, FIXED	15
		1	1		1006750-84	RESISTOR, FIXED	14
		1	1		1006750-66	RESISTOR, FIXED	13
		2	2		1006750-16	RESISTOR, FIXED	12
		1	1		1006760-48	RESISTOR, FIXED	11
		1	1		1010377-36	RESISTOR, FIXED	10
		2	2		1010377-23	RESISTOR, FIXED	9
		2	2		1010364-681	RESISTOR, FIXED	8
		2	2		1010377-39	RESISTOR, FIXED	7
		1	1		1010374-126	RESISTOR, FIXED	6
		5	5		1006750-80	RESISTOR, FIXED	5
		1	1		1010373-12	RESISTOR, VARIABLE	4
		1	1		1008010-2	INSULATOR BOTTOM	3
		1	1		1008010-1	INSULATOR TOP	2
		1	1		1007003	HEATSINK	1

LIST OF MATERIALS

1007507 K

NEXT ASSY	USED ON	APPLICABLE DASH NO
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ± .02 XXX ± .005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN Ozyel DATE [illegible] 64
CHECKED [illegible] 16 Sep 64
APPROVAL [illegible]
APPROVAL [illegible] 10-5-64
NASA APPROVAL
MIT APPROVAL

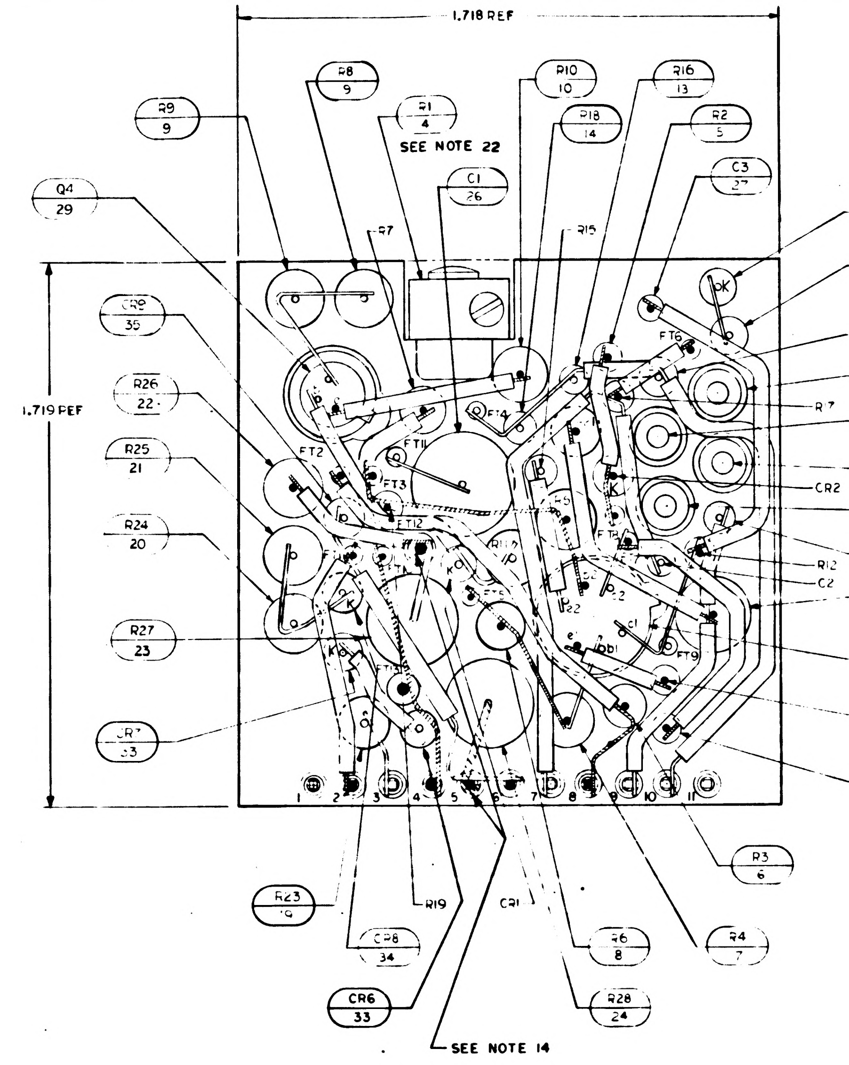
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ASSEMBLY
DC DIFFERENTIAL AMPLIFIER AND PVR

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007507
SCALE 5:1
WT
SHEET 1 OF 1

1007507 K 1

2/1007507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R1 4
SEE NOTE 22
R10 10
R16 13
R18 14
R2 5
C1 26
C3 27
Q4 29
CR4 32
CR3 46
CR9 30
CR5 32
TP4 36
TP1 36
TP3 36
TP2 36
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R25 21
R24 20
R27 23
CR7 33
R20 16
R22 18
Q2 28
R14 12
R13 5
R3 6
R4 7
R6 8
R28 24
CR6 33
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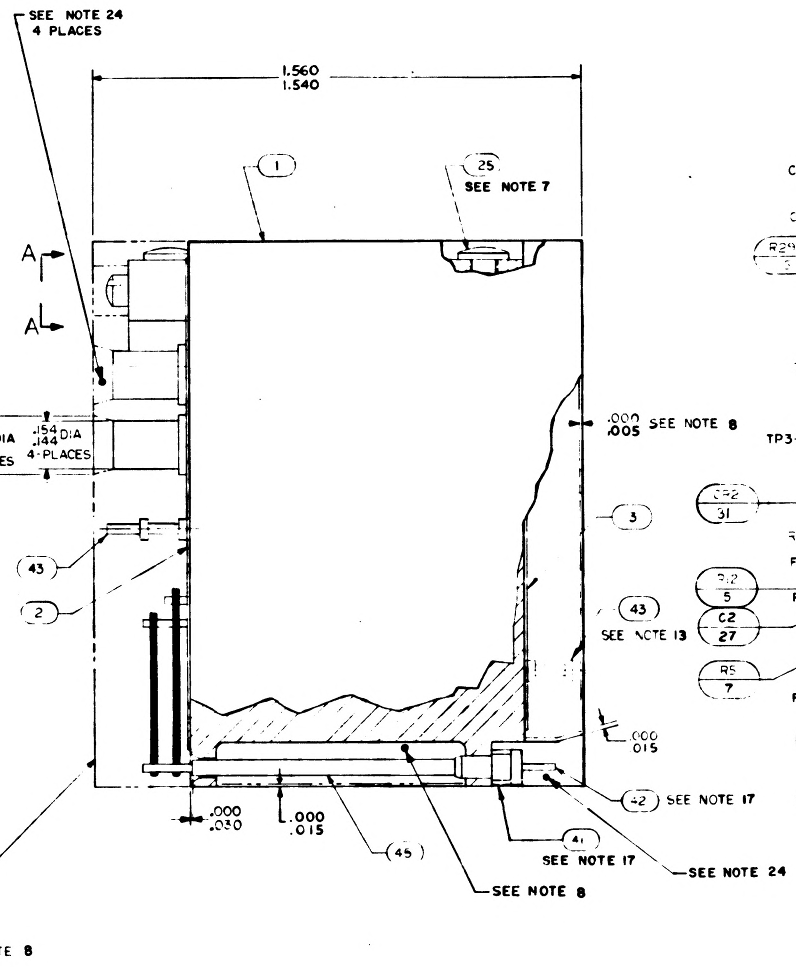
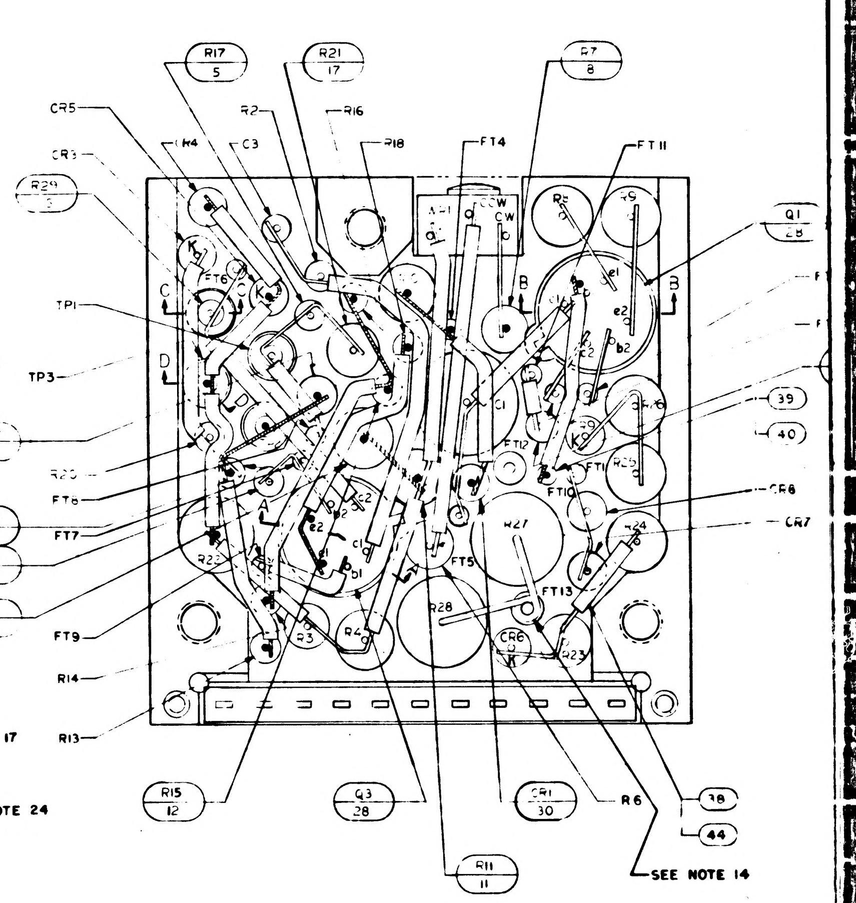
CR2
C2
R12
FT1
FT2
FT3
FT6
FT9
FT11
FT12
SEE NOTE 14


SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
A
.172 .188 DIA 4 PLACES
.154 .144 DIA 4-PLACES
.000 .005 SEE NOTE 8
3
43
2
43
SEE NOTE 13
.000 .015
42 SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
45
SEE NOTE 8
.000 .030
.000 .015
SEE NOTE 8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C2 27
R5 7
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CR1 30
R6
R27
R28
FT5
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CR6
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CR8
CR7
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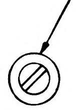
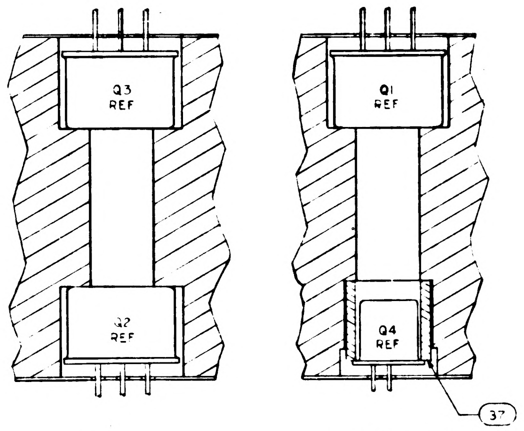
44
SEE NOTE 14

.156 .188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24



VIEW A-A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Q1 REF
Q4 REF
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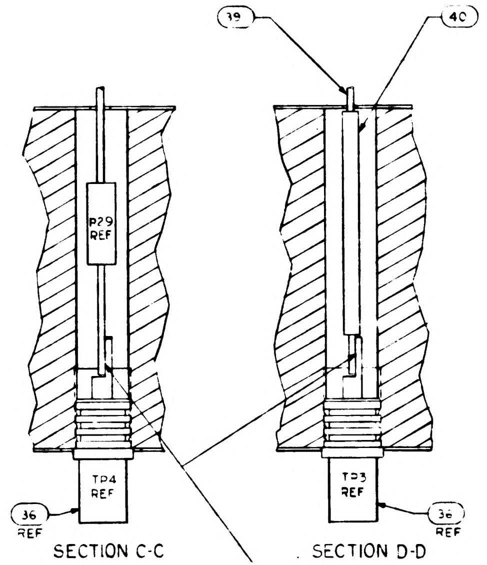
SECTION A-A

SECTION B-B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TP4 REF
36 REF
TP3 REF
36 REF
SEE NOTE 3

SECTION C-C

SECTION D-D
TYP 3 PLACES

[illegible] EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND [illegible] TYPE II. AFTER ENCAPSULATION, USING BLACK PAINT PER 1010722-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

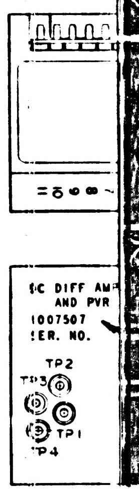
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD H
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007(SEE PARTS LIST)
20. ~~BOND FIND NO 47 TO FIND NO 41 PER ND1002237~~

21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. ~~BOND A .25MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
26. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
27. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE


SC DIFF AMP AND PVR
1007507
SER. NO.
TP2
TP3
TP1
TP4

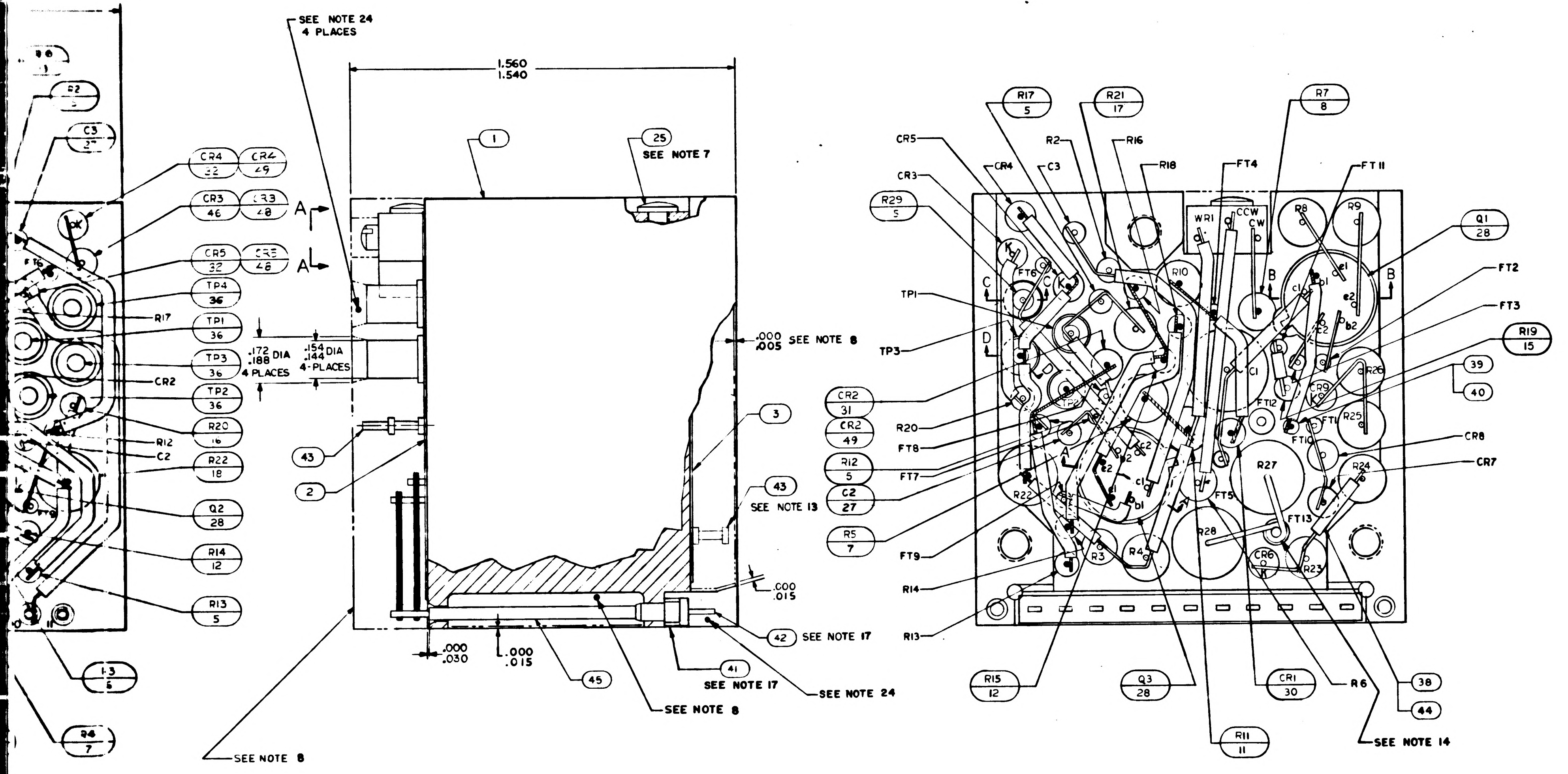
MARKING
SCALE

1007507 K

1/1007507

REVISIONS

SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17324		65	RS
B		REVISED PER TDRR 18124		2 APR 65	HTO
C		REVISED PER TDRR 18936		65	
D		REVISED PER TDRR 19394		1 JUN 65	HTO
E		REVISED PER TDRR 19430		2-JUN 65	
F		REVISED PER TDRR 19498		JUN 65	WJK
G		REVISED PER TDRR 20143		19 JUN 65	
H		REVISED PER TDRR 21124		3 JUL 65	RLP
J		REVISED PER TDRR 21271		2 AUG 65	RLP
K		REVISED PER TDRR 21491		3 AUG 65	OKD
L		REVISED PER TDRR 21430		17 AUG 65	AU


SEE NOTE 24
4 PLACES
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1.540
1
25
SEE NOTE 7
A
A
.000
.005 SEE NOTE 8
.172
.188 DIA
4 PLACES
.154 DIA
.144
4 PLACES
3
43
2
43
SEE NOTE 13
.000
.015
42 SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
.000
.030
.000
.015
45
SEE NOTE 8
SEE NOTE 8
R2 5
C3 27
CR4 32
CR4 49
CR3 46
CR3 48
CR5 32
CR5 48
TP4 36
TP1 36
TP3 36
TP2 36
R17
CR2
R20 16
R12
C2
R22 18
Q2 28
R14 12
R13 5
R3 6
R4 7
R17 5
R21 17
R7 8
CR5
CR4
C3
R2
R16
R18
FT4
FT11
CR3
R29 5
WR1
CCW
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FT2
FT3
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CR8
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R22
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FT5
FT13
R28
FT9
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CR1 30
R6
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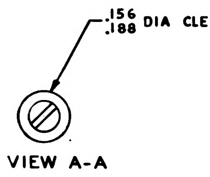
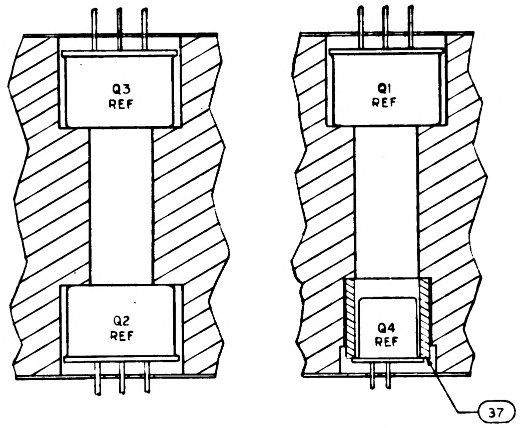
R11 11
SEE NOTE 14



.156
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24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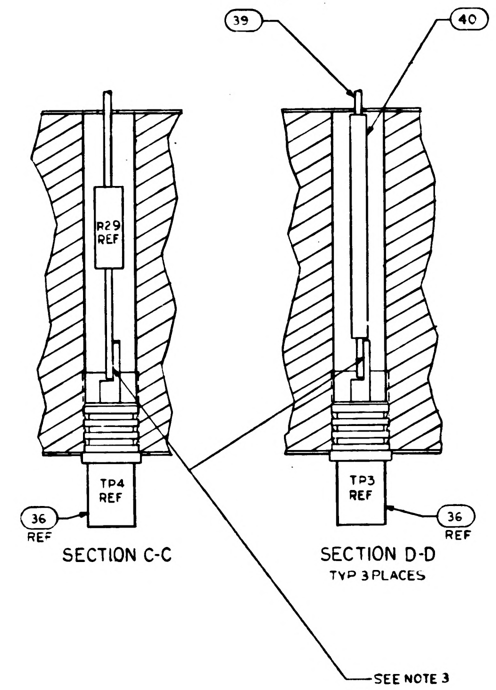
Q1 REF
Q4 REF
37

SECTION A-A

SECTION B-B


39
40
R29 REF
TP4 REF
TP3 REF
36 REF
36 REF
SEE NOTE 3

SECTION C-C

SECTION D-D
TYP 3 PLACES

CHART A

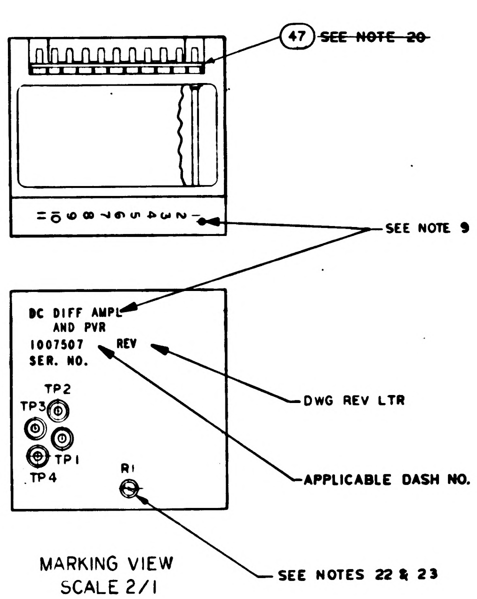
PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B

PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0 Ω

CHART C

PART NO.	VALUE
1010836- 1	100Ω
- 2	120
- 3	140
- 4	160
- 5	180
- 6	200
- 7	220
- 8	240
- 9	260
-10	280
-11	300
-12	320
-13	340
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500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SEE NOTE 9
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AND PVR
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REV
TP2
TP3
TP1
TP4
R1
DWG REV LTR
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OF TOTAL AVAILABLE ON 50 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE

NO. 25

ND 1002019

LIST OF MATERIALS

		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		☒			PS1007007 TYPE III	PROCUREMENT SPEC.	REF
			☒		PS1007007 TYPE I	PROCUREMENT SPEC.	REF
		2	2		1010830-27	DIODE	49
		2	2		1010830-26	DIODE	48
		☒	☒		1010008	ELEC SCHEMATIC DIAGRAM	REF
		1	1		1008540-11	GASKET, CONNECTOR MINIATURE	47
		~~1~~	~~1~~		~~1010286-26~~	~~DIODE~~	46
		AR	AR		1006776-20	INSULATION SLEEVING	45
		AR	AR		1006776-21	INSULATION SLEEVING	44
		2	2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
		11	11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
		11	11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
		AR	AR		1006776-22	INSULATOR, SLEEVING	40
		AR	AR		1006757-8	WIRE, ELEC .020 DIA	39
		AR	AR		1006757-1	WIRE, ELEC .010 X .020	38
		1	1		1008025-1	INSULATOR, BUSHING	37
		4	4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
		1	1		1008152	DIODE	35
		1	1		1010372-19	DIODE	34
		2	2		1010372-15	DIODE	33
		~~2~~	~~2~~		~~1010286-27~~	~~DIODE~~	32
		~~1~~	~~1~~		~~1010372-32~~	~~DIODE~~	31
		1	1		1010372-3	DIODE	30
		1	1		1010357-1	TRANSISTOR	29
		3	3		1010376-3	TRANSISTOR	28
		2	2		1006777-6	CAPACITOR, CER	27
		1	1		1010264-24	CAPACITOR, MYLAR	26
		2	2		1010618-3	SCREW, BUTTON HD	25
		1	1		1010836-22	RESISTOR, FIXED	24
		1	1		SEE NOTE 12	RESISTOR, FIXED	23
		1	1		SEE NOTE 11	RESISTOR, FIXED	22
		1	1		SEE NOTE 10	RESISTOR, FIXED	21
		1	1		1010377-25	RESISTOR, FIXED	20
		1	1		1006760-30	RESISTOR, FIXED	19
		1	1		1010399-49	RESISTOR, FIXED	18
		1	1		1006760-46	RESISTOR, FIXED	17
		1	1		1006750-68	RESISTOR, FIXED	16
		1	1		1006750-1	RESISTOR, FIXED	15
		1	1		1006750-84	RESISTOR, FIXED	14
		1	1		1006750-66	RESISTOR, FIXED	13
		2	2		1006750-16	RESISTOR, FIXED	12
		1	1		1006760-48	RESISTOR, FIXED	11
		1	1		1010377-36	RESISTOR, FIXED	10
		2	2		1010377-23	RESISTOR, FIXED	9
		2	2		1010364-681	RESISTOR, FIXED	8
		2	2		1010377-39	RESISTOR, FIXED	7
		1	1		1010374-126	RESISTOR, FIXED	6
		5	5		1006750-80	RESISTOR, FIXED	5
		1	1		1010373-12	RESISTOR, VARIABLE	4
		1	1		1008010-2	INSULATOR BOTTOM	3
		1	1		1008010-1	INSULATOR TOP	2
		1	1		1007003	HEATSINK	1

QUANTITY REQUIRED

1007507 L

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX±.02 XXX±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Ogal DATE
CHECKED 14 SEP 64
APPROVAL
APPROVAL 10-5-64
NASA APPROVAL 10-6-64
MIT APPROVAL

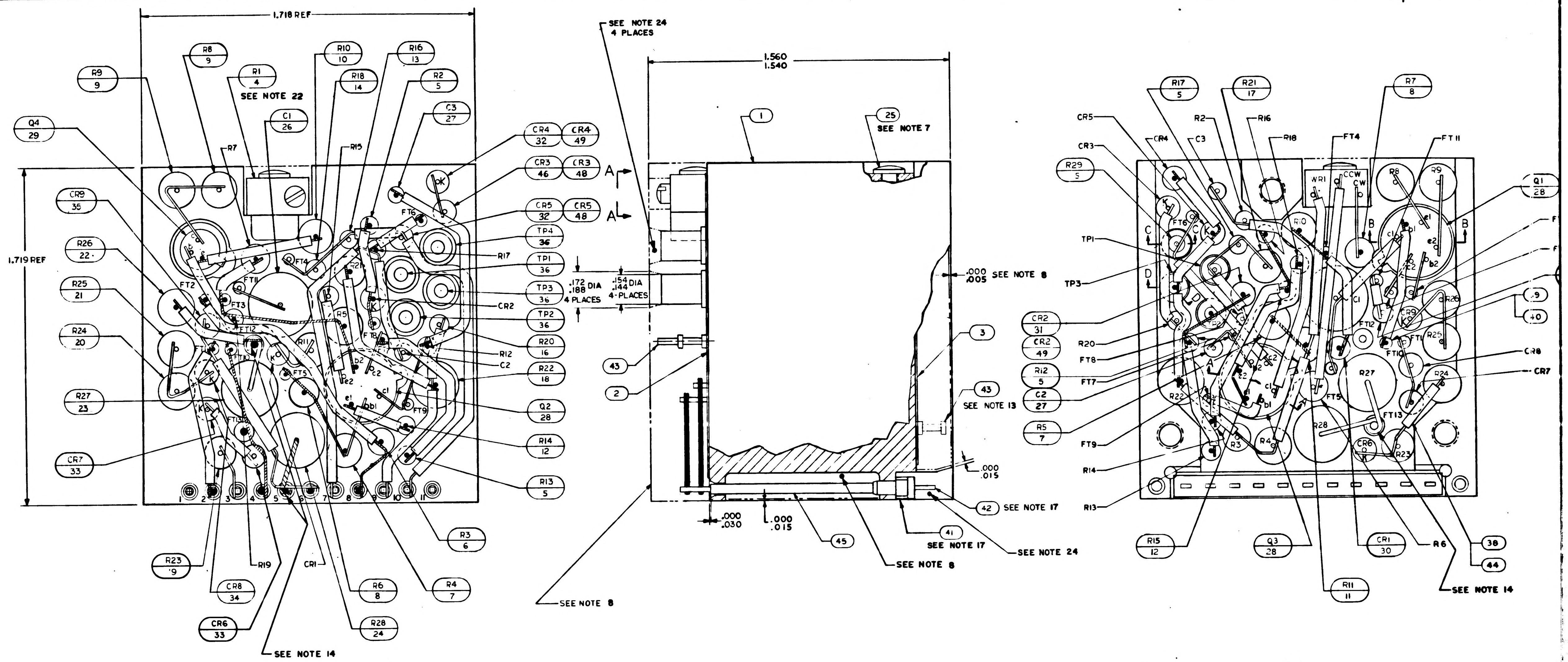
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ASSEMBLY
DC DIFFERENTIAL AMPLIFIER
AND PVR

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 1007507
SCALE 5:1 WT SHEET 1 OF 1

1007507

2/1007507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R8 9
R1 4
SEE NOTE 22
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R16 13
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C1 26
C3 27
Q4 29
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CR4 32
CR4 49
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TP3 36
TP2 36
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R22 18
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CR9 35
R26 22
R25 21
R24 20
R27 23
CR7 33
R17
CR2
R12
C2
FT2
FT3
FT11
FT12
FT14
FT16
FT5
FT9
FT10
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R19
CR8 34
CR1
CR6 33
R6 8
R28 24
R3 6
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SEE NOTE 14
SEE NOTE 24 4 PLACES
25 SEE NOTE 7
1
A
.172 .188 DIA 4 PLACES
.154 .144 DIA 4 PLACES
.000 .005 SEE NOTE 8
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41 SEE NOTE 17
SEE NOTE 24
SEE NOTE 8
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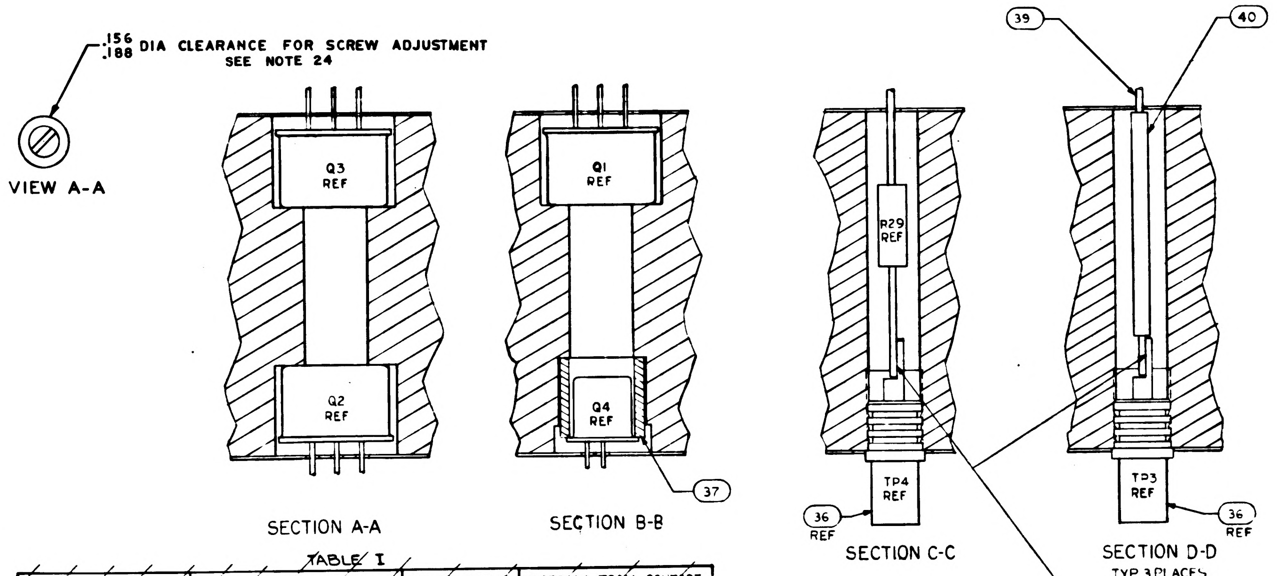
FT13
CR6
R23
R24
R3
R4
FT5
FT12
FT10
R15 12
Q3 28
CR1 30
R6
38
44
R11 11
SEE NOTE 14
1 2 3 4 5 6 7 8 9 10 11

28. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD H
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007(SEE PARTS LIST)
20. ~~BOND FIND NO 47 TO FIND NO 41 PER ND1002237~~

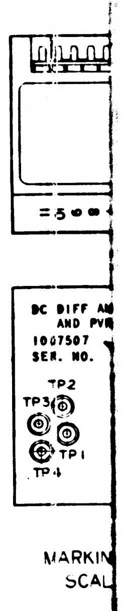
21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. ~~BOND A .25MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
26. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
27. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.


.156 .188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24
VIEW A-A
Q3 REF
Q2 REF
Q1 REF
Q4 REF
37
SECTION A-A
SECTION B-B
39
40
R29 REF
TP4 REF
TP3 REF
36 REF
36 REF
SECTION C-C
SECTION D-D
TYP 3 PLACES

SEE NOTE 3

~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE~~


DC DIFF A
AND PVR
1007507
SER. NO.
TP2
TP3
TP1
TP4
MARKIN
SCAL

SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
REVISIONS					
A		REVISED PER TDRR 17324		2 MAR 65	RS
B		REVISED PER TDRR 18124		2 APR 65	HTG
C		REVISED PER TDRR 18936		14 MAY 65	
D		REVISED PER TDRR 19394		1 JUN 65	HTG
E		REVISED PER TDRR 19430		2-JUN 65	
F		REVISED PER TDRR 19498		9 JUN 65	WJK
G		REVISED PER TDRR 20143		19 JUN 65	
H		REVISED PER TDRR 21124		3 JUL 65	RLP
J		REVISED PER TDRR 21271		2 AUG 65	RLP
K		REVISED PER TDRR 21491		3 AUG 65	DKD
L		REVISED PER TDRR 21490		7 AUG 65	
M		REVISED PER TDRR 22943		12 OCT 65	JWP CP

CHART A

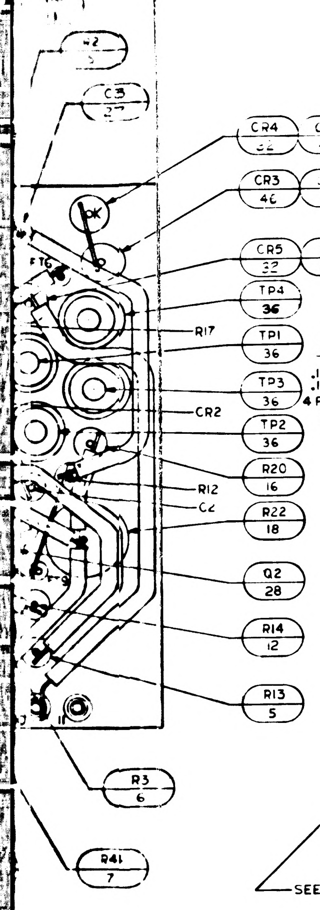
PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B

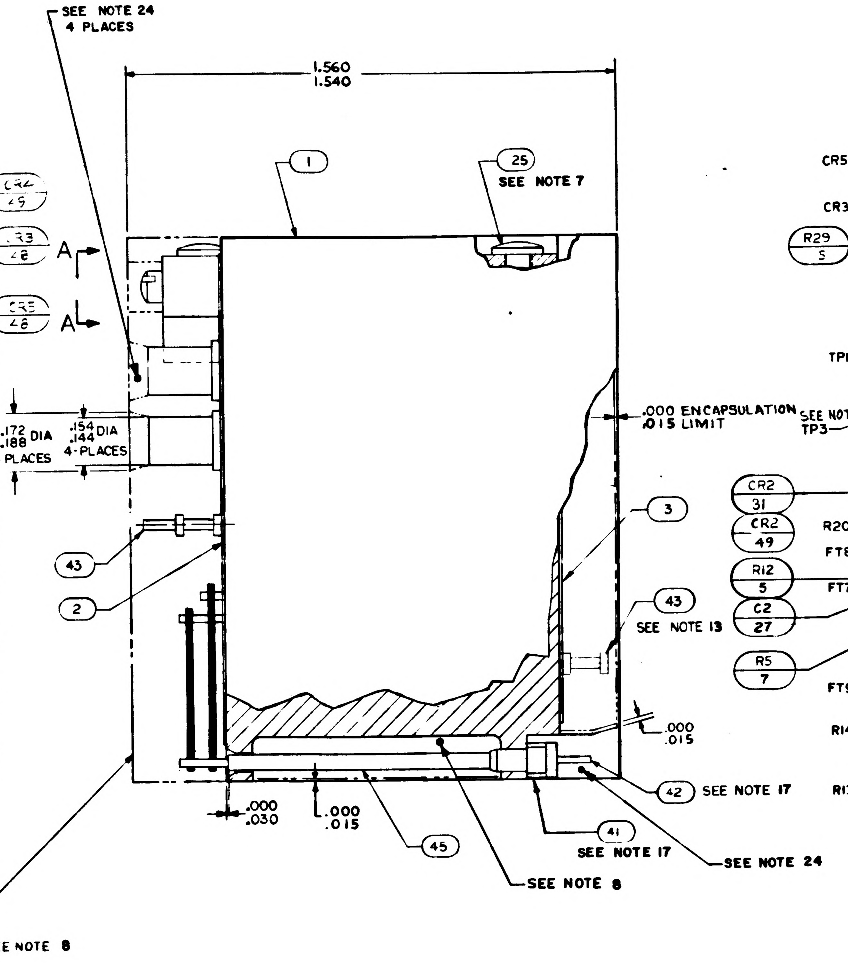
PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0Ω

CHART C

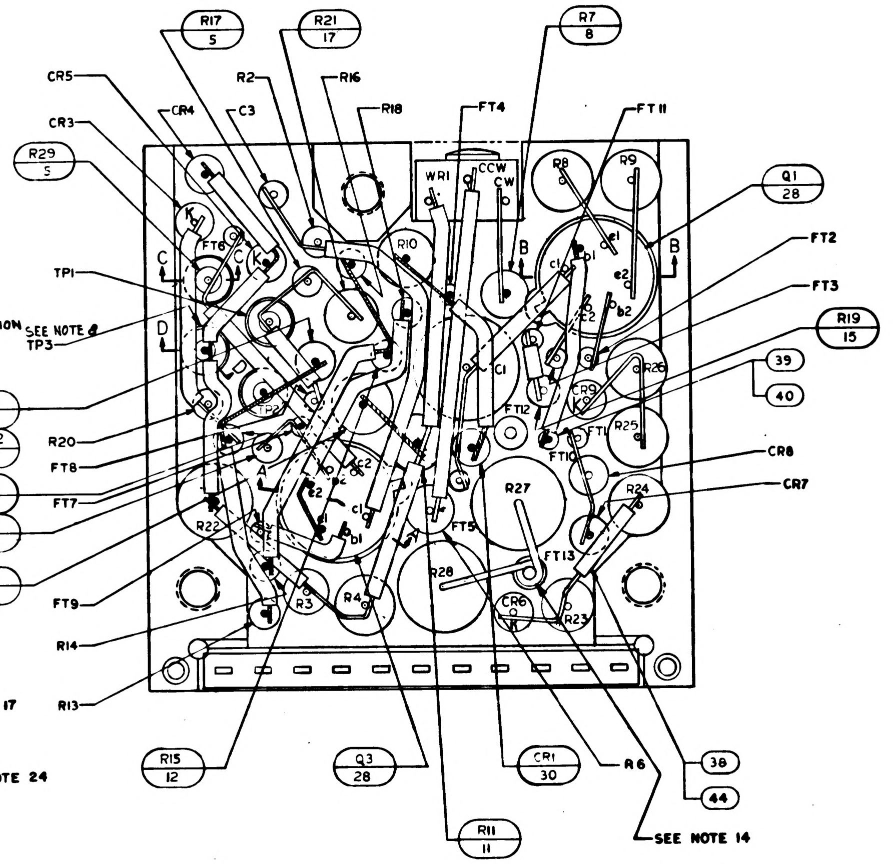
PART NO.	VALUE
1010836- 1	100Ω
- 2	120
- 3	140
- 4	160
- 5	180
- 6	200
- 7	220
- 8	240
- 9	260
-10	280
-11	300
-12	320
-13	340
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500



CR4 22
CR4 45
CR3 46
CR3 48
CR5 22
CR5 48
TP4 36
R17
TP1 36
TP3 36
CR2
TP2 36
R20 16
R12
C2
R22 18
Q2 28
R14 12
R13 5
R3 6
R41 7

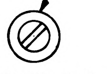


SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
A
.154
.144 DIA
4-PLACES
.172
.188 DIA
4 PLACES
.000 ENCAPSULATION
.015 LIMIT
3
43
2
43
SEE NOTE 13
.000
.015
42 SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
.000
.030
.000
.015
45
SEE NOTE 8
SEE NOTE 8

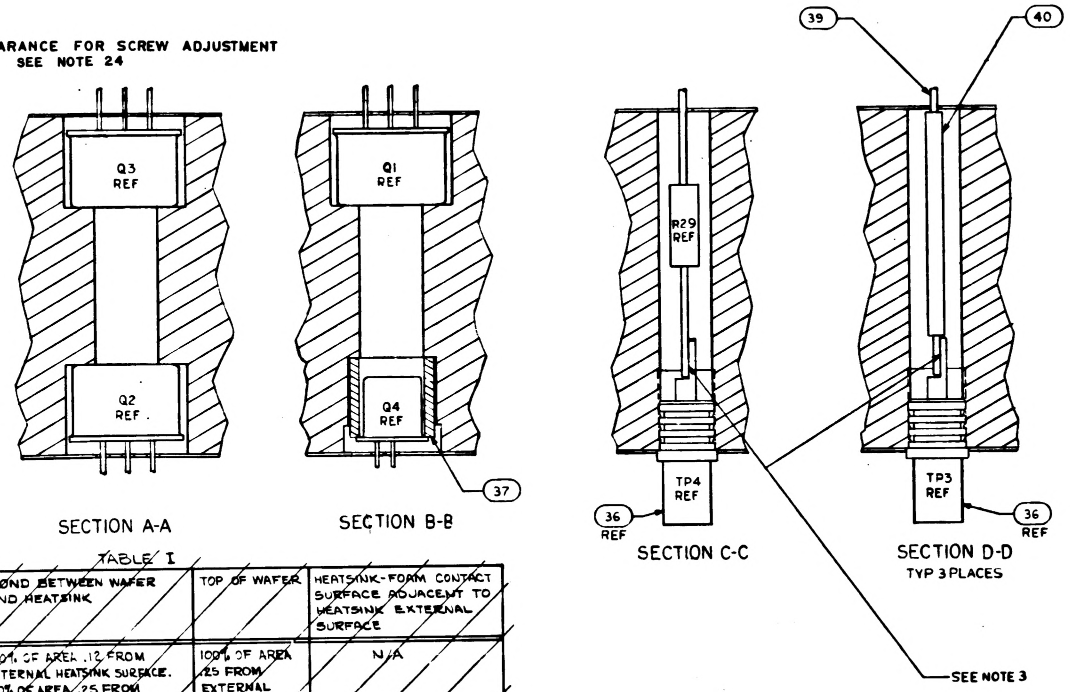


R17 5
R21 17
R7 8
CR5
CR4
C3
R2
R16
R18
FT4
FT11
CR3
R29 5
WR1
CCW
CW
R8
R9
Q1 28
FT6
FT2
TP1
SEE NOTE 8
TP3
R10
B
B
C
C
D
D
FT3
R19 15
39
40
CR2 31
CR2 49
R20
FT12
R26
FT8
FT1
R25
CR8
R12 5
C2 27
FT7
R22
R27
R24
CR7
R5 7
FT5
FT13
FT9
R28
CR6
R14
R3
R4
R23
R13
R15 12
Q3 28
CR1 30
R6
R11 11
38
44
SEE NOTE 14

.156
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24



VIEW A-A



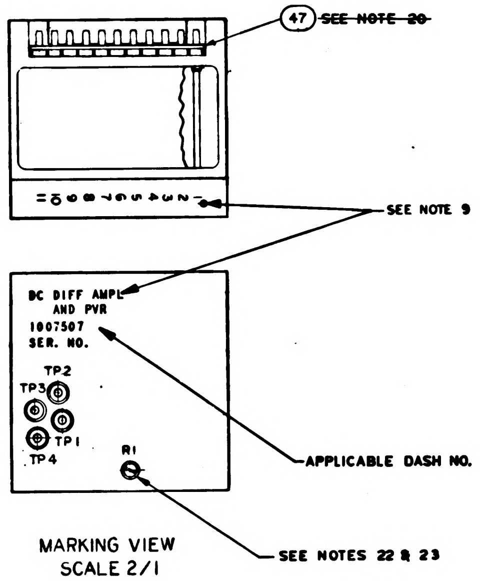
Q3 REF
Q2 REF
Q1 REF
Q4 REF
37
39
40
R29 REF
TP4 REF
TP3 REF
36 REF
36 REF
SEE NOTE 3

SECTION A-A

SECTION B-B

SECTION C-C

SECTION D-D
TYP 3 PLACES



47
~~SEE NOTE 20~~
SEE NOTE 9
DC DIFF AMPL
AND PVR
1007507
SER. NO.
TP2
TP3
TP1
TP4
R1
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE

LIST OF MATERIALS

		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		X			PS1007007 TYPE III	PROCUREMENT SPEC.	REF
			X		PS1007007 TYPE I	PROCUREMENT SPEC.	REF
		2	2		1010830-27	DIODE	49
		2	2		1010830-26	DIODE	48
		X	X		1010008	ELEC SCHEMATIC DIAGRAM	REF
		1	1		1008540-11	GASKET, CONNECTOR MINIATURE	47
		~~1~~	~~1~~		~~1010286-26~~	~~DIODE~~	46
		AR	AR		1006776-20	INSULATION SLEEVING	45
		AR	AR		1006776-21	INSULATION SLEEVING	44
		2	2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
		11	11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
		11	11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
		AR	AR		1006776-22	INSULATOR, SLEEVING	40
		AR	AR		1006757-8	WIRE, ELEC .020 DIA	39
		AR	AR		1006757-1	WIRE, ELEC .010 X .020	38
		1	1		1008025-1	INSULATOR, BUSHING	37
		4	4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
		1	1		1008152	DIODE	35
		1	1		1010372-19	DIODE	34
		2	2		1010372-15	DIODE	33
		~~2~~	~~2~~		~~1010286-27~~	~~DIODE~~	32
		~~1~~	~~1~~		~~1010372-32~~	~~DIODE~~	31
		1	1		1010372-3	DIODE	30
		1	1		1010357-1	TRANSISTOR	29
		3	3		1010376-3	TRANSISTOR	28
		2	2		1006777-6	CAPACITOR, CER	27
		1	1		1010264-24	CAPACITOR, MYLAR	26
		2	2		1010618-3	SCREW, BUTTON HD	25
		1	1		1010836-22	RESISTOR, FIXED	24
		1	1		SEE NOTE 12	RESISTOR, FIXED	23
		1	1		SEE NOTE 11	RESISTOR, FIXED	22
		1	1		SEE NOTE 10	RESISTOR, FIXED	21
		1	1		1010377-25	RESISTOR, FIXED	20
		1	1		1006760-30	RESISTOR, FIXED	19
		1	1		1010399-49	RESISTOR, FIXED	18
		1	1		1006760-46	RESISTOR, FIXED	17
		1	1		1006750-68	RESISTOR, FIXED	16
		1	1		1006750-1	RESISTOR, FIXED	15
		1	1		1006750-84	RESISTOR, FIXED	14
		1	1		1006750-66	RESISTOR, FIXED	13
		2	2		1006750-16	RESISTOR, FIXED	12
		1	1		1006760-48	RESISTOR, FIXED	11
		1	1		1010377-36	RESISTOR, FIXED	10
		2	2		1010377-23	RESISTOR, FIXED	9
		2	2		1010364-681	RESISTOR, FIXED	8
		2	2		1010377-39	RESISTOR, FIXED	7
		1	1		1010374-126	RESISTOR, FIXED	6
		5	5		1006750-80	RESISTOR, FIXED	5
		1	1		1010373-12	RESISTOR, VARIABLE	4
		1	1		1008010-2	INSULATOR BOTTOM	3
		1	1		1008010-1	INSULATOR TOP	2
		1	1		1007003	HEATSINK	1

QUANTITY REQUIRED

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX±.02 XXX±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Cegal DATE 6 NOV 64
CHECKED W Adrach 16 Sep 64
APPROVAL
APPROVAL D. B. Hoag 10-5-64
NASA APPROVAL W J Rhine 10-6-64
MIT APPROVAL 6 Oct 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

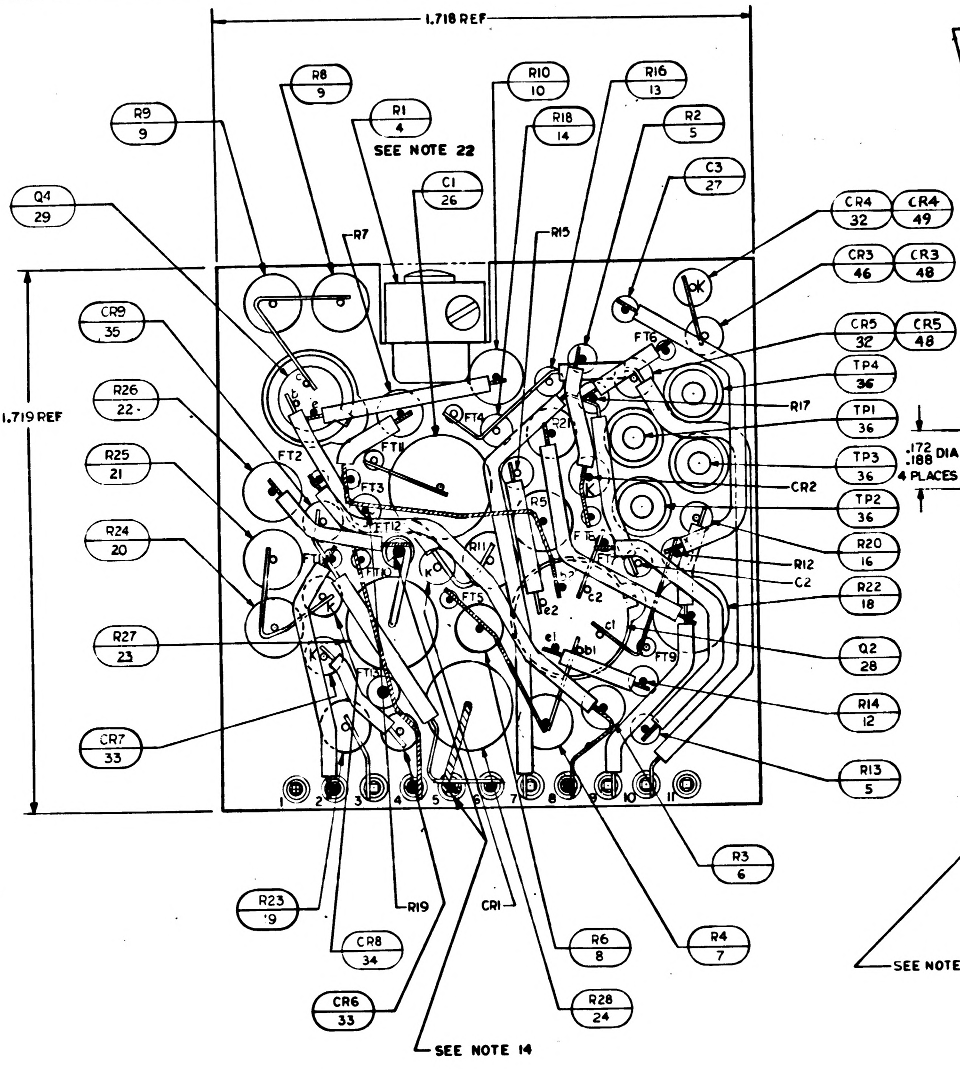
ASSEMBLY
DC DIFFERENTIAL AMPLIFIER
AND PVR

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007507
SCALE 5:1
WT
SHEET 1 OF 1

1007507 M

1007507

2/1007507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R8 9
R1 4
SEE NOTE 22
R10 10
R18 14
R16 13
R2 5
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C3 27
Q4 29
R7
R15
CR4 32
CR4 49
CR3 46
CR3 48
CR9 35
CR5 32
CR5 48
TP4 36
R26 22
R17
1.719 REF
TP1 36
R25 21
TP3 36
CR2
TP2 36
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R12
C2
R22 18
R27 23
Q2 28
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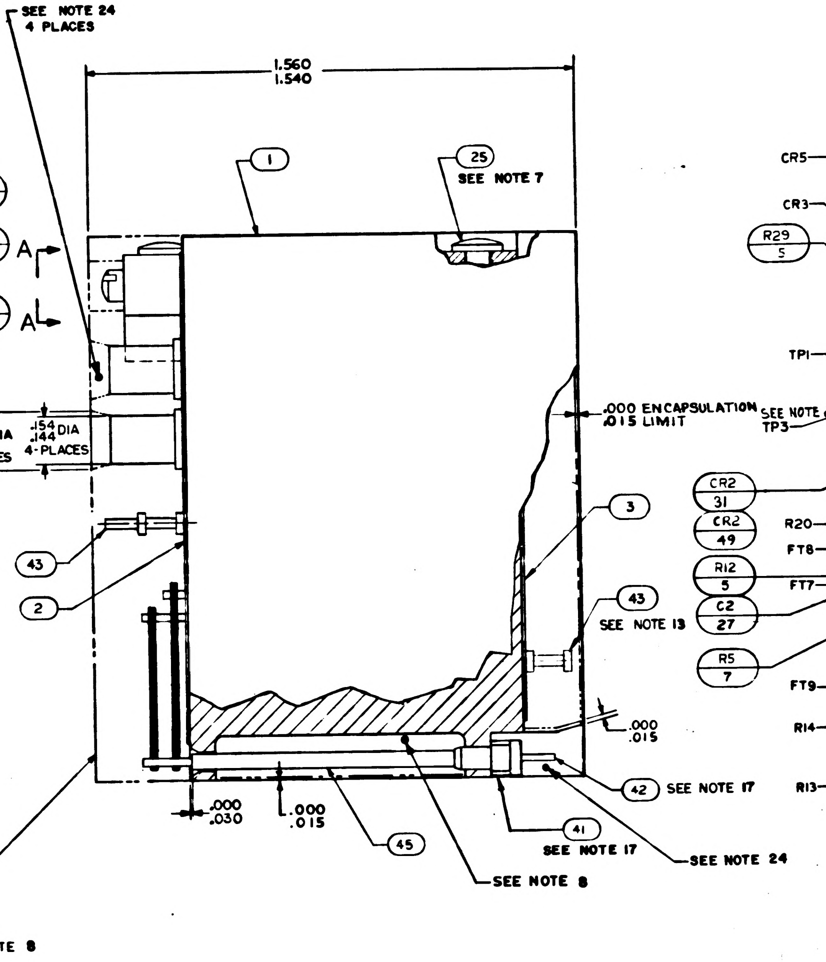
R3 6
R23 9
R19
CR1
R6 8
R4 7
CR8 34
CR6 33
R28 24
SEE NOTE 14


SEE NOTE 24
4 PLACES
1.560
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25
SEE NOTE 7
A
A
.172
.188 DIA
4 PLACES
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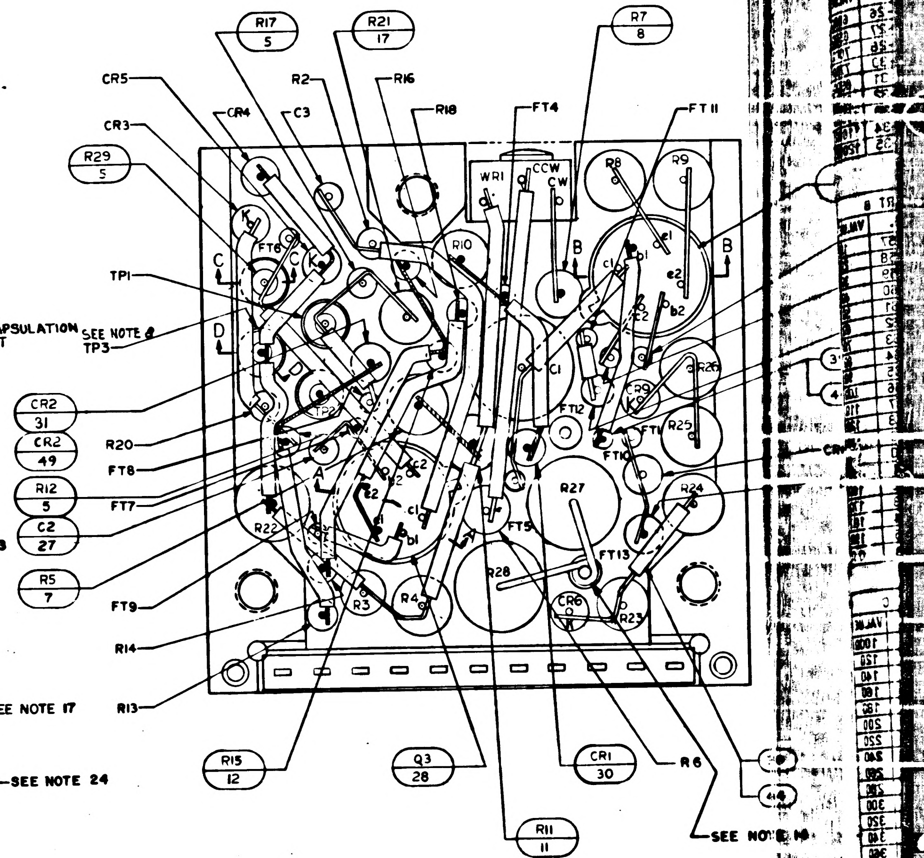
.144 DIA
4-PLACES
.000 ENCAPSULATION
.015 LIMIT
3
43
2
43
SEE NOTE 13
.000
.015
42 SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
SEE NOTE 8
45
.000
.030
.000
.015
SEE NOTE 8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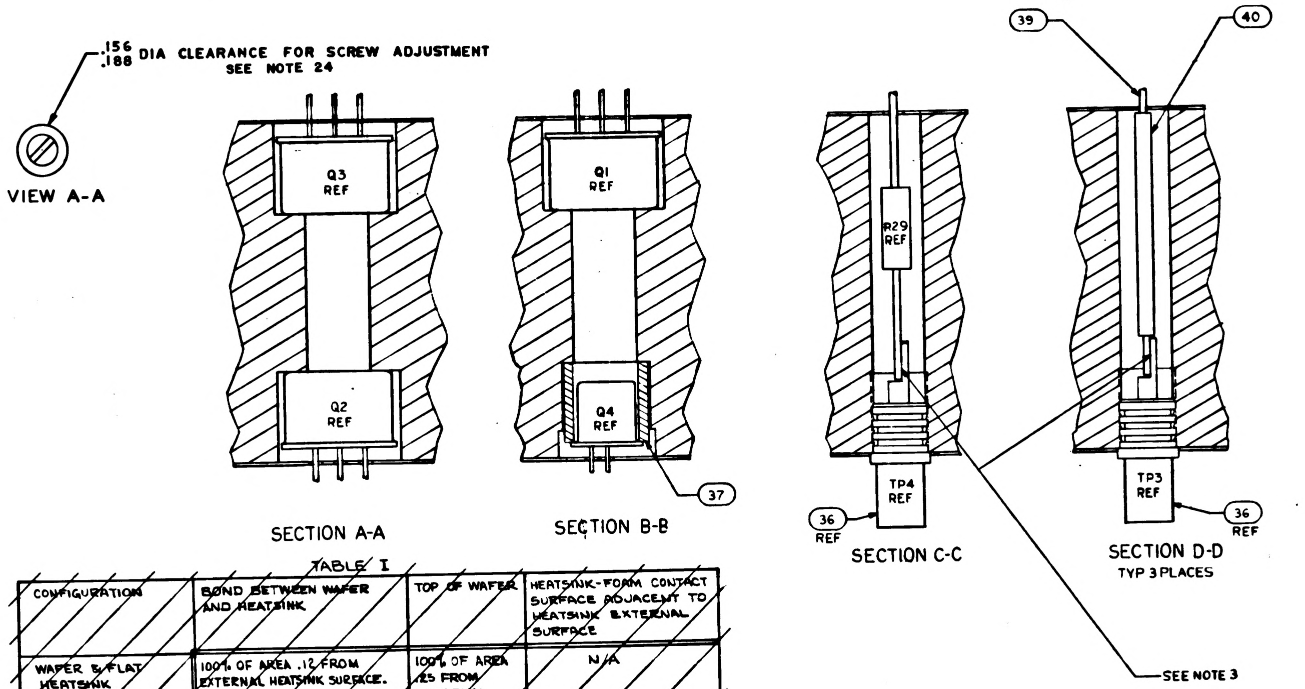
R7 8
CR5
R2
R16
R18
FT4
FT11
CR3
CR4
C3
R29 5
WR1
CCW
CW
TP1
SEE NOTE 8
TP3
CR2 31
CR2 49
R12 5
C2 27
R5 7
R20
FT8
FT7
FT9
R14
R13
R15 12
Q3 28
CR1 30
R6
R11 11
SEE NOTE 10


.156
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24
VIEW A-A
Q3 REF
Q2 REF
SECTION A-A
Q1 REF
Q4 REF
37
SECTION B-B
R29 REF
TP4 REF
36 REF
SECTION C-C
39
40
TP3 REF
36 REF
SECTION D-D
TYP 3 PLACES
SEE NOTE 3

28. EXCEPT FOR THE MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

NOTES:

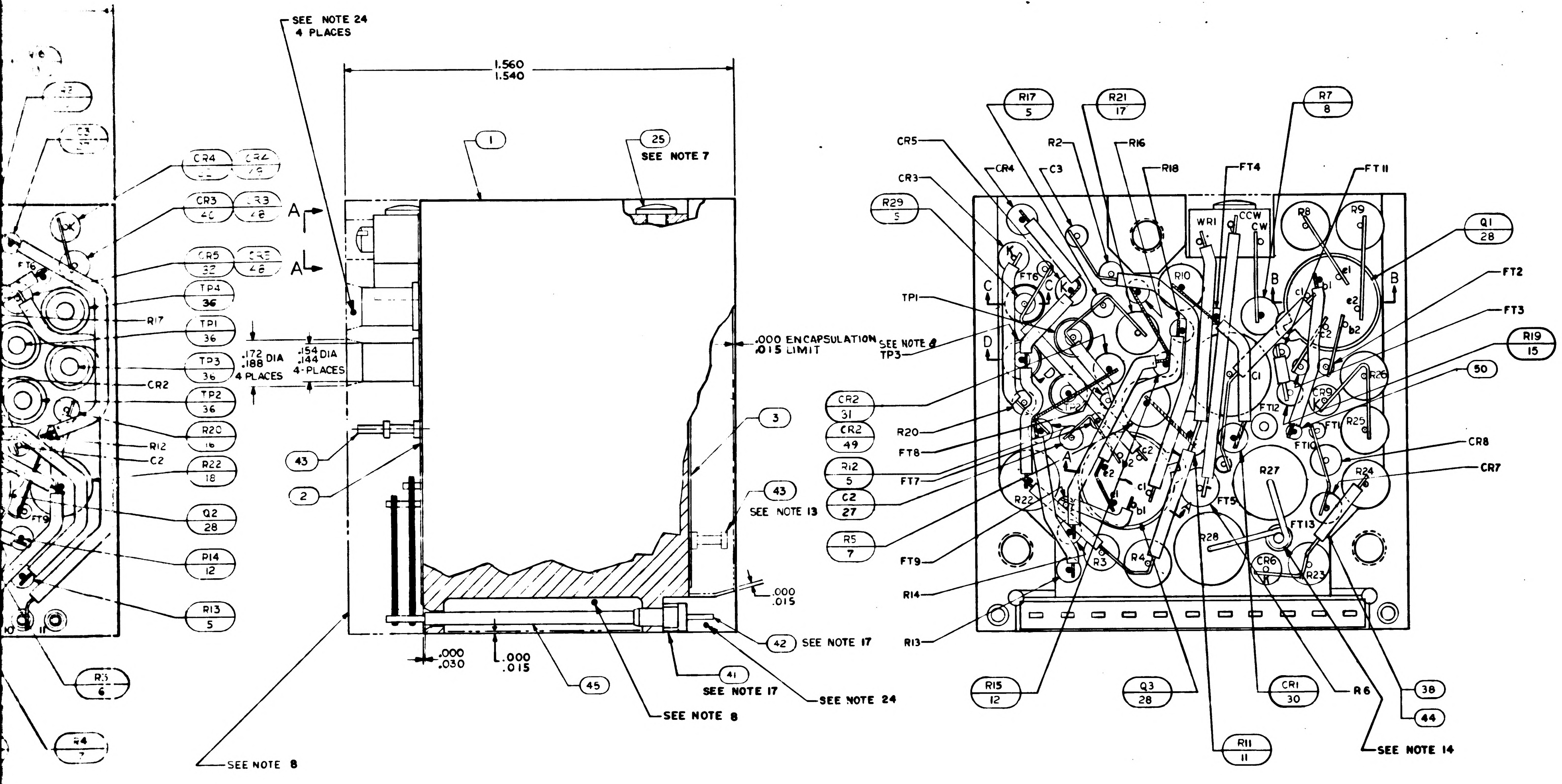
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD J.
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007(SEE PARTS LIST)
20. ~~BOND FIND NO 47 TO FIND NO 41 PER ND1002237~~

21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD J AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. ~~BOND A .25MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
26. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
27. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.

~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OF TOTAL AVAILABLE ON 50 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE~~

1007507


SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
A
CR4 / CR4
CR3 40 / CR3 48
CR5 32 / CR5 48
TP4 36
TP1 36
TP3 36
TP2 36
R17
CR2
R20 16
R12
C2
R22 18
Q2 28
R14 12
R13 5
R3 6
R4 7
.172 .188 DIA 4 PLACES
.154 .144 DIA 4-PLACES
.000 ENCAPSULATION
.015 LIMIT
3
43
2
43
SEE NOTE 13
.000
.015
42 SEE NOTE 17
41 SEE NOTE 17
SEE NOTE 24
SEE NOTE 8
45
.000 .030
.000 .015
SEE NOTE 8
CR5
CR3
R29 5
TP1
SEE NOTE 8 TP3
CR2 31
CR2 49
R20
FT8
R12 5
FT7
C2 27
R5 7
FT9
R14
R13
CR4
C3
R2
R16
R18
FT4
FT11
R17 5
R21 17
R7 8
WR1
CCW
CW
R8
R9
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FT2
FT3
R19 15
50
CR8
CR7
R24
R27
R28
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R6
R11 11
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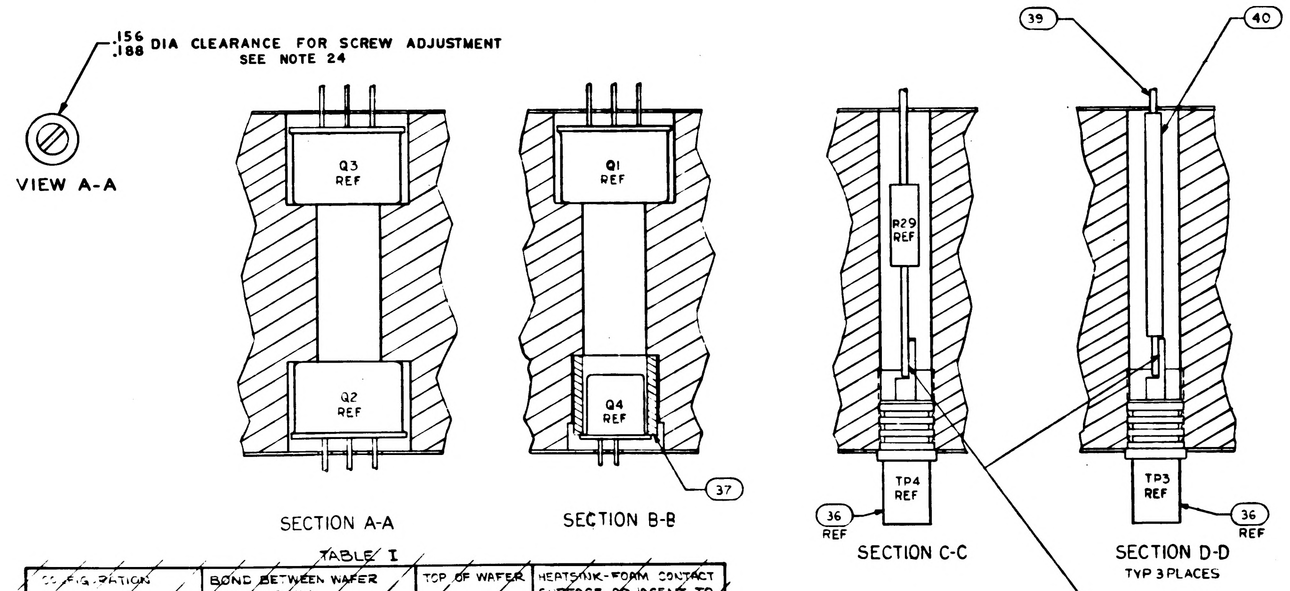
44
SEE NOTE 14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SEE NOTE 24
VIEW A-A
Q3 REF
Q2 REF
Q1 REF
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R29 REF
TP4 REF
TP3 REF
36 REF
36 REF
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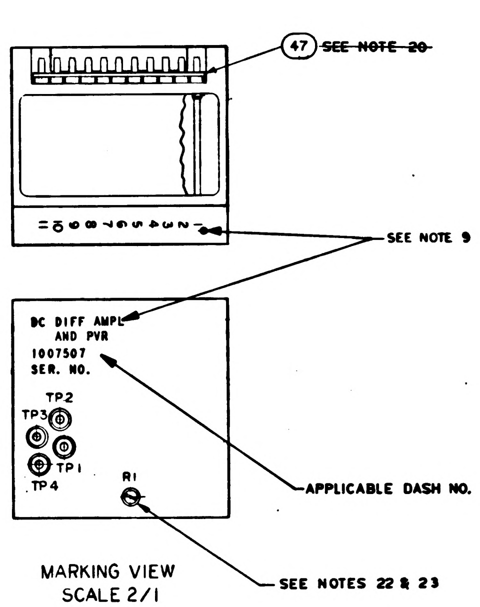
SEE NOTE 3

SECTION A-A

SECTION B-B

SECTION C-C

SECTION D-D
TYP 3 PLACES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~~SEE NOTE 20~~
SEE NOTE 9
DC DIFF AMPL
AND PVR
1007507
SER. NO.
TP2
TP3
TP1
TP4
R1
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FORM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER 3 FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER 2 ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE~~	~~100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FORM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE~~

NO. 25

D 1002019

MENTS

CHART A

PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B

PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0Ω

CHART C

PART NO.	VALUE
1010836- 1	100Ω
- 2	120
- 3	140
- 4	160
- 5	180
- 6	200
- 7	220
- 8	240
- 9	260
-10	280
-11	300
-12	320
-13	340
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500

REVISIONS

SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17324		[illegible] MAR 65	RS
B		REVISED PER TDRR 18124		2 APR 65	HTC
C		REVISED PER TDRR 18936		[illegible] 65	
D		REVISED PER TDRR 19394		1 JUN 65	HTC
E		REVISED PER TDRR 19430		2-JUN 65	
F		REVISED PER TDRR 19498		9 JUN 65	
G		REVISED PER TDRR 20143		19 JUN 65	
H		REVISED PER TDRR 21124		3 JUL 65	
J		REVISED PER TDRR 21271		2 AUG 65	
K		REVISED PER TDRR 21491		3 AUG 65	
L		REVISED PER TDRR 21490		17 AUG 65	
M		REVISED PER TDRR 22943		12 OCT 65	
N		REVISED PER TDRR 23888		16 NOV 65	

		AR	AR		1010848 - 2	WIRE, ELECTRICAL - NICKEL	50
					PS1007007 TYPE III	PROCUREMENT SPEC.	REF
					PS1007007 TYPE I	PROCUREMENT SPEC.	REF
		2	2		1010830-27	DIODE	49
		2	2		1010830-26	DIODE	48
					1010008	ELEC SCHEMATIC DIAGRAM	REF
		1	1		1008540-11	GASKET, CONNECTOR MINIATURE	47
		~~1~~	~~1~~		~~1010286-26~~	~~DIODE~~	46
		AR	AR		1006776-20	INSULATION SLEEVING	45
		AR	AR		1006776-21	INSULATION SLEEVING	44
		2	2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
		11	11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
		11	11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
		AR	AR		1006776-22	INSULATOR, SLEEVING	40
		AR	AR		1006757-8	WIRE, ELEC .020 DIA	39
		AR	AR		1006757-1	WIRE, ELEC .010 X .020	38
		1	1		1008025-1	INSULATOR, BUSHING	37
		4	4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
		1	1		1008152	DIODE	35
		1	1		1010372-19	DIODE	34
		2	2		1010372-15	DIODE	33
		~~2~~	~~2~~		~~1010286-27~~	~~DIODE~~	32
		~~1~~	~~1~~		~~1010372-32~~	~~DIODE~~	31
		1	1		1010372-3	DIODE	30
		1	1		1010357-1	TRANSISTOR	29
		3	3		1010376-3	TRANSISTOR	28
		2	2		1006777-6	CAPACITOR, CER	27
		1	1		1010264-24	CAPACITOR, MYLAR	26
		2	2		1010618-3	SCREW, BUTTON HD	25
		1	1		1010836-22	RESISTOR, FIXED	24
		1	1		SEE NOTE 12	RESISTOR, FIXED	23
		1	1		SEE NOTE 11	RESISTOR, FIXED	22
		1	1		SEE NOTE 10	RESISTOR, FIXED	21
		1	1		1010377-25	RESISTOR, FIXED	20
		1	1		1006760-30	RESISTOR, FIXED	19
		1	1		1010399-49	RESISTOR, FIXED	18
		1	1		1006760-46	RESISTOR, FIXED	17
		1	1		1006750-68	RESISTOR, FIXED	16
		1	1		1006750-1	RESISTOR, FIXED	15
		1	1		1006750-84	RESISTOR, FIXED	14
		1	1		1006750-66	RESISTOR, FIXED	13
		2	2		1006750-16	RESISTOR, FIXED	12
		1	1		1006760-48	RESISTOR, FIXED	11
		1	1		1010377-36	RESISTOR, FIXED	10
		2	2		1010377-23	RESISTOR, FIXED	9
		2	2		1010364-681	RESISTOR, FIXED	8
		2	2		1010377-39	RESISTOR, FIXED	7
		1	1		1010374-126	RESISTOR, FIXED	6
		5	5		1006750-80	RESISTOR, FIXED	5
		1	1		1010373-12	RESISTOR, VARIABLE	4
		1	1		1008010-2	INSULATOR BOTTOM	3
		1	1		1008010-1	INSULATOR TOP	2
		1	1		1007003	HEATSINK	1
		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

1007507N

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ± .02 XXX ± .005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Oegel DATE 4 SEP 64
CHECKED 16 SEP 64
APPROVAL
APPROVAL 10-5-64
NASA APPROVAL 10-6-64
MIT APPROVAL 6 Oct 64

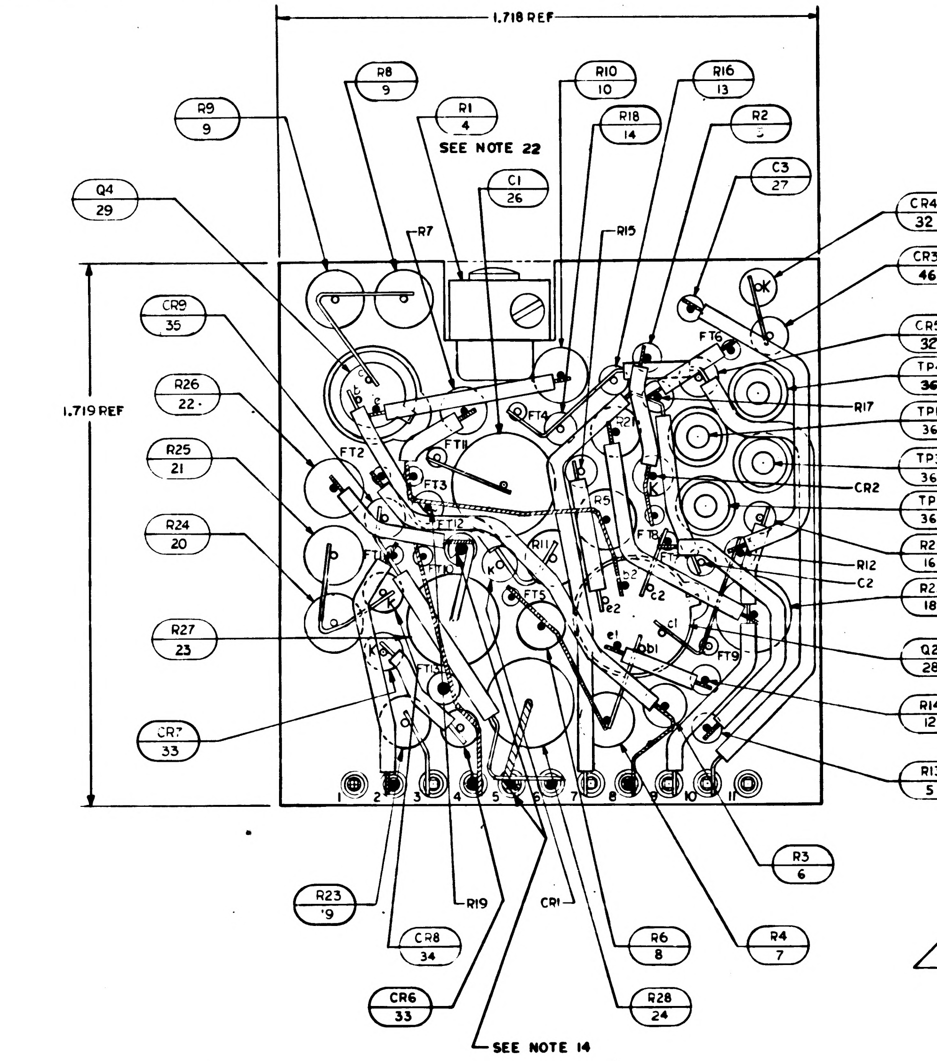
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ASSEMBLY
DC DIFFERENTIAL AMPLIFIER
AND PVR

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007507
SCALE 5:1
WT
SHEET 1 OF 1

1007507 N

2/1007507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1.719 REF
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R8 9
R7
R1 4
SEE NOTE 22
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R10 10
R18 14
R15
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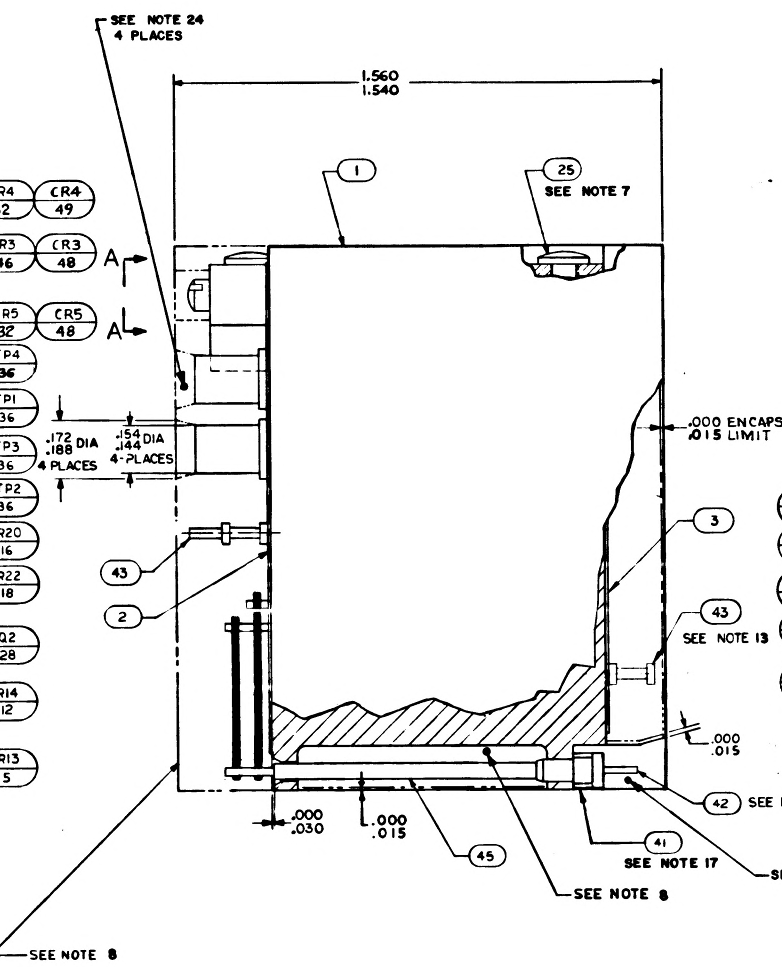
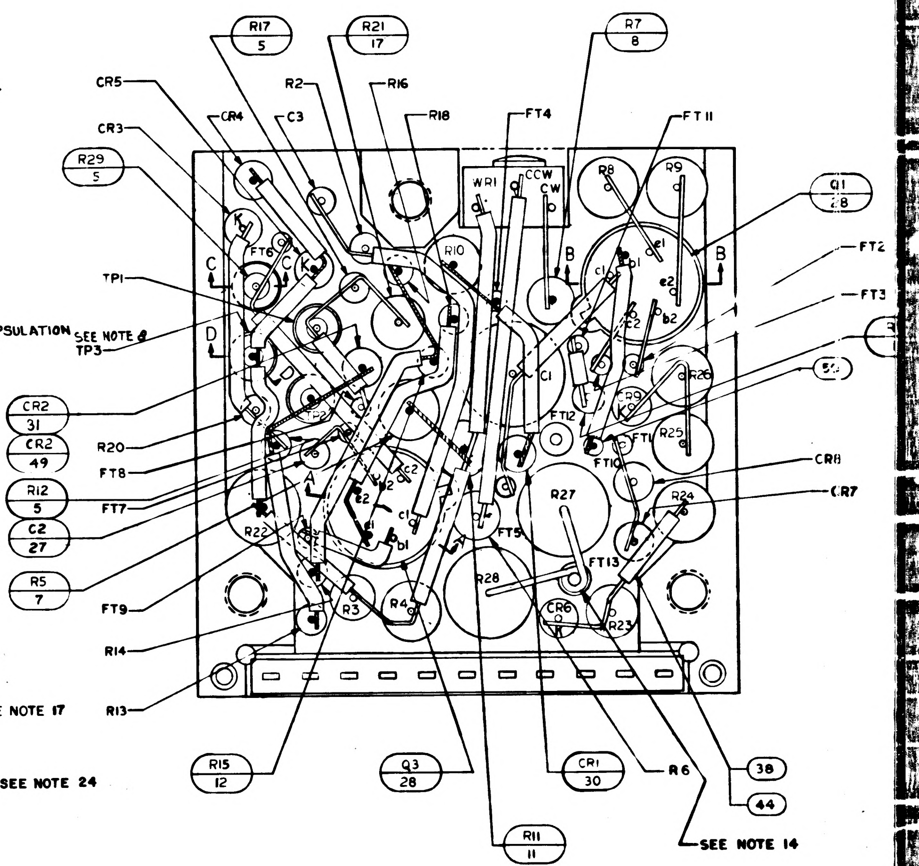
R2 3
C3 27
Q4 29
CR9 35
R26 22
R25 21
R24 20
R27 23
CR7 33
CR4 32
CR4 49
CR3 46
CR3 48
CR5 32
CR5 48
TP4 36
TP1 36
TP3 36
TP2 36
R20 16
R22 18
Q2 28
R14 12
R13 5
R17
CR2
R12
C2
FT1
FT2
FT3
FT4
FT5
FT9
FT10
FT11
FT12
1 2 3 4 5 6 7 8 9 10 11
R23 9
R19
CR1
CR8 34
CR6 33
R6 8
R28 24
R3 6
R4 7
SEE NOTE 14


SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
A
.000 ENCAPSULATION
.015 LIMIT
.172 .188 DIA 4 PLACES
.154 .144 DIA 4-PLACES
3
43
2
43
SEE NOTE 13
.000 .015
42 SEE NOTE 17
41 SEE NOTE 17
SEE NOTE 24
45
SEE NOTE 8
.000 .030
.000 .015
SEE NOTE 8

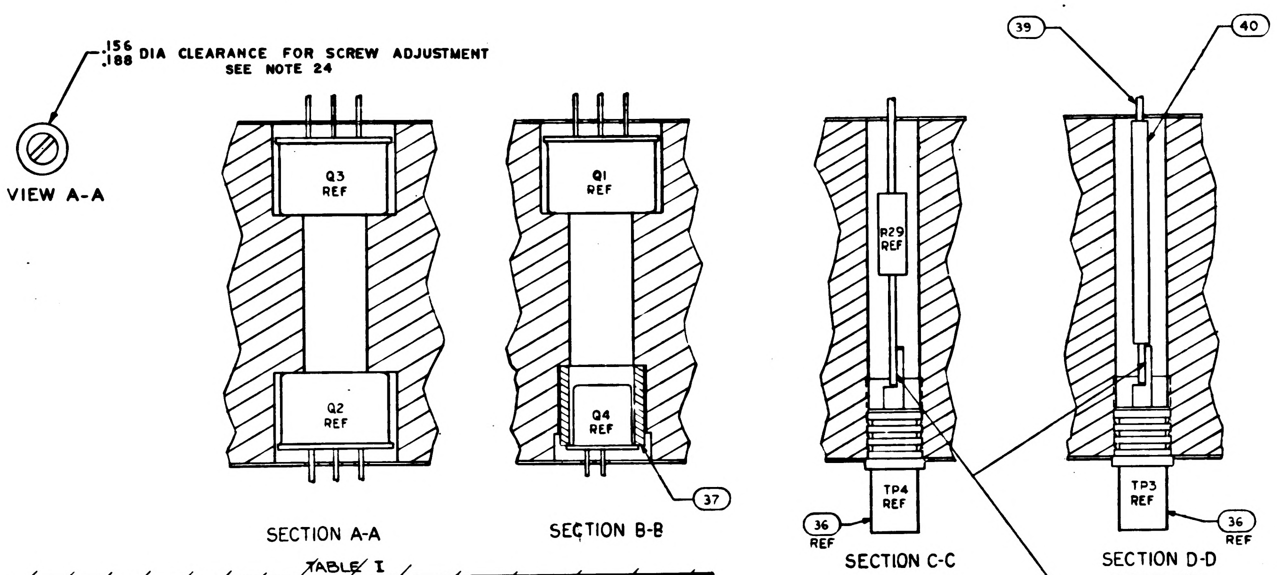

SEE NOTE 8
TP3
R17 5
R21 17
R7 8
CR5
CR4
C3
R2
R16
R18
FT4
FT11
CR3
R29 5
Q1 28
FT2
FT3
TP1
WR1
CCW
CW
C
D
B
CR2 31
CR2 49
R20
FT8
R12 5
FT7
C2 27
R5 7
FT9
R14
R13
R22
R28
R27
FT13
CR6
R23
R24
CR8
CR7
R15 12
Q3 28
R11 11
CR1 30
R6
38
44
SEE NOTE 14

28. EXCEPT FOR THE MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

NOTES:

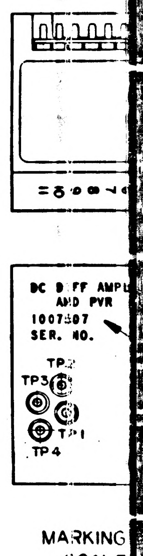
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD J.
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007(SEE PARTS LIST)
20. ~~BOND FIND NO 47 TO FIND NO 41 PER ND1002237~~

21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD J AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. ~~BOND A .25MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
26. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
27. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.


.156 .188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24
VIEW A-A
Q3 REF
Q2 REF
SECTION A-A
Q1 REF
Q4 REF
37
SECTION B-B
39
40
R29 REF
TP4 REF
36 REF
SECTION C-C
TP3 REF
36 REF
SECTION D-D
TYP 3 PLACES
SEE NOTE 3

~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FORM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FORM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OF TOTAL AVAILABLE ON 50 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE~~

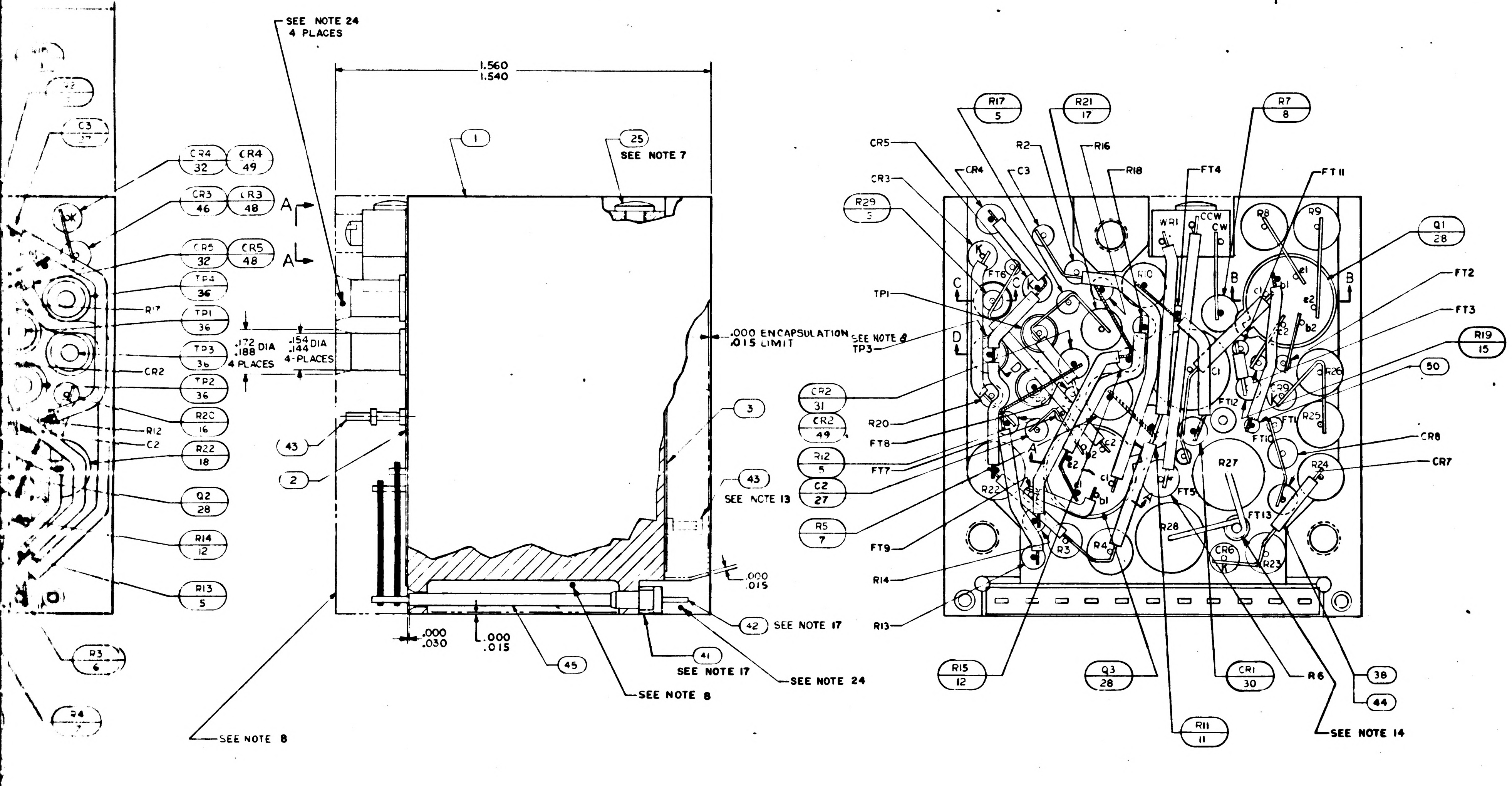

BC D FF AMPL
AND PVR
1007507
SER. NO.
TP2
TP3
TP1
TP4

MARKING
SCALE

1007507 V

1/1007507

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17324		12 MAR 65	RS
B		REVISED PER TDRR 18124		12 APR 65	HTO
C		REVISED PER TDRR 18936		65	
D		REVISED PER TDRR 19394		1 JUN 65	HTO
E		REVISED PER TDRR 19430		2-JUN 65	
F		REVISED PER TDRR 19498		9 JUN 65	WJK
G		REVISED PER TDRR 20143		19 JUN 65	
H		REVISED PER TDRR 21124		31 JUL 65	RLP
J		REVISED PER TDRR 21271		2 AUG 65	RLP
K		REVISED PER TDRR 21491		3 AUG 65	OKD
L		REVISED PER TDRR 21490		17 AUG 65	LK
M		REVISED PER TDRR 22943		12 OCT 65	JWP
N		REVISED PER TDRR 23888		16 NOV 65	JHP
P		REVISED PER TDRR 26397		23 FEB 66	RLP


SEE NOTE 24
4 PLACES
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1.540
1
25
SEE NOTE 7
A
A
C3
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CR5 32
CR5 48
TP4 36
R17
TP1 36
TP3 36
CR2
TP2 36
R20 16
R12
C2
R22 18
Q2 28
R14 12
R13 5
R3 6
R4 7
.172
.188 DIA
4 PLACES
.154
.144 DIA
4 PLACES
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.015 LIMIT
3
43
2
43
SEE NOTE 13
.000
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42 SEE NOTE 17
41 SEE NOTE 17
SEE NOTE 24
SEE NOTE 8
45
.000
.030
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.015
SEE NOTE 8
R17 5
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R7 8
CR5
R2
R16
CR3
CR4
C3
R18
FT4
FT11
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Q1 28
FT2
FT3
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SEE NOTE 8
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CR2 31
CR2 49
R20
FT8
R12 5
FT7
C2 27
R5 7
FT9
R14
R13
CR8
CR7
R27
R24
R28
FT5
FT13
FT12
FT10
CR6
R23
R15 12
Q3 28
CR1 30
R6
38
44
R11 11
SEE NOTE 14

CHART A			
PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B	
PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0Ω

CHART C	
PART NO.	VALUE
1010836-1	100Ω
-2	120
-3	140
-4	160
-5	180
-6	200
-7	220
-8	240
-9	260
-10	280
-11	300
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-19	460
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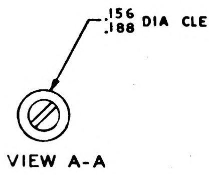
-21	500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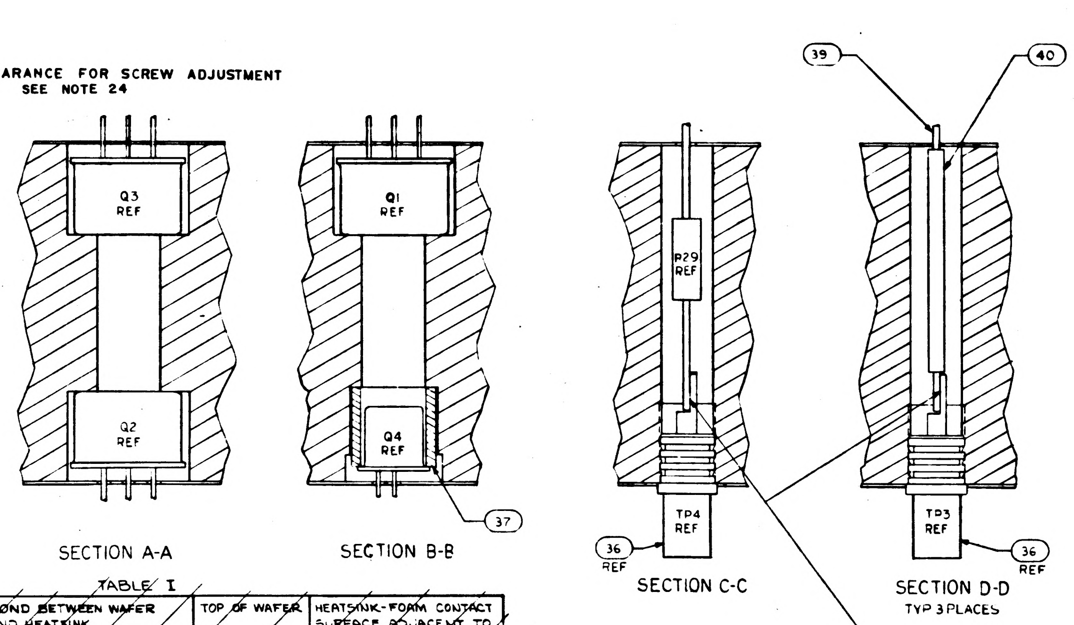
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

VIEW A-A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36 REF

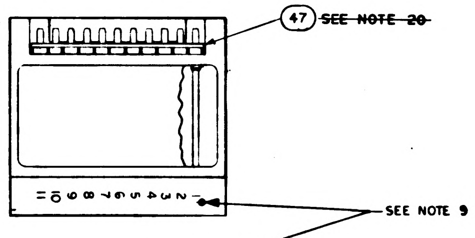
SECTION A-A

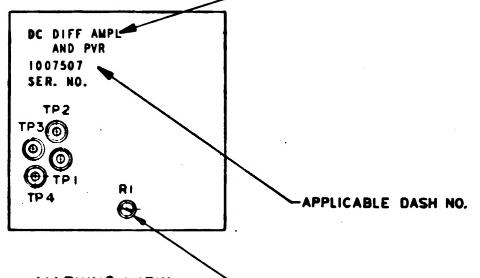
SECTION B-B

SECTION C-C

SECTION D-D
TYP 3 PLACES

SEE NOTE 3


47 ~~SEE NOTE 20~~
SEE NOTE 9


DC DIFF AMPL
AND PVR
1007507
SER. NO.
TP2
TP3
TP1
TP4
R1
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE

29. MOISTUREPROOF PER ND 1002292 AS REQUIRED BY FIND NO. (51) USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD 1008867 AFTER PAINTING AND STENCILLING.

	AR	—	—		SEE NOTE 29	MOISTUREPROOFING	51
	AR	AR	AR		1010848-2	WIRE, ELECTRICAL-NICKEL	50
	X	X	—		PS1007007 TYPE III	PROCUREMENT SPEC.	REF
	—	—	X		PS1007007 TYPE I	PROCUREMENT SPEC.	REF
	2	2	2		1010830-27	DIODE	49
	2	2	2		1010830-26	DIODE	48
	X	X	X		1010008	ELEC SCHEMATIC DIAGRAM	REF
	1	1	1		1008540-11	GASKET, CONNECTOR MINIATURE	47
		~~1~~	1		~~1010286-26~~	~~DIODE~~	46
	AR	AR	AR		1006776-20	INSULATION SLEEVING	45
	AR	AR	AR		1006776-21	INSULATION SLEEVING	44
	2	2	2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
	11	11	11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
	11	11	11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
	AR	AR	AR		1006776-22	INSULATOR, SLEEVING	40
	AR	AR	AR		1006757-8	WIRE, ELEC .020 DIA	39
	AR	AR	AR		1006757-1	WIRE, ELEC .010 X .020	38
	1	1	1		1008025-1	INSULATOR, BUSHING	37
	4	4	4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
	1	1	1		1008152	DIODE	35
	1	1	1		1010372-19	DIODE	34
	2	2	2		1010372-15	DIODE	33
		~~2~~	~~2~~		~~1010285-27~~	~~DIODE~~	32
		~~1~~	~~1~~		~~1010372-32~~	~~DIODE~~	31
	1	1	1		1010372-3	DIODE	30
	1	1	1		1010357-1	TRANSISTOR	29
	3	3	3		1010376-3	TRANSISTOR	28
	2	2	2		1006777-6	CAPACITOR, CER	27
	1	1	1		1010264-24	CAPACITOR, MYLAR	26
	2	2	2		1010618-3	SCREW, BUTTON HD	25
	1	1	1		1010836-22	RESISTOR, FIXED	24
	1	1	1		SEE NOTE 12	RESISTOR, FIXED	23
	1	1	1		SEE NOTE 11	RESISTOR, FIXED	22
	1	1	1		SEE NOTE 10	RESISTOR, FIXED	21
	1	1	1		1010377-25	RESISTOR, FIXED	20
	1	1	1		1006760-30	RESISTOR, FIXED	19
	1	1	1		1010399-49	RESISTOR, FIXED	18
	1	1	1		1006760-46	RESISTOR, FIXED	17
	1	1	1		1006750-68	RESISTOR, FIXED	16
	1	1	1		1006750-1	RESISTOR, FIXED	15
	1	1	1		1006750-84	RESISTOR, FIXED	14
	1	1	1		1006750-66	RESISTOR, FIXED	13
	2	2	2		1006750-16	RESISTOR, FIXED	12
	1	1	1		1006760-48	RESISTOR, FIXED	11
	1	1	1		1010377-36	RESISTOR, FIXED	10
	2	2	2		1010377-23	RESISTOR, FIXED	9
	2	2	2		1010364-681	RESISTOR, FIXED	8
	2	2	2		1010377-39	RESISTOR, FIXED	7
	1	1	1		1010374-126	RESISTOR, FIXED	6
	5	5	5		1006750-80	RESISTOR, FIXED	5
	1	1	1		1010373-12	RESISTOR, VARIABLE	4
	1	1	1		1008010-2	INSULATOR BOTTOM	3
	1	1	1		1008010-1	INSULATOR TOP	2
	1	1	1		1007003	HEATSINK	1
	031	021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	QUANTITY REQUIRED				LIST OF MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX ± .02 XXX ± .005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Orgel DATE 11 SEP 64
CHECKED 16 SEP 64
APPROVAL
APPROVAL 10-5-64
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

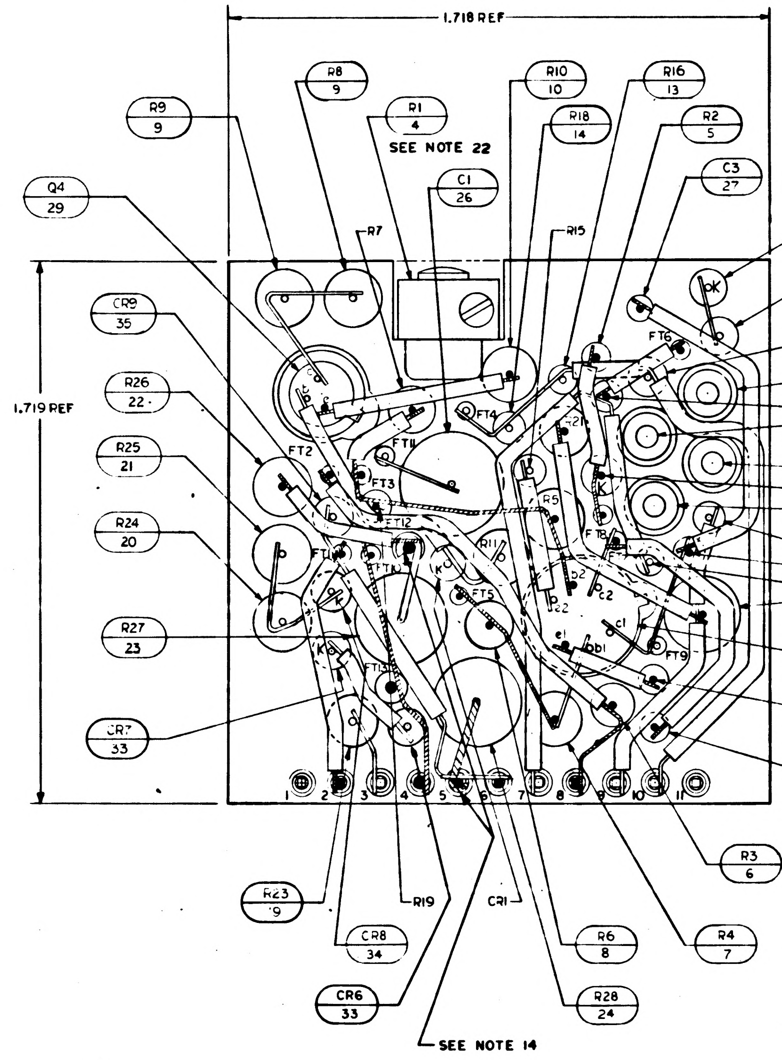
ASSEMBLY
DC DIFFERENTIAL AMPLIFIER
AND PVR

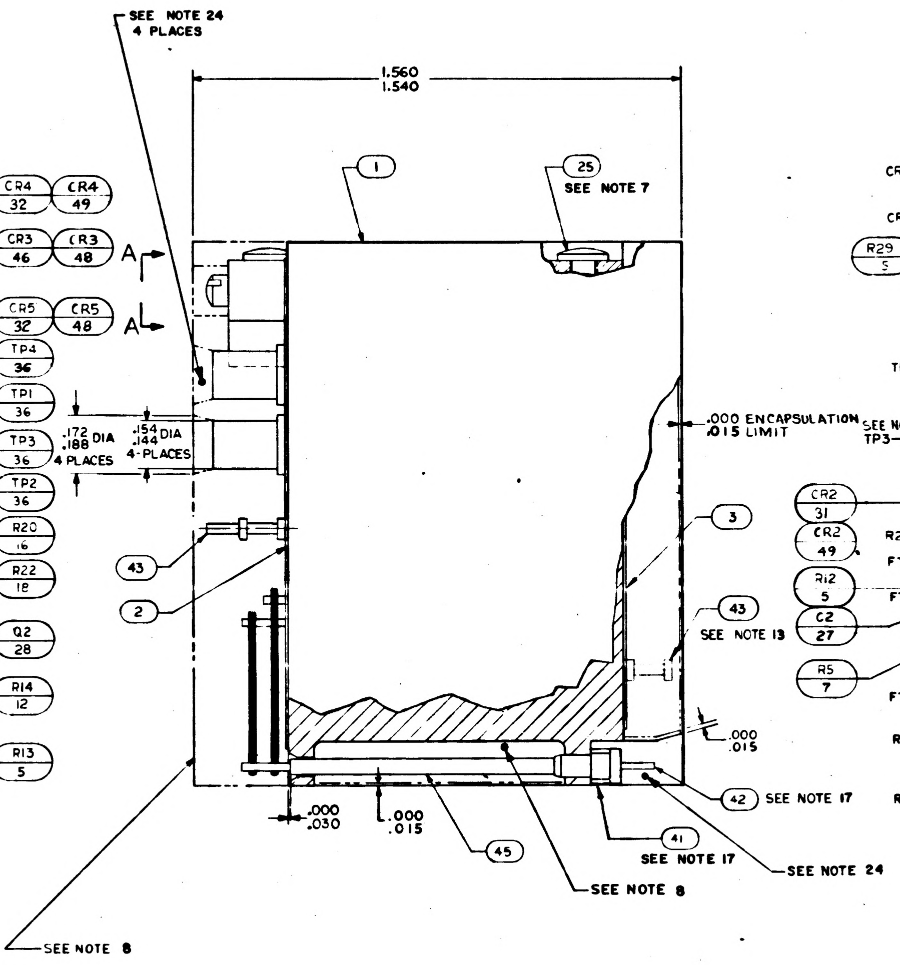
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007507
SCALE 5:1
WT
SHEET 1 OF 1

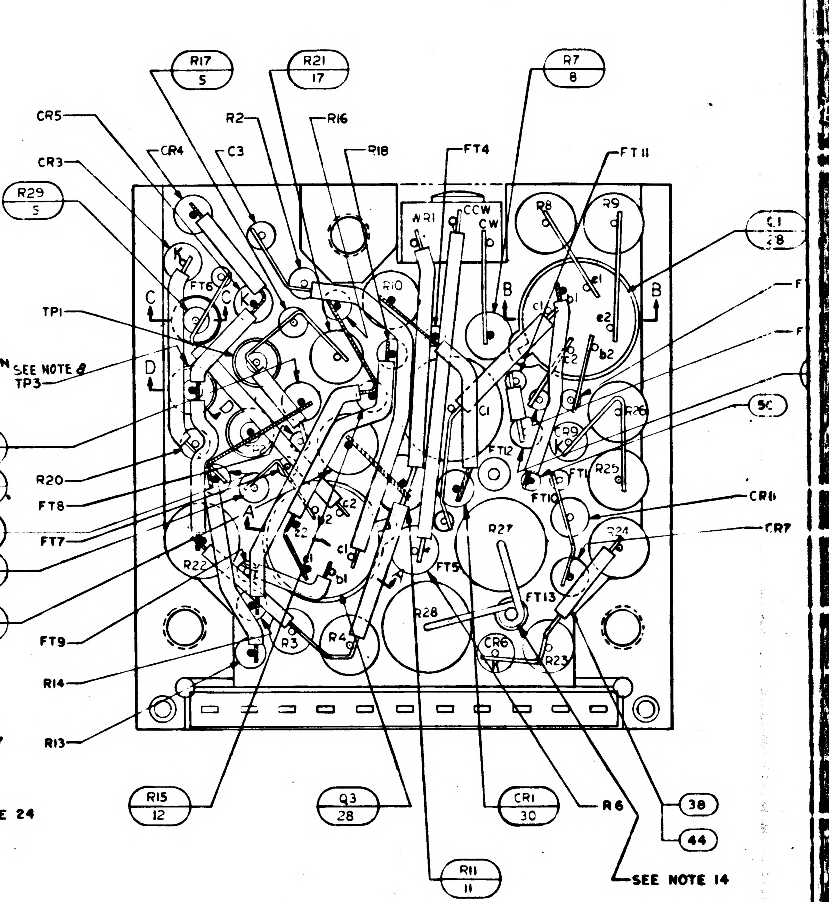
1007507 P

2/1007507

1007507


1.718 REF
1.719 REF
R9 9
R8 9
R1 4
SEE NOTE 22
R10 10
R18 14
R16 13
R2 5
C1 26
C3 27
Q4 29
R7
R15
CR4 32
CR4 49
CR3 46
CR3 48
CR9 35
CR5 32
CR5 48
R26 22
TP4 36
TP1 36
TP3 36
TP2 36
R25 21
R24 20
R17
CR2
R20 16
R12
C2
R22 18
R27 23
Q2 28
R14 12
CR7 33
R13 5
R23 19
CR8 34
R19
CR1
R3 6
R6 8
R4 7
CR6 33
R28 24
SEE NOTE 14
1 2 3 4 5 6 7 8 9 10 11


SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
A
.000 ENCAPSULATION
.015 LIMIT
.172
.188 DIA
4 PLACES
.154
.144 DIA
4 PLACES
3
43
2
43
SEE NOTE 13
.000
.015
42 SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
.000
.030
.000
.015
45
SEE NOTE 8
SEE NOTE 8

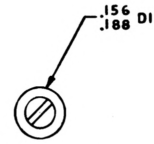

R17 5
R21 17
R7 8
CR5
CR4
C3
R2
R16
R18
FT4
FT11
CR3
R29 5
WR1
CCW
CW
C1 28
TP1
SEE NOTE 8
TP3
C
D
B
B
CR2 31
CR2 49
R12 5
C2 27
R5 7
R20
FT8
FT7
FT9
R14
R13
CR6
CR7
R15 12
Q3 28
CR1 30
R6
R11 11
38
44
SEE NOTE 14

28. EXCEPT FOR THE MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

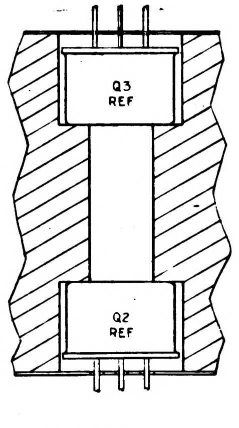
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD J.
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007(SEE PARTS LIST)
20. ~~BOND FIND NO 47 TO FIND NO 41 PER ND1002237~~

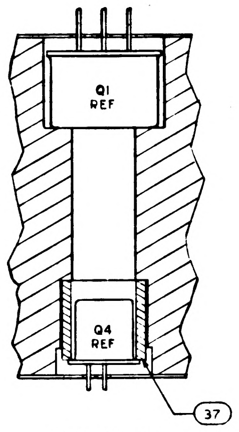
21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD J AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
26. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
27. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.


.156
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

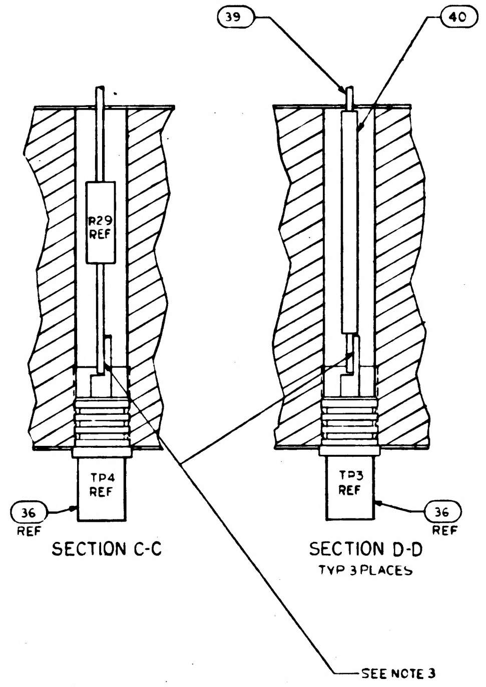
VIEW A-A


Q3 REF
Q2 REF

SECTION A-A


Q1 REF
Q4 REF
37

SECTION B-B


39
40
R29 REF
TP4 REF
36 REF
TP3 REF
36 REF
SEE NOTE 3

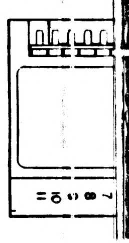
SECTION C-C

SECTION D-D
TYP 3 PLACES

~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FORM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FORM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE~~

29. MOISTUREPROOF PER ND1002292 AS REQUIRED BY FIND NO. (51) USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD 1008867 AFTER PAINTING AND STENCILLING.



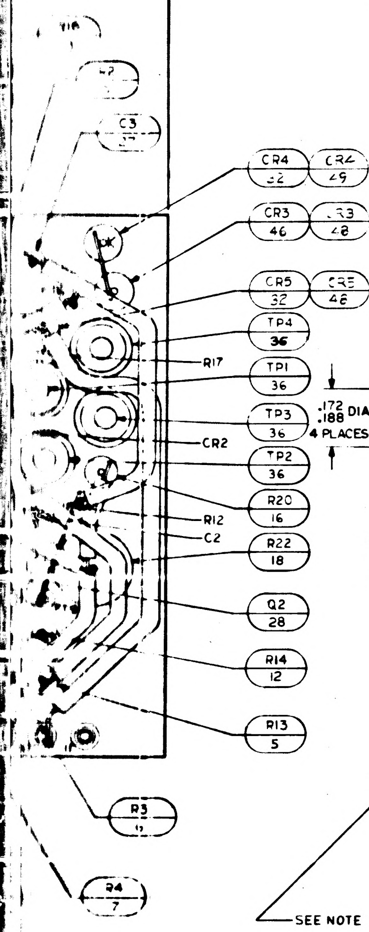
DC DIFF AMP AND PWR
1007507
SER. NO.
TP2
TP3
TP1
TP4

MARKING
SCALE

1007507 P

1-/1007507

SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
REVISIONS					
A		REVISED PER TDRR 17324		65	RS
B		REVISED PER TDRR 18124		2 APR 65	HTO
C		REVISED PER TDRR 18936		65	
D		REVISED PER TDRR 19394		JUN 65	HTO
E		REVISED PER TDRR 19430		2-JUN 65	
F		REVISED PER TDRR 19498		9 JUN 65	
G		REVISED PER TDRR 20143		19 JUN 65	
H		REVISED PER TDRR 21124		31 JUL 65	RLP
J		REVISED PER TDRR 21271		2 AUG 65	RLP
K		REVISED PER TDRR 21491		3 AUG 65	DKC
L		REVISED PER TDRR 21490		17 AUG 65	
M		REVISED PER TDRR 22943		12 OCT 65	JWP
N		REVISED PER TDRR 23888		16 NOV 65	
P		REVISED PER TDRR 26397		23 FEB 66	RLP
R		REVISED PER TDRR 26375		28 FEB 66	JIMP


C3
CR4 22
CR4 49
CR3 46
CR3 48
CR5 32
CR5 48
TP4 36
R17
TP1 36
TP3 36
CR2
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C2
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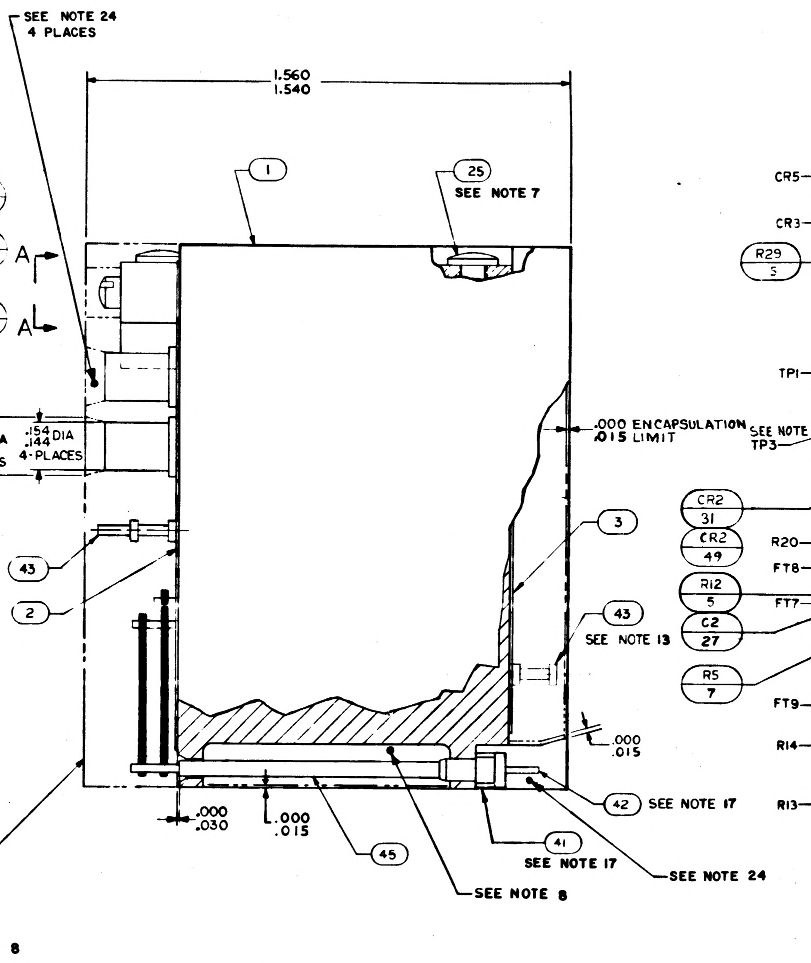
R14 12
R13 5
R3 9
R4 7


SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
A
.172 .188 DIA 4 PLACES
.154 .144 DIA 4-PLACES
.000 ENCAPSULATION .015 LIMIT
3
43
2
43
SEE NOTE 13
.000 .015
42 SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
.000 .030
.000 .015
45
SEE NOTE 8
SEE NOTE 8

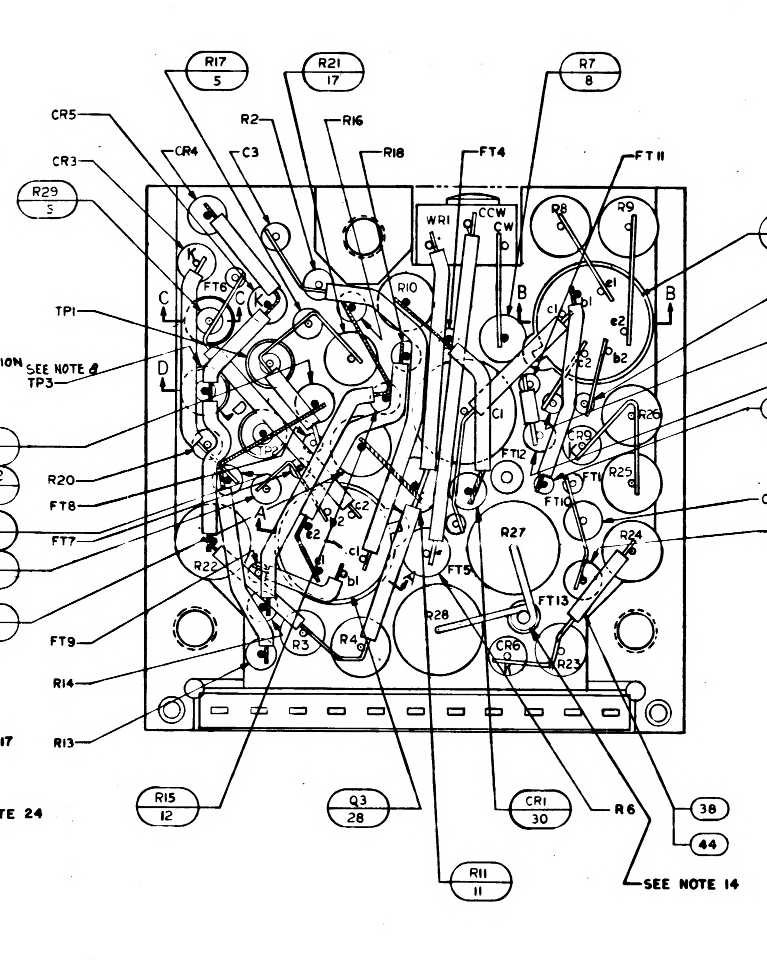
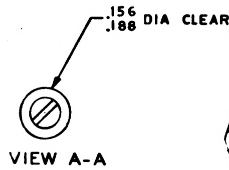

R17 5
R21 17
R7 8
CR5
CR3
CR4
C3
R2
R16
R18
FT4
FT11
R29 5
WR1
CCW CW
R8
R9
Q1 28
C
B
B
FT2
TP1
SEE NOTE 8 TP3
D
FT3
R19 15
50
CR2 31
CR2 49
R20
FT8
R12 5
FT7
C2 27
R5 7
FT9
R14
R13
R22
R3
R4
R27
R28
R24
R25
R26
CR8
CR7
FT5
FT13
CR6
R23
R15 12
Q3 28
CR1 30
R6
38
44
R11 11
SEE NOTE 14

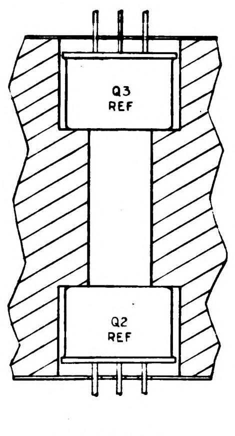
CHART A			
PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B	
PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0Ω

CHART C	
PART NO.	VALUE
1010836- 1	100Ω
- 2	120
- 3	140
- 4	160
- 5	180
- 6	200
- 7	220
- 8	240
- 9	260
-10	280
-11	300
-12	320
-13	340
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500


.156 .188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

VIEW A-A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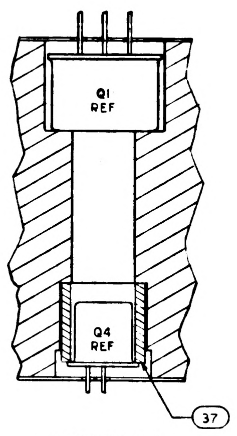
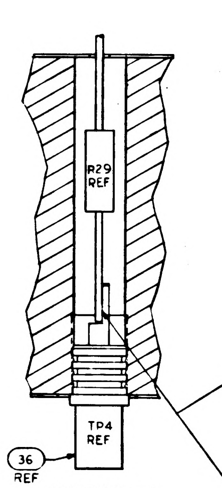
Q2 REF

SECTION A-A


Q1 REF
Q4 REF
37

SECTION B-B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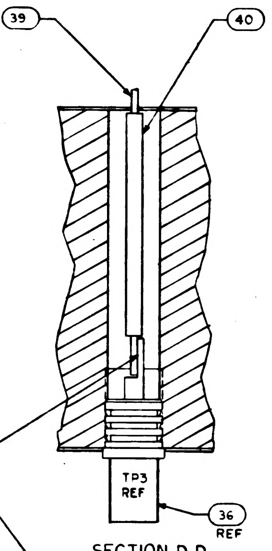
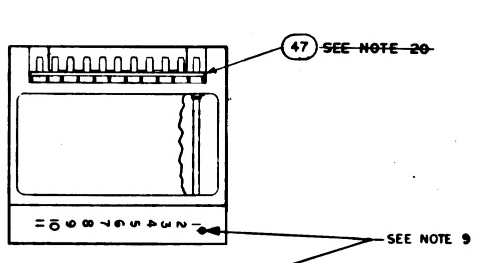
TP4 REF
36 REF

SECTION C-C


39
40
TP3 REF
36 REF

SECTION D-D
TYP 3 PLACES

SEE NOTE 3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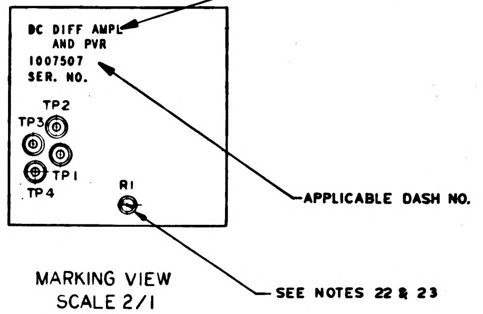
~~SEE NOTE 20~~
SEE NOTE 9


DC DIFF AMPL
AND PVR
1007507
SER. NO.
TP2
TP3
TP1
TP4
R1
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FORM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FORM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE

29. MOISTUREPROOF PER ND 1002292 AS REQUIRED BY FIND NO. (51) USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD 1008867 AFTER PAINTING AND STENCILLING.

041	031	021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	AR	—	—		SEE NOTE 29	MOISTUREPROOFING	51
AR	AR	AR	AR		1010848 - 2	WIRE, ELECTRICAL - NICKEL	50
—	☒	☒	—		PS1007007 TYPE III	PROCUREMENT SPEC.	REF
☒	—	—	☒		PS1007007 TYPE I	PROCUREMENT SPEC.	REF
2	2	2	2		1010830-27	DIODE	49
2	2	2	2		1010830-26	DIODE	48
☒	☒	☒	☒		1010008	ELEC SCHEMATIC DIAGRAM	REF
1	1	1	1		1008540-11	GASKET, CONNECTOR MINIATURE	47
		~~1~~	~~1~~		~~1010286-26~~	~~DIODE~~	46
AR	AR	AR	AR		1006776-20	INSULATION SLEEVING	45
AR	AR	AR	AR		1006776-21	INSULATION SLEEVING	44
2	2	2	2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
11	11	11	11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
11	11	11	11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
AR	AR	AR	AR		1006776-22	INSULATOR, SLEEVING	40
AR	AR	AR	AR		1006757-8	WIRE, ELEC .020 DIA	39
AR	AR	AR	AR		1006757-1	WIRE, ELEC .010 X .020	38
1	1	1	1		1008025-1	INSULATOR, BUSHING	37
4	4	4	4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
1	1	1	1		1008152	DIODE	35
1	1	1	1		1010372-19	DIODE	34
2	2	2	2		1010372-15	DIODE	33
		~~2~~	~~2~~		~~1010286-27~~	~~DIODE~~	32
		~~1~~	~~1~~		~~1010372-32~~	~~DIODE~~	31
1	1	1	1		1010372-3	DIODE	30
1	1	1	1		1010357-1	TRANSISTOR	29
3	3	3	3		1010376-3	TRANSISTOR	28
2	2	2	2		1006777-6	CAPACITOR, CER	27
1	1	1	1		1010264-24	CAPACITOR, MYLAR	26
2	2	2	2		1010618-3	SCREW, BUTTON HD	25
1	1	1	1		1010836-22	RESISTOR, FIXED	24
1	1	1	1		SEE NOTE 12	RESISTOR, FIXED	23
1	1	1	1		SEE NOTE 11	RESISTOR, FIXED	22
1	1	1	1		SEE NOTE 10	RESISTOR, FIXED	21
1	1	1	1		1010377-25	RESISTOR, FIXED	20
1	1	1	1		1006760-30	RESISTOR, FIXED	19
1	1	1	1		1010399-49	RESISTOR, FIXED	18
1	1	1	1		1006760-46	RESISTOR, FIXED	17
1	1	1	1		1006750-68	RESISTOR, FIXED	16
1	1	1	1		1006750-1	RESISTOR, FIXED	15
1	1	1	1		1006750-84	RESISTOR, FIXED	14
1	1	1	1		1006750-66	RESISTOR, FIXED	13
2	2	2	2		1006750-16	RESISTOR, FIXED	12
1	1	1	1		1006760-48	RESISTOR, FIXED	11
1	1	1	1		1010377-36	RESISTOR, FIXED	10
2	2	2	2		1010377-23	RESISTOR, FIXED	9
2	2	2	2		1010364-681	RESISTOR, FIXED	8
2	2	2	2		1010377-39	RESISTOR, FIXED	7
1	1	1	1		1010374-126	RESISTOR, FIXED	6
5	5	5	5		1006750-80	RESISTOR, FIXED	5
1	1	1	1		1010373-12	RESISTOR, VARIABLE	4
1	1	1	1		1008010-2	INSULATOR BOTTOM	3
1	1	1	1		1008010-1	INSULATOR TOP	2
1	1	1	1		1007003	HEATSINK	1

QUANTITY REQUIRED
LIST OF MATERIALS

1007507 R

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX±.02 XXX±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Orgel DATE 4 SEP 64
CHECKED 16 SEP 64
APPROVAL
APPROVAL 10-5-64
NASA APPROVAL 10-6-64
MIT APPROVAL

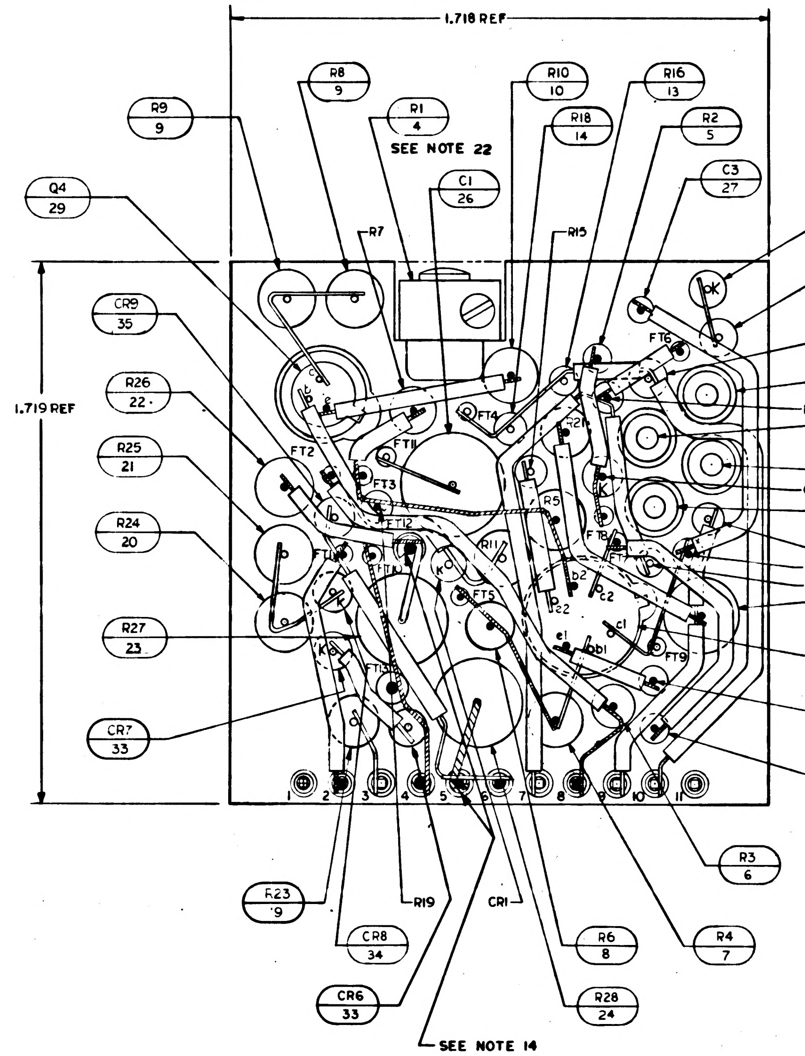
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

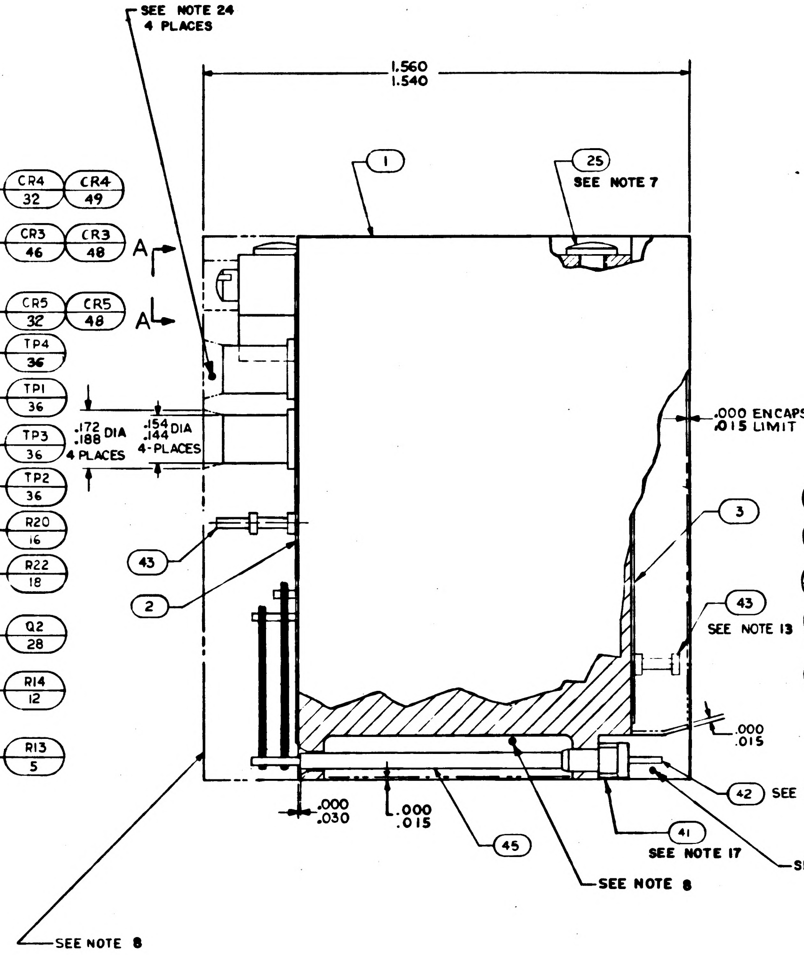
ASSEMBLY
DC DIFFERENTIAL AMPLIFIER
AND PVR

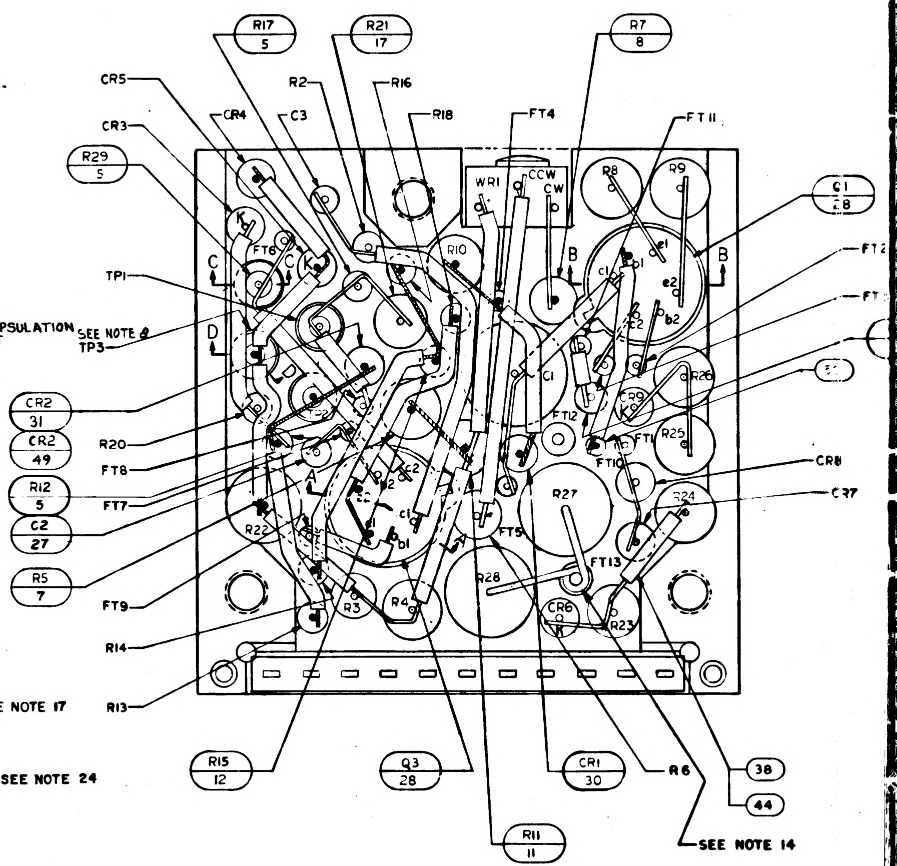
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007507
SCALE 5:1
WT
SHEET 1 OF 1

1007507 R

27/1007507


1.718 REF
1.719 REF
R9 9
R8 9
R1 4
SEE NOTE 22
R10 10
R18 14
R16 13
R2 5
C1 26
C3 27
Q4 29
R7
R15
CR4 32
CR4 49
CR3 46
CR3 48
CR5 32
CR5 48
TP4 36
TP1 36
TP3 36
TP2 36
R17
CR2
R20 16
R12
C2
R22 18
Q2 28
R14 12
R13 5
CR9 35
R26 22
R25 21
R24 20
R27 23
CR7 33
R23 9
CR8 34
R19
CR1
R6 8
R3 6
R4 7
CR6 33
R28 24
SEE NOTE 14


SEE NOTE 24 4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
A
.172 DIA
.188
4 PLACES
.154 DIA
.144
4 PLACES
.000 ENCAPSULATION
.015 LIMIT
3
43
2
43
SEE NOTE 13
.000
.015
42 SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
SEE NOTE 8
45
.000
.030
.000
.015
SEE NOTE 8


R17 5
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R7 8
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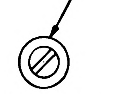
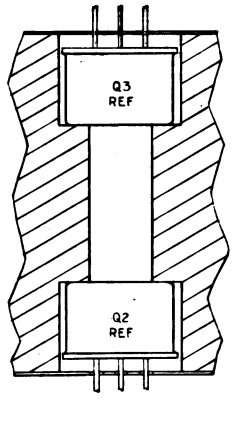
CR3
CR4
C3
R2
R16
R18
FT4
FT11
R29 5
WR1
CCW
CW
Q1 28
FT2
FT1
TP1
SEE NOTE 8
TP3
CR2 31
CR2 49
R12 5
C2 27
R5 7
R20
FT8
FT7
FT9
R14
R13
CR8
CR7
R15 12
Q3 28
CR1 30
R6
R11 11
38
44
SEE NOTE 14
B
C
D

.156/.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24



VIEW A-A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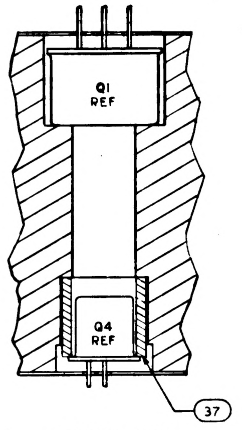
Q2 REF

SECTION A-A


Q1 REF
Q4 REF
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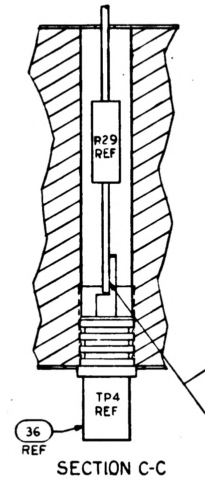
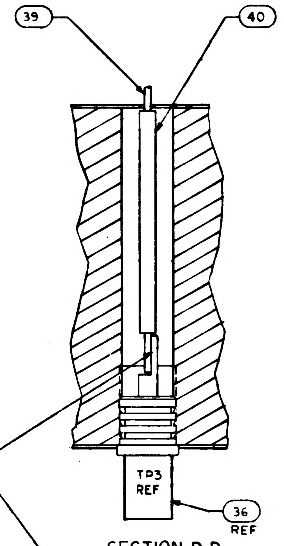
SECTION B-B


R29 REF
TP4 REF
36 REF

SECTION C-C


39
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TP3 REF
36 REF

SECTION D-D
TYP 3 PLACES

SEE NOTE 3

28. EXCEPT FOR THE MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

NOTES:

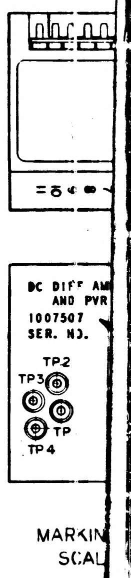
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD J.
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007(SEE PARTS LIST)
~~20. BOND FIND NO 47 TO FIND NO 41 PER ND1002237~~

21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD J AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
~~26. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
27. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.

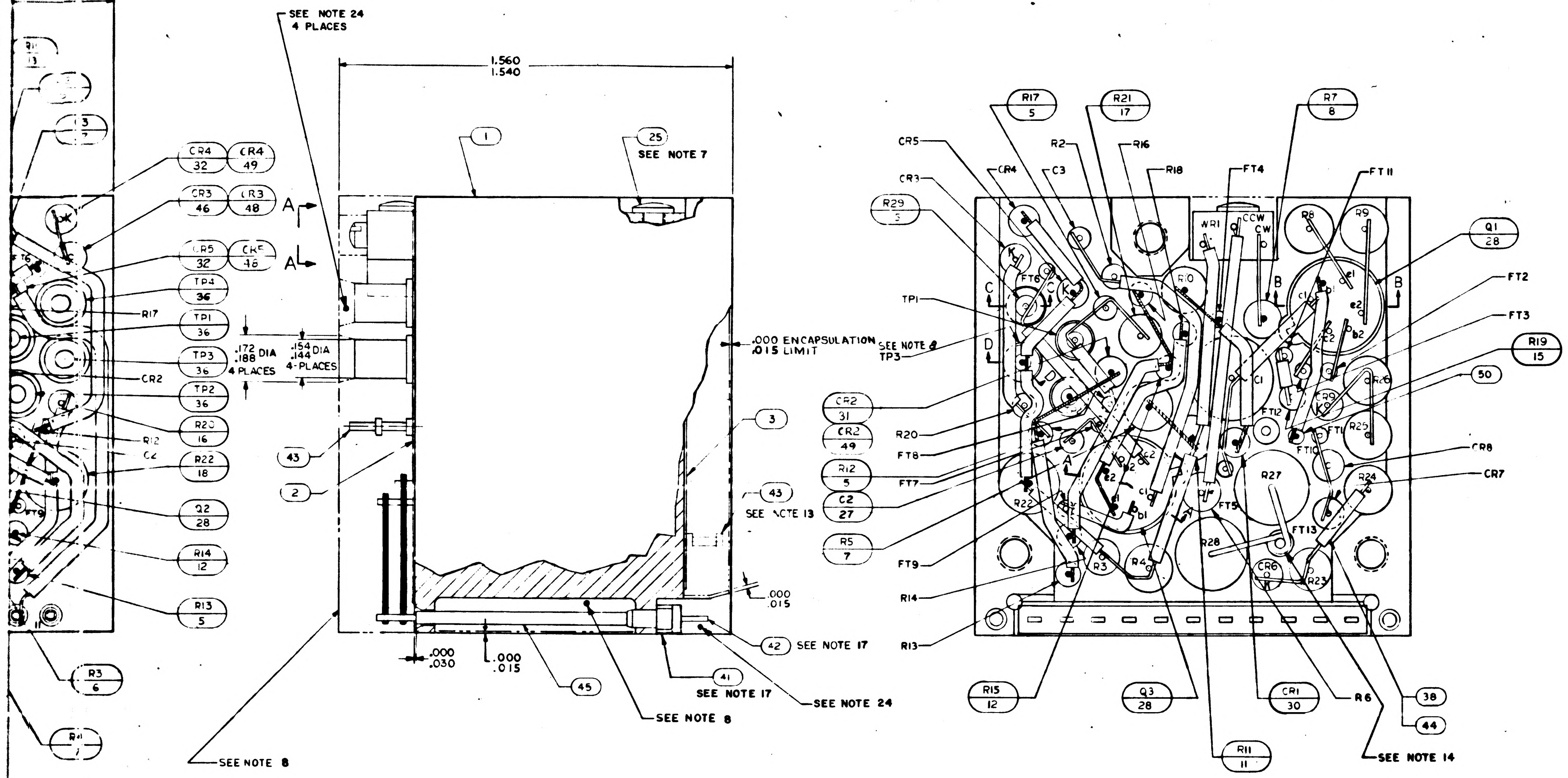
~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE~~

29. MOISTUREPROOF PER ND1002292 AS REQUIRED BY FIND NO. (51) USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD 1008867 AFTER PAINTING AND STENCILLING.


DC DIFF AM
AND PWR
1007507
SER. NO.
TP2
TP3
TP
TP4
MARKIN
SCAL

1007507 R


SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
CR4 32
CR4 49
CR3 46
CR3 48
CR5 32
CR5 48
TP4 36
TP1 36
TP3 36
TP2 36
R20 16
R22 18
Q2 28
R14 12
R13 5
R3 6
R17
CR2
R12
C2
A
A
.172
.188 DIA
4 PLACES
.154
.144 DIA
4-PLACES
.000 ENCAPSULATION
.015 LIMIT
SEE NOTE 8
TP3
3
43
2
43
SEE NOTE 13
.000
.015
42 SEE NOTE 17
41 SEE NOTE 17
SEE NOTE 24
SEE NOTE 8
45
.000
.030
.000
.015
SEE NOTE 8
R17 5
R21 17
R7 8
CR5
CR3
CR4
C3
R2
R16
R18
FT4
FT11
R29 3
WR1
CCW
CW
R8
R9
Q1 28
FT6
C
B
B
FT2
FT3
TP1
D
R19 15
C1
50
CR2 31
CR2 49
R20
FT8
R12 5
FT7
C2 27
R5 7
FT9
R14
R13
R22
R3
R4
R27
R28
CR6
R23
R24
FT5
FT13
CR8
CR7
R15 12
Q3 28
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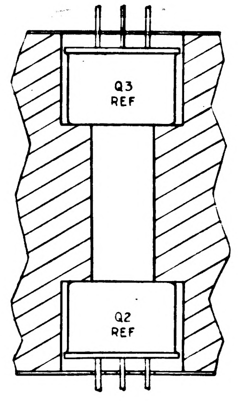
CR1 30
R6
38
44
SEE NOTE 14

.156
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

VIEW A-A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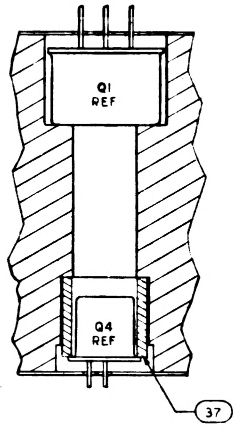
SECTION A-A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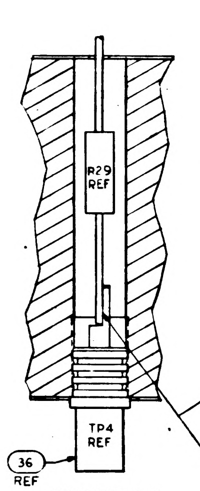
SECTION B-B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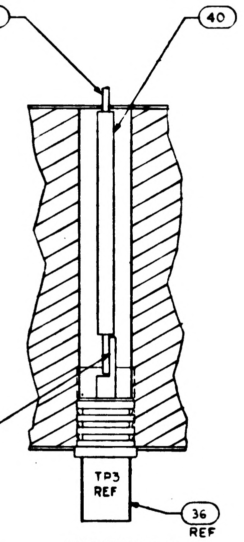
SECTION C-C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TP3
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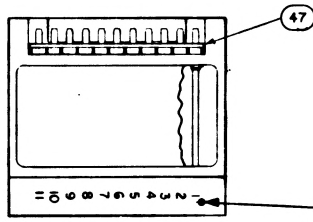
REF
SEE NOTE 3

SECTION D-D
TYP 3 PLACES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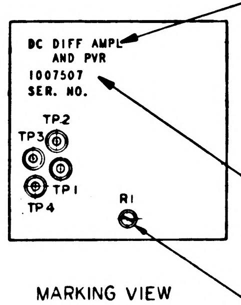
~~SEE NOTE 20~~
SEE NOTE 9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AND PVR
1007507
SER. NO.
TP2
TP3
TP1
TP4
R1
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FORM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FORM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE~~

29. MOISTUREPROOF PER ND 1002292 AS REQUIRED BY FIND NO. (51) USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD 1008867 AFTER PAINTING AND STENCILLING.

1002019

CHART A

PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω	-352	575 Ω
-34	1100Ω	-353	625 Ω
-35	1200Ω	-354	675 Ω

CHART B

PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0Ω

CHART C

PART NO.	VALUE
1010836- 1	100Ω
- 2	120
- 3	140
- 4	160
- 5	180
- 6	200
- 7	220
- 8	240
- 9	260
-10	280
-11	300
-12	320
-13	340
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500

REVISIONS

SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD
A		REVISED PER TDRR 17324		12 MAR 65	RS
B		REVISED PER TDRR 18124		2 APR 65	HTO
C		REVISED PER TDRR 18936		4 [illegible] 65	
D		REVISED PER TDRR 19394		1 JUN 65	HTO
E		REVISED PER TDRR 19430		2-JUN 65	
F		REVISED PER TDRR 19498		9 JUN 65	WJK
G		REVISED PER TDRR 20143		19 JUN 65	
H		REVISED PER TDRR 21124		31 JUL 65	RP
J		REVISED PER TDRR 21271		2 AUG 65	RP
K		REVISED PER TDRR 21491		3 AUG 65	OKD
L		REVISED PER TDRR 21490		17 AUG 65	LK AU
M		REVISED PER TDRR 22943		12 OCT 65	JWP CP
N		REVISED PER TDRR 23888		16 NOV 65	JHP
P		REVISED PER TDRR 26397		23 FEB 66	RP
R		REVISED PER TDRR 26375		28 FEB 66	JIMP J.D.
S		REVISED PER TDRR29761		30-JUN 66	JAC

041	031	021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	AR	—	—		SEE NOTE 29	MOISTUREPROOFING	51
AR	AR	AR	AR		1010848-2	WIRE, ELECTRICAL-NICKEL	50
—	X	X	—		PS1007007 TYPE III	PROCUREMENT SPEC.	REF
X	—	—	X		PS1007007 TYPE I	PROCUREMENT SPEC.	REF
2	2	2	2		1010830-27	DIODE	49
2	2	2	2		1010830-26	DIODE	48
X	X	X	X		1010008	ELEC SCHEMATIC DIAGRAM	REF
1	1	1	1		1008540-11	GASKET, CONNECTOR MINIATURE	47
		~~1~~	1		~~1010286-26~~	~~DIODE~~	46
AR	AR	AR	AR		1006776-20	INSULATION SLEEVING	45
AR	AR	AR	AR		1006776-21	INSULATION SLEEVING	44
2	2	2	2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
11	11	11	11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
11	11	11	11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
AR	AR	AR	AR		1006776-22	INSULATOR, SLEEVING	40
AR	AR	AR	AR		1006757-8	WIRE, ELEC .020 DIA	39
AR	AR	AR	AR		1006757-1	WIRE, ELEC .010 X .020	38
1	1	1	1		1008025-1	INSULATOR, BUSHING	37
4	4	4	4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
1	1	1	1		1010786-1	DIODE	35
1	1	1	1		1010372-19	DIODE	34
2	2	2	2		1010372-15	DIODE	33
		~~2~~	~~2~~		~~1010285-27~~	~~DIODE~~	32
		~~1~~	~~1~~		~~1010372-32~~	~~DIODE~~	31
1	1	1	1		1010372-3	DIODE	30
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3	3	3	3		1010376-3	TRANSISTOR	28
2	2	2	2		1006777-6	CAPACITOR, CER	27
1	1	1	1		1010264-24	CAPACITOR, MYLAR	26
2	2	2	2		1010618-3	SCREW, BUTTON HD	25
1	1	1	1		1010836-22	RESISTOR, FIXED	24
1	1	1	1		SEE NOTE 12	RESISTOR, FIXED	23
1	1	1	1		SEE NOTE 11	RESISTOR, FIXED	22
1	1	1	1		SEE NOTE 10	RESISTOR, FIXED	21
1	1	1	1		1010377-25	RESISTOR, FIXED	20
1	1	1	1		1006760-30	RESISTOR, FIXED	19
1	1	1	1		1010399-49	RESISTOR, FIXED	18
1	1	1	1		1006760-46	RESISTOR, FIXED	17
1	1	1	1		1006750-68	RESISTOR, FIXED	16
1	1	1	1		1006750-1	RESISTOR, FIXED	15
1	1	1	1		1006750-84	RESISTOR, FIXED	14
1	1	1	1		1006750-66	RESISTOR, FIXED	13
2	2	2	2		1006750-16	RESISTOR, FIXED	12
1	1	1	1		1006760-48	RESISTOR, FIXED	11
1	1	1	1		1010377-36	RESISTOR, FIXED	10
2	2	2	2		1010377-23	RESISTOR, FIXED	9
2	2	2	2		1010364-681	RESISTOR, FIXED	8
2	2	2	2		1010377-39	RESISTOR, FIXED	7
1	1	1	1		1010374-126	RESISTOR, FIXED	6
5	5	5	5		1006750-80	RESISTOR, FIXED	5
1	1	1	1		1010373-12	RESISTOR, VARIABLE	4
1	1	1	1		1008010-2	INSULATOR BOTTOM	3
1	1	1	1		1008010-1	INSULATOR TOP	2
1	1	1	1		1007003	HEATSINK	1

QUANTITY REQUIRED
LIST OF MATERIALS

1007507 S

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX±.02 XXX±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Ozzel DATE
CHECKED 16 Sep 64
APPROVAL
APPROVAL 10-5-64
NASA APPROVAL W J Rhine 10-6-64
MIT APPROVAL Oct 64

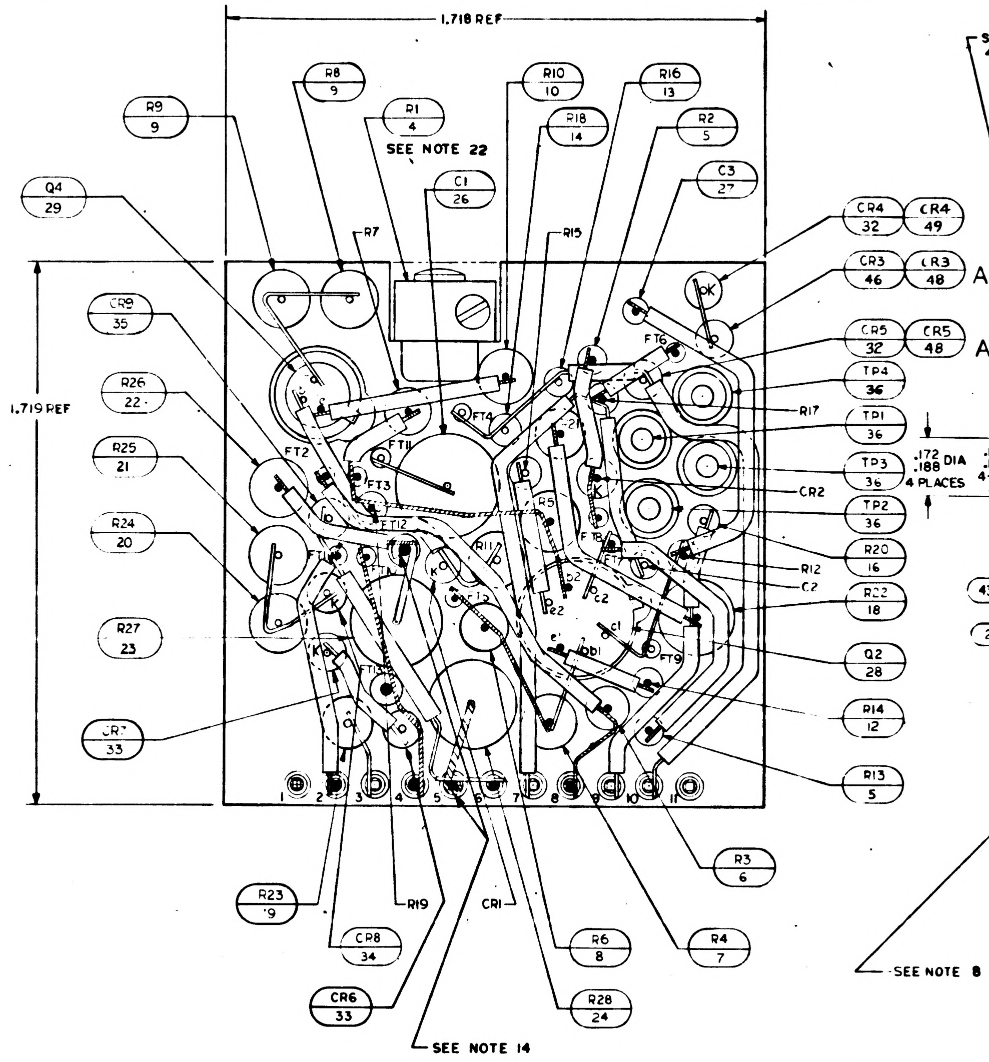
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ASSEMBLY
DC DIFFERENTIAL AMPLIFIER
AND PVR

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007507
SCALE 5:1
WT
SHEET 1 OF 1

1007507 S

2/1007507



1.718 REF
1.719 REF
R8 9
R1 4
SEE NOTE 22
R10 10
R16 13
R9 9
R18 14
R2 5
C1 26
C3 27
Q4 29
R7
R15
CR4 32
CR4 49
CR3 46
CR3 48
CR5 32
CR5 48
A
A
CR9 35
R26 22
R25 21
R24 20
R27 23
CR7 33
TP4 36
TP1 36
TP3 36
TP2 36
R17
CR2
R20 16
R12
C2
R22 18
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R3 6
R4 7
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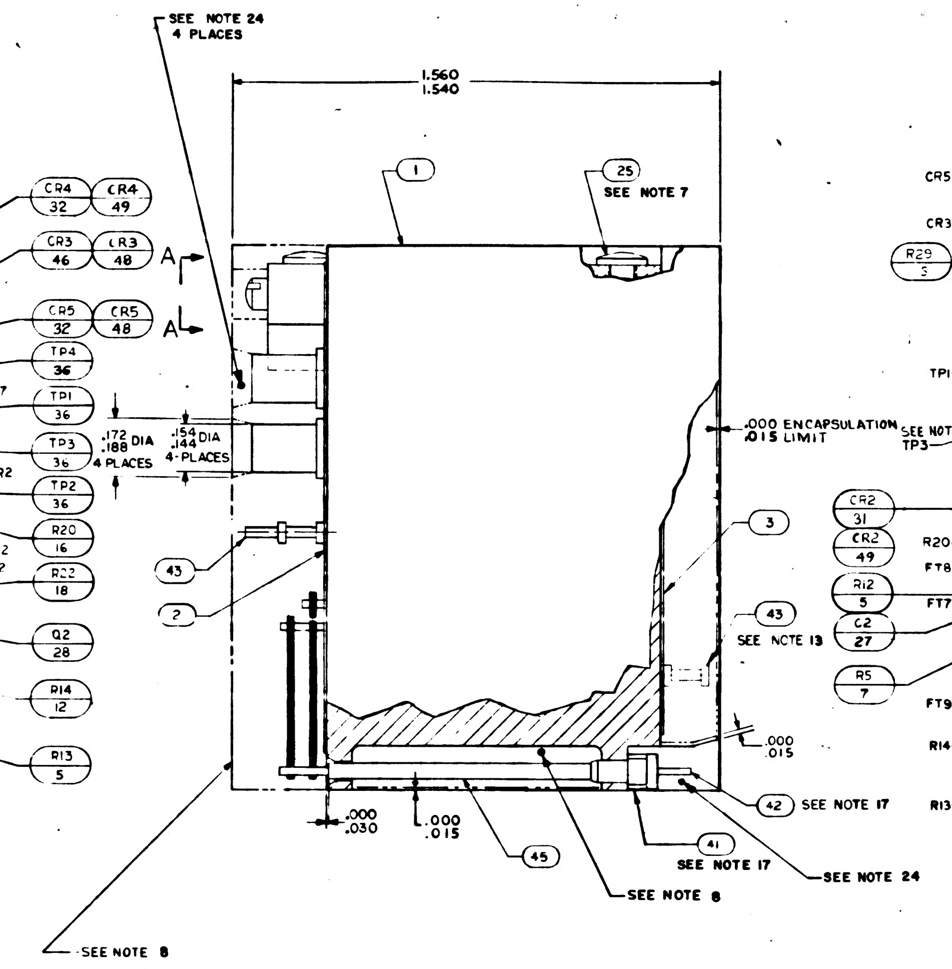
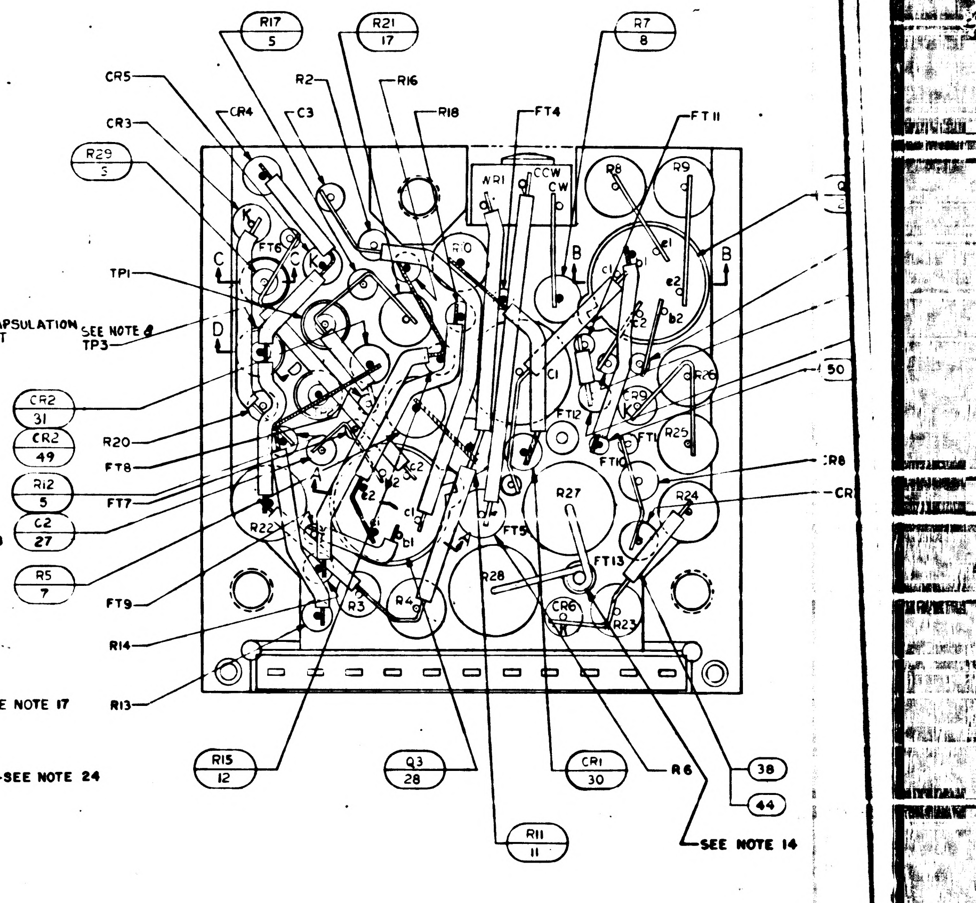
R6 8
R23 9
R19
CR1
CR8 34
CR6 33
SEE NOTE 14



SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
.000 ENCAPSULATION
.015 LIMIT
.172
.188 DIA
4 PLACES
.154
.144 DIA
4 PLACES
3
43
2
43
SEE NOTE 13
.000
.015
42 SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
SEE NOTE 8
45
.000
.030
.000
.015
SEE NOTE 8



R17 5
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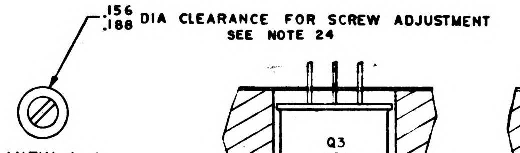
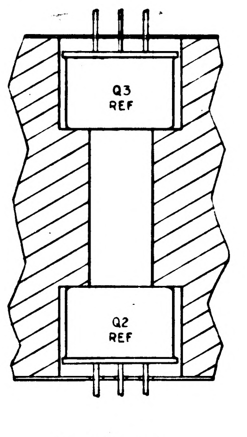
R7 8
CR5
CR3
CR4
C3
R2
R16
R18
FT4
FT11
R29 3
TP1
SEE NOTE 4
TP3
CR2 31
CR2 49
R20
FT8
R12 5
FT7
C2 27
R5 7
FT9
R14
R13
50
R8
R15 12
Q3 28
R11 11
CR1 30
R6
38
44
SEE NOTE 14

28. EXCEPT FOR THE MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1006809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.



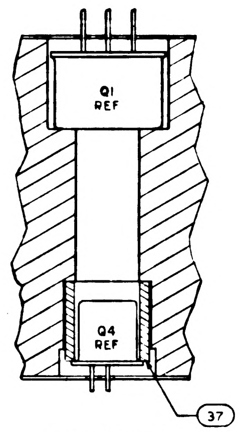
.156
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

VIEW A-A



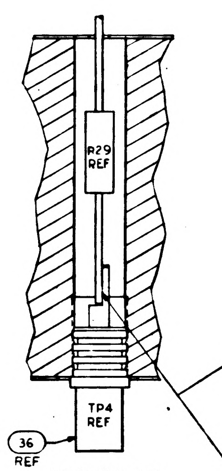
Q3
REF
Q2
REF

SECTION A-A



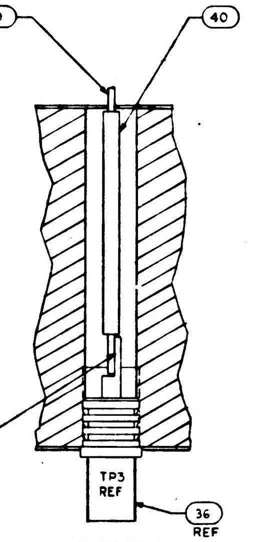
Q1
REF
Q4
REF
37

SECTION B-B



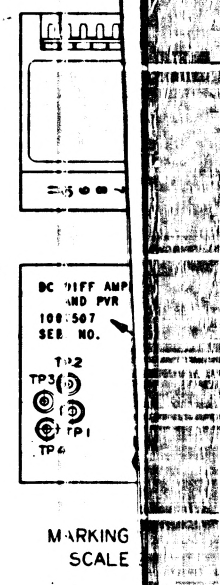
R29
REF
TP4
REF
36
REF

SECTION C-C



39
40
TP3
REF
36
REF
SEE NOTE 3

SECTION D-D
TYP 3 PLACES



DC DIFF AMP
AND PWR
100:507
SER NO.
TP2
TP3
TP1
TP4

MARKING
SCALE

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD J.
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007(SEE PARTS LIST)
20. ~~BOND FIND NO 47 TO FIND NO 41 PER ND1002237~~

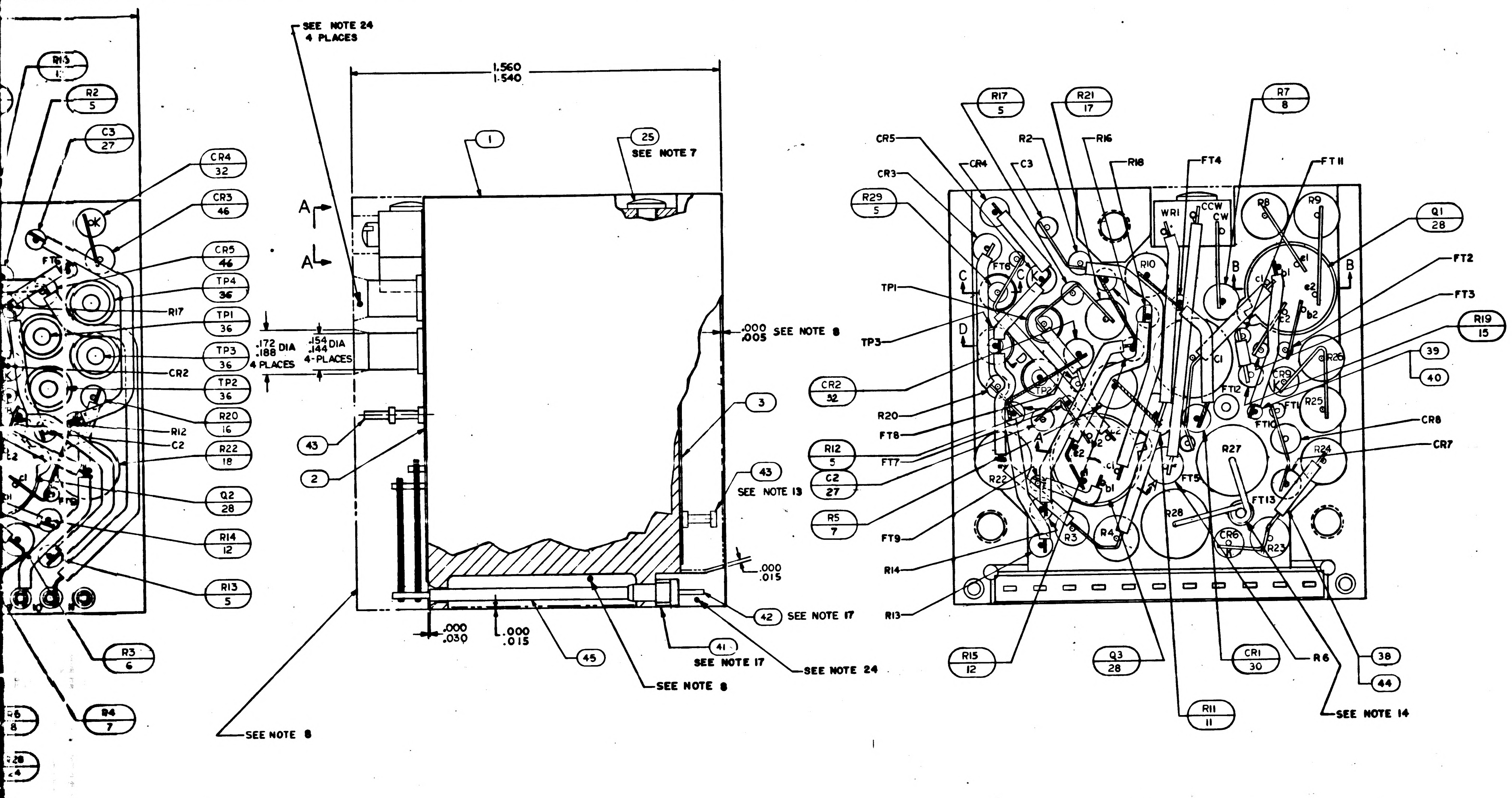
21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND1002009 METHOD J AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND 1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
25. ~~BOND A .25MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
26. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
27. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.

~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FORM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE~~	~~100% OF AREA. .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FORM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OF TOTAL AVAILABLE ON 90 % OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE~~

29. MOISTUREPROOF PER ND1002292 AS REQUIRED BY FIND NO. (51) USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD 1008867 AFTER PAINTING AND STENCILLING.

1007507 S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R2 5
C3 27
CR4 32
CR3 46
CR5 46
TP4 36
TP1 36
TP3 36
TP2 36
R20 16
R22 18
Q2 28
R14 12
R13 5
R3 6
R4 7
R17
CR2
R12
C2
FT6
SEE NOTE 24
4 PLACES
1.560
1.540
25
SEE NOTE 7
A
.000
.005 SEE NOTE 8
.172 DIA
.188
4 PLACES
.154 DIA
.144
4-PLACES
43
2
3
43
SEE NOTE 13
.000
.015
42 SEE NOTE 17
41
SEE NOTE 17
SEE NOTE 24
45
SEE NOTE 8
.000
.030
.000
.015
SEE NOTE 8
R17 5
R21 17
R7 8
CR5
CR3
CR4
C3
R2
R16
R18
FT4
FT11
R29 5
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CCW
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R9
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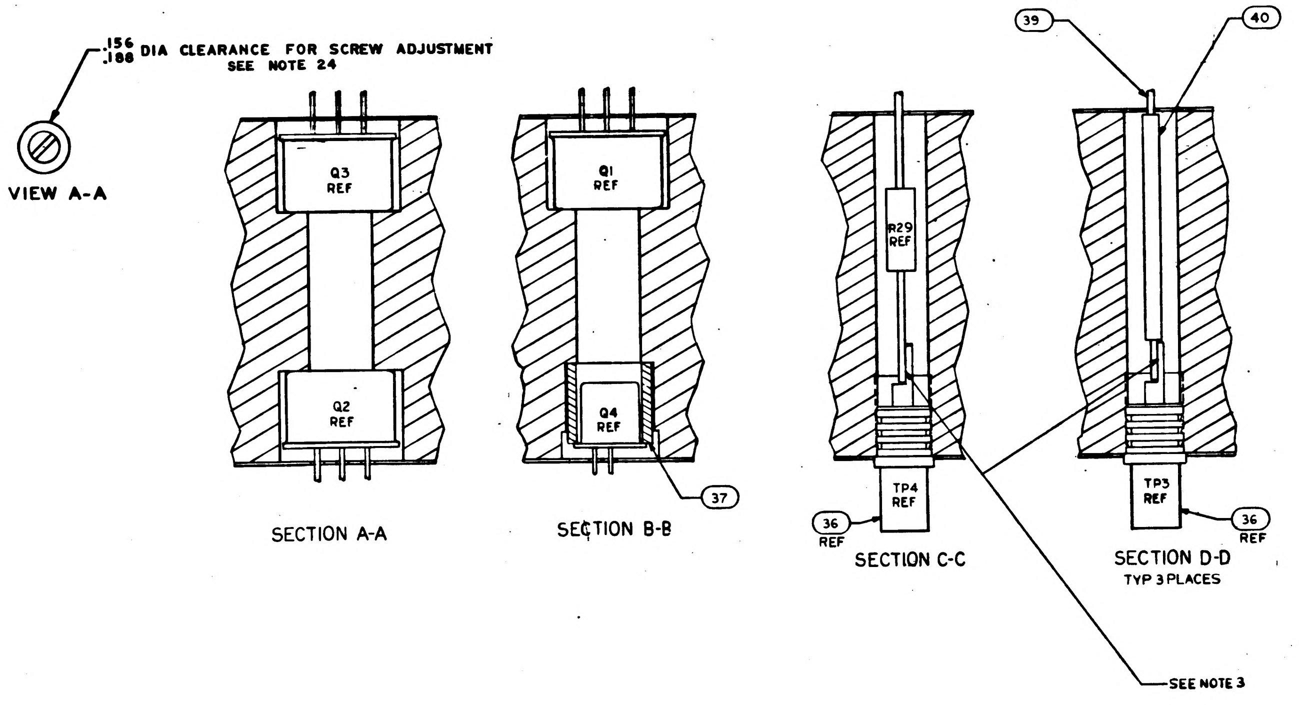
FT7
R12 5
C2 27
R5 7
FT9
R14
R13
CR8
CR7
R15 12
Q3 28
CR1 30
R6
38
44
R11 11
SEE NOTE 14
R10
C1
R27
R28
R25
R24
R23
R26
CR6
CR9
FT12
FT10
FT13
FT5
R22
R3
R4
B
C
D


.156
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24
VIEW A-A
Q3 REF
Q2 REF
Q1 REF
Q4 REF
37
R29 REF
39
40
TP4 REF
36 REF
TP3 REF
36 REF
SEE NOTE 3

SECTION A-A

SECTION B-B

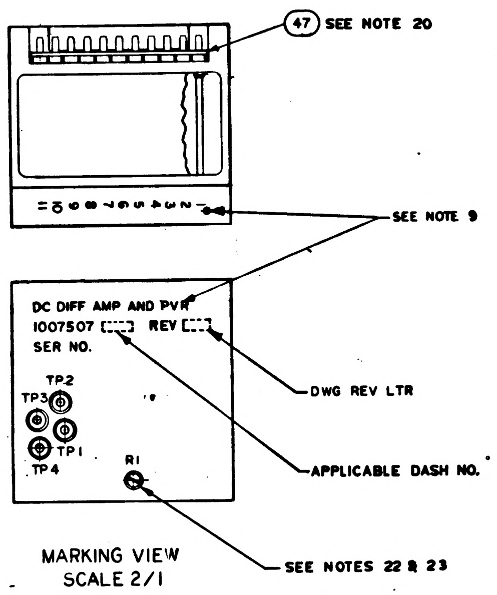
SECTION C-C

SECTION D-D
TYP 3 PLACES

CHART A			
PART NO.	VALUE	PART NO.	VALUE
1010377-26	600Ω	1010377-325	740 Ω
-27	650Ω	-326	810 Ω
-28	700Ω	-327	890 Ω
-30	775Ω	-328	960 Ω
-31	850Ω	-329	1050 Ω
-32	925Ω	-330	1150 Ω
-33	1000Ω		
-34	1100Ω		
-35	1200Ω		

CHART B	
PART NO.	VALUE
1010377-57	1Ω
-58	2Ω
-59	3Ω
-60	4Ω
-61	5Ω
-62	6Ω
-63	7Ω
-64	8Ω
-65	9Ω
-66	10Ω
-67	11Ω
-68	12Ω
-69	13Ω
-70	14Ω
-71	15Ω
-72	16Ω
-73	17Ω
-74	18Ω
-75	19Ω
1006757-8	0Ω

CHART C	
PART NO.	VALUE
1010254-1	100Ω
-2	120
-3	140
-4	160
-5	180
-6	200
-7	220
-8	240
-9	260
-10	280
-11	300
-12	320
-13	340
-14	360
-15	380
-16	400
-17	420
-18	440
-19	460
-20	480
-21	500


47 SEE NOTE 20
SEE NOTE 9
DC DIFF AMP AND PVR
1007507
REV
SER NO.
TP2
TP3
TP1
TP4
R1
DWG REV LTR
APPLICABLE DASH NO.
SEE NOTES 22 & 23

MARKING VIEW
SCALE 2/1

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG. NO.	DATE	APPD

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			011				
			☒		1010008	ELEC SCHEMATIC DIAGRAM	REF
			1		1008540-11	GASKET, CONNECTOR MINIATURE	47
			2		1010286-26	DIODE	46
			AR		1006776-20	INSULATION SLEEVING	45
			AR		1006776-21	INSULATION SLEEVING	44
			2		1006784-6	TERMINAL, FEED THRU, INSULATED	43
			11		1006782-4	CONTACT, WRAPOST-MALE, MINAT	42
			11		1006775	INSULATOR, WRAPOST-MALE, MINAT	41
			AR		1006776-22	INSULATOR, SLEEVING	40
			AR		1006757-8	WIRE, ELEC .020 DIA	39
			AR		1006757-1	WIRE, ELEC .010 X .020	38
			1		1008025-1	INSULATOR, BUSHING	37
			4		1010292-2	TERMINAL, FEED THRU, INSULATED	36
			1		1008152	DIODE	35
			1		1010372-19	DIODE	34
			2		1010372-15	DIODE	33
			2		1010286-27	DIODE	32
							31
			1		1010372-3	DIODE	30
			1		1010357-1	TRANSISTOR	29
			3		1010376-3	TRANSISTOR	28
			2		1006777-6	CAPACITOR, CER	27
			1		1010264-24	CAPACITOR, MYLAR	26
			2		1010618-3	SCREW, BUTTON HD	25
			1		1010254-22	RESISTOR, FIXED	24
			1		SEE NOTE 13	RESISTOR, FIXED	23
			1		SEE NOTE 12	RESISTOR, FIXED	22
			1		SEE NOTE 11	RESISTOR, FIXED	21
			1		1010377-25	RESISTOR, FIXED	20
			1		1006760-30	RESISTOR, FIXED	19
			1		1010399-49	RESISTOR, FIXED	18
			1		1006760-46	RESISTOR, FIXED	17
			1		1006750-68	RESISTOR, FIXED	16
			1		1006750-1	RESISTOR, FIXED	15
			1		1006750-84	RESISTOR, FIXED	14
			1		1006750-66	RESISTOR, FIXED	13
			2		1006750-16	RESISTOR, FIXED	12
			1		1006760-48	RESISTOR, FIXED	11
			1		1010377-36	RESISTOR, FIXED	10
			2		1010377-23	RESISTOR, FIXED	9
			2		1010364-681	RESISTOR, FIXED	8
			2		1010377-39	RESISTOR, FIXED	7
			1		1010374-126	RESISTOR, FIXED	6
			5		1006750-80	RESISTOR, FIXED	5
			1		1010373-12	RESISTOR, VARIABLE	4
			1		1008010-2	INSULATOR BOTTOM	3
			1		1008010-1	INSULATOR TOP	2
			1		1007003	HEATSINK	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XX±.02 XXX±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Orpl DATE
CHECKED A. Adamcik 4 Sep 64
APPROVAL
APPROVAL 10-5-64
NASA APPROVAL W J Rhine 10-6-64
MIT APPROVAL Oct 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

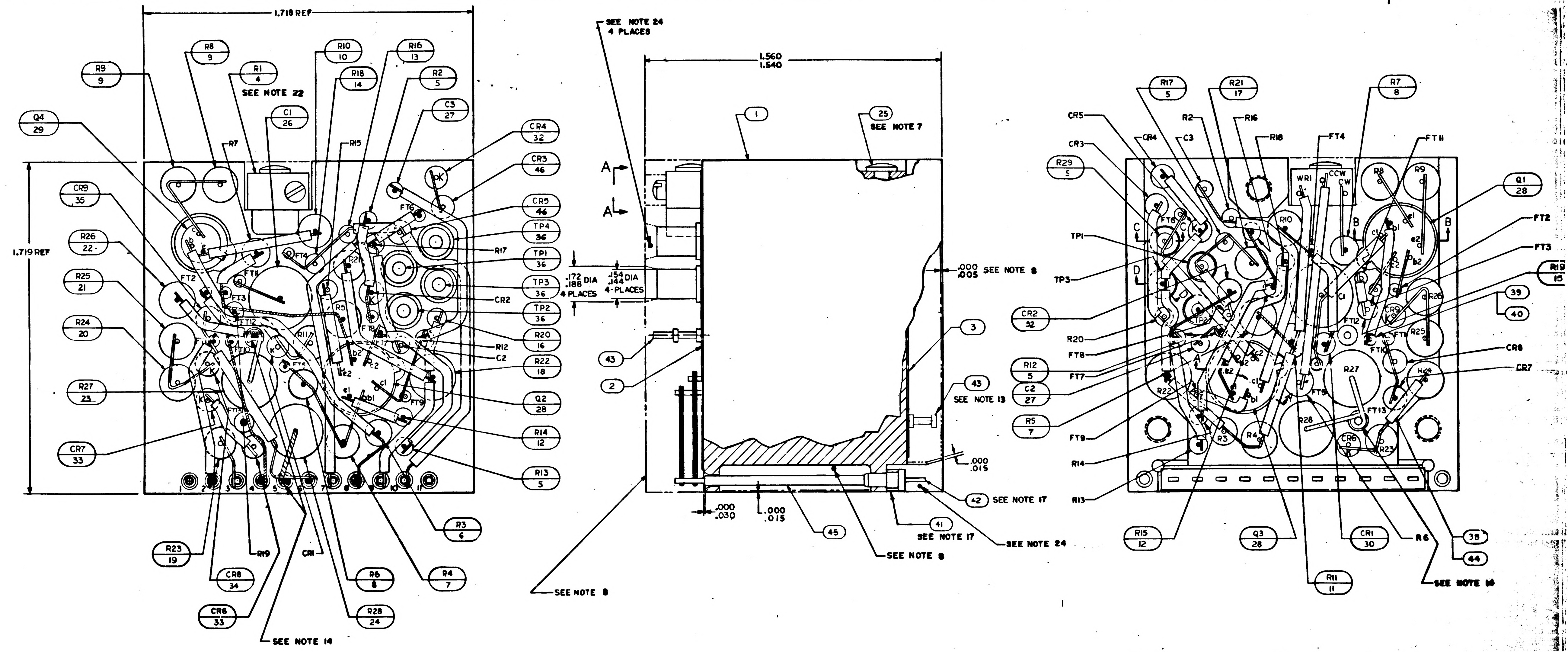
ASSEMBLY
DC DIFFERENTIAL AMPLIFIER
AND PVR

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007507
SCALE 5:1
WT
SHEET 1 OF 3

MASTER

1007507

1007507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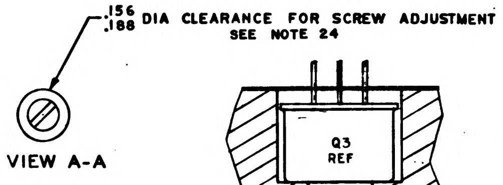
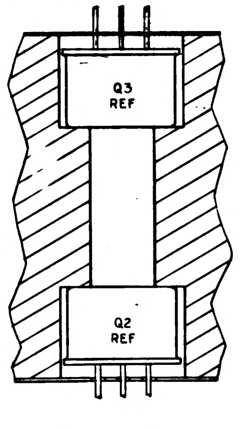
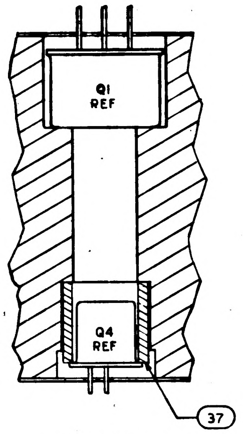
1.719 REF
R9 9
R8 9
R1 4
SEE NOTE 22
R10 10
R18 14
R16 13
R2 5
C1 26
C3 27
Q4 29
R7
R15
CR4 32
CR3 46
CR5 46
TP4 36
TP1 36
TP3 36
TP2 36
R17
CR2
R20 16
R22 18
R12
C2
Q2 28
R14 12
R13 5
CR9 35
R26 22
R25 21
R24 20
R27 23
CR7 33
R23 19
CR8 34
R19
CR1
R6 8
R4 7
R3 6
CR6 33
R28 24
SEE NOTE 14
SEE NOTE 24
4 PLACES
1.560
1.540
1
25
SEE NOTE 7
A
A
.172
.188 DIA
4 PLACES
.154
.144 DIA
4-PLACES
.000
.005 SEE NOTE 8
3
43
2
43
SEE NOTE 13
.000
.015
.000
.030
.000
.015
45
41
SEE NOTE 17
42 SEE NOTE 17
SEE NOTE 24
SEE NOTE 8
SEE NOTE 8
R17 5
R21 17
R7 8
CR5
CR3
CR4
C3
R2
R16
R18
FT4
FT11
R29 5
Q1 28
FT2
FT3
R19 15
39
40
TP1
TP3
CR2 32
R20
FT8
R12 5
FT7
C2 27
R5 7
FT9
R14
R13
CR8
CR7
R15 12
Q3 28
R11 11
CR1 30
R6
38
44
SEE NOTE 14


.156
.188 DIA CLEARANCE FOR SCREW ADJUSTMENT
SEE NOTE 24

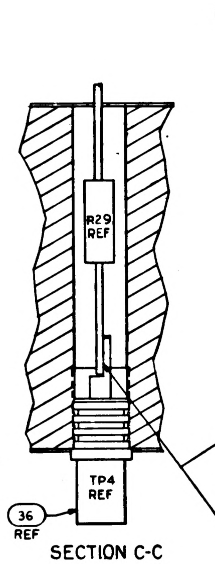
VIEW A-A


Q3
REF
Q2
REF

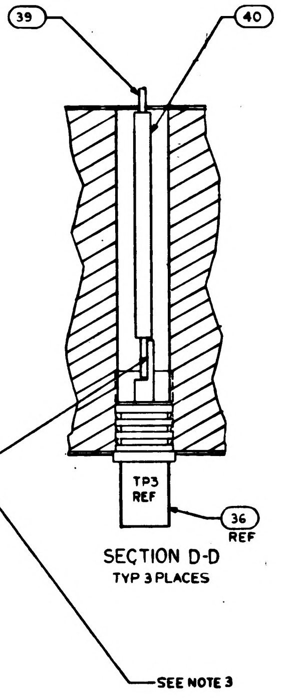
SECTION A-A


Q1
REF
Q4
REF
37

SECTION B-B


R29
REF
TP4
REF
36
REF

SECTION C-C

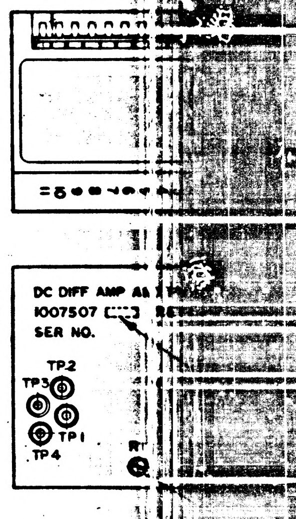

39
40
TP3
REF
36
REF
SEE NOTE 3

SECTION D-D
TYP 3 PLACES

NOTES:

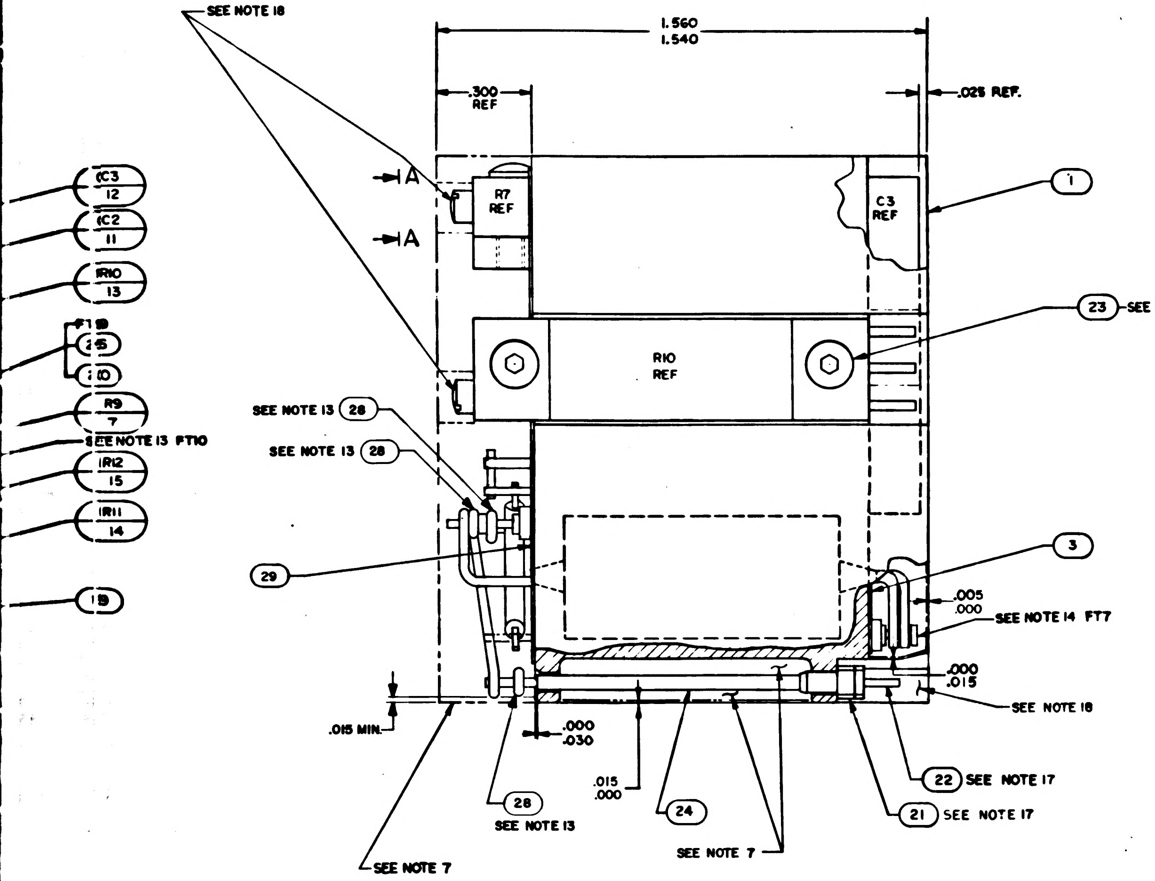
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. STAKE ALL COMPONENTS AND FIND NO.36, 37 PER ND1002009 METHOD C
3. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005 EXCEPT WHERE NOTED
4. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
5. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
6. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATION SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT() INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR
   C() INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
   B() INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
   E() INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
7. APPLY ZINC CHROMATE PRIMER SPEC MIL-P-8585 PER MIL-P-6808 (ASG) TO THREADS OF FIND NO. 25
8. ENCAPSULATE MODULE PER NO. 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSION MAY EXCEED THE NORMAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF 005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
9. MARK PIN NUMBERS $\frac{.100}{.060}$ HIGH (WHITE) AND ALL OTHER CHARACTERS $\frac{.140}{.100}$ HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
10. AT ELECTRICAL TEST R25 TO BE SELECTED FROM CHART A
11. AT ELECTRICAL TEST R26 TO BE SELECTED FROM CHART B
12. AT ELECTRICAL TEST R27 TO BE SELECTED FROM CHART C
13. CUT F13 AT TOP OF TURRET AS SHOWN IN SIDE VIEW
14. SOLDER PER ND 1002071
15. CR6, CR7, CR8, CR9, R23, R24, R25 TO BE SELECTED PER ATP 1007007
16. R26 AND R27 TO BE SELECTED PER ATP 1007007
17. MUST MEET REQUIREMENTS OF ND 1002136
18. ASSEMBLE AND TEST PER ATP 1007007
19. PROCURE PER PS 1007007
20. BOND FIND NO 47 TO FIND NO 41 PER ND1002237

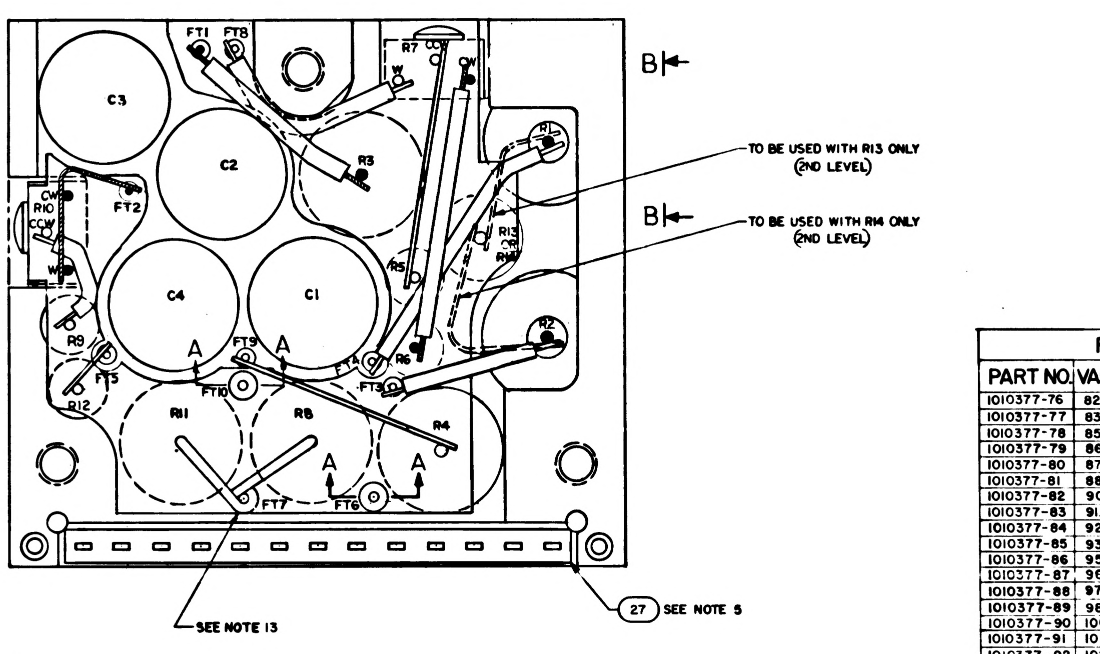
21. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
22. SEAL CALIBRATION POT R1 PER ND 1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007007 HAVE BEEN SATISFIED.
23. AFTER SEALING R1 MARK DATE OF SEALING PER ND 1002023 (RED)
24. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND


DC DIFF AMP A
1007507
SER NO.
TP2
TP3
TP1
TP4
R

MARKING V
SCALE 2

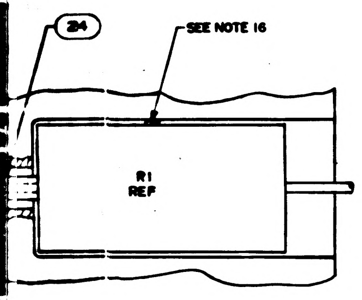
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 73	25 65	


SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
C3 12
C2 11
R10 13
FT9 26
10
R9 7
SEE NOTE 13 FT10
R12 15
R11 14
19
R10 REF
23 SEE NOTE 6
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.005
.000
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
22 SEE NOTE 17
21 SEE NOTE 17
28 SEE NOTE 13
24
SEE NOTE 7
SEE NOTE 7

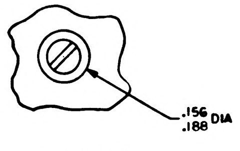

FT1
FT8
R7
C3
C2
R3
R1
B
B
TO BE USED WITH R13 ONLY (2ND LEVEL)
TO BE USED WITH R14 ONLY (2ND LEVEL)
CW
R10
CCW
FT2
R5
R13
R14
C4
C1
R2
R9
A
FT9
A
FT4
FT3
R6
FT5
FT10
R12
R11
R8
R4
A
A
FT7
FT6
SEE NOTE 13
27 SEE NOTE 5

R5 AND R6			
PART NO.	VALUE Ω	PART NO.	VALUE Ω
1010377-76	82.5K	1010377-94	105.0K
1010377-77	83.75K	1010377-95	106.25K
1010377-78	85.0K	1010377-96	107.5K
1010377-79	86.25K	1010377-97	108.75K
1010377-80	87.5K	1010377-98	110.0K
1010377-81	88.75K	1010377-99	111.25K
1010377-82	90.0K	1010377-100	112.5K
1010377-83	91.25K	1010377-101	113.75K
1010377-84	92.5K	1010377-102	115.0K
1010377-85	93.75K	1010377-103	116.25K
1010377-86	95.0K	1010377-104	117.5K
1010377-87	96.25K		
1010377-88	97.5K		
1010377-89	98.75K		
1010377-90	100.0K		
1010377-91	101.25K		
1010377-92	102.5K		
1010377-93	103.75K		

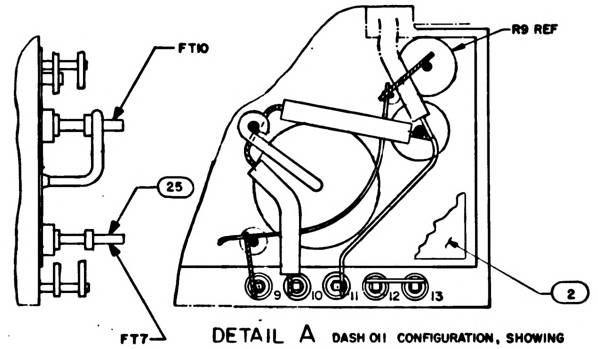
-011 CONFIGURATION


24
SEE NOTE 16
R1 REF

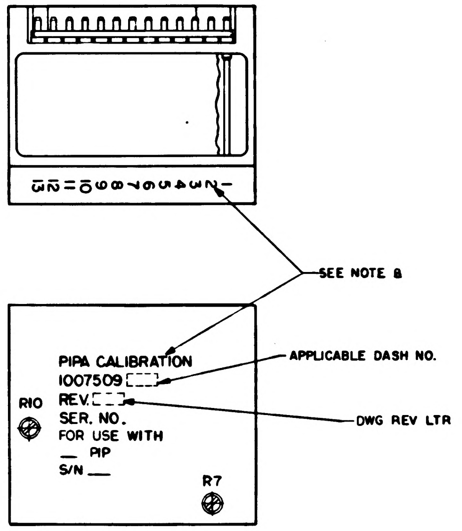
VIEW B-B
2 PLACES



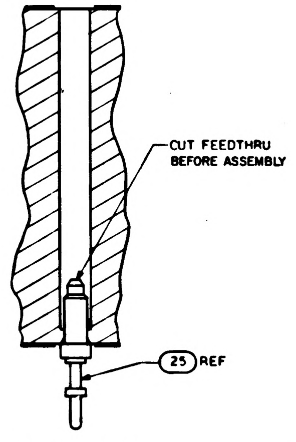
VIEW A-A
2 PLACES


FT10
25
FT7
R9 REF
2
9
10
11
12
13

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


SEE NOTE 8
PIPA CALIBRATION
1007509
REV.
SER. NO.
FOR USE WITH
__ PIP
S/N __
R10
R7
APPLICABLE DASH NO.
DWG REV LTR

MARKING VIEW
SCALE 2/1


CUT FEEDTHRU BEFORE ASSEMBLY
25 REF

SECTION A-A
TYPICAL INSTALLATION FOR FT6 AND FT10

R13 AND R14	
PART NO	VALUE
1010251 -	31.9K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251-20	61.8K
1010251-21	67.4K
1010251-22	74.2K
1010251-23	82.6K
1010251-24	92.9K
1010251-25	106K
1010251-26	124K
1010251-27	149K
1010251-28	187K
1010251-29	249K
1010251-30	373K
1010251-31	746K

C3 AND C4	
PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11	
PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12	
PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

R5 AND R6			
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

QUANTITY REQUIRED				EFFECTIVITY	LIST OF MATERIALS		
		021	011		PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		☒	–		1009541	SCHEMATIC	REF
		–	☒		1010009	SCHEMATIC	REF
		1	–		1008585	INSULATOR, TOP	29
		AR			QQ-W-343 TYPE S	WIRE, COPPER	28
		1	1		1008540-13	GASKET, CONNECTOR MINIATURE	27
		AR	AR		1006776-22	INSULATION SLEEVING	26
		3	3		1006784-6	TERMINAL, FEEDTHRU	25
		AR	AR		1006776-20	INSULATION SLEEVING	24
		4	4		1000093-3	SCREW, BUTTON HD	23
		13	13		1006782-4	CONTACT, WRAPOST MALE MINAT	22
		13	13		1006775	INSULATOR, WRAPOST MALE MINAT	21
		AR	AR		1006757-8	WIRE, ELEC	20
		AR	AR		1006757-1	WIRE, ELEC	19
		AR	AR		1006776-21	INSULATION SLEEVING	18
							17
							16
		1	1		SEE NOTE 10	RESISTOR, WW	15
		1	1		SEE NOTE 10	RESISTOR, WW	14
		1	1		1010373-8	RESISTOR, VARIABLE	13
		2	2		SEE NOTE 10.	CAPACITOR	12
		2	2		1010289-18	CAPACITOR	11
		1	1		1010253-12	RESISTOR, WW	10
		2	2		1010250-1	RESISTOR, WW	9
		2	2		SEE NOTE 10	RESISTOR, WW	8
		1	1		1010283-18	RESISTOR, WW 9.3K 0.1W ±1%	7
		1	1		SEE NOTE 10	RESISTOR	6
		2	2		1010262-2	RESISTOR, WW	5
		1	1		1010373-9	RESISTOR, VARIABLE	4
		1	1		1008018-2	INSULATOR, BOTTOM	3
		–	1		1008018-1	INSULATOR, TOP	2
		1	1		1008013	HEATSINK	1

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

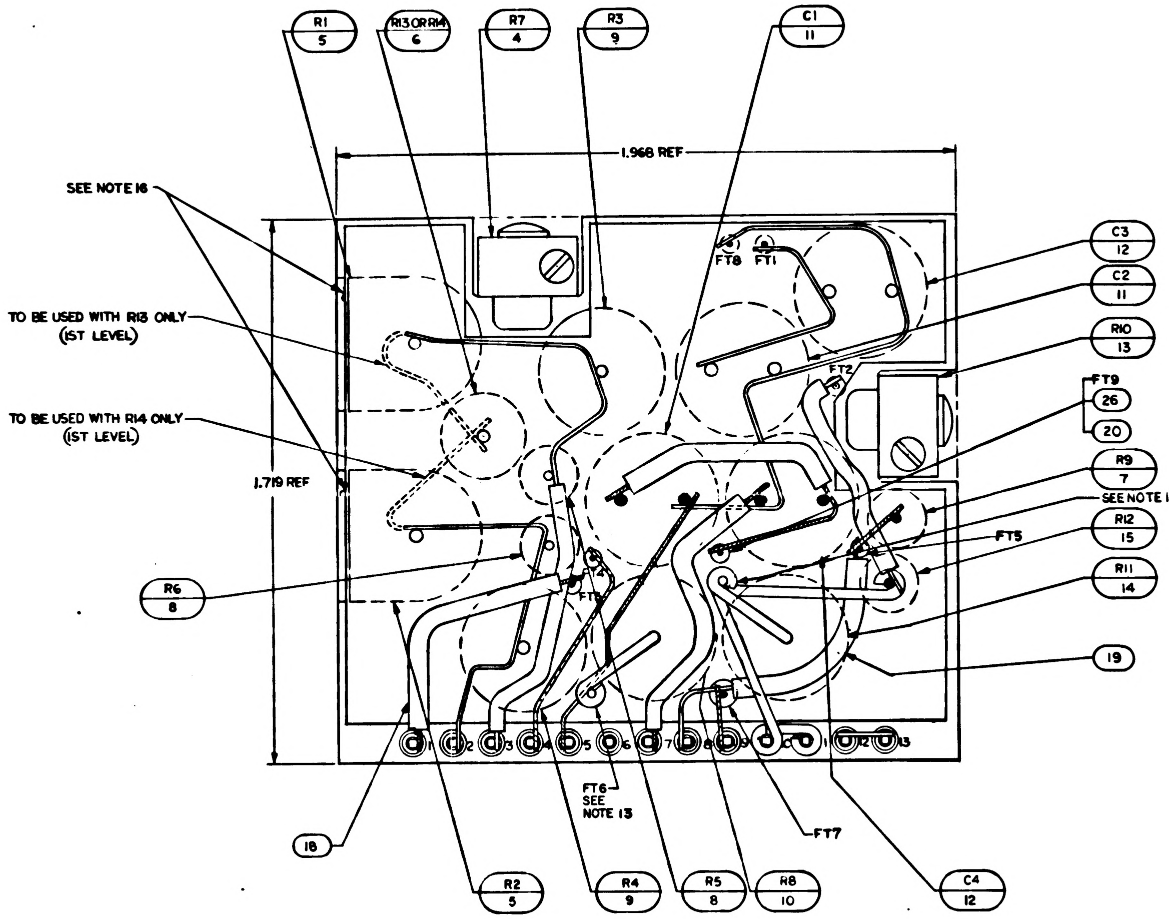
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Toro DATE 17 SEP 64
CHECKED A. Udovich 30 SEP 64
APPROVAL
J MELYNAK 3 DEC
APPROVAL 12/4/64
NASA APPROVAL 12-7-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

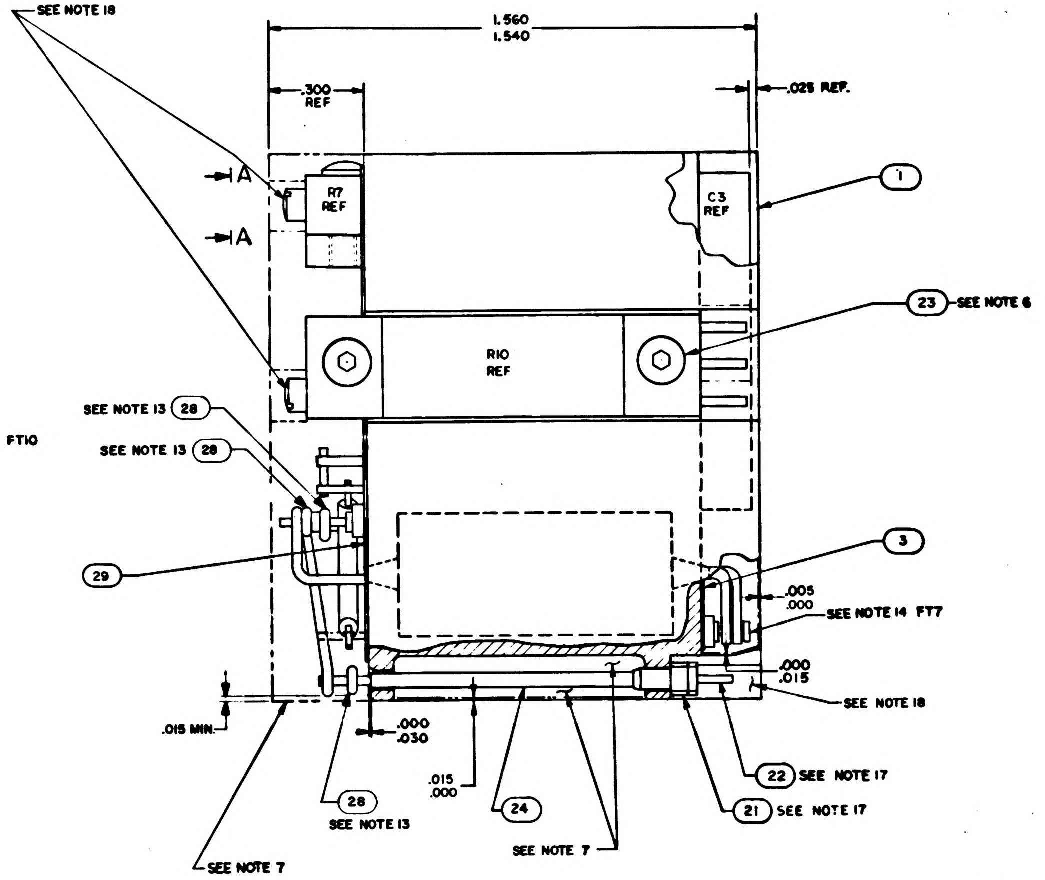
PIPA CALIBRATION ASSEMBLY

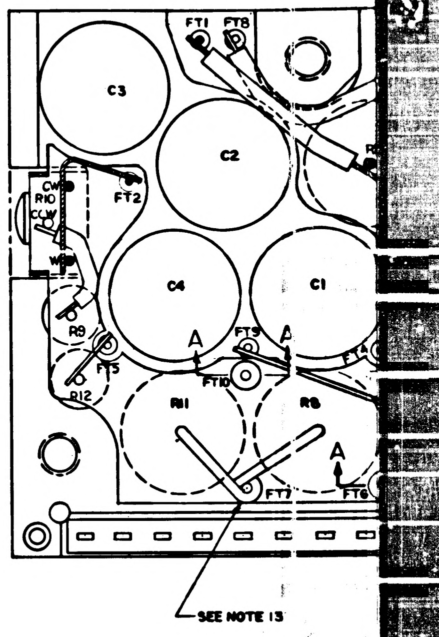
CODE IDENT NO. | SIZE J | NASA DRAWING NO. 1007509
SCALE 5/1 | WT | SHEET 1 OF 1

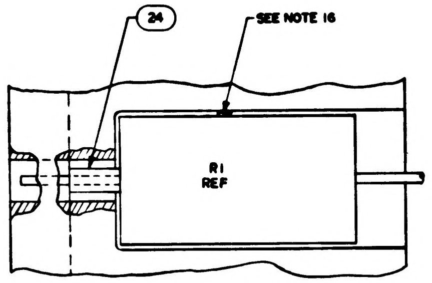
1007509 REV LTR A SH 1


R1 5
R13 OR R14 6
R7 4
R3 9
C1 11
SEE NOTE 16
TO BE USED WITH R13 ONLY (1ST LEVEL)
TO BE USED WITH R14 ONLY (1ST LEVEL)
1.968 REF
1.719 REF
FT8
FT1
FT2
C3 12
C2 11
R10 13
FT9
26
20
R9 7
SEE NOTE 13 FT10
FT5
R12 15
R11 14
R6 8
19
FT6 SEE NOTE 13
FT7
18
R2 5
R4 9
R5 8
R8 10
C4 12

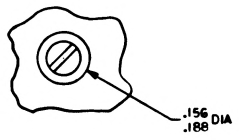
LEFT SIDE VIEW (BEFORE POTTING) OF DASH 021 CONFIGURATION. SEE DETAIL "A" FOR DASH 011 CONFIGURATION.


SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
R10 REF
23 SEE NOTE 6
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.005
.000
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
28 SEE NOTE 13
24
22 SEE NOTE 17
21 SEE NOTE 17
SEE NOTE 7
SEE NOTE 7

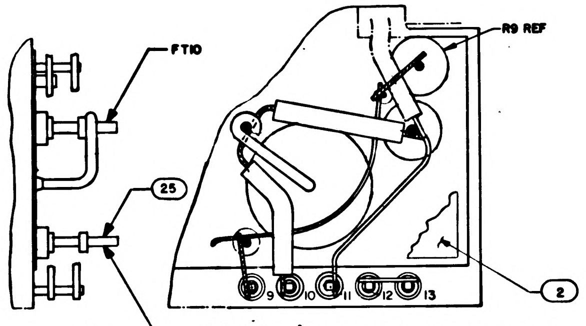

FT1
FT8
C3
C2
R10
CW
CCW
FT2
C4
C1
R9
R12
FT5
FT10
A
A
A
R11
R8
FT7
FT6
SEE NOTE 13


24
SEE NOTE 16
R1 REF

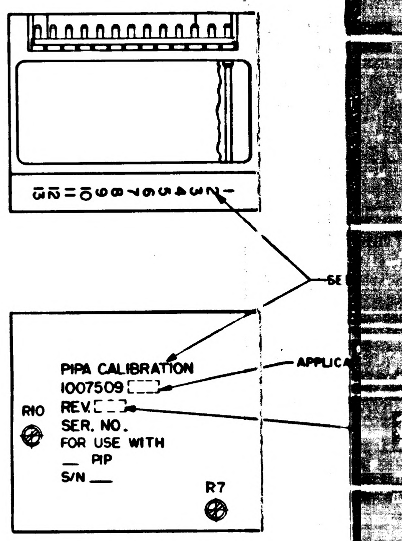
VIEW B-B
2 PLACES



VIEW A-A
2 PLACES


FT10
25
FT7
R9 REF
2
9
10
11
12
13

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


1 2 3 4 5 6 7 8 9 10 11 12 13
SE
APPLICA
PIPA CALIBRATION
1007509
REV.
SER. NO.
FOR USE WITH
__ PIP
S/N __
R10
R7

MARKING VIEW
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. BOND FIND NO. 27 TO FIND NO. 21 PER ND1002237
6. APPLY ZINC CHROMATE PRIMER MIL-P-8585 PER MIL-P-6808(ASG) TO FIND NO. 23
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
8. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
9 STAKE FIND NO. 6 THRU FIND NO. 12, FIND NO. 14 THRU FIND NO. 17 AND FIND NO. 25 PER ND1002009 METHOD C
10. SELECT R5, R6, R11, R12, C3 & C4 PER ATP1000013 FROM APPROPRIATE CHART
11. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069
12. AR DENOTES AS REQUIRED
13. SOLDER PER ND1002071
14. CUT FT7 AT TOP OF TURRET
15. PROCURE PER PS 1007009
16. BOND FIND NO. 5 PER ND1002117
17. MUST MEET REQUIREMENTS OF ND1002136
18. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
19. BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.

JH

R13 AND R14

PART NO.	VALUE
1010251 - 1	31.9K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251 - 20	61.8K
1010251 - 21	67.4K
1010251 - 22	74.2K
1010251 - 23	82.6K
1010251 - 24	92.9K
1010251 - 25	106K
1010251 - 26	124K
1010251 -27	149K
1010251 - 28	187K
1010251 - 29	249K
1010251 - 30	373K
1010251 - 31	746K

C3 AND C4

PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11

PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12

PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

R5 AND R6

PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

		REVISIONS		
	SYM	DESCRIPTION	DATE	APPROVAL
Ⓜ	A	REVISED PER TDRR 17311	12 MAR 65	RS / EF
	B	REVISED PER TDRR 19401	1-JUN 65	M.G / AU

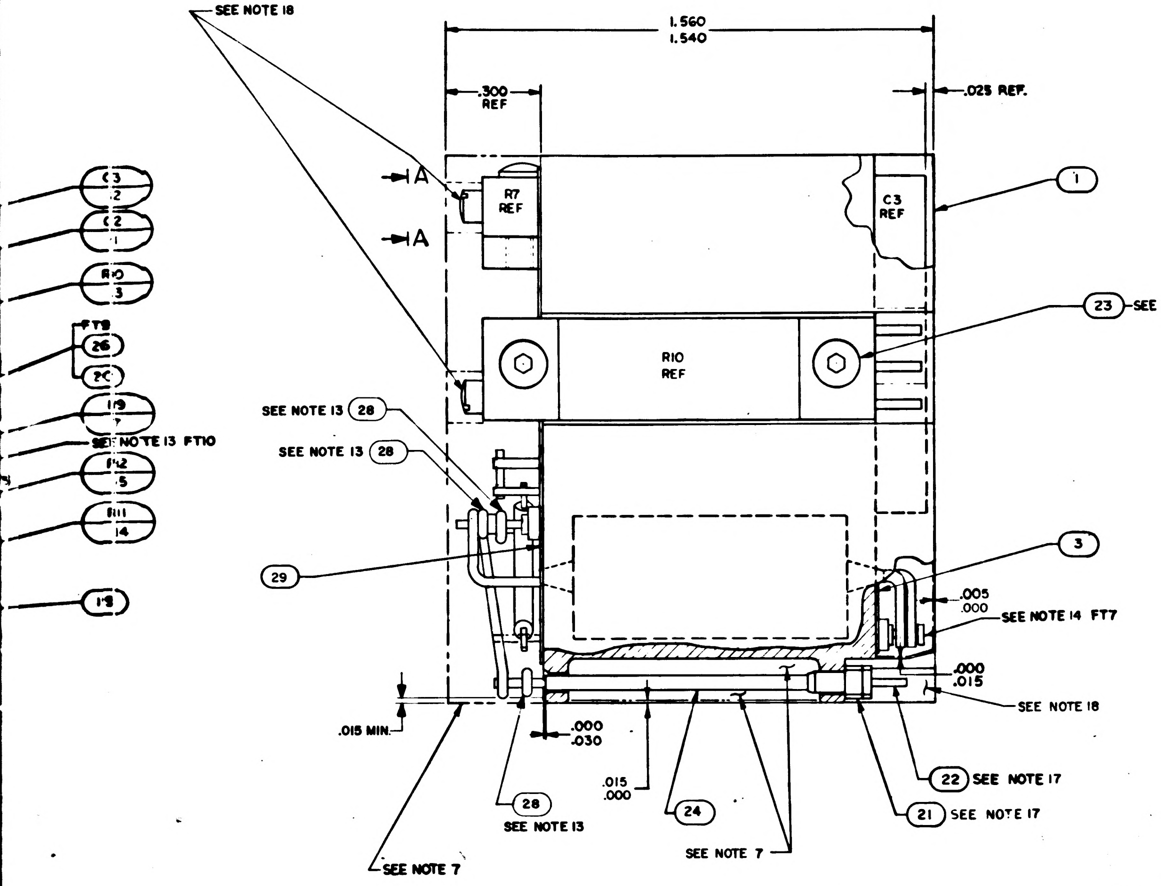
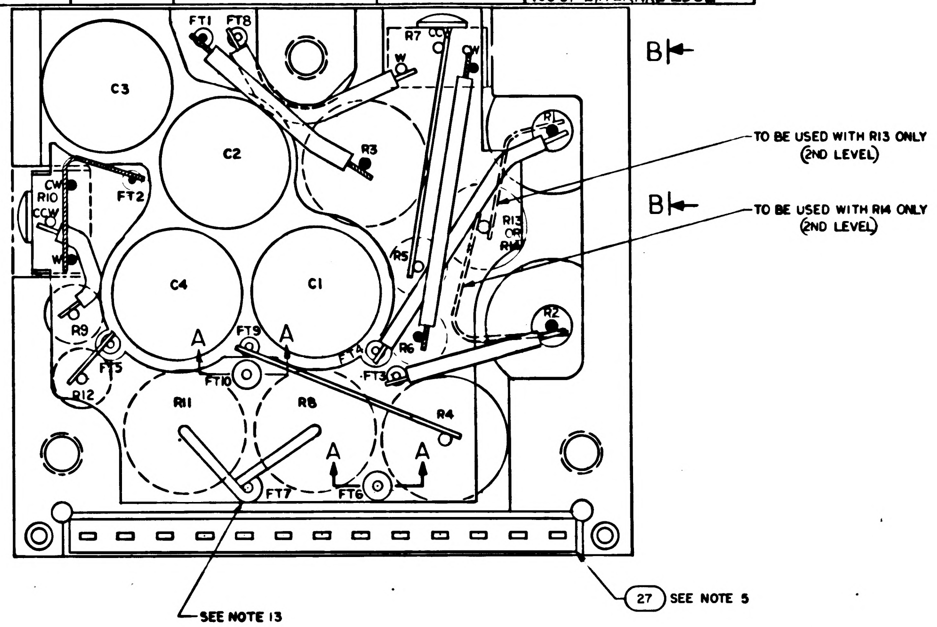

SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
R10 REF
23 SEE NOTE 6
C3 2
C2 1
R10 3
FT8 26
20
R9 7
SEE NOTE 13 FT10
R12 5
R11 14
13
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.005 .000
SEE NOTE 14 FT7
.000 .015
SEE NOTE 18
.015 MIN.
.000 .030
.015 .000
28 SEE NOTE 13
24
SEE NOTE 7
SEE NOTE 7
22 SEE NOTE 17
21 SEE NOTE 17

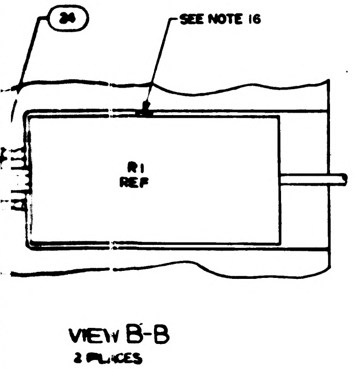
TABLE I

CONFIGURATION	MAT	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER AT PERIMETER	HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	ADHESIVE	.12 MIN. 100% OF PERIMETER .25 MIN. 80% OF PERIMETER	.25 MIN. 100% OF PERIMETER	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	ADHESIVE	CORNER FILLET & VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	.25 MIN. 100% OF PERIMETER	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	PRIMER	N/A	N/A	.25 MIN. WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 TO .06 OF EXTERNAL EDGE

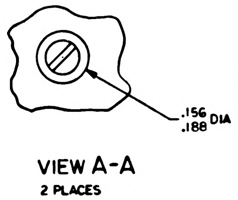

FT1
FT8
R7
CCW
CW
W
B
B
C3
C2
R3
R1
R10
CW
CCW
W
FT2
R5
R13 OR R14
C4
C1
R9
FT5
FT9
A
A
FT4
FT3
R6
R2
R12
R11
R8
R4
FT10
A
A
FT7
FT6
TO BE USED WITH R13 ONLY (2ND LEVEL)
TO BE USED WITH R14 ONLY (2ND LEVEL)
SEE NOTE 13
27 SEE NOTE 5

R5 AND R6			
PART NO.	VALUE Ω	PART NO.	VALUE Ω
1010377-76	82.5K	1010377-94	105.0K
1010377-77	83.75K	1010377-95	106.25K
1010377-78	85.0K	1010377-96	107.5K
1010377-79	86.25K	1010377-97	108.75K
1010377-80	87.5K	1010377-98	110.0K
1010377-81	88.75K	1010377-99	111.25K
1010377-82	90.0K	1010377-100	112.5K
1010377-83	91.25K	1010377-101	113.75K
1010377-84	92.5K	1010377-102	115.0K
1010377-85	93.75K	1010377-103	116.25K
1010377-86	95.0K	1010377-104	117.5K
1010377-87	96.25K		
1010377-88	97.5K		
1010377-89	98.75K		
1010377-90	100.0K		
1010377-91	101.25K		
1010377-92	102.5K		
1010377-93	103.75K		

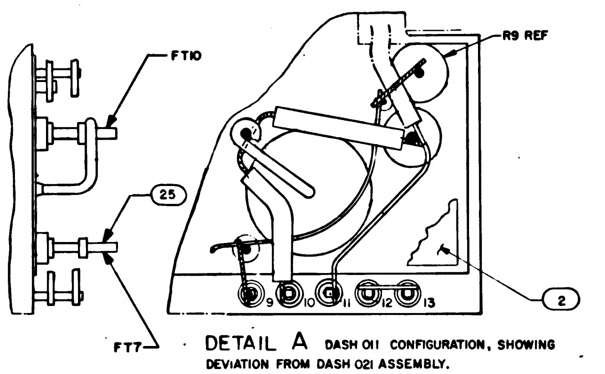
-011 CONFIGURATION


24
SEE NOTE 16
R1 REF

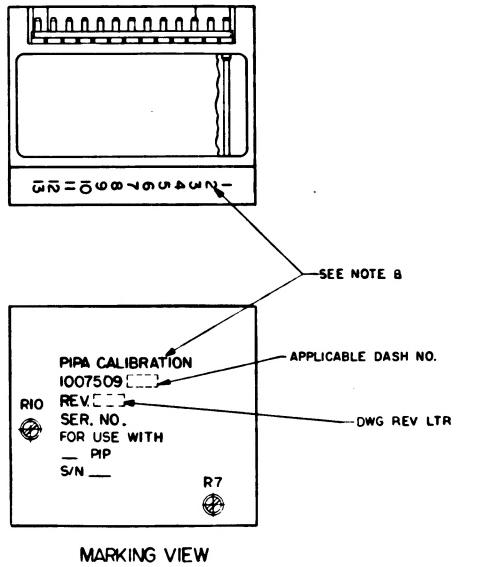
VIEW B-B
2 PLACES



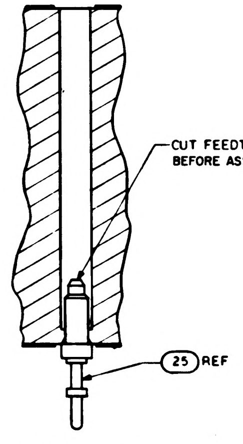
VIEW A-A
2 PLACES


FT10
25
FT7
R9 REF
2
9
10
11
12
13

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


1 2 3 4 5 6 7 8 9 10 11 12 13
SEE NOTE 8
PIPA CALIBRATION
1007509
APPLICABLE DASH NO.
REV.
DWG REV LTR
SER. NO.
FOR USE WITH
__ PIP
S/N __
R10
R7

MARKING VIEW
SCALE 2/1


CUT FEEDTHRU BEFORE ASSEMBLY
25 REF

SECTION A-A
TYPICAL INSTALLATION FOR FT6 AND FT10

R13 AND R14	
PART NO.	VALUE
1010251 - 1	31.8K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251 - 20	61.8K
1010251 - 21	67.4K
1010251 - 22	74.2K
1010251 - 23	[illegible]
1010251 - 24	92.9K
1010251 - 25	100K
1010251 - 26	124K
1010251 - 27	149K
1010251 - 28	187K
1010251 - 29	249K
1010251 - 30	[illegible]
1010251 - 31	746K

C3 AND C4	
PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11	
PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12	
PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

R5 AND R6			
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

QTY 021	QTY 011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	–		1009541	SCHEMATIC	REF
–	☒		1010009	SCHEMATIC	REF
1	–		1008585	INSULATOR, TOP	29
AR			QQ-W-343 TYPE S	WIRE, COPPER	28
1	1		1008540-13	GASKET, CONNECTOR MINIATURE	27
AR	AR		1006776-22	INSULATION SLEEVING	26
3	3		1006784-6	TERMINAL, FEEDTHRU	25
AR	AR		1006776-20	INSULATION SLEEVING	24
4	4		1000093-3	SCREW, BUTTON HD	23
13	13		1006782-4	CONTACT, WRAPOST MALE MINAT	22
13	13		1006775	INSULATOR, WRAPOST MALE MINAT	21
AR	AR		1006757-8	WIRE, ELEC	20
AR	AR		1006757-1	WIRE, ELEC	19
AR	AR		1006776-21	INSULATION SLEEVING	18
					17
					16
1	1		SEE NOTE 10	RESISTOR, WW	15
1	1		SEE NOTE 10	RESISTOR, WW	14
1	1		1010373-8	RESISTOR, VARIABLE	13
2	2		SEE NOTE 10	CAPACITOR	12
2	2		1010289-18	CAPACITOR	11
1	1		1010253-12	RESISTOR, WW	10
2	2		1010250-1	RESISTOR, WW	9
2	2		SEE NOTE 10	RESISTOR, WW	8
1	1		1010283-18	RESISTOR, WW 9.3K 0.1W ±1%	7
1	1		SEE NOTE 10	RESISTOR	6
2	2		1010262-2	RESISTOR, WW	5
1	1		1010373-9	RESISTOR, VARIABLE	4
1	1		1008018-2	INSULATOR, BOTTOM	3
—	1		1008018-1	INSULATOR, TOP	2
1	1		1008013	HEATSINK	1

QUANTITY REQUIRED
LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —//— DECIMALS XX±.02 XXX±.005 ANGLES ± —//—
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Toro DATE 17 SEP 64
CHECKED J. Udovch 30 SEP 64
APPROVAL
APPROVAL 12/4/64
NASA APPROVAL
MIT APPROVAL

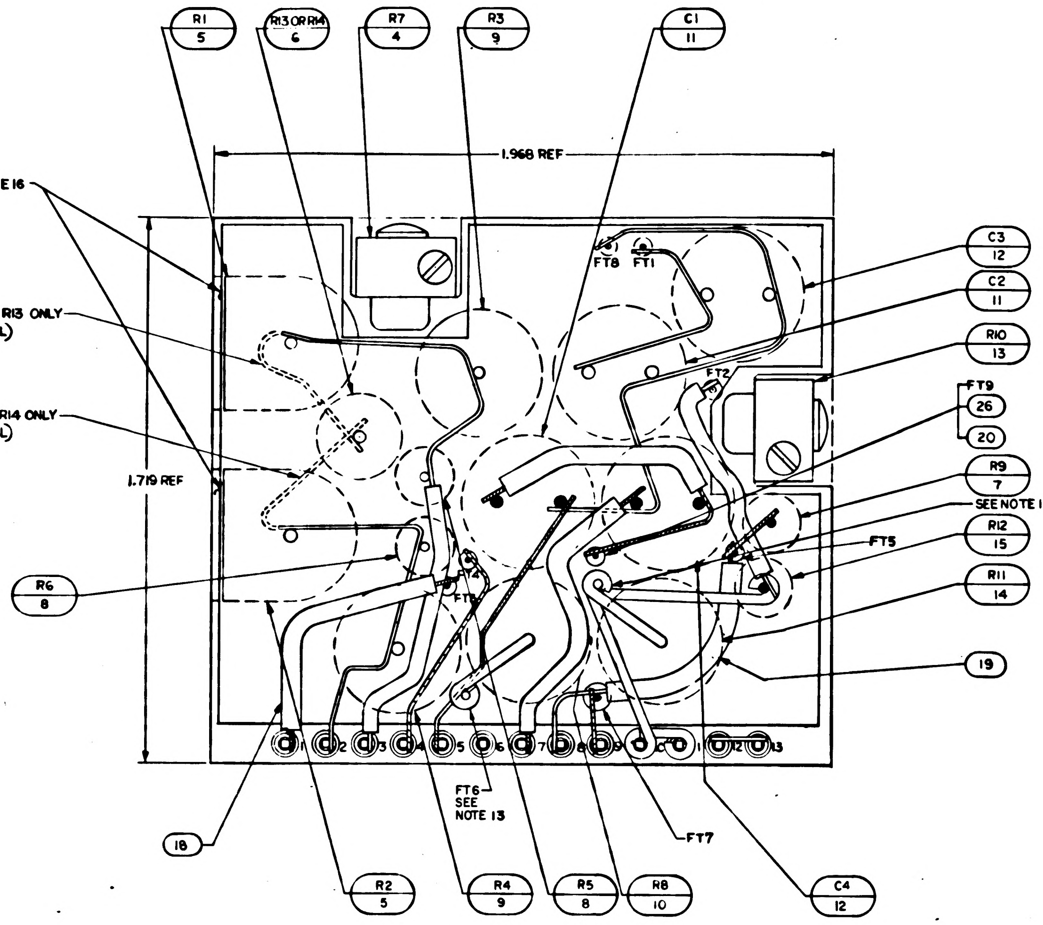
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PIPA CALIBRATION ASSEMBLY

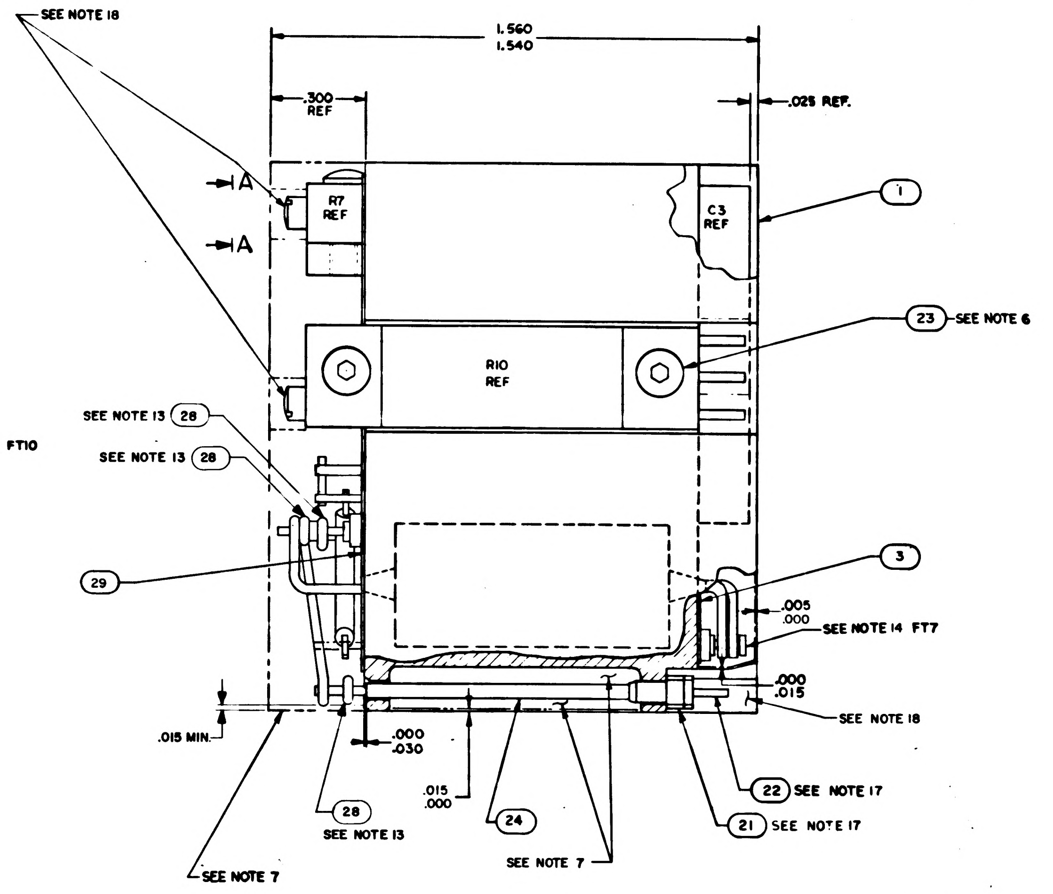
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007509
SCALE 5/1
WT
SHEET 1 OF 1

1007509 REV B SH 1

2/1007509


R1 5
R13 OR R14 6
R7 4
R3 9
C1 11
1.968 REF
SEE NOTE 16
TO BE USED WITH R13 ONLY (1ST LEVEL)
TO BE USED WITH R14 ONLY (1ST LEVEL)
1.719 REF
C3 12
C2 11
R10 13
FT9 26 20
R9 7
SEE NOTE 13 FT10
R12 15
FT5
R11 14
19
R6 8
FT8 FT1 FT2
FT6 SEE NOTE 13
FT7
18
R2 5
R4 9
R5 8
R8 10
C4 12

LEFT SIDE VIEW (BEFORE POTTING) OF DASH 021 CONFIGURATION. SEE DETAIL "A". FOR DASH 011 CONFIGURATION.


SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
23 SEE NOTE 6
R10 REF
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.005 .000
SEE NOTE 14 FT7
.000 .015
SEE NOTE 18
.015 MIN.
.000 .030
.015 .000
28 SEE NOTE 13
24
22 SEE NOTE 17
21 SEE NOTE 17
SEE NOTE 7
SEE NOTE 7

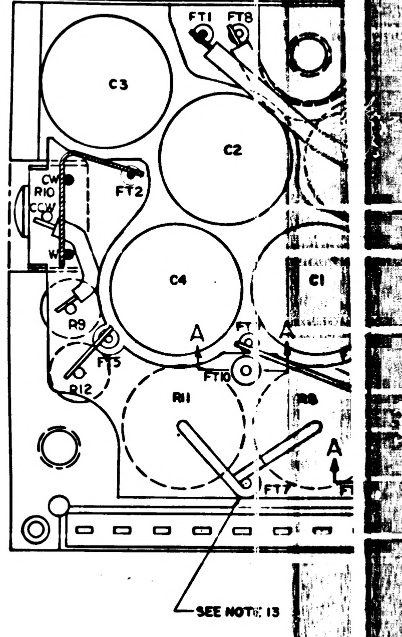
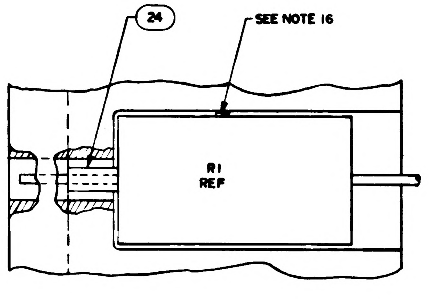
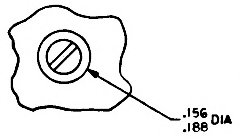

FT1 FT8
C3
C2
CW R10 CCW
FT2
C4
C1
R9
A
FT5
FT10
R12
R11
FT7
A
SEE NOTE 13

TABLE I

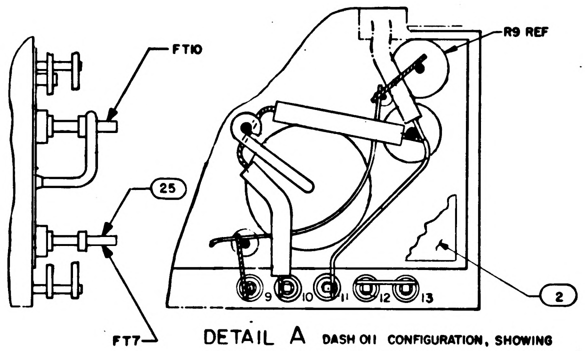
CONFIGURATION	MAT	BOND BETWEEN WAFE AND HEATSINK
WAFER AND FLAT HEATSINK	ADHESIVE	.12 MIN. 100% OF PERIMETER .25 MIN. 80% OF PERIMETER
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	ADHESIVE	CORNER FILLET & VE ICAL SURFACE TO WITH .03±.03 OF EXTERNAL SU
HEATSINK FOAM CONTACT SURFACE PERIMETER	PRIMER	N/A


24
SEE NOTE 16
R1 REF

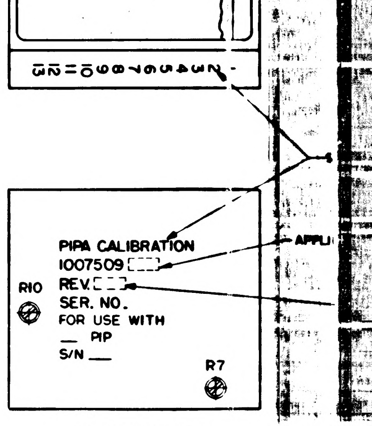
VIEW B-B
2 PLACES



VIEW A-A
2 PLACES


FT10
R9 REF
25
2
FT7
9 10 11 12 13

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


13 12 11 10 9 8 7 6 5 4 3 2 1
APPLI
R10
R7

PIPA CALIBRATION
1007509 [ ]
REV. [ ]
SER. NO.
FOR USE WITH
__ PIP
S/N ___

MARKING VIEW
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. BOND FIND NO. 27 TO FIND NO. 21 PER ND1002237
6. APPLY ZINC CHROMATE PRIMER MIL-P-8585 PER MIL-P-6808(ASG) TO FIND NO.23
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
8. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
9 STAKE FIND NO.6 THRU FIND NO. 12, FIND NO. 14 THRU FIND NO. 17 AND FIND NO. 25 PER ND1002009 METHOD C
10. SELECT R5,R6,R11,R12,C3 & C4 PER ATP10C0013 FROM APPROPRIATE CHART
11. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069
12. AR DENOTES AS REQUIRED
13. SOLDER PER ND1002071
14. CUT FT7 AT TOP OF TURRET
15. PROCURE PER PS 1007009
16. BOND FIND NO.5 PER ND1002117
17. MUST MEET REQUIREMENTS OF ND1002136
18. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
~~19. BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
20. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF PRIMER BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE I. PRIMER TO CONSIST OF SIX PARTS BY VOLUME OF 1012504-1 AND ONE PART BY VOLUME OF 1012504-2. APPLY MATERIAL AND PRIMER AS INDICATED IN TABLE I

R13 AND R14

PART NO.	VALUE
1010251 - 1	31.9K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251 - 20	61.8K
1010251 - 21	67.4K
1010251 - 22	74.2K
1010251 - 23	82.6K
1010251 - 24	92.9K
1010251 - 25	106 K
1010251 - 26	124 K
1010251 -27	149 K
1010251 - 28	187 K
1010251 - 29	249K
1010251 - 30	373K
1010251 - 31	746K

C3 AND C4

PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11

PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12

PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

R5 AND R6

PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

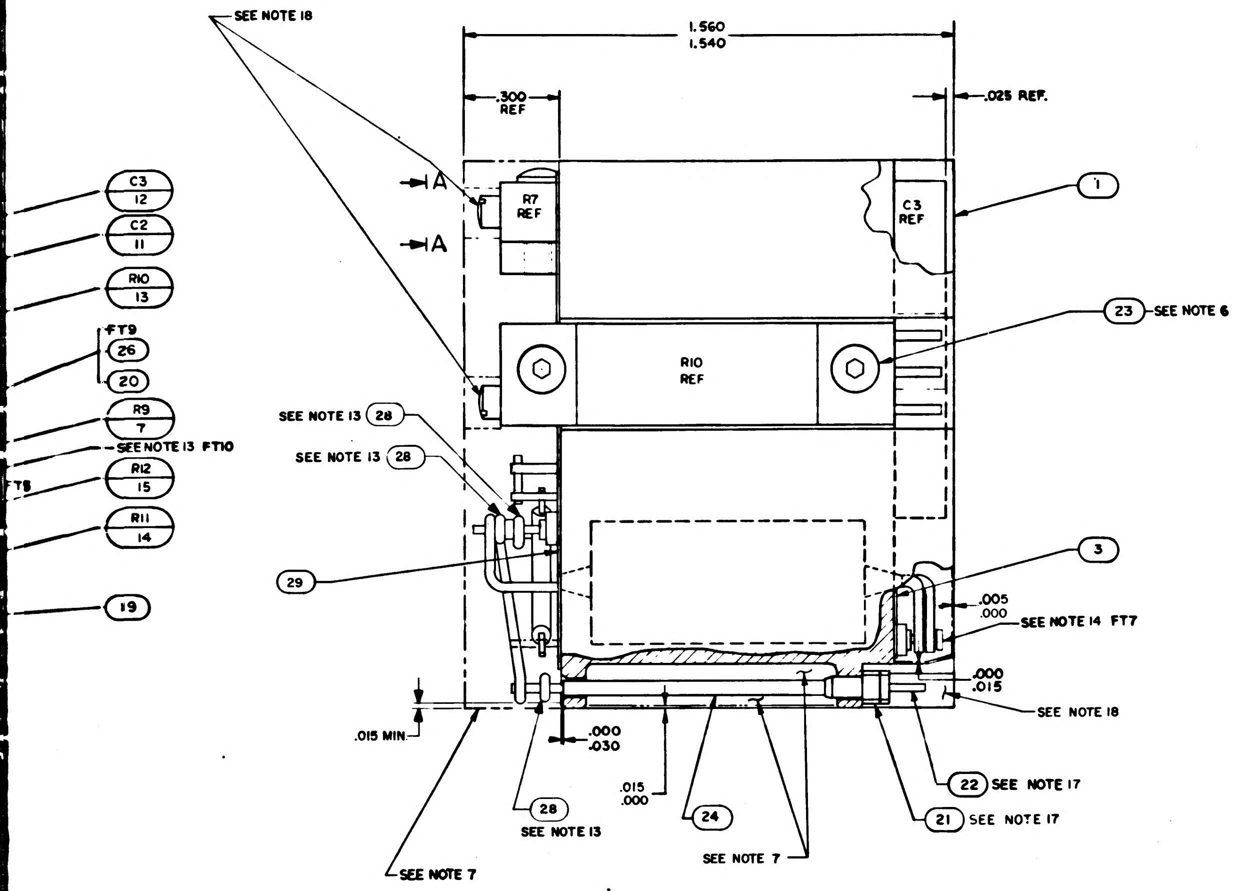
1007509 REV LTR B SH 1

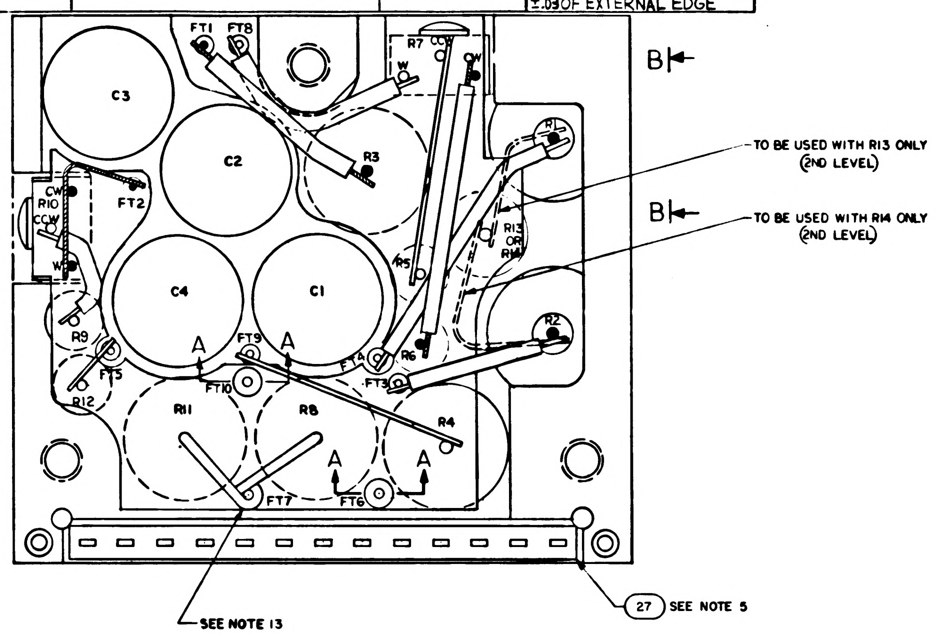
1/1007509

REV	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17311	12 MAR 65	RS / EF
B	REVISED PER TDRR 19401	1-JUN 65	MG / AU
C	REVISED PER TDRR 19431	3 JUN 65	HO / EF

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN. WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE

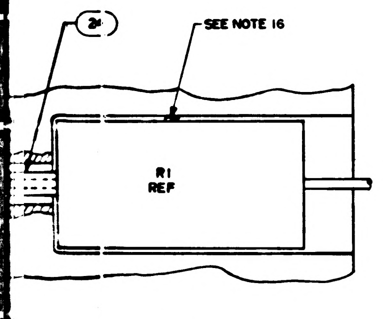

SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
C3 12
C2 11
R10 13
FT9 26 20
R9 7
SEE NOTE 13 FT10
R12 15
R11 14
19
R10 REF
23 SEE NOTE 6
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.005
.000
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN
.000
.030
.015
.000
28 SEE NOTE 13
24
22 SEE NOTE 17
21 SEE NOTE 17
SEE NOTE 7
SEE NOTE 7


FT1
FT8
R7
CCW
CW
W
B
C3
C2
R3
R1
TO BE USED WITH R13 ONLY (2ND LEVEL)
CW
R10
CCW
W
FT2
B
TO BE USED WITH R14 ONLY (2ND LEVEL)
R13 OR R14
R5
C4
C1
R2
R9
FT5
A
FT9
A
FT4
FT3
R6
R12
FT10
R11
R8
R4
A
A
FT7
FT6
27 SEE NOTE 5
SEE NOTE 13

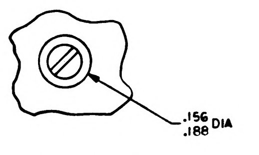
R5 AND R6

PART NO.	VALUE Ω	PART NO.	VALUE Ω
1010377-76	82.5K	1010377-94	105.0K
1010377-77	83.75K	1010377-95	106.25K
1010377-78	85.0K	1010377-96	107.5K
1010377-79	86.25K	1010377-97	108.75K
1010377-80	87.5K	1010377-98	110.0K
1010377-81	88.75K	1010377-99	111.25K
1010377-82	90.0K	1010377-100	112.5K
1010377-83	91.25K	1010377-101	113.75K
1010377-84	92.5K	1010377-102	115.0K
1010377-85	93.75K	1010377-103	116.25K
1010377-86	95.0K	1010377-104	117.5K
1010377-87	96.25K		
1010377-88	97.5K		
1010377-89	98.75K		
1010377-90	100.0K		
1010377-91	101.25K		
1010377-92	102.5K		
1010377-93	103.75K		

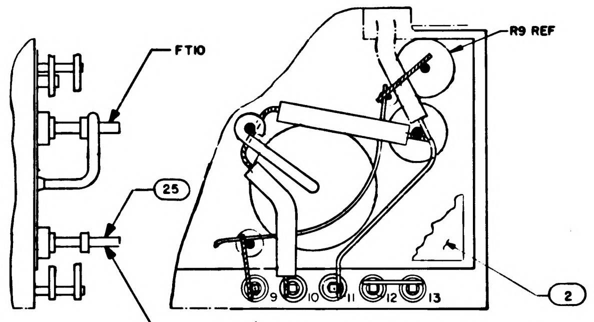
-011 CONFIGURATION


24
SEE NOTE 16
R1 REF

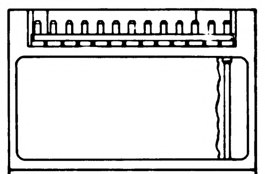
VIEW B-B
2 PLACES

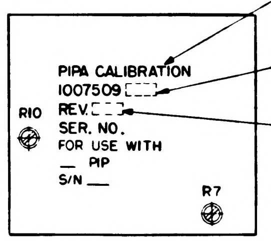


VIEW A-A
2 PLACES

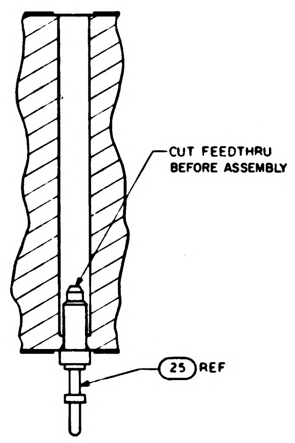

FT10
25
FT7
R9 REF
9
10
11
12
13
2

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


1 2 3 4 5 6 7 8 9 10 11 12 13


SEE NOTE 8
PIPA CALIBRATION
1007509
REV.
SER. NO.
FOR USE WITH
__ PIP
S/N __
R10
R7
APPLICABLE DASH NO.
DWG REV LTR

MARKING VIEW
SCALE 2/1


CUT FEEDTHRU BEFORE ASSEMBLY
25 REF

SECTION A-A
TYPICAL INSTALLATION FOR FT6 AND FT10

R13 AND R14

PART NO.	VALUE
1010251-1	31.9K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251-20	61.8K
1010251-21	67.4K
1010251-22	74.2K
1010251-23	82.6K
1010251-24	92.9K
1010251-25	106K
1010251-26	124K
1010251-27	149K
1010251-28	187K
1010251-29	249K
1010251-30	373K
1010251-31	746K

C3 AND C4

PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11

PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12

PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

R5 AND R6

PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

1007509 REV C SH 1

		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		X	—		1009541	SCHEMATIC	REF
		-	X		1010009	SCHEMATIC	REF
		1	—		1008585	INSULATOR, TOP	29
		AR			QQ-W-343 TYPE S	WIRE, COPPER	28
		1	1		1008540-13	GASKET, CONNECTOR MINIATURE	27
		AR	AR		1006776-22	INSULATION SLEEVING	26
		3	3		1006784-6	TERMINAL, FEEDTHRU	25
		AR	AR		1006776-20	INSULATION SLEEVING	24
		4	4		1000093-3	SCREW, BUTTON HD	23
		13	13		1006782-4	CONTACT, WRAPOST MALE MINAT	22
		13	13		1006775	INSULATOR, WRAPOST MALE MINAT	21
		AR	AR		1006757-8	WIRE, ELEC	20
		AR	AR		1006757-1	WIRE, ELEC	19
		AR	AR		1006776-21	INSULATION SLEEVING	18
							17
							16
		1	1		SEE NOTE 10	RESISTOR, WW	15
		1	1		SEE NOTE 10	RESISTOR, WW	14
		1	1		1010373-8	RESISTOR, VARIABLE	13
		2	2		SEE NOTE 10	CAPACITOR	12
		2	2		1010289-18	CAPACITOR	11
		1	1		1010253-12	RESISTOR, WW	10
		2	2		1010250-1	RESISTOR, WW	9
		2	2		SEE NOTE 10	RESISTOR, WW	8
		1	1		1010283-18	RESISTOR, WW 9.3K 0.1W ±1%	7
		1	1		SEE NOTE 10	RESISTOR	6
		2	2		1010262-2	RESISTOR, WW	5
		1	1		1010373-9	RESISTOR, VARIABLE	4
		1	1		1008018-2	INSULATOR, BOTTOM	3
		—	1		1008018-1	INSULATOR, TOP	2
		1	1		1008013	HEATSINK	1

QUANTITY REQUIRED
LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Toro DATE 17 SEP 64
CHECKED J. Udovch 30 SEP 64
APPROVAL
APPROVAL 12/4/64
NASA APPROVAL
MIT APPROVAL

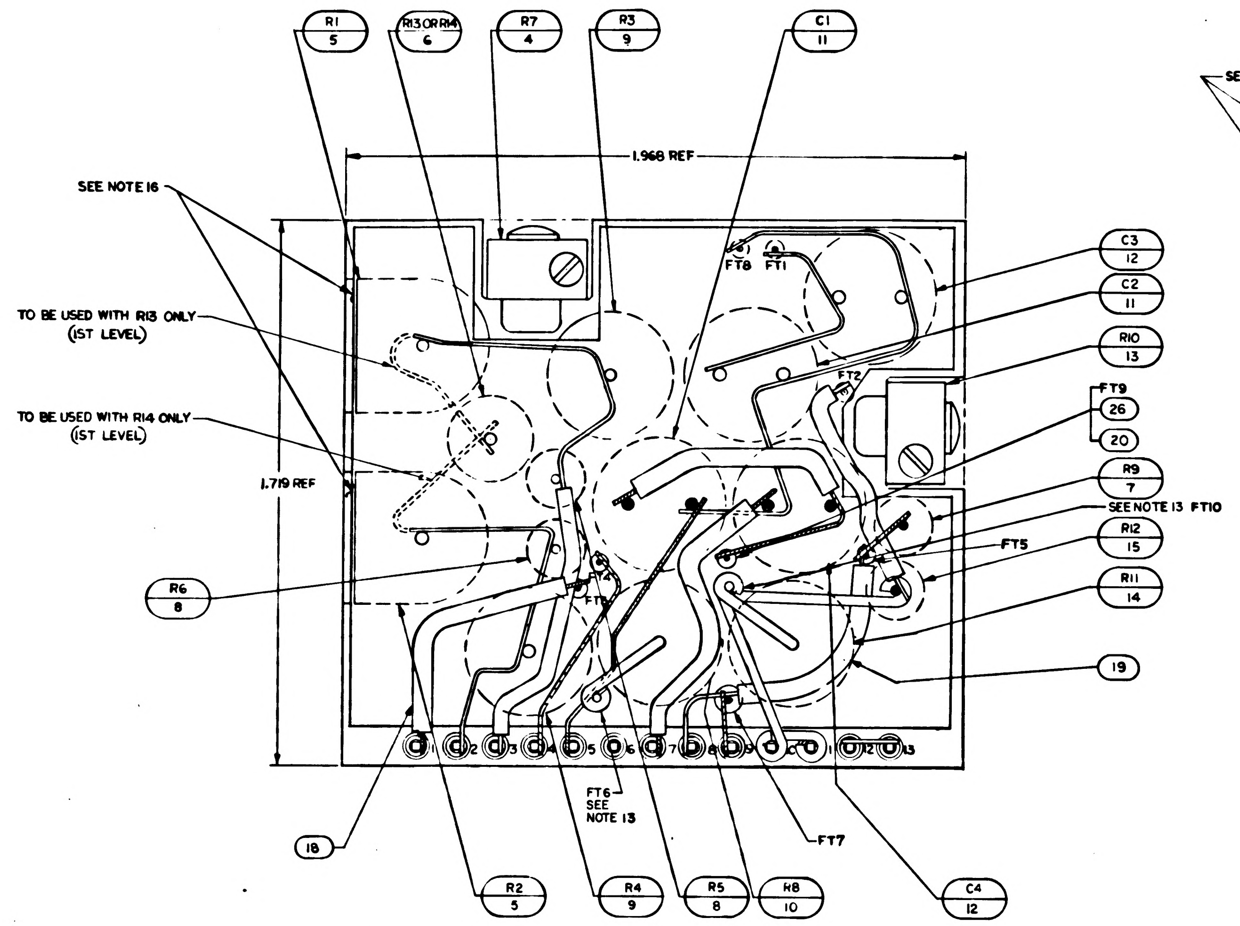
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PIPA CALIBRATION ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007509
SCALE 5/1
WT
SHEET 1 OF 1

1007509

27 1007509


R1 5
R13 OR R14 6
R7 4
R3 9
C1 11
C3 12
C2 11
R10 13
FT9 26 20
R9 7
SEE NOTE 13 FT10
R12 15
R11 14
FT5
19
R6 8
SEE NOTE 16
TO BE USED WITH R13 ONLY (1ST LEVEL)
TO BE USED WITH R14 ONLY (1ST LEVEL)
1.968 REF
1.719 REF
FT8 FT1
FT2
FT6 SEE NOTE 13
FT7
18
R2 5
R4 9
R5 8
R8 10
C4 12

LEFT SIDE VIEW (BEFORE POTTING) OF DASH 021 CONFIGURATION. SEE DETAIL "A" FOR DASH 011 CONFIGURATION.

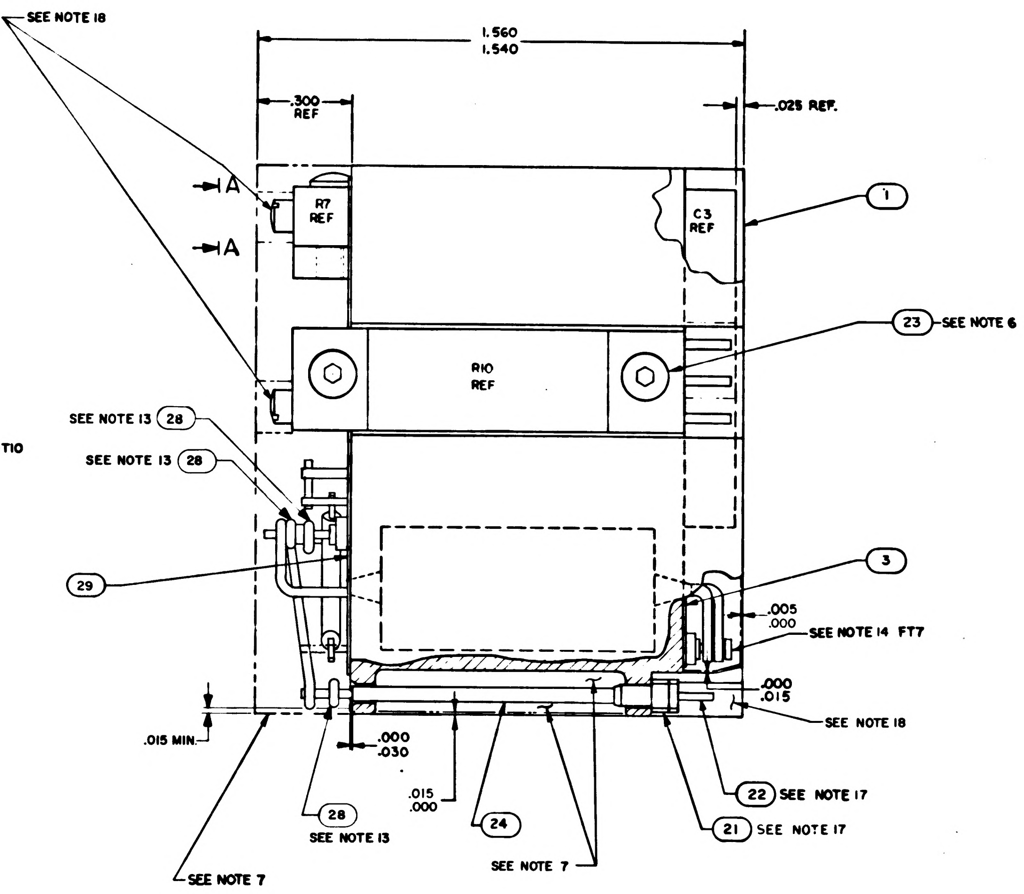
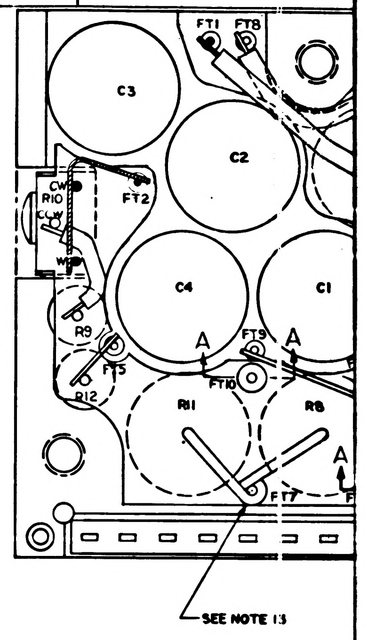
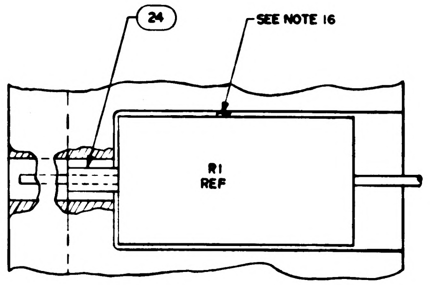

SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
23 SEE NOTE 6
R10 REF
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.005 .000
SEE NOTE 14 FT7
.000 .015
SEE NOTE 18
.015 MIN
.000 .030
.015 .000
22 SEE NOTE 17
21 SEE NOTE 17
28 SEE NOTE 13
24
SEE NOTE 7
SEE NOTE 7

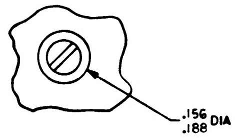
TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTER HEATSINK SURFACE. 80% OF A .25 FROM EXTERNAL HEATSIN SURFACE.
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 EXTERNAL SURFACE.
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A

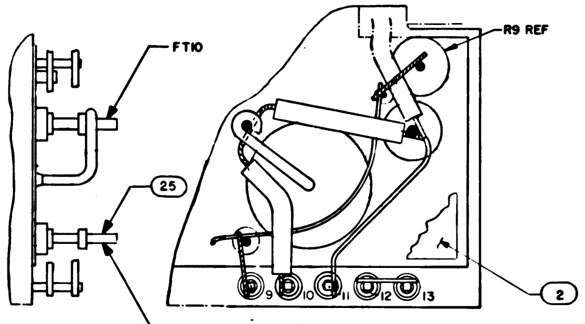

FT1 FT8
C3
C2
CW R10 CCW
FT2
W
C4
C1
R9
A
FT9
A
FT5
R12
FT10
R11
R8
A
FT7
SEE NOTE 13


24
SEE NOTE 16
R1 REF

VIEW B-B
2 PLACES



VIEW A-A
2 PLACES


FT10
R9 REF
25
FT7
9 10 11 12 13
2

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. BOND FIND NO. 27 TO FIND NO. 21 PER ND1002237
6. APPLY ZINC CHROMATE PRIMER MIL-P-8585 PER MIL-P-6808(ASG) TO FIND NO. 23
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
8. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO. 6 THRU FIND NO. 12, FIND NO. 14 THRU FIND NO. 17 AND FIND NO. 25 PER ND1002009 METHOD C
10. SELECT R5, R6, R11, R12, C3 & C4 PER ATP10C0013 FROM APPROPRIATE CHART
11. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069
12. AR DENOTES AS REQUIRED
13. SOLDER PER ND1002071
14. CUT FT7 AT TOP OF TURRET
15. PROCURE PER PS 1007009
16. BOND FIND NO. 5 PER ND1002117
17. MUST MEET REQUIREMENTS OF ND1002136
18. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
19. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
20. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.

SH

R13 AND R14

PART NO.	VALUE
1010251 - 1	31.9K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251 - 20	61.8K
1010251 - 21	67.4K
1010251 - 22	74.2K
1010251 - 23	82.6K
1010251 - 24	92.9K
1010251 - 25	106K
1010251 - 26	124K
1010251 -27	149K
1010251 - 28	187K
1010251 - 29	249K
1010251 - 30	373K
1010251 - 31	746K

C3 AND C4

PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11

PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

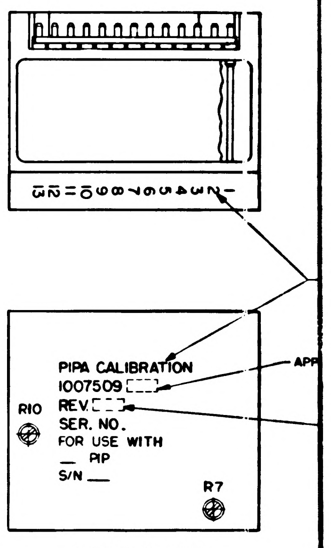
R12

PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

R5 AND R6

PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION


13 12 11 10 9 8 7 6 5 4 3 2 1
APP
R10
R7

PIPA CALIBRATION
1007509 [ ]
REV. [ ]
SER. NO.
FOR USE WITH
__ PIP
S/N ___

MARKING VIEW
SCALE 2/1

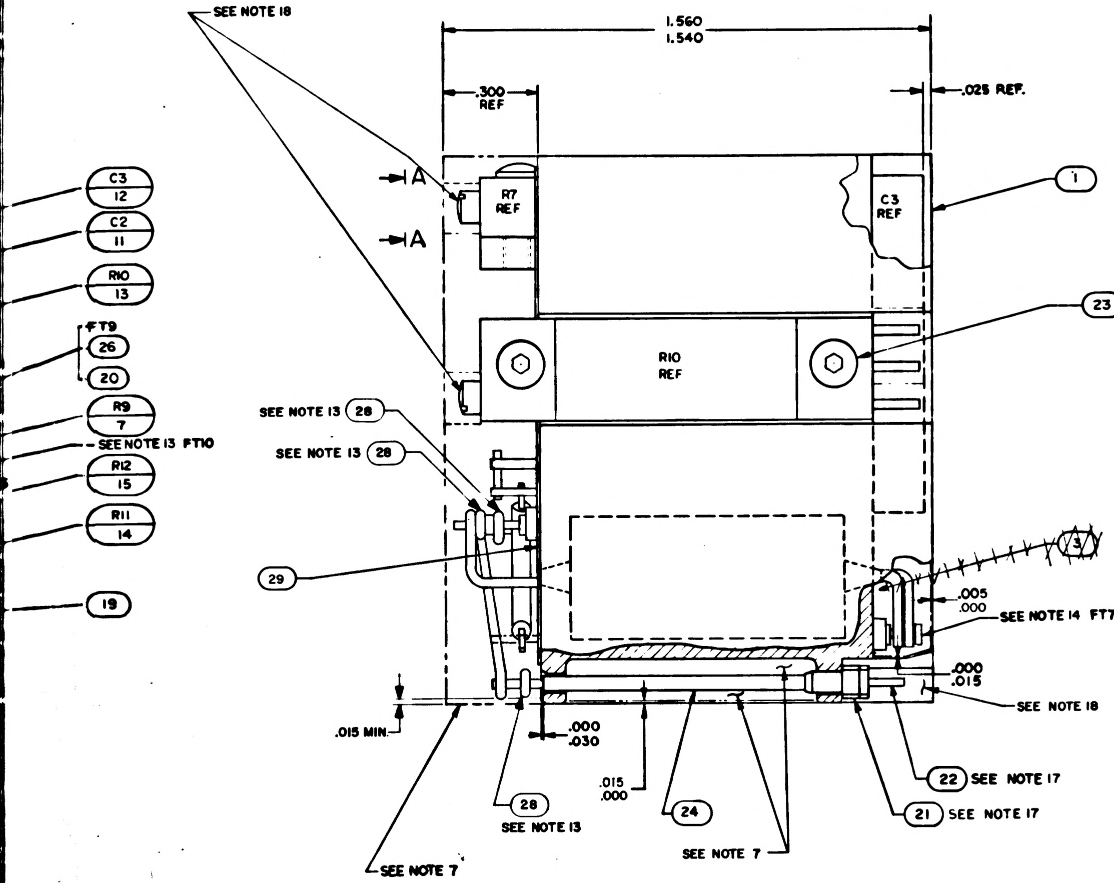
1007509 REV LTR C SH 1

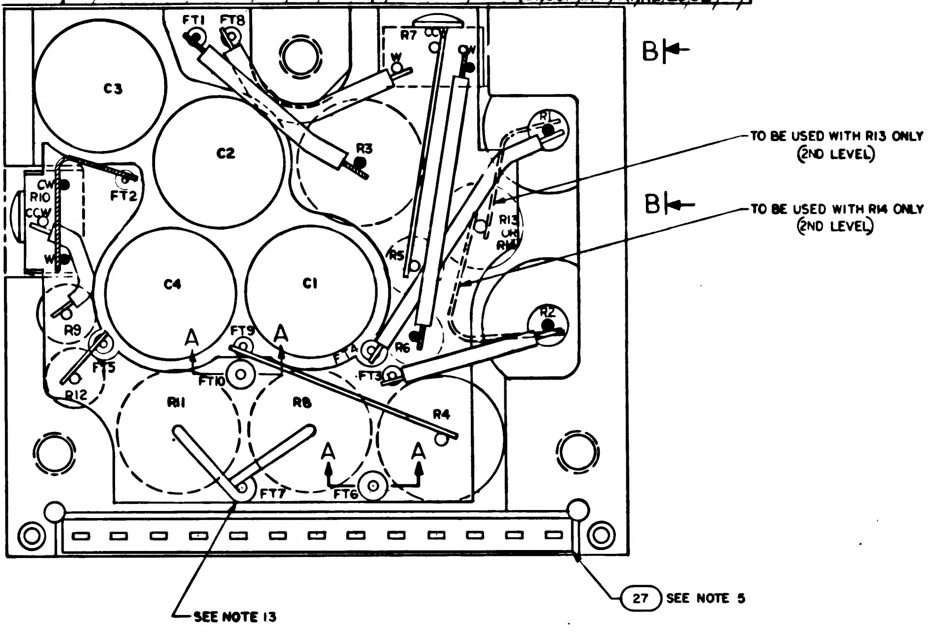
1/1007509

REV	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17311	12 MAR 65	RS / EF
B	REVISED PER TDRR 19401	1-JUN 65	M.G / AU
C	REVISED PER TDRR 19431	3 JUN 65	EF
D	REVISED PER TDRR 19499	5 JUN 65	

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN. WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE

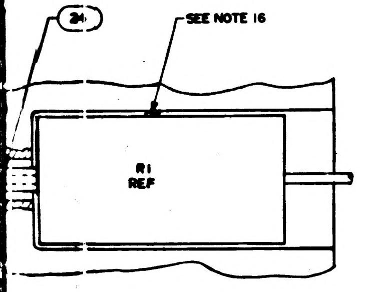

SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
R10 REF
23 SEE NOTE 6
C3 12
C2 11
R10 13
FT9 26 20
R9 7
SEE NOTE 13 FT10
R12 15
R11 14
19
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.005
.000
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
28 SEE NOTE 13
24
22 SEE NOTE 17
21 SEE NOTE 17
SEE NOTE 7
SEE NOTE 7


FT1
FT8
C3
R7
CCW
CW
W
C2
R3
RL
R10
CW
CCW
W
FT2
R13
R14
R5
C4
C1
R2
R9
FT9
A
A
FT5
FT4
FT3
R6
FT10
R12
R11
R8
R4
A
A
FT7
FT6
B
B
TO BE USED WITH R13 ONLY (2ND LEVEL)
TO BE USED WITH R14 ONLY (2ND LEVEL)
27 SEE NOTE 5
SEE NOTE 13

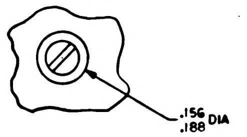
R5 AND R6

PART NO.	VALUE Ω	PART NO.	VALUE Ω
1010377-76	82.5K	1010377-94	105.0K
1010377-77	83.75K	1010377-95	106.25K
1010377-78	85.0K	1010377-96	107.5K
1010377-79	86.25K	1010377-97	108.75K
1010377-80	87.5K	1010377-98	110.0K
1010377-81	88.75K	1010377-99	111.25K
1010377-82	90.0K	1010377-100	112.5K
1010377-83	91.25K	1010377-101	113.75K
1010377-84	92.5K	1010377-102	115.0K
1010377-85	93.75K	1010377-103	116.25K
1010377-86	95.0K	1010377-104	117.5K
1010377-87	96.25K		
1010377-88	97.5K		
1010377-89	98.75K		
1010377-90	100.0K		
1010377-91	101.25K		
1010377-92	102.5K		
1010377-93	103.75K		

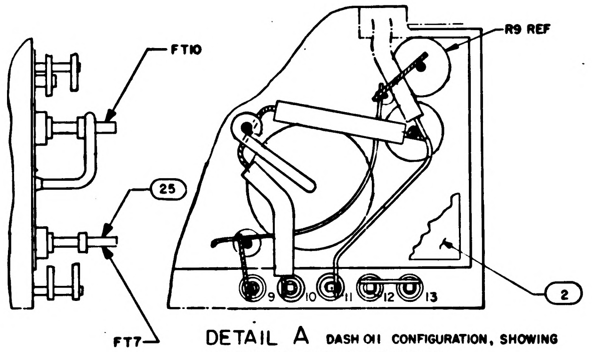
-011 CONFIGURATION


24
SEE NOTE 16
R1 REF

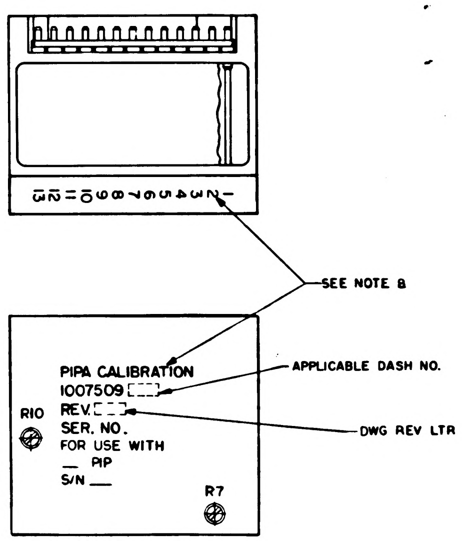
VIEW B-B
2 PLACES



VIEW A-A
2 PLACES

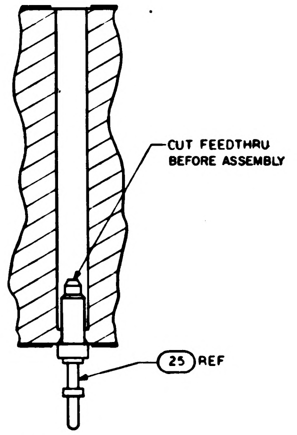

FT10
25
FT7
R9 REF
9
10
11
12
13
2

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


1 2 3 4 5 6 7 8 9 10 11 12 13
SEE NOTE 8
APPLICABLE DASH NO.
DWG REV LTR
R10
R7

PIPA CALIBRATION
1007509 [ ]
REV. [ ]
SER. NO.
FOR USE WITH
__ PIP
S/N __

MARKING VIEW
SCALE 2/1


CUT FEEDTHRU BEFORE ASSEMBLY
25 REF

SECTION A-A
TYPICAL INSTALLATION FOR FT6 AND FT10

R13 AND R14

PART NO.	VALUE
1010251 - 1	31.9K
1010251 - 110	33.4K
1010251 - 111	35.0K
1010251 - 112	36.8K
1010251 - 113	38.8K
1010251 - 114	41.0K
1010251 - 115	43.4K
1010251 - 116	46.2K
1010251 - 117	49.3K
1010251 - 118	52.9K
1010251 - 119	57.0K
1010251 - 20	61.8K
1010251 - 21	67.4K
1010251 - 22	74.2K
1010251 - 23	82.6K
1010251 - 24	92.9K
1010251 - 25	106K
1010251 - 26	124K
1010251 - 27	149K
1010251 - 28	187K
1010251 - 29	249K
1010251 - 30	373K
1010251 - 31	746K

C3 AND C4

PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11

PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12

PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

R5 AND R6

PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

LIST OF MATERIALS

QTY REQD	QTY REQD	QTY REQD 021	QTY REQD 011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		☒	–		1009541	SCHEMATIC	REF
		–	☒		1010009	SCHEMATIC	REF
		1	–		1008585	INSULATOR, TOP	29
		AR			QQ-W-343 TYPE S	WIRE, COPPER	28
		1	1		1008540-13	GASKET, CONNECTOR MINIATURE	27
		AR	AR		1006776-22	INSULATION SLEEVING	26
		3	3		1006784-6	TERMINAL, FEEDTHRU	25
		AR	AR		1006776-20	INSULATION SLEEVING	24
		4	4		1000093-3	SCREW, BUTTON HD	23
		13	13		1006782-4	CONTACT, WRAPOST MALE MINAT	22
		13	13		1006775	INSULATOR, WRAPOST MALE MINAT	21
		AR	AR		1006757-8	WIRE, ELEC	20
		AR	AR		1006757-1	WIRE, ELEC	19
		AR	AR		1006776-21	INSULATION SLEEVING	18
							17
							16
		1	1		SEE NOTE 10	RESISTOR, WW	15
		1	1		SEE NOTE 10	RESISTOR, WW	14
		1	1		1010373-8	RESISTOR, VARIABLE	13
		2	2		SEE NOTE 10	CAPACITOR	12
		2	2		1010289-18	CAPACITOR	11
		1	1		1010253-12	RESISTOR, WW	10
		2	2		1010250-1	RESISTOR, WW	9
		2	2		SEE NOTE 10	RESISTOR, WW	8
		1	1		1010283-18	RESISTOR, WW 9.3K 0.1W ±1%	7
		1	1		SEE NOTE 10	RESISTOR	6
		2	2		1010262-2	RESISTOR, WW	5
		1	1		1010373-9	RESISTOR, VARIABLE	4
		~~1~~	~~1~~		~~1008018-2~~	~~INSULATOR, BOTTOM~~	3
		–	1		1008018-1	INSULATOR, TOP	2
		1	1		1008013	HEATSINK	1

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Toro DATE 17 SEP 64
CHECKED J. Udovich 30 SEP 64
APPROVAL
APPROVAL 12/4/64
NASA APPROVAL 2-8-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

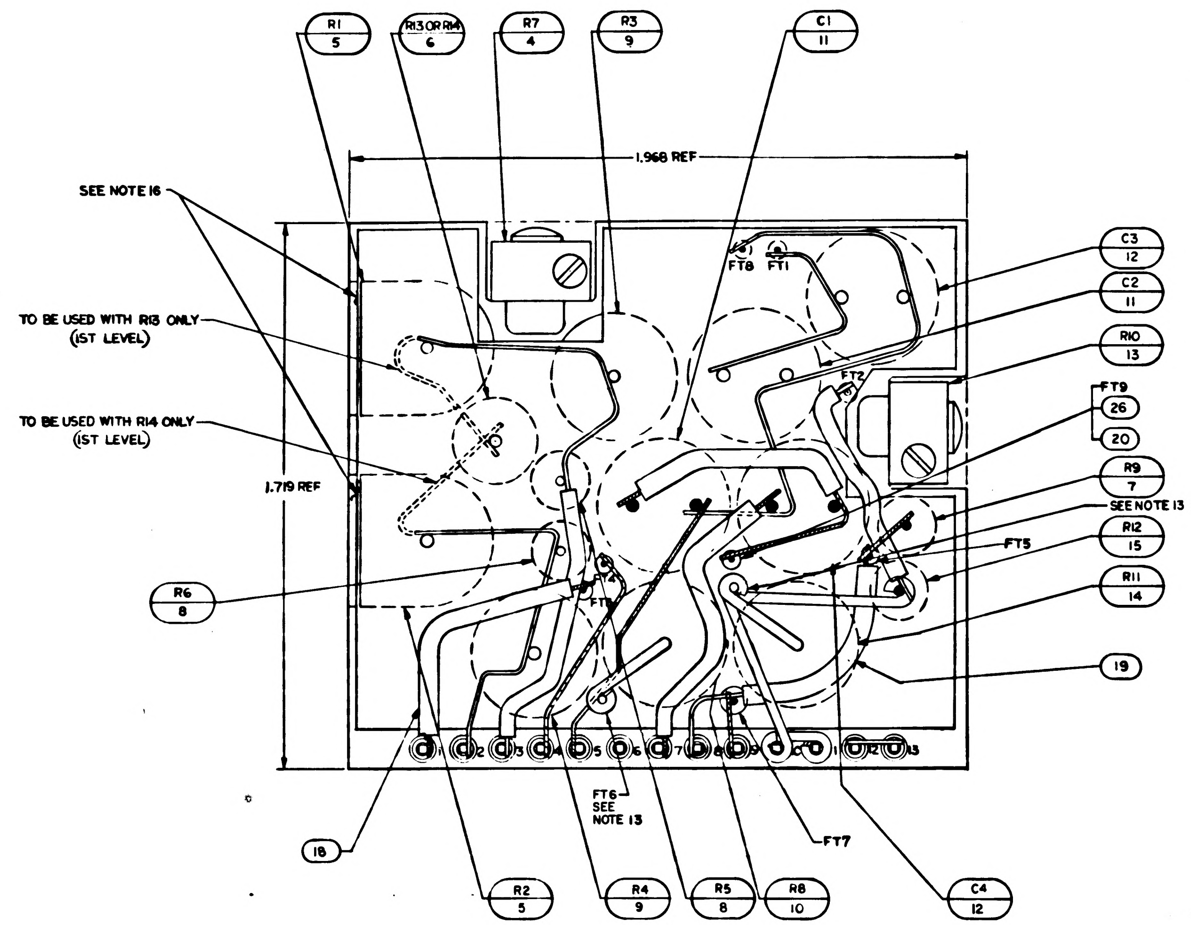
PIPA CALIBRATION ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007509
SCALE 5/1
WT
SHEET 1 OF 1

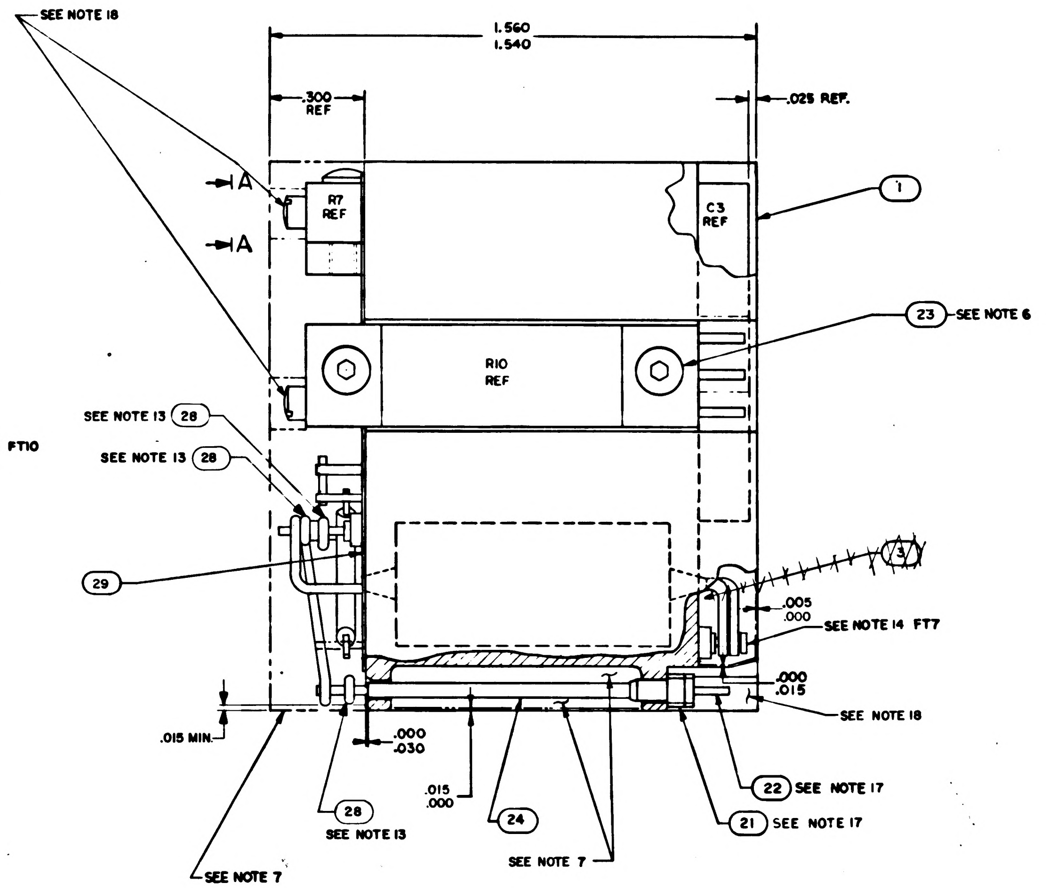
1007509 REV D SH 1

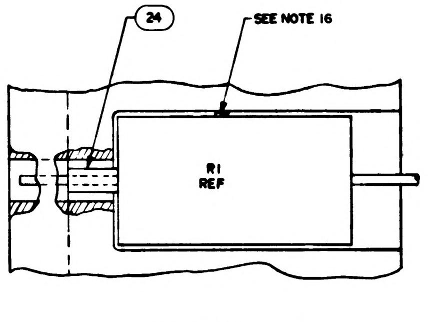
2-/1007509

JH

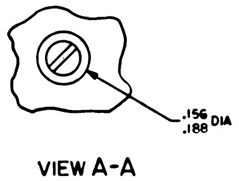

R1 5
R13 OR R14 6
R7 4
R3 9
C1 11
1.968 REF
SEE NOTE 16
TO BE USED WITH R13 ONLY (1ST LEVEL)
TO BE USED WITH R14 ONLY (1ST LEVEL)
1.719 REF
FT8
FT1
FT2
C3 12
C2 11
R10 13
FT9 26 20
R9 7
SEE NOTE 13 FT10
R12 15
FT5
R11 14
R6 8
19
18
FT6 SEE NOTE 13
FT7
R2 5
R4 9
R5 8
R8 10
C4 12

LEFT SIDE VIEW (BEFORE POTTING) OF DASH 021 CONFIGURATION. SEE DETAIL "A" FOR DASH 011 CONFIGURATION.

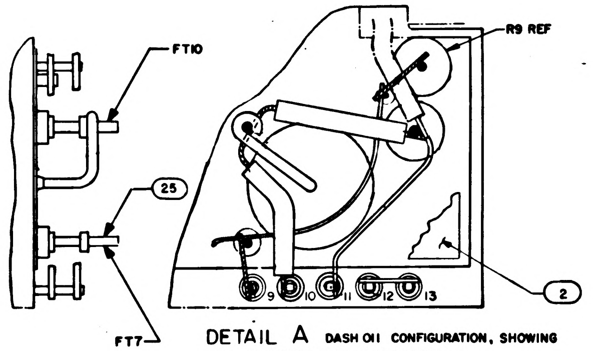

SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
R10 REF
23 SEE NOTE 6
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.005
.000
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
28 SEE NOTE 13
24
SEE NOTE 7
SEE NOTE 7
22 SEE NOTE 17
21 SEE NOTE 17


24
SEE NOTE 16
R1 REF

VIEW B-B
2 PLACES



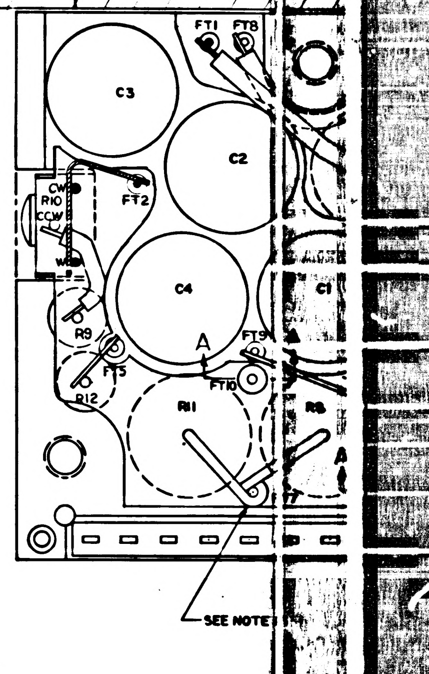
VIEW A-A
2 PLACES

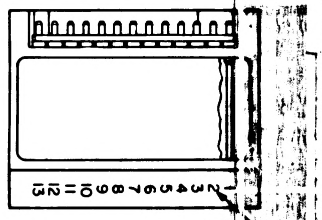

FT10
25
FT7
R9 REF
2
9
10
11
12
13

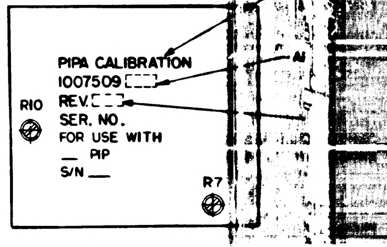
DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.

~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AN HEATSINK~~
~~WAFER AND FLAT HEATSINK~~	~~100 % OF AREA .12 FROM EXT HEATSINK SURFACE. 80 % OF .25 FROM EXTERNAL HEATSI SURFACE.~~
~~WAFER AND ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICA SURFACE TO WITHIN . ±.25 EXTERNAL SURFACE~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N~~


FT1
FT8
C3
C2
CW
R10
CCW
FT2
C4
C1
R9
FT5
A
FT9
FT10
R12
R11
R8
SEE NOTE


13 12 11 10 9 8 7 6 5 4 3 2 1


PIPA CALIBRATION
1007509
REV.
SER. NO.
FOR USE WITH
__ PIP
S/N __
R10
R7

MARKING VIEW
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. BOND FIND NO. 27 TO FIND NO. 21 PER ND1002237
6. APPLY ZINC CHROMATE PRIMER MIL-P-8585 PER MIL-P-6808(ASG) TO FIND NO. 23
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
8. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO. 6 THRU FIND NO. 12, FIND NO. 14 THRU FIND NO. 17 AND FIND NO. 25 PER ND1002009 METHOD H.
10. SELECT R5, R6, R11, R12, C3 & C4 PER ATP10C0013 FROM APPROPRIATE CHART
11. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069
12. AR DENOTES AS REQUIRED
13. SOLDER PER ND1002071
14. CUT FT7 AT TOP OF TURRET
15. PROCURE PER PS 1007009
16. BOND FIND NO. 5 PER ND1002117
17. MUST MEET REQUIREMENTS OF ND1002136
18. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
19. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
20. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

R13 AND R14

PART NO.	VALUE
1010251 - 1	31.9K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251 - 20	61.8K
1010251 - 21	67.4K
1010251 - 22	74.2K
1010251 - 23	82.6K
1010251 - 24	92.9K
1010251 - 25	106K
1010251 - 26	124K
1010251 --27	149K
1010251 - 28	187K
1010251 - 29	249K
1010251 - 30	373K
1010251 - 31	746K

C3 AND C4

PART NO.	VALUE UF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11

PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12

PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

R5 AND R6

PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

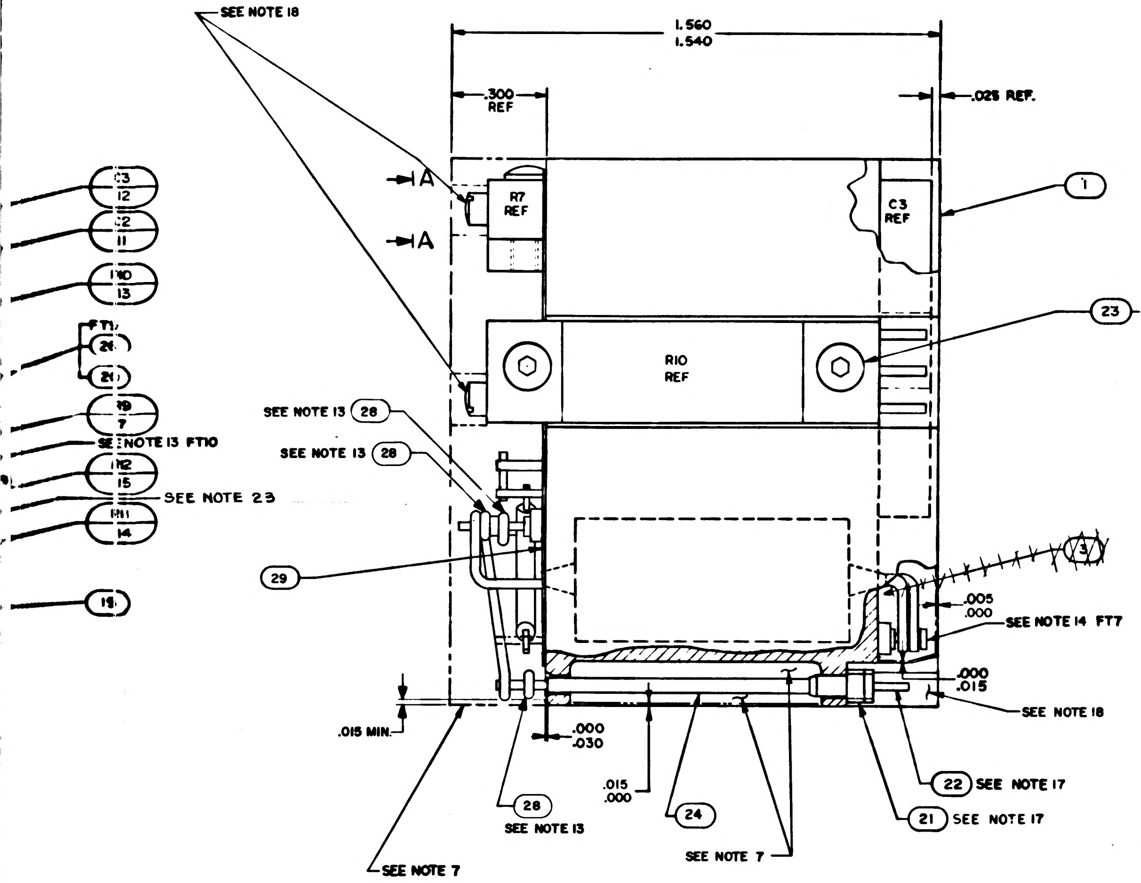
-021 CONFIGURATION

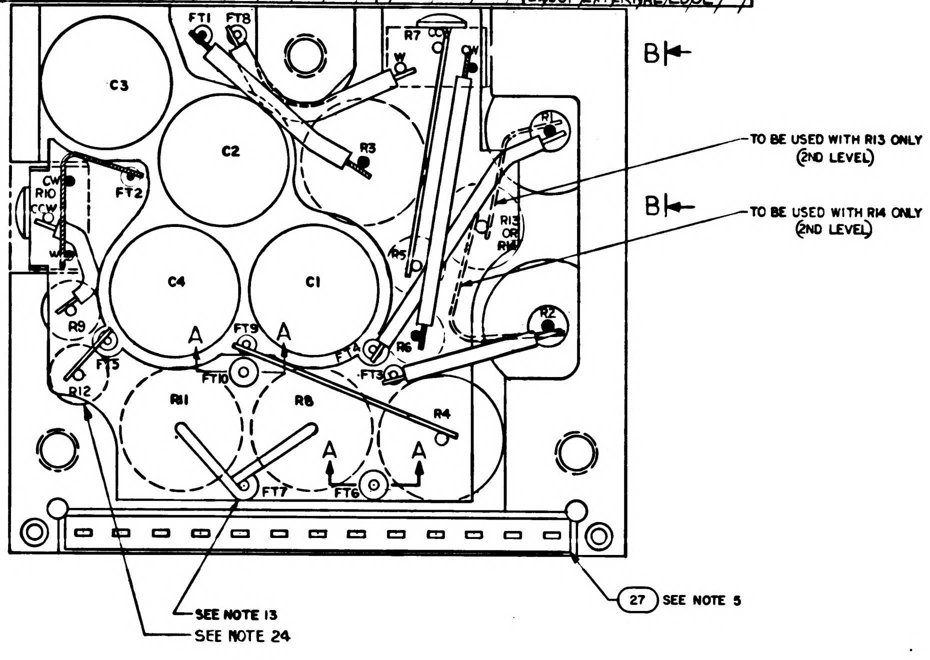
1007509 REV LTR D SH 1

REV	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17311	? MAR 65	RS
B	REVISED PER TDRR 19401	1 JUN 65	MG AU
C	REVISED PER TDRR 19431	3 JUN 65	
D	REVISED PER TDRR 19499	5 JUN 65	
E	REVISED PER TDRR 19799	JUN 65	JKP

TABLE I

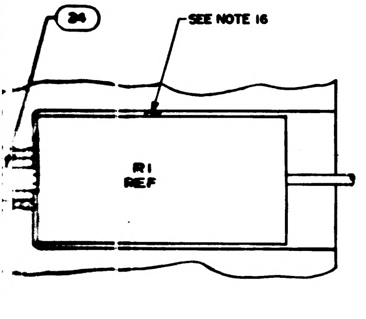
CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN. WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE


SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
R10 REF
23 SEE NOTE 6
C3 12
C2 11
C10 13
FT1 26
26
19 7
SEE NOTE 13 FT10
12
15
R11 14
15
SEE NOTE 13 28
SEE NOTE 13 28
SEE NOTE 23
29
3
.005
.000
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
28
SEE NOTE 13
24
SEE NOTE 7
22 SEE NOTE 17
21 SEE NOTE 17
SEE NOTE 7

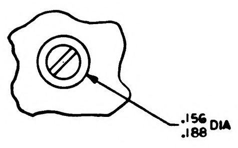

FT1
FT8
R7
CCW
W
CW
B
C3
C2
R3
R1
TO BE USED WITH R13 ONLY (2ND LEVEL)
CW
R10
CCW
W
FT2
R13 OR R14
B
TO BE USED WITH R14 ONLY (2ND LEVEL)
C4
C1
R5
R2
R9
A
FT9
A
FT4
R6
FT3
FT5
R12
FT10
R11
R8
R4
A
A
FT7
FT6
SEE NOTE 13
SEE NOTE 24
27 SEE NOTE 5

R5 AND R6			
PART NO.	VALUE Ω	PART NO.	VALUE Ω
1010377-76	82.5K	1010377-94	105.0K
1010377-77	83.75K	1010377-95	106.25K
1010377-78	85.0K	1010377-96	107.5K
1010377-79	86.25K	1010377-97	108.75K
1010377-80	87.5K	1010377-98	110.0K
1010377-81	88.75K	1010377-99	111.25K
1010377-82	90.0K	1010377-100	112.5K
1010377-83	91.25K	1010377-101	113.75K
1010377-84	92.5K	1010377-102	115.0K
1010377-85	93.75K	1010377-103	116.25K
1010377-86	95.0K	1010377-104	117.5K
1010377-87	96.25K		
1010377-88	97.5K		
1010377-89	98.75K		
1010377-90	100.0K		
1010377-91	101.25K		
1010377-92	102.5K		
1010377-93	103.75K		

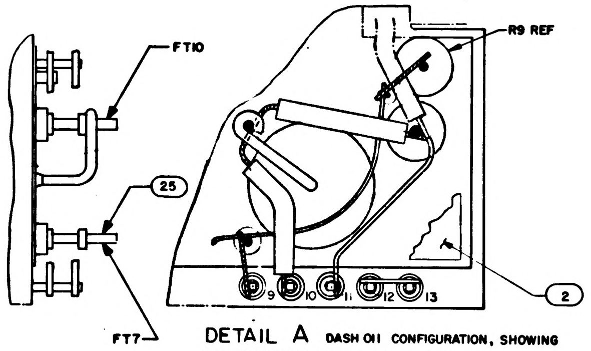
-011 CONFIGURATION


26
SEE NOTE 16
R1 REF

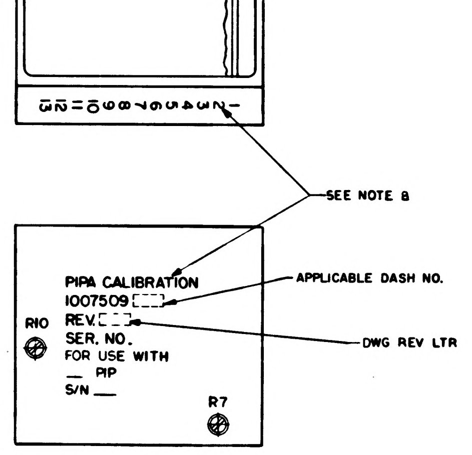
VIEW B-B
2 PLACES



VIEW A-A
2 PLACES

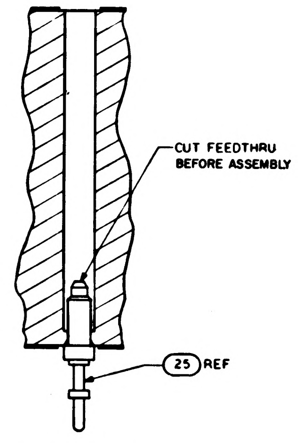

FT10
R9 REF
25
FT7
2
9
10
11
12
13

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 8
APPLICABLE DASH NO.
DWG REV LTR
R10
R7

PIPA CALIBRATION
1007509 [ ]
REV. [ ]
SER. NO.
FOR USE WITH
__ PIP
S/N __

MARKING VIEW
SCALE 2/1


CUT FEEDTHRU BEFORE ASSEMBLY
25 REF

SECTION A-A
TYPICAL INSTALLATION FOR FT6 AND FT10

R13 AND R14	
PART NO.	VALUE
1010291-1	31.9K
1010291-10	33.4K
1010291-11	35.0K
1010291-12	36.8K
1010291-13	38.8K
1010291-14	41.0K
1010291-15	43.4K
1010291-16	46.2K
1010291-17	49.3K
1010291-18	52.9K
1010291-19	57.0K
1010291-20	61.8K
1010291-21	67.4K
1010291-22	74.2K
1010291-23	82.6K
1010291-24	92.9K
1010291-25	106K
1010291-26	1.24K
1010291-27	149K
1010291-28	187K
1010291-29	249K
1010291-30	373K
1010291-31	746K

C3 AND C4	
PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11	
PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12	
PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

-011 CONFIGURATION

R5 AND R6			
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

QUANTITY REQUIRED 021	QUANTITY REQUIRED 011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	–		1009541	SCHEMATIC	REF
–	☒		1010009	SCHEMATIC	REF
1	–		1008585	INSULATOR, TOP	29
AR			QQ-W-343 TYPE S	WIRE, COPPER	28
1	1		1008540-13	GASKET, CONNECTOR MINIATURE	27
AR	AR		1006776-22	INSULATION SLEEVING	26
3	3		1006784-6	TERMINAL, FEEDTHRU	25
AR	AR		1006776-20	INSULATION SLEEVING	24
4	4		1000093-3	SCREW, BUTTON HD	23
13	13		1006782-4	CONTACT, WRAPOST MALE MINAT	22
13	13		1006775	INSULATOR, WRAPOST MALE MINAT	21
AR	AR		1006757-8	WIRE, ELEC	20
AR	AR		1006757-1	WIRE, ELEC	19
AR	AR		1006776-21	INSULATION SLEEVING	18
					17
					16
1	1		SEE NOTE 10	RESISTOR, WW	15
1	1		SEE NOTE 10	RESISTOR, WW	14
1	1		1010373-8	RESISTOR, VARIABLE	13
2	2		SEE NOTE 10	CAPACITOR	12
2	2		1010289-18	CAPACITOR	11
1	1		1010253-12	RESISTOR, WW	10
2	2		1010250-1	RESISTOR, WW	9
2	2		SEE NOTE 10	RESISTOR, WW	8
1	1		1010283-18	RESISTOR, WW 9.3K 0.1W ±1%	7
1	1		SEE NOTE 10	RESISTOR	6
2	2		1010262-2	RESISTOR, WW	5
1	1		1010373-9	RESISTOR, VARIABLE	4
~~1~~	~~1~~		~~1008018-2~~	~~INSULATOR, BOTTOM~~	3
–	1		1008018-1	INSULATOR, TOP	2
1	1		1008013	HEATSINK	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Toro DATE 17 SEP 64
CHECKED J. Udovich 30 SEP 64
APPROVAL
M. B. [illegible] 3 DEC 64
APPROVAL 12/4/64
NASA APPROVAL 2-8-65
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

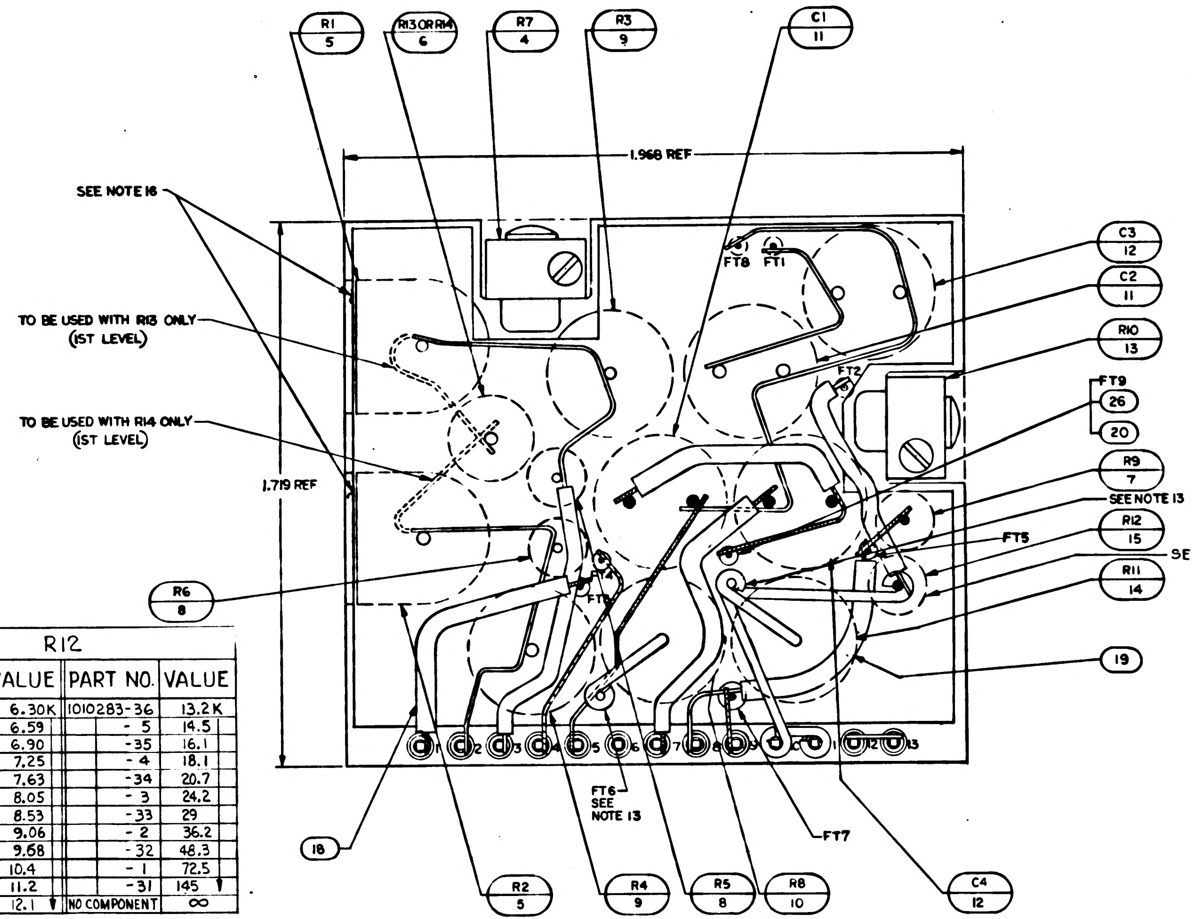
PIPA CALIBRATION ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007509
SCALE 5/1
WT
SHEET 1 OF 1

1007509 REV E SH 1

2/1007509

JH


R1
5
R13 OR R14
6
R7
4
R3
9
C1
11
1.968 REF
SEE NOTE 16
TO BE USED WITH R13 ONLY (1ST LEVEL)
TO BE USED WITH R14 ONLY (1ST LEVEL)
1.719 REF
FT8
FT1
FT2
C3
12
C2
11
R10
13
FT9
26
20
R9
7
SEE NOTE 13 FT10
R12
15
SEE NOTE 23
FT5
R11
14
19
R6
8
FT6 SEE NOTE 13
FT7
18
R2
5
R4
9
R5
8
R8
10
C4
12
1 2 3 4 5 6 7 8 9 10 11 12 13

LEFT SIDE VIEW (BEFORE POTTING) OF DASH 021 CONFIGURATION. SEE DETAIL "A" FOR DASH 011 CONFIGURATION.

R12			
PART NO.	VALUE	PART NO.	VALUE
1010283-42	6.30K	1010283-36	13.2K
-11	6.59	- 5	14.5
-41	6.90	-35	16.1
-10	7.25	- 4	18.1
-40	7.63	-34	20.7
- 9	8.05	- 3	24.2
-39	8.53	-33	29
- 8	9.06	- 2	36.2
-38	9.68	-32	48.3
- 7	10.4	- 1	72.5
-37	11.2	-31	145
- 6	12.1	NO COMPONENT	∞

-021 CONFIGURATION

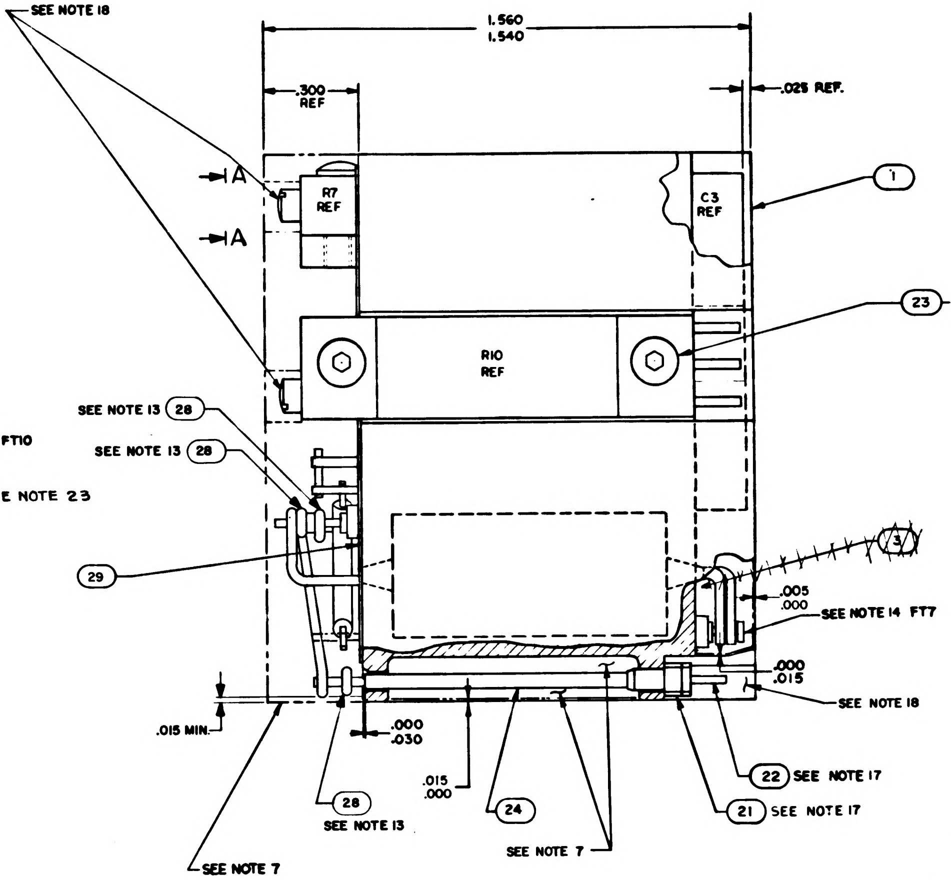
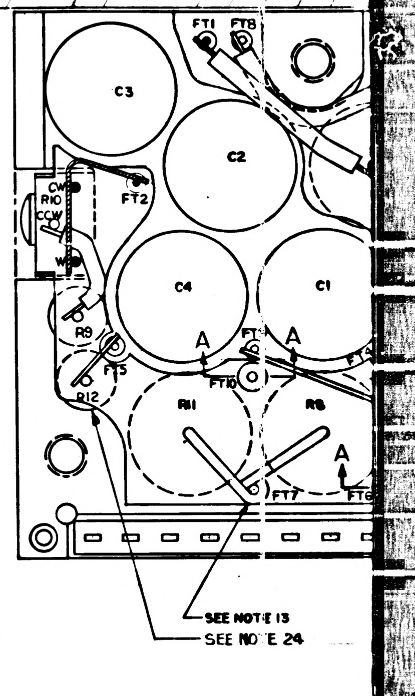
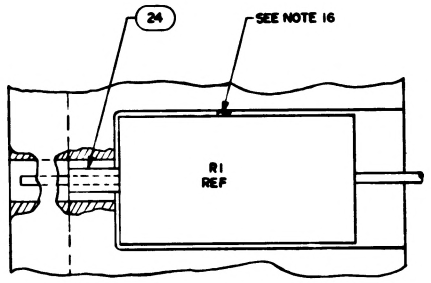

SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
R10 REF
23 SEE NOTE 6
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.005
.000
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
28 SEE NOTE 13
24
SEE NOTE 7
SEE NOTE 7
22 SEE NOTE 17
21 SEE NOTE 17

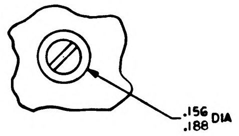
TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~
~~WAFER AND FLAT HEATSINK~~	~~[illegible] OF AREA [illegible] HEATSINK SURFACE [illegible] .25 FROM EXTERNAL HEATSIN[illegible] SURFACE~~
~~WAFER AND ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER [illegible] SURFACE [illegible] EXTERNAL SURFACE~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	

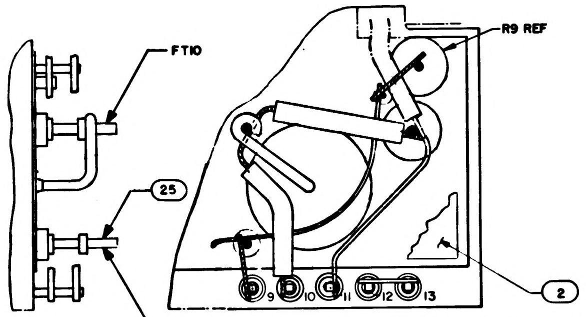

FT1
FT8
C3
C2
CW
R10
CCW
FT2
C4
C1
R9
FT3
A
A
FT10
R12
R11
R6
A
FT7
FT6
SEE NOTE 13
SEE NOTE 24


24
SEE NOTE 16
R1 REF

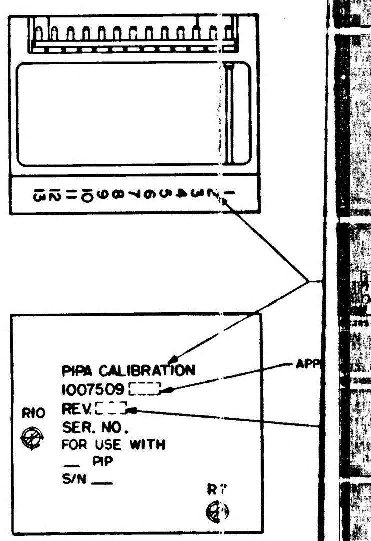
VIEW B-B
2 PLACES



VIEW A-A
2 PLACES


FT10
R9 REF
25
FT7
2
9 10 11 12 13

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


13 12 11 10 9 8 7 6 5 4 3 2 1
PIPA CALIBRATION
1007509 [ ]
REV. [ ]
SER. NO.
FOR USE WITH
__ PIP
S/N __
R10
R7
APP

MARKING VIEW
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. BOND FIND NO. 27 TO FIND NO. 21 PER ND1002237
6. APPLY ZINC CHROMATE PRIMER MIL-P-8585 PER MIL-P-6808(ASG) TO FIND NO.23
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
8. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO.6 THRU FIND NO. 12, FIND NO. 14 THRU FIND NO. 17 AND FIND NO. 25 PER ND1002009 METHOD H.
10. SELECT R5,R6,R11,R12,C3 & C4 PER ATP10C0013 FROM APPROPRIATE CHART
11. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069
12. AR DENOTES AS REQUIRED
13. SOLDER PER ND1002071
14. CUT FT7 AT TOP OF TURRET
15. PROCURE PER PS 1007009
16. BOND FIND NO.5 PER ND1002117
17. MUST MEET REQUIREMENTS OF ND1002136
18. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
19. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
20. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE I. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.
23. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) EXTEND THE COPPER RIBBON IN ONE CONTINUOUS PATH FROM FT-10 TO FT-2 AND FOLLOWING THE SAME GENERAL ROUTING AS IS THE CASE WHEN R12 IS USED. SLEEVE THE ENTIRE LENGTH OF THIS CONDUCTOR WITH FIND NO. 24
24. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) DELETE THE LOWER LEVEL RIBBON RUN FROM R12 TO FT5.

R13 AND R14	
PART NO.	VALUE
1010251 - 1	31.9K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251 - 20	61.8K
1010251 - 21	67.4K
1010251 - 22	74.2K
1010251 - 23	82.6K
1010251 - 24	92.9K
1010251 - 25	106K
1010251 - 26	124K
1010251 -27	149K
1010251 - 28	187K
1010251 - 29	249K
1010251 - 30	373K
1010251 - 31	746K

C3 AND C4	
PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11	
PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12	
PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

-011 CONFIGURATION

R5 AND R6			
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

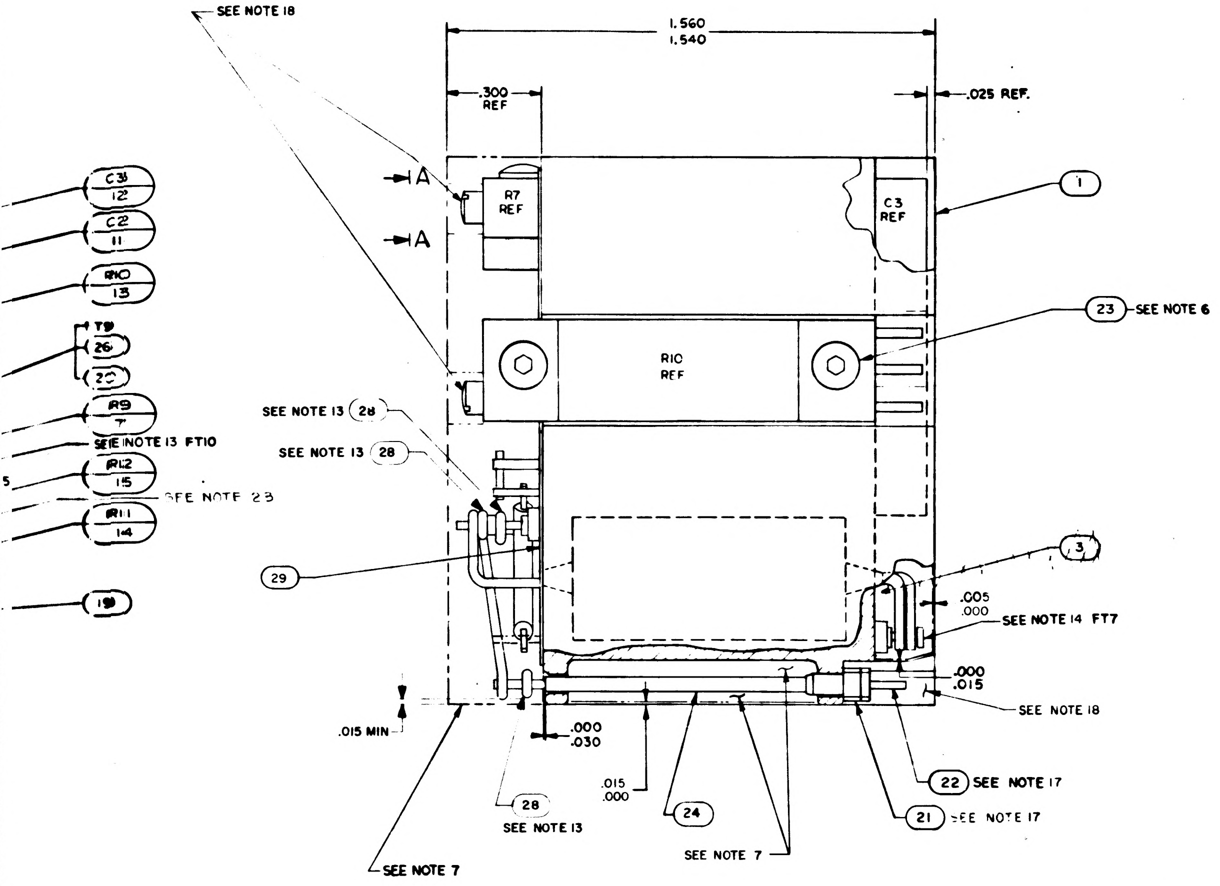
-021 CONFIGURATION

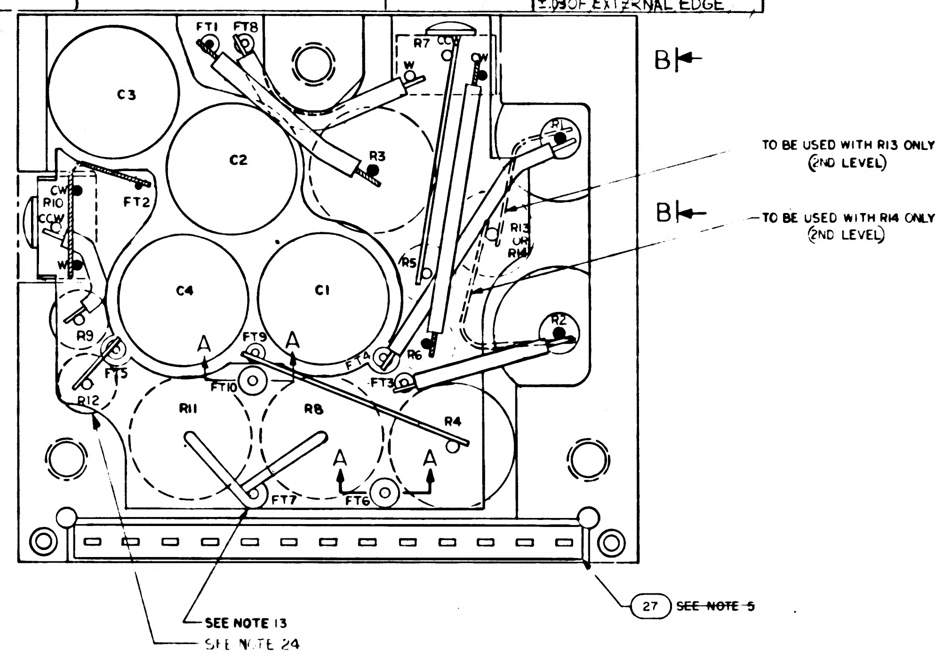
1007509 E

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	[illegible]		
B	REVISED PER TDRR 194[illegible]	[illegible]	
C	REVISED PER TDRR 9-3	3 [illegible]	
D	REVISED PER TDRR 19-99	[illegible]	
E	REVISED PER TDRR 3799	[illegible] 65	
F	REVISED PER TDRR 20-43	[illegible] 5	

TABLE I

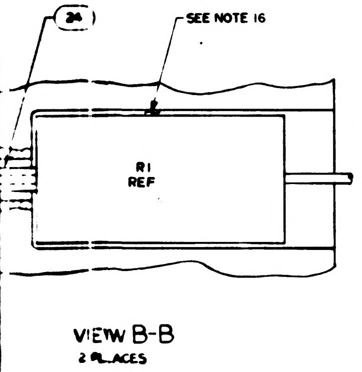
CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .2 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .23 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ±.03 OF EXTERNAL SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN. WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE


SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
23 SEE NOTE 6
R10 REF
C31 12
C2 11
R10 13
T9 26
20
R9 7
SEE NOTE 13 FT10
R12 15
R11 14
19
SEE NOTE 13 28
SEE NOTE 13 28
SEE NOTE 23
29
3
.005 .000
SEE NOTE 14 FT7
.000 .015
SEE NOTE 18
.015 MIN
.000 .030
.015 .000
28 SEE NOTE 13
24
22 SEE NOTE 17
21 SEE NOTE 17
SEE NOTE 7
SEE NOTE 7

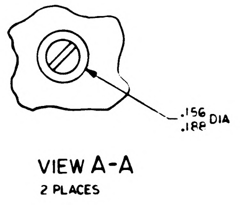

FT1
FT8
R7
CCW
W
CW
C3
C2
R3
R1
B
B
TO BE USED WITH R13 ONLY (2ND LEVEL)
TO BE USED WITH R14 ONLY (2ND LEVEL)
CW
R10
CCW
FT2
C4
C1
R5
R13 OR R14
R2
R9
FT9
A
FT5
R6
FT3
R12
R11
FT10
R8
R4
A
A
FT7
FT6
SEE NOTE 13
SEE NOTE 24
27 SEE NOTE 5

R5 AND R6			
PART NO.	VALUE Ω	PART NO.	VALUE Ω
1010377-76	82.5K	1010377-94	105.0K
1010377-77	83.75K	1010377-95	106.25K
1010377-78	85.0K	1010377-96	107.5K
1010377-79	86.25K	1010377-97	108.75K
1010377-80	87.5K	1010377-98	110.0K
1010377-81	88.75K	1010377-99	111.25K
1010377-82	90.0K	1010377-100	112.5K
1010377-83	91.25K	1010377-101	113.75K
1010377-84	92.5K	1010377-102	115.0K
1010377-85	93.75K	1010377-103	116.25K
1010377-86	95.0K	1010377-104	117.5K
1010377-87	96.25K		
1010377-88	97.5K		
1010377-89	98.75K		
1010377-90	100.0K		
1010377-91	101.25K		
1010377-92	102.5K		
1010377-93	103.75K		

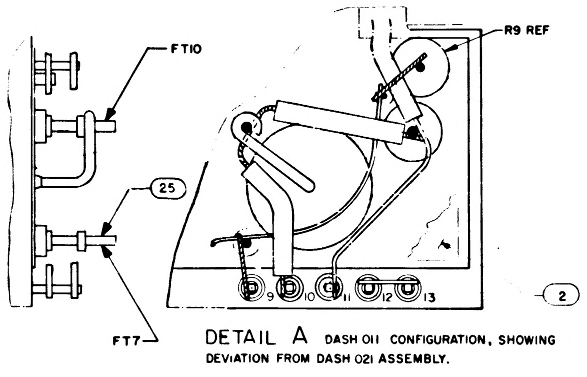
-011 CONFIGURATION


24
SEE NOTE 16
R1 REF

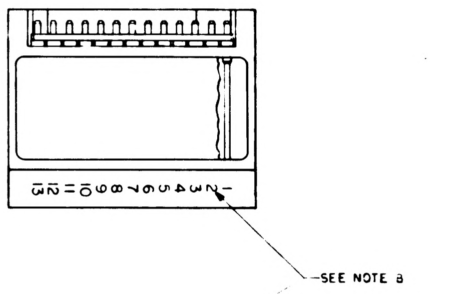
VIEW B-B
2 PLACES

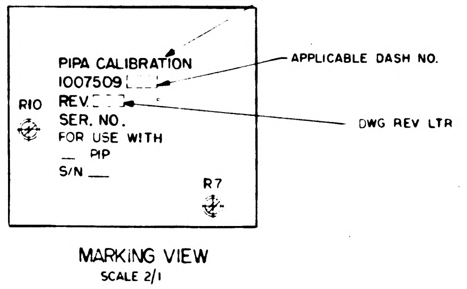


VIEW A-A
2 PLACES


FT10
25
FT7
R9 REF
13
2

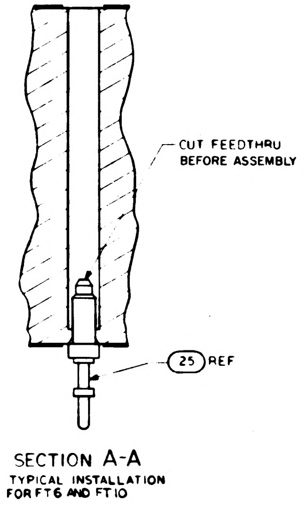
DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


1 2 3 4 5 6 7 8 9 10 11 12 13
SEE NOTE 8


R10
R7
APPLICABLE DASH NO.
DWG REV LTR

PIPA CALIBRATION
1007509
REV.
SER. NO.
FOR USE WITH
__ PIP
S/N __

MARKING VIEW
SCALE 2/1


CUT FEEDTHRU BEFORE ASSEMBLY
25 REF

SECTION A-A
TYPICAL INSTALLATION FOR FT6 AND FT10

R13 AND R14	
PART NO.	VALUE
1010251 - 1	31.9K
1010251 - 10	33.4K
1010251 - 11	35.0K
1010251 - 12	36.8K
1010251 - 13	38.8K
1010251 - 14	41.0K
1010251 - 15	43.4K
1010251 - 16	46.2K
1010251 - 17	49.3K
1010251 - 18	52.9K
1010251 - 19	57.0K
1010251 - 20	61.8K
1010251 - 21	67.4K
1010251 - 22	74.2K
1010251 - 23	82.6K
1010251 - 24	92.9K
1010251 - 25	106K
1010251 - 26	124K
1010251 - 27	149K
1010251 - 28	187K
1010251 - 29	249K
1010251 - 30	373K
1010251 - 31	746K

C3 AND C4	
PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11	
PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12	
PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

-011 CONFIGURATION

R5 AND R6			
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		021	011				
		☒	–		1009541	SCHEMATIC	REF
		–	☒		1010009	SCHEMATIC	REF
		1	–		1008585	INSULATOR, TCP	29
		AR			QQ-W-343 TYPE S	WIRE, COPPER	28
		1	1		1008540-13	GASKET, CONNECTOR MINIATURE	27
		AR	AR		1006776-22	INSULATION SLEEVING	26
		3	3		1006784-6	TERMINAL, FEEDTHRU	25
		AR	AR		1006776-20	INSULATION SLEEVING	24
		4	4		1000093-3	SCREW, BUTTON HD	23
		13	13		1006782-4	CONTACT, WRAPOST MALE MINAT	22
		13	13		1006775	INSULATOR, WRAPOST MALE MINAT	21
		AR	AR		1006757-8	WIRE, ELEC	20
		AR	AR		1006757-1	WIRE, ELEC	19
		AR	AR		1006776-21	INSULATION SLEEVING	18
							17
							16
		1	1		SEE NOTE 10	RESISTOR, WW	15
		1	1		SEE NOTE 10	RESISTOR, WW	14
		1	1		1010373-8	RESISTOR, VARIABLE	13
		2	2		SEE NOTE 10	CAPACITOR	12
		2	2		1010289-18	CAPACITOR	11
		1	1		1010253-12	RESISTOR, WW	10
		2	2		1010250-1	RESISTOR, WW	9
		2	2		SEE NOTE 10	RESISTOR, WW	8
		1	1		1010283-18	RESISTOR WW 9.3K 0.1W ±1%	7
		1	1		SEE NOTE 10	RESISTOR	6
		2	2		1010262-2	RESISTOR, WW	5
		1	1		1010373-9	RESISTOR, VARIABLE	4
		~~1~~	~~1~~		~~1008016-2~~	~~INSULATOR, BOTTOM~~	3
		–	1		1008018-1	INSULATOR, TOP	2
		1	1		1008013	HEATSINK	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —//— DECIMALS XX±.02 XXX±.005 ANGLES ± —//—
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Eno DATE 7 SEP 64
CHECKED J. Udovich 30 SEP 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

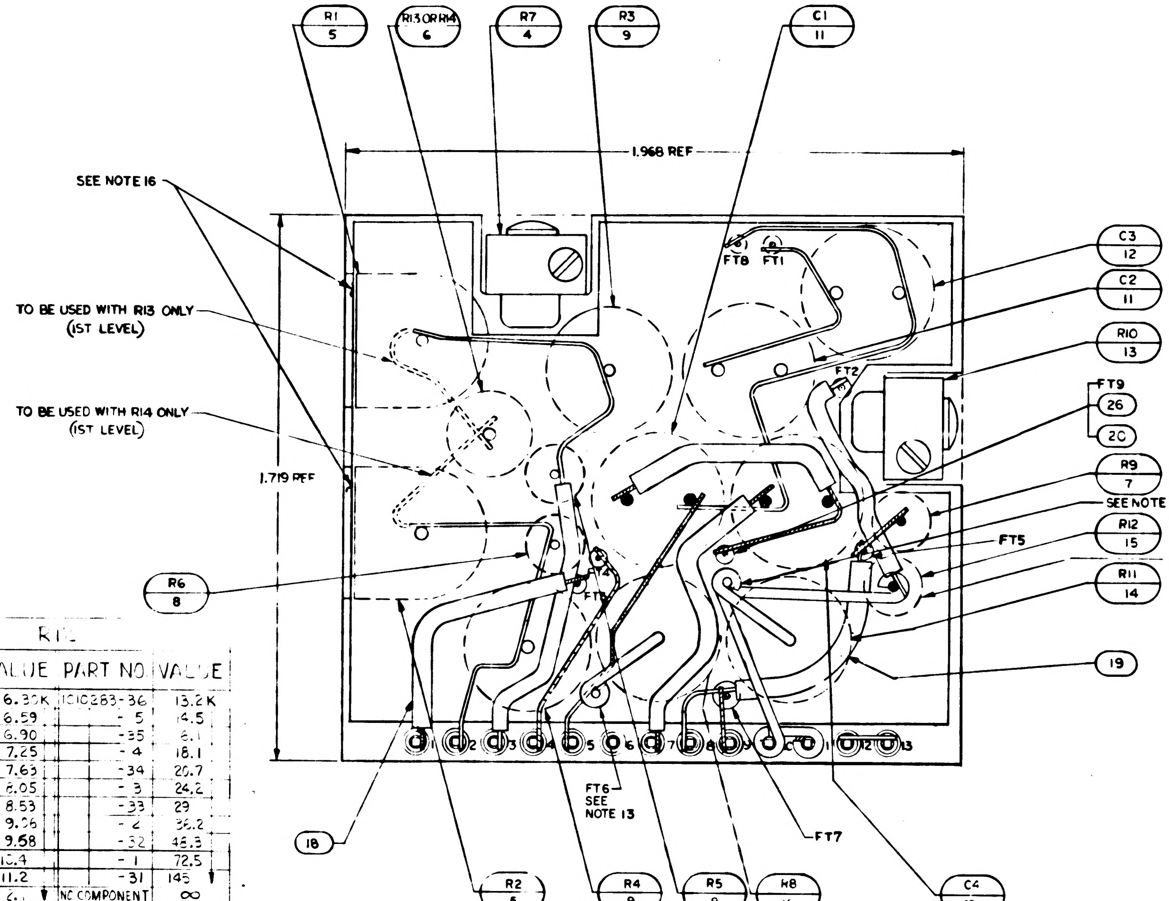
PIPA CALIBRATION ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO. 1007509
SCALE 5/1
WT
SHEET 1 OF 1

1007509 F

-9H

271007509


R1 5
R13 OR R14 6
R7 4
R3 9
C1 11
1.968 REF
SEE NOTE 16
TO BE USED WITH R13 ONLY (1ST LEVEL)
TO BE USED WITH R14 ONLY (1ST LEVEL)
1.719 REF
FT8
FT1
FT2
C3 12
C2 11
R10 13
FT9
26
2C
R9 7
SEE NOTE 13 FT10
R12 15
FT5
SEE NOTE 23
R11 14
19
R6 8
18
FT6 SEE NOTE 13
FT7
R2 5
R4 9
R5 8
R8 10
C4 12

LEFT SIDE VIEW (BEFORE POTTING) OF DASH 021 CONFIGURATION. SEE DETAIL "A" FOR DASH 011 CONFIGURATION.

R12			
PART NO.	VALUE	PART NO.	VALUE
1010283-42	6.30K	1010283-36	13.2K
-11	6.59	-5	14.5
-41	6.90	-35	6.1
-10	7.25	-4	18.1
-40	7.63	-34	20.7
-9	8.05	-3	24.2
-39	8.53	-33	29
-8	9.06	-2	36.2
-38	9.58	-32	48.3
-7	10.4	-1	72.5
-37	11.2	-31	145
-6	2.1	NO COMPONENT	∞

-021 CONFIGURATION

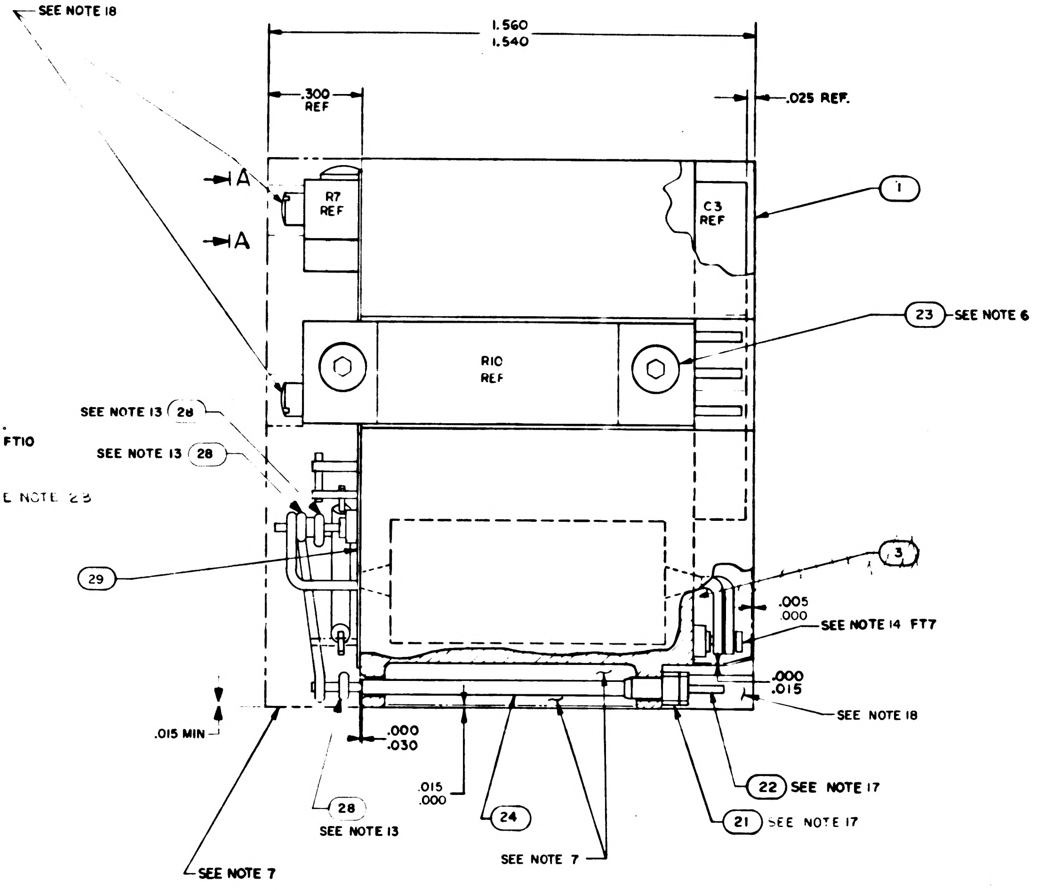
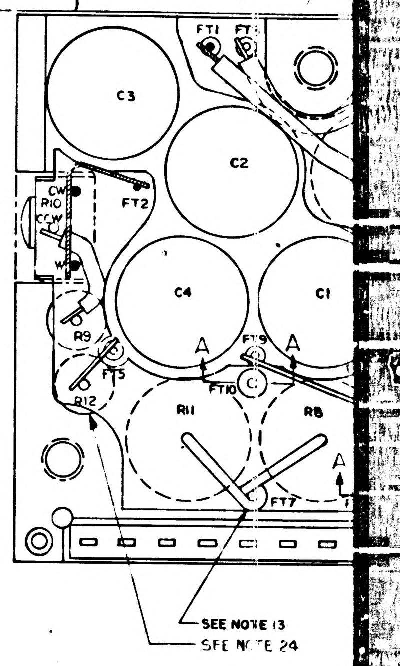
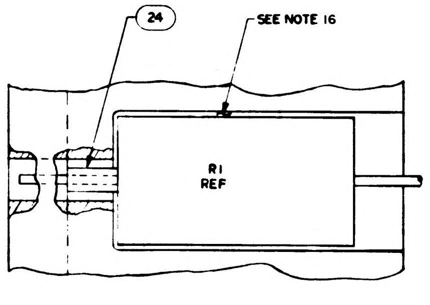
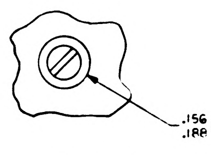

SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
R10 REF
23 SEE NOTE 6
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.005
.000
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN
.000
.030
28
SEE NOTE 13
.015
.000
24
SEE NOTE 7
SEE NOTE 7
22 SEE NOTE 17
21 SEE NOTE 17

TABLE I	
CONFIGURATION	BOND BETWEEN WAFER AN HEATSINK
WAFER AND FLAT HEATSINK	90% OF AREA .2 FROM EX HEATSINK SURFACE. 80% OF .23 FROM EXTERNAL HEATS SURFACE.
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICA SURFACE TO WITHIN .03±.03 EXTERNAL SURFACE.
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A

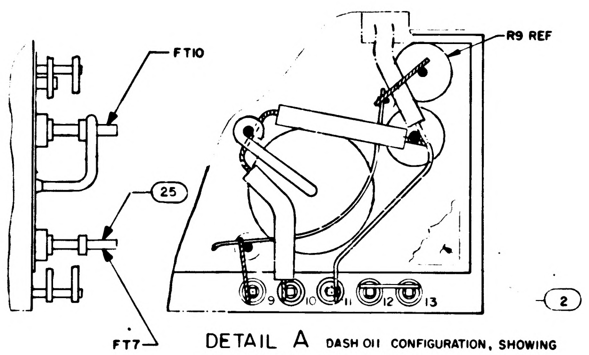

FT1
FT8
C3
C2
CW
R10
CCW
FT2
W
C4
C1
R9
FT9
A
A
FT5
R12
FT10
R11
R8
FT7
SEE NOTE 13
SEE NOTE 24


24
SEE NOTE 16
R1
REF

VIEW B-B
2 PLACES



VIEW A-A
2 PLACES


FT10
R9 REF
25
FT7
9
10
11
12
13
2

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. ~~BOND FIND NO. 27 TO FIND NO. 21 PER ND1002237~~
6. APPLY ZINC CHROMATE PRIMER MIL-P-8585 PER MIL-P-6808(ASG) TO FIND NO.23
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
8. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO.6 THRU FIND NO. 12, FIND NO. 14 THRU FIND NO. 17 AND FIND NO. 25 PER ND1002009 METHOD H.
10. SELECT R5,R6,R11,R12,C3 & C4 PER ATP10C0013 FROM APPROPRIATE CHART
11. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069
12. AR DENOTES AS REQUIRED
13. SOLDER PER ND1002071
14. CUT FT7 AT TOP OF TURRET
15. PROCURE PER PS 1007009
16. BOND FIND NO.5 PER ND1002117
17. MUST MEET REQUIREMENTS OF ND1002136
18. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
19. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
20. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND100[illegible] TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.
23. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) EXTEND THE COPPER RIBBON IN ONE CONTINUOUS PATH FROM FT-10 TO FT-2 AND FOLLOWING THE SAME GENERAL ROUTING AS IS THE CASE WHEN R12 IS USED. SLEEVE THE ENTIRE LENGTH OF THIS CONDUCTOR WITH FIND NO. 24
24. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) DELETE THE LOWER LEVEL RIBBON RUN FROM R12 TO FT5.

R13 AND R14	
PART NO.	VALUE
1010251 - 1	31.9K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251-20	61.8K
1010251-21	67.4K
1010251-22	74.2K
1010251-23	82.6K
1010251-24	92.9K
1010251-25	106K
1010251-26	124K
1010251-27	149K
1010251-28	187K
1010251-29	249K
1010251-30	373K
1010251-31	746K

C3 AND C4	
PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

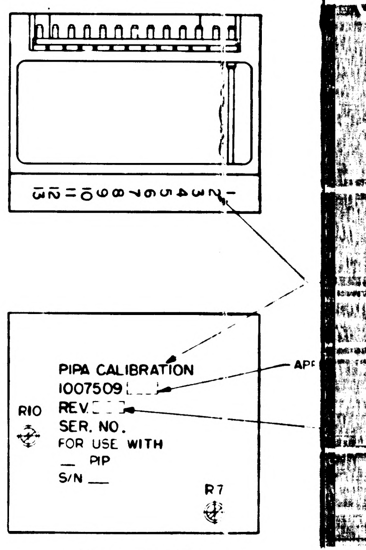
R11	
PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12	
PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

-011 CONFIGURATION

R5 AND R6			
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION


1
2
3
4
5
6
7
8
9
10
11
12
13
APP
R10
R7

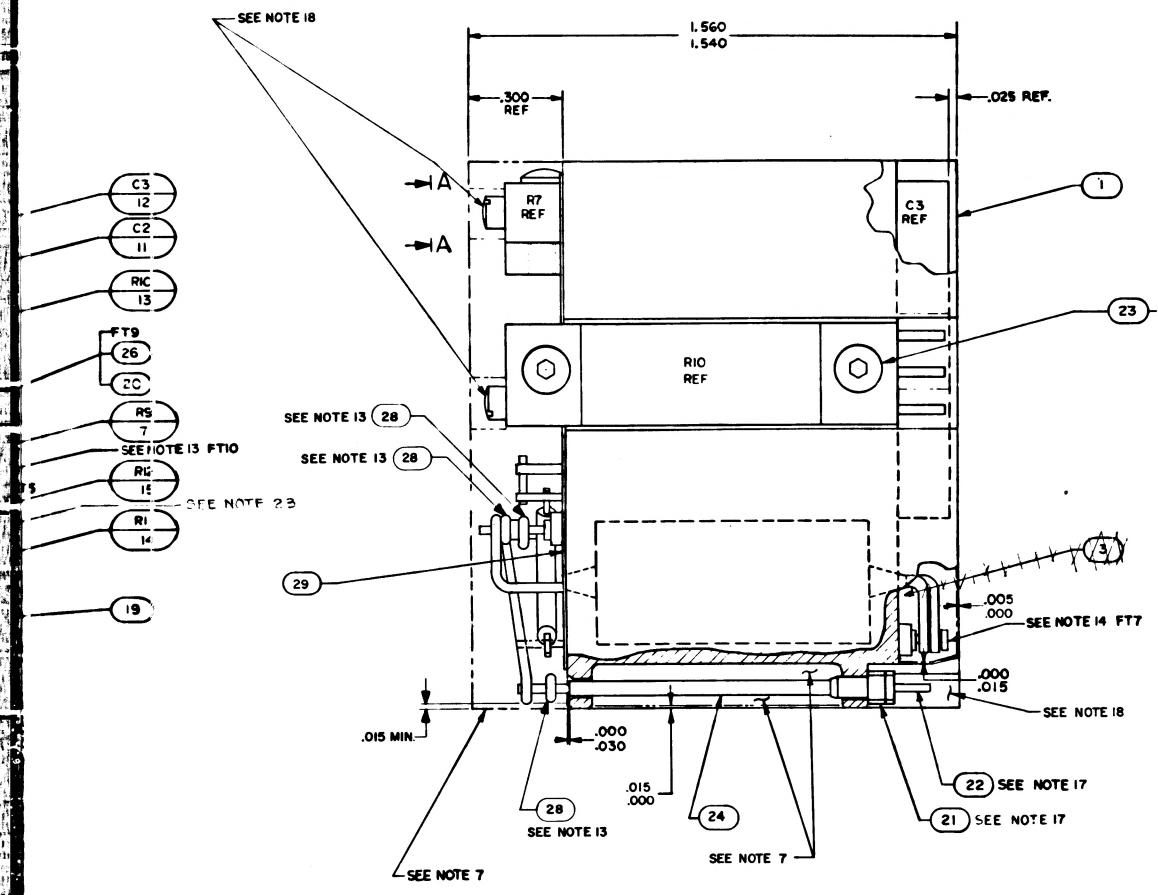
PIPA CALIBRATION
1007509
REV.
SER. NO.
FOR USE WITH
__ PIP
S/N __

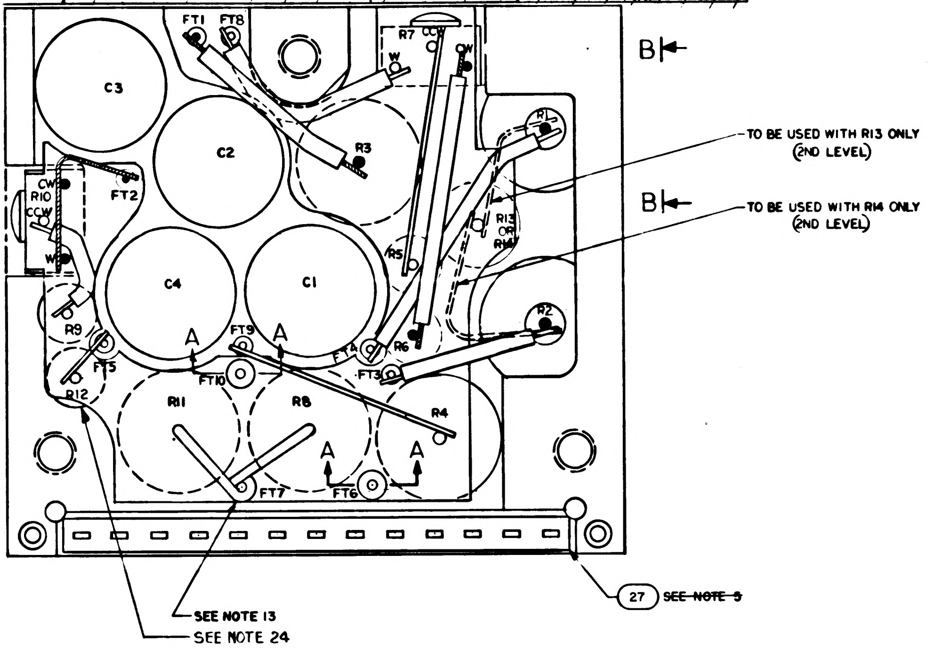
MARKING VIEW
SCALE 2/1

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 73	65	[illegible]
B	REVISED PER TDRR 1940	1 JUN 65	[illegible]
C	REVISED PER TDRR 9431	3 JUN 65	[illegible]
D	REVISED PER TDRR 19499	5 JUN 65	[illegible]
E	REVISED PER TDRR 19799	JUN 65	[illegible]
F	REVISED PER TDRR 20143	65	[illegible]
G	REVISED PER TDRR 20.56	28 65	[illegible]

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ±.03 OF EXTERNAL SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN. WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE

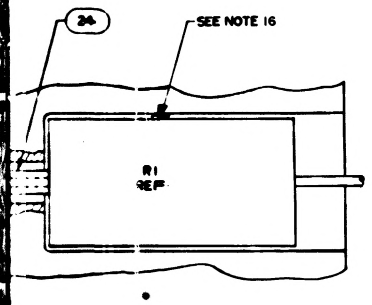

SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
23 SEE NOTE 6
R10 REF
C3 12
C2 11
R10 13
FT9 26
20
R9 7
SEE NOTE 13 FT10
R12 15
SEE NOTE 23
R1 14
19
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.005
.000
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
28 SEE NOTE 13
24
22 SEE NOTE 17
21 SEE NOTE 17
SEE NOTE 7
SEE NOTE 7


FT1
FT8
R7
CCW
CW
W
C3
C2
R3
R1
CW
R10
CCW
W
FT2
B
B
TO BE USED WITH R13 ONLY (2ND LEVEL)
TO BE USED WITH R14 ONLY (2ND LEVEL)
R13 OR R14
R5
C4
C1
R9
FT9
A
A
FT4
R6
R2
FT5
FT10
FT3
R12
R11
R8
R4
A
A
FT7
FT6
SEE NOTE 13
SEE NOTE 24
27 ~~SEE NOTE 5~~

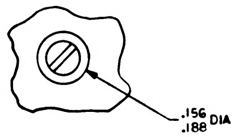
R5 AND R6

PART NO.	VALUE Ω	PART NO.	VALUE Ω
1010377-76	82.5K	1010377-94	105.0K
1010377-77	83.75K	1010377-95	106.25K
1010377-78	85.0K	1010377-96	107.5K
1010377-79	86.25K	1010377-97	108.75K
1010377-80	87.5K	1010377-98	110.0K
1010377-81	88.75K	1010377-99	111.25K
1010377-82	90.0K	1010377-100	112.5K
1010377-83	91.25K	1010377-101	113.75K
1010377-84	92.5K	1010377-102	115.0K
1010377-85	93.75K	1010377-103	116.25K
1010377-86	95.0K	1010377-104	117.5K
1010377-87	96.25K		
1010377-88	97.5K		
1010377-89	98.75K		
1010377-90	100.0K		
1010377-91	101.25K		
1010377-92	102.5K		
1010377-93	103.75K		

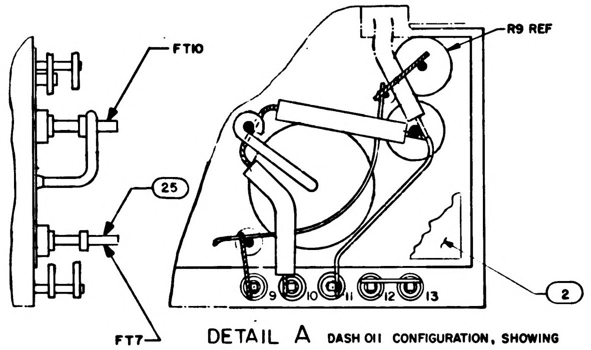
-011 CONFIGURATION


24
SEE NOTE 16
R1 REF

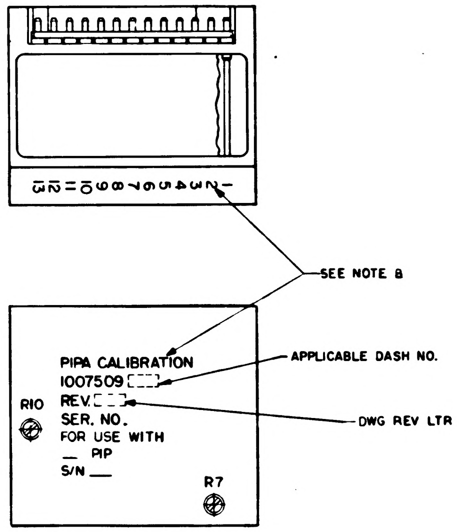
VIEW B-B
2 PLACES



VIEW A-A
2 PLACES

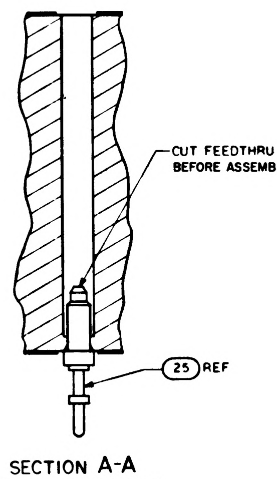

FT10
25
FT7
R9 REF
9
10
11
12
13
2

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


1
2
3
4
5
6
7
8
9
10
11
12
13
SEE NOTE 8
APPLICABLE DASH NO.
DWG REV LTR
R10
R7

PIPA CALIBRATION
1007509 [ ]
REV. [ ]
SER. NO.
FOR USE WITH
__ PIP
S/N ___

MARKING VIEW
SCALE 2/1


CUT FEEDTHRU BEFORE ASSEMBLY
25 REF

SECTION A-A
TYPICAL INSTALLATION FOR FT6 AND FT10

R13 AND R14

PART NO.	VALUE
1010251-1	31.9K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251-20	61.8K
1010251-21	67.4K
1010251-22	74.2K
1010251-23	82.6K
1010251-24	92.9K
1010251-25	106K
1010251-26	124K
1010251-27	149K
1010251-28	187K
1010251-29	249K
1010251-30	373K
1010251-31	746K

C3 AND C4

PART NO.	VALUE UF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11

PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12

PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

-011 CONFIGURATION

R5 AND R6

PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

LIST OF MATERIALS

QUANTITY REQUIRED							
		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		X	–		1009541	SCHEMATIC	REF
		–	X		1010009	SCHEMATIC	REF
		1	–		1008585	INSULATOR, TOP	29
		AR			QQ-W-343 TYPE S	WIRE, COPPER	28
		1	1		1008540-13	GASKET, CONNECTOR MINIATURE	27
		AR	AR		1006776-22	INSULATION SLEEVING	26
		3	3		1006784-6	TERMINAL, FEEDTHRU	25
		AR	AR		1006776-20	INSULATION SLEEVING	24
		4	4		1000093-3	SCREW, BUTTON HD	23
		13	13		1006782-4	CONTACT, WRAPOST MALE MINAT	22
		13	13		1006775	INSULATOR, WRAPOST MALE MINAT	21
		AR	AR		1006757-8	WIRE, ELEC	20
		AR	AR		1006757-1	WIRE, ELEC	19
		AR	AR		1006776-21	INSULATION SLEEVING	18
							17
							16
		1	1		SEE NOTE 10	RESISTOR, WW	15
		1	1		SEE NOTE 10	RESISTOR, WW	14
		1	1		1010373-8	RESISTOR, VARIABLE	13
		2	2		SEE NOTE 10	CAPACITOR	12
		2	2		1010289-18	CAPACITOR	11
		1	1		1010253-12	RESISTOR, WW	10
		2	2		1010250-1	RESISTOR, WW	9
		2	2		SEE NOTE 10	RESISTOR, WW	8
		1	1		1010283-18	RESISTOR, WW 93K 0.1W ±1%	7
		1	1		SEE NOTE 10	RESISTOR	6
		2	2		1010262-2	RESISTOR, WW	5
		1	1		1010373-9	RESISTOR, VARIABLE	4
		~~1~~	~~1~~		~~1008018-2~~	~~INSULATOR, BOTTOM~~	3
		–	1		1008018-1	INSULATOR, TOP	2
		1	1		1008013	HEATSINK	1

1007509 G

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS XX ±.02 XXX ±.005
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. Contract NAS 9-497
DRAWN Toro DATE 17 SEP 64
CHECKED J. Udovch 30 SEP 64
APPROVAL
APPROVAL 12/4/64
NASA APPROVAL
MIT APPROVAL

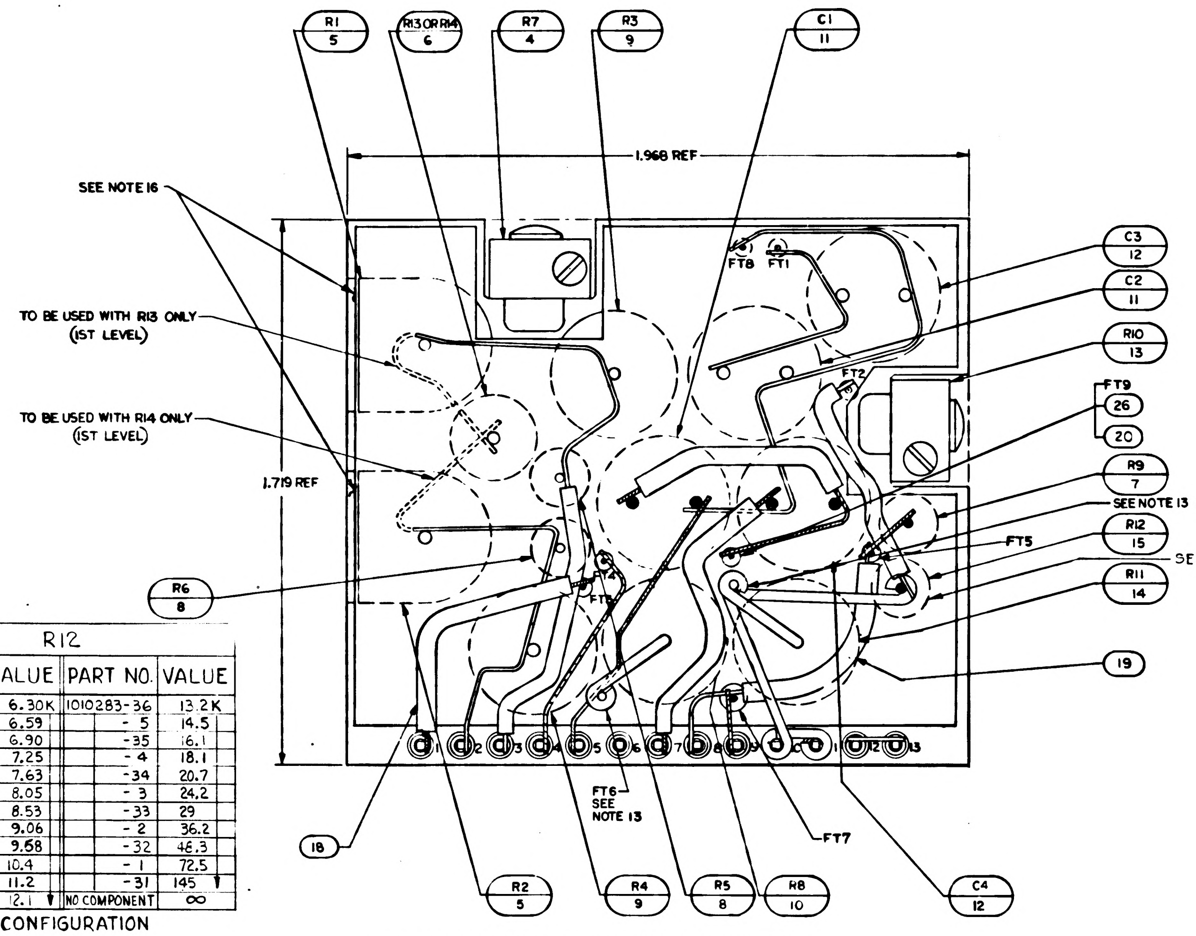
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PIPA CALIBRATION
ASSEMBLY

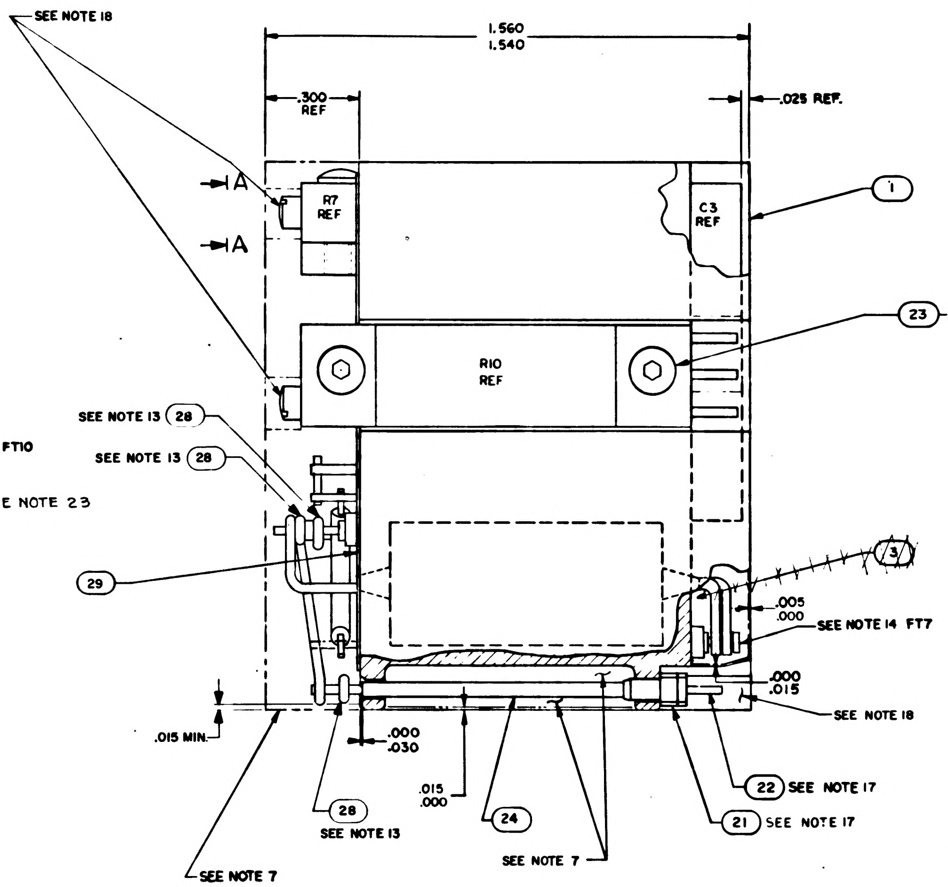
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007509
SCALE 5/1
WT
SHEET 1 OF 1

1007509 REV G SH 1

2/1007509


R1
5
R13 OR R14
6
R7
4
R3
9
C1
11
1.968 REF
SEE NOTE 16
TO BE USED WITH R13 ONLY
(1ST LEVEL)
TO BE USED WITH R14 ONLY
(1ST LEVEL)
1.719 REF
FT8
FT1
FT2
C3
12
C2
11
R10
13
FT9
26
20
R9
7
SEE NOTE 13 FT10
R12
15
FT5
SEE NOTE 23
R11
14
R6
8
19
FT6
SEE NOTE 13
FT7
18
R2
5
R4
9
R5
8
R8
10
C4
12

LEFT SIDE VIEW (BEFORE POTTING) OF DASH 021 CONFIGURATION. SEE DETAIL "A" FOR DASH 011 CONFIGURATION.


SEE NOTE 18
1.560
1.540
.300
REF
.025 REF.
A
A
R7
REF
C3
REF
1
R10
REF
23
SEE NOTE 6
SEE NOTE 13
28
SEE NOTE 13
28
29
3
.005
.000
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
24
22
SEE NOTE 17
21
SEE NOTE 17
28
SEE NOTE 13
SEE NOTE 7
SEE NOTE 7

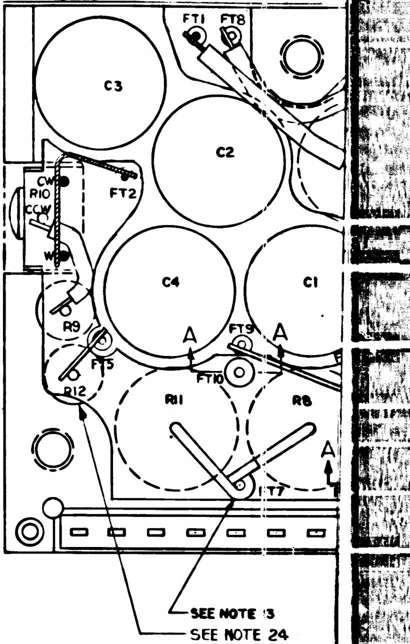

FT1
FT8
C3
C2
R10
CW
FT2
W
C4
C1
R9
FT5
FT9
A
A
FT10
R12
R11
R8
FT7
SEE NOTE 13
SEE NOTE 24

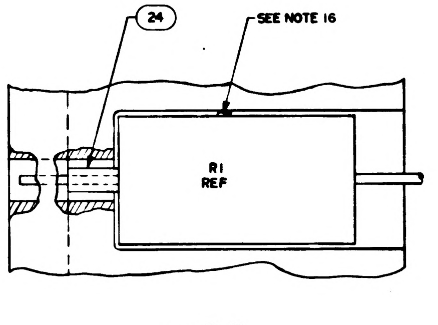
TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~
~~WAFER AND FLAT HEATSINK~~	~~[illegible] OF AREA [illegible] HEATSINK SURFACE [illegible] .05 FROM EXTERNAL [illegible] SURFACE.~~
~~WAFER AND ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET [illegible] SURFACE [illegible] EXTERNAL SURFACE~~
~~HEATSINK FOAM CONTACT SURFACE PER METER~~	

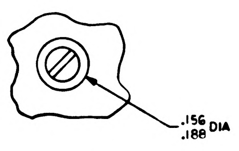
R12

PART NO.	VALUE	PART NO.	VALUE
1010283-42	6.30K	1010283-36	13.2K
-11	6.59	- 5	14.5
-41	6.90	-35	16.1
-10	7.25	- 4	18.1
-40	7.63	-34	20.7
- 9	8.05	- 3	24.2
-39	8.53	-33	29
- 8	9.06	- 2	36.2
-38	9.58	-32	46.3
- 7	10.4	- 1	72.5
-37	11.2	-31	145
- 6	12.1	NO COMPONENT	∞

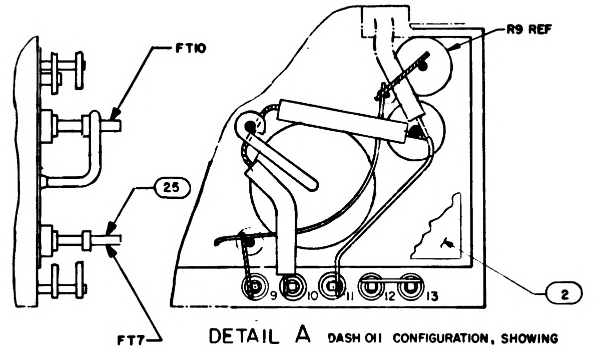
-021 CONFIGURATION


24
SEE NOTE 16
R1
REF

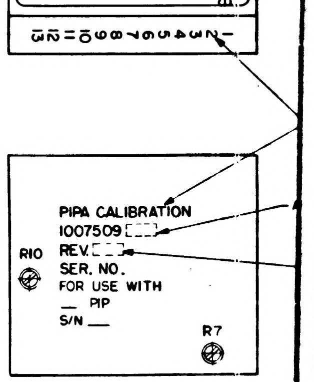
VIEW B-B
2 PLACES



VIEW A-A
2 PLACES


FT10
25
FT7
R9 REF
2
9
10
11
12
13

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


1 2 3 4 5 6 7 8 9 10 11 12 13
PIPA CALIBRATION
1007509
REV.
SER. NO.
FOR USE WITH
__ PIP
S/N ___
R10
R7

MARKING VIEW
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. ~~BOND FIND NO. 27 TO FIND NO. 21 PER ND1002237~~
6. APPLY ZINC CHROMATE PRIMER MIL-P-8585 PER MIL-P-6808(ASG) TO FIND NO.23
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) USING CURING CYCLE II. UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
8. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO.6 THRU FIND NO. 12, FIND NO. 14 THRU FIND NO. 17 AND FIND NO. 25 PER ND1002009 METHOD H.
10. * SELECT R5, R6, R11, R12, C3 & C4 PER ATP10C0013 FROM APPROPRIATE CHART
11. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069
12. AR DENOTES AS REQUIRED
13. SOLDER PER ND1002071
14. CUT FT7 AT TOP OF TURRET
15. PROCURE PER PS 1007009
16. BOND FIND NO.5 PER ND1002117
17. MUST MEET REQUIREMENTS OF ND1002136
18. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
19. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
20. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.
23. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) EXTEND THE COPPER RIBBON IN ONE CONTINUOUS PATH FROM FT-10 TO FT-2 AND FOLLOWING THE SAME GENERAL ROUTING AS IS THE CASE WHEN R12 IS USED. SLEEVE THE ENTIRE LENGTH OF THIS CONDUCTOR WITH FIND NO. 24
24. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) DELETE THE LOWER LEVEL RIBBON RUN FROM R12 TO FT5.

R13 AND R14

PART NO.	VALUE
1010251 - 1	31.9K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251 - 20	61.8K
1010251 - 21	67.4K
1010251 - 22	74.2K
1010251 - 23	82.6K
1010251 - 24	92.9K
1010251 - 25	106K
1010251 - 26	124K
1010251 -27	149K
1010251 - 28	187K
1010251 - 29	249K
1010251 - 30	373K
1010251 - 31	746K

C3 AND C4

PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11

PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12

PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

-011 CONFIGURATION

R5 AND R6

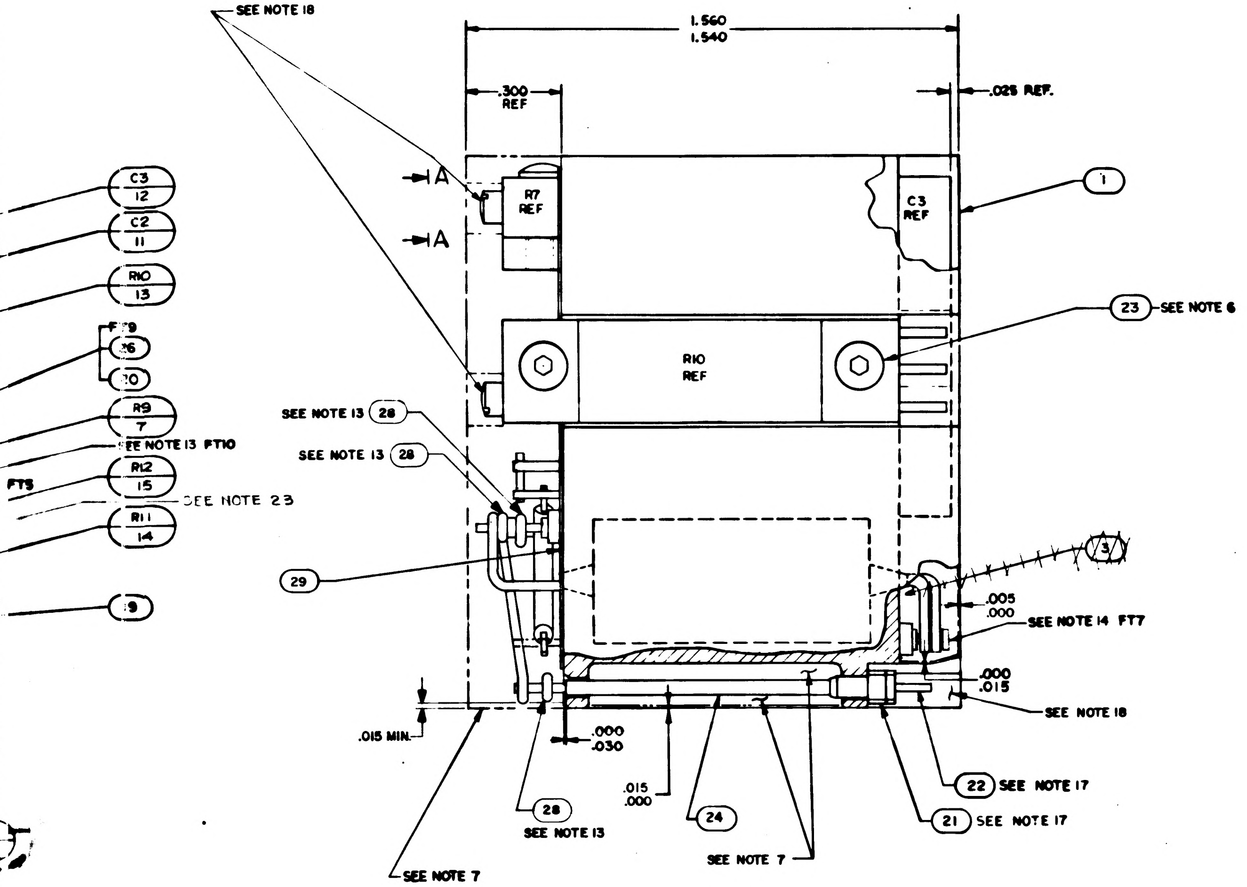
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

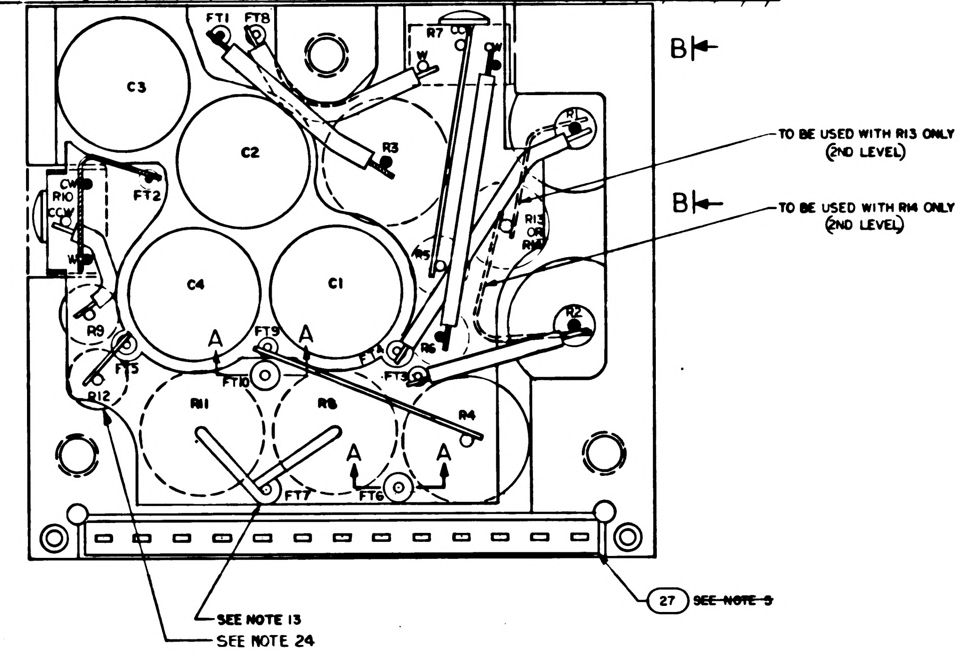
-021 CONFIGURATION

REV	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR [illegible]	[illegible]	[illegible]
B	REVISED PER TDRR 1949	[illegible] 65	AJ
C	REVISED PER TDRR 19431	3 [illegible]	[illegible]
D	REVISED PER TDRR 19499	5 [illegible]	[illegible]
E	REVISED PER TDRR 19799	[illegible] 65	[illegible]
F	REVISED PER TDRR 20143	[illegible]	[illegible]
G	REVISED PER TDRR 20136	28 [illegible] 65	[illegible]
H	REVISED PER TDRR 21120	[illegible]	[illegible]

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	00% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN. WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE

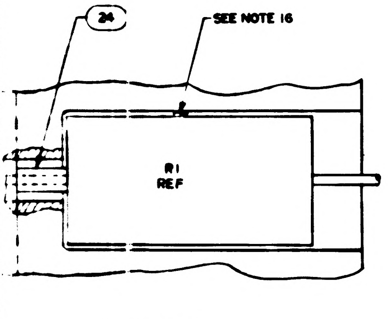

SEE NOTE 18
1.560
1.540
.300
REF
.025 REF.
A
A
R7
REF
C3
REF
1
C3
12
C2
11
R10
13
FT9
26
10
R9
7
SEE NOTE 13 FT10
R12
15
FT5
SEE NOTE 23
R11
14
9
R10
REF
23
SEE NOTE 6
SEE NOTE 13
28
SEE NOTE 13
28
29
3
.005
.000
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
28
SEE NOTE 13
24
22 SEE NOTE 17
21 SEE NOTE 17
SEE NOTE 7
SEE NOTE 7


FT1
FT8
R7
CCW
CW
W
B
C3
C2
R3
R1
TO BE USED WITH R13 ONLY
(2ND LEVEL)
R10
CCW
CW
W
FT2
B
TO BE USED WITH R14 ONLY
(2ND LEVEL)
R13
OR
R14
C4
C1
R5
R2
R9
FT5
A
FT9
A
R6
R12
FT10
FT3
R11
R8
R4
A
A
FT7
FT6
27
~~SEE NOTE 5~~
SEE NOTE 13
SEE NOTE 24

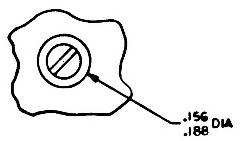
R5 AND R6

PART NO.	VALUE Ω	PART NO.	VALUE Ω
1010377-76	82.5K	1010377-94	105.0K
1010377-77	83.75K	1010377-95	106.25K
1010377-78	85.0K	1010377-96	107.5K
1010377-79	86.25K	1010377-97	108.75K
1010377-80	87.5K	1010377-98	110.0K
1010377-81	88.75K	1010377-99	111.25K
1010377-82	90.0K	1010377-100	112.5K
1010377-83	91.25K	1010377-101	113.75K
1010377-84	92.5K	1010377-102	115.0K
1010377-85	93.75K	1010377-103	116.25K
1010377-86	95.0K	1010377-104	117.5K
1010377-87	96.25K		
1010377-88	97.5K		
1010377-89	98.75K		
1010377-90	100.0K		
1010377-91	101.25K		
1010377-92	102.5K		
1010377-93	103.75K		

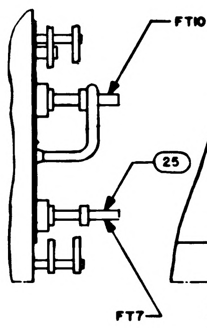
-011 CONFIGURATION

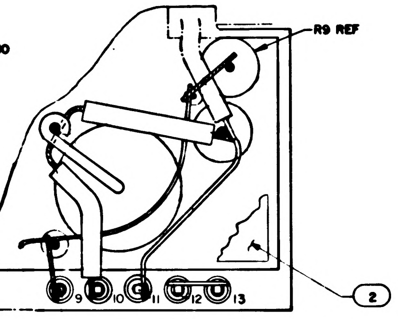

24
SEE NOTE 16
R1
REF

VIEW B-B
2 PLACES

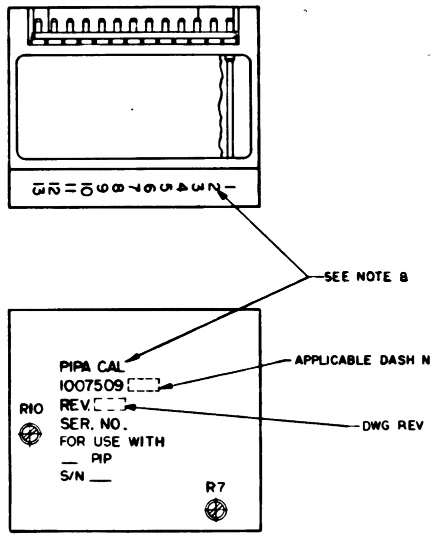


VIEW A-A
2 PLACES

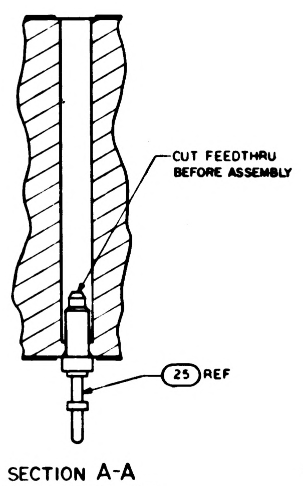



R9 REF
2
9
10
11
12
13

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


1 2 3 4 5 6 7 8 9 10 11 12 13
SEE NOTE 8
PIPA CAL
1007509
APPLICABLE DASH NO.
REV.
DWG REV LTR
R10
SER. NO.
FOR USE WITH
__ PIP
S/N __
R7

MARKING VIEW
SCALE 2/1


CUT FEEDTHRU
BEFORE ASSEMBLY
25 REF

SECTION A-A
TYPICAL INSTALLATION FOR FT6 AND FT10

QUANTITY REQUIRED 021	QUANTITY REQUIRED 011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	–		1009541	SCHEMATIC	REF
–	☒		1010009	SCHEMATIC	REF
1	–		1008585	INSULATOR, TOP	29
AR			QQ-W-343 TYPE S	WIRE, COPPER	28
1	1		1008540-13	GASKET, CONNECTOR MINIATURE	27
AR	AR		1006776-22	INSULATION SLEEVING	26
3	3		1006784-6	TERMINAL, FEEDTHRU	25
AR	AR		1006776-20	INSULATION SLEEVING	24
4	4		1000093-3	SCREW, BUTTON HD	23
13	13		1006782-4	CONTACT, WRAPOST MALE MINAT	22
13	13		1006775	INSULATOR, WRAPOST MALE MINAT	21
AR	AR		1006757-8	WIRE, ELEC	20
AR	AR		1006757-1	WIRE, ELEC	19
AR	AR		1006776-21	INSULATION SLEEVING	18
					17
					16
1	1		SEE NOTE 10	RESISTOR, WW	15
1	1		SEE NOTE 10	RESISTOR, WW	14
1	1		1010373-8	RESISTOR, VARIABLE	13
2	2		SEE NOTE 10	CAPACITOR	12
2	2		1010289-18	CAPACITOR	11
1	1		1010253-12	RESISTOR, WW	10
2	2		1010250-1	RESISTOR, WW	9
2	2		SEE NOTE 10	RESISTOR, WW	8
1	1		1010283-18	RESISTOR, WW 9.3K 0.1W ±1%	7
1	1		SEE NOTE 10	RESISTOR	6
2	2		1010262-2	RESISTOR, WW	5
1	1		1010373-9	RESISTOR, VARIABLE	4
~~1~~	~~1~~		~~1008018-2~~	~~INSULATOR, BOTTOM~~	3
–	1		1008018-1	INSULATOR, TOP	2
1	1		1008013	HEATSINK	1

LIST OF MATERIALS

R13 AND R14

PART NO.	VALUE
010251 -	31.8K
010251-10	33.4K
010251-11	35.0K
010251-12	36.8K
010251-13	38.8K
010251-14	41.0K
010251-15	43.4K
010251-16	46.2K
010251-17	49.3K
010251-18	52.9K
010251-19	57.0K
010251-20	61.8K
[illegible]	67.4K
[illegible]	74.2K
[illegible]	82.6K
[illegible]	92.9K
[illegible]	106K
[illegible]	124K
[illegible]	149K
[illegible]	187K
[illegible]	249K
[illegible]	373K
[illegible]	746K

C3 AND C4

PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11

PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12

PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

-011 CONFIGURATION

R5 AND R6

PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN [illegible] DATE 17 SEP 64
CHECKED [illegible] 30 SEP 64
APPROVAL [illegible]
APPROVAL [illegible] 12/4/64
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PIPA CALIBRATION
ASSEMBLY

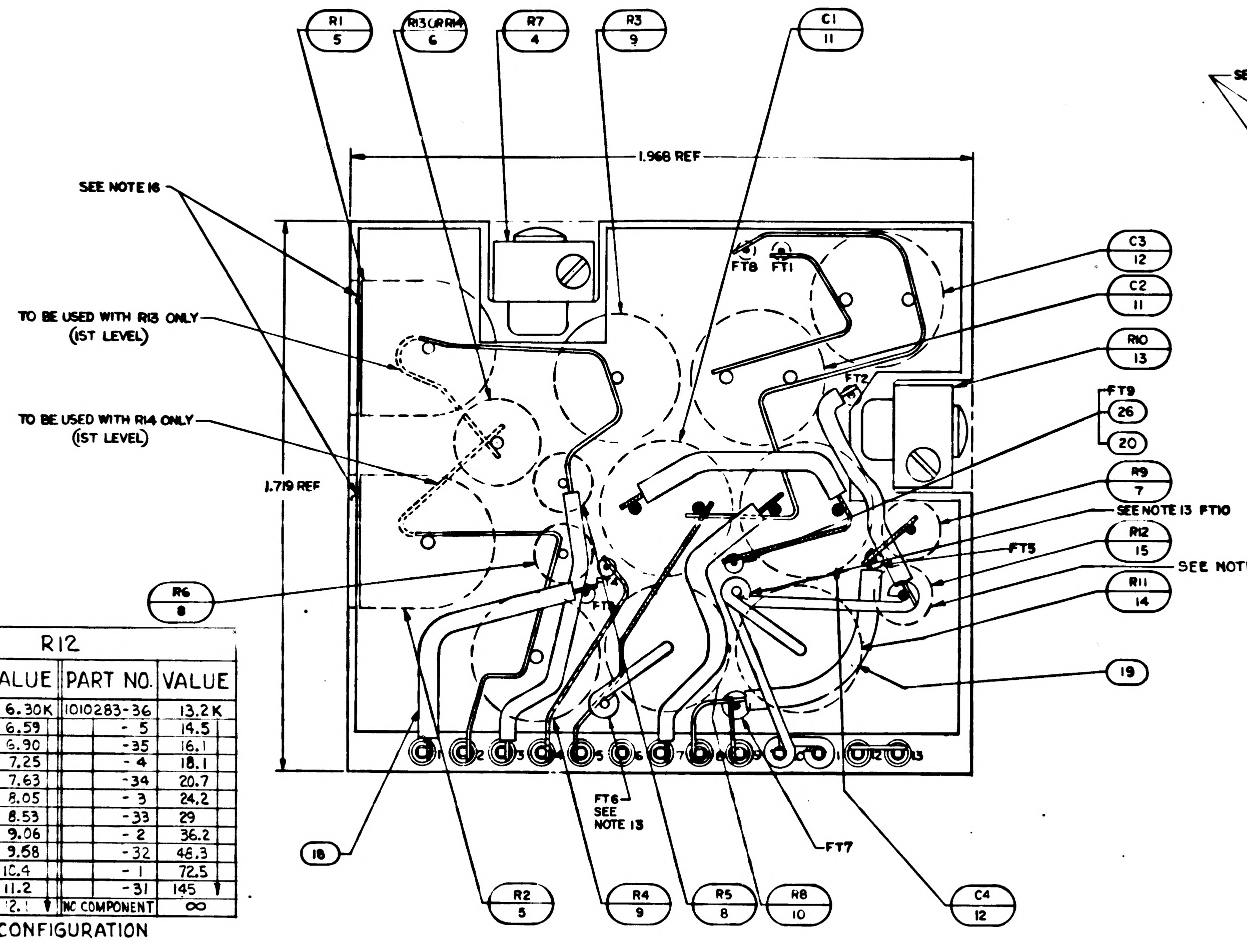
CODE IDENT NO. 80230 | SIZE J | NASA DRAWING NO. 1007509
SCALE 5/1 | WT | SHEET 1 OF 1

1007509 REV LTR H SH 1

27 1007509

1007509

1007509


R1 5
R13 OR R14 6
R7 4
R3 9
C1 11
1.968 REF
SEE NOTE 16
TO BE USED WITH R13 ONLY (1ST LEVEL)
TO BE USED WITH R14 ONLY (1ST LEVEL)
1.719 REF
FT8
FT1
FT2
C3 12
C2 11
R10 13
FT9 26 20
R9 7
SEE NOTE 13 FT10
R12 15
FT5
SEE NOTE 23
R11 14
19
R6 8
FT6 SEE NOTE 13
FT7
18
R2 5
R4 9
R5 8
R8 10
C4 12
1
2
3
4
5
6
7
8
9
10
11
12
13

LEFT SIDE VIEW (BEFORE POTTING) OF DASH 021 CONFIGURATION. SEE DETAIL "A" FOR DASH 011 CONFIGURATION.

R12			
PART NO.	VALUE	PART NO.	VALUE
1010283-42	6.30K	1010283-36	13.2K
-11	6.59	-5	14.5
-41	6.90	-35	16.1
-10	7.25	-4	18.1
-40	7.63	-34	20.7
-9	8.05	-3	24.2
-39	8.53	-33	29
-8	9.06	-2	36.2
-38	9.58	-32	46.3
-7	10.4	-1	72.5
-37	11.2	-31	145
-6	12.1	NO COMPONENT	∞

-021 CONFIGURATION

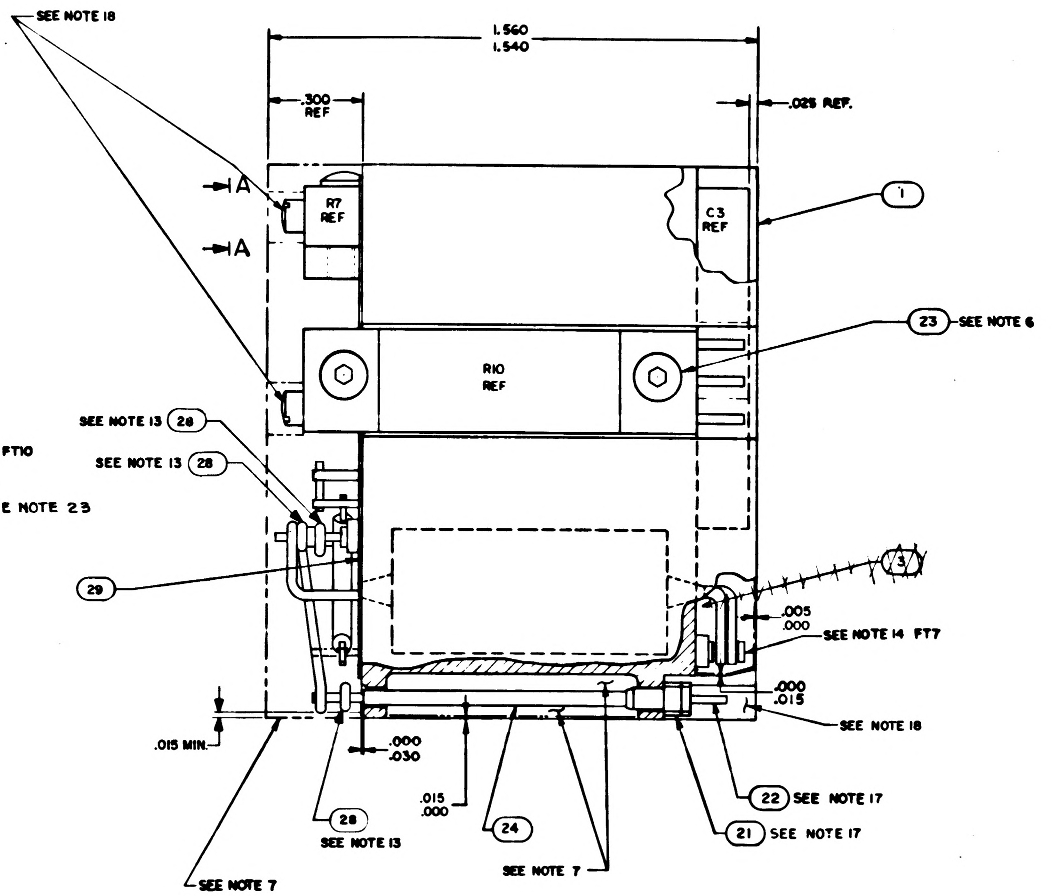
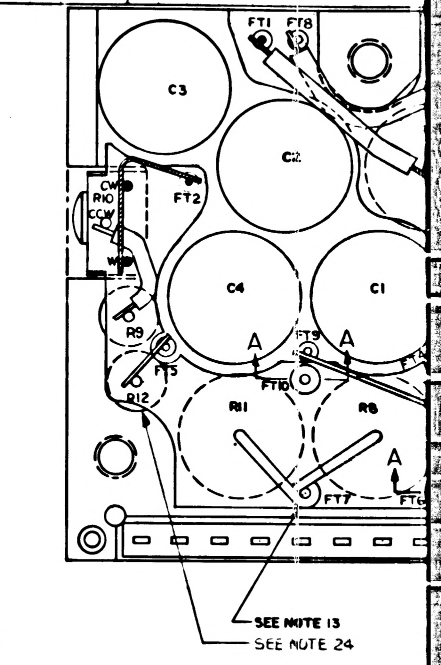
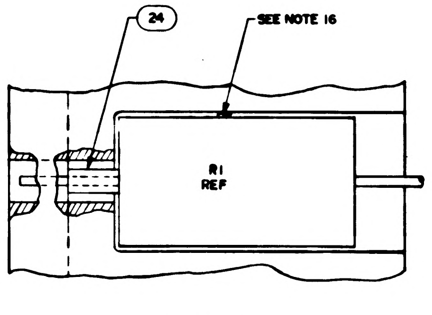
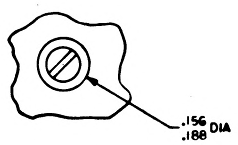

SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
R10 REF
23 SEE NOTE 6
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.005
.000
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
28 SEE NOTE 13
24
22 SEE NOTE 17
21 SEE NOTE 17
SEE NOTE 7
SEE NOTE 7

TABLE I	
CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK
WAFER AND FLAT HEATSINK	100 % OF AREA [illegible] FROM EXTER HEATSINK SURFACE. 80 % OF A .25 FROM EXTERNAL HEATSIN SURFACE.
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ±.03 EXTERNAL SURFACE.
HEATSINK FOAM CONTACT SURFACE PERIMETER	X A

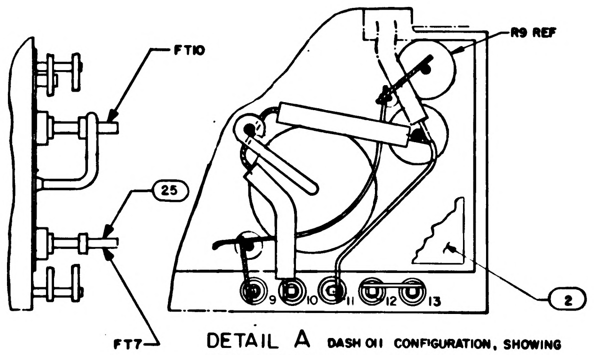

FT1
FT8
C3
C2
CW
R10
CCW
FT2
C4
C1
R9
FT5
A
A
FT10
R12
R11
R6
FT7
SEE NOTE 13
SEE NOTE 24


24
SEE NOTE 16
R1 REF

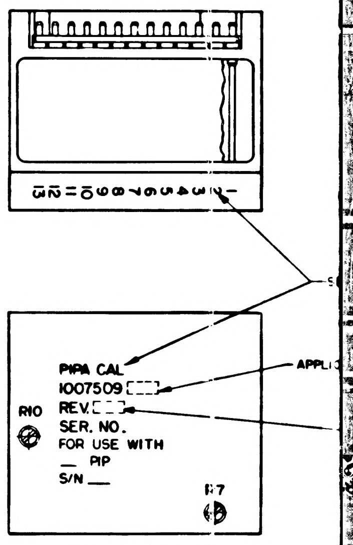
VIEW B-B
2 PLACES



VIEW A-A
2 PLACES


FT10
25
FT7
R9 REF
2
9
10
11
12
13

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


PIPA CAL
1007509
REV.
SER. NO.
FOR USE WITH
___ PIP
S/N ___
R10
R7
APPLI

MARKING VIEW
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. ~~BOND FIND NO. 27 TO FIND NO. 21 PER ND1002237~~
6. APPLY ZINC CHROMATE PRIMER MIL-P-8585 PER MIL-P-6808(ASG) TO FIND NO. 23
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) USING CURING CYCLE II. UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
8. MARK PIN NUMBERS .060 / .100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100 / .140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO. 6 THRU FIND NO. 12, FIND NO. 14 THRU FIND NO. 17 AND FIND NO. 25 PER ND1002009 METHOD H.
10. SELECT R5, R6, R11, R12, C3 & C4 PER ATP10C0013 FROM APPROPRIATE CHART
11. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069
12. AR DENOTES AS REQUIRED
13. SOLDER PER ND1002071
14. CUT FT7 AT TOP OF TURRET
15. PROCURE PER PS 1007009
16. BOND FIND NO. 5 PER ND1002117
17. MUST MEET REQUIREMENTS OF ND1002136
18. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
19. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
20. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140 °F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.
23. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) EXTEND THE COPPER RIBBON IN ONE CONTINUOUS PATH FROM FT-10 TO FT-2 AND FOLLOWING THE SAME GENERAL ROUTING AS IS THE CASE WHEN R12 IS USED. SLEEVE THE ENTIRE LENGTH OF THIS CONDUCTOR WITH FIND NO. 24
24. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) DELETE THE LOWER LEVEL RIBBON RUN FROM R12 TO FT5.

R13 AND R14	
PART NO.	VALUE
1010251 - 1	31.9K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251-20	61.8K
1010251-21	67.4K
1010251-22	74.2K
1010251-23	82.6K
1010251-24	92.9K
1010251-25	106K
1010251-26	124K
1010251-27	149K
1010251-28	187K
1010251-29	249K
1010251-30	373K
1010251-31	746K

C3 AND C4	
PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11	
PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12	
PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

-011 CONFIGURATION

R5 AND R6			
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

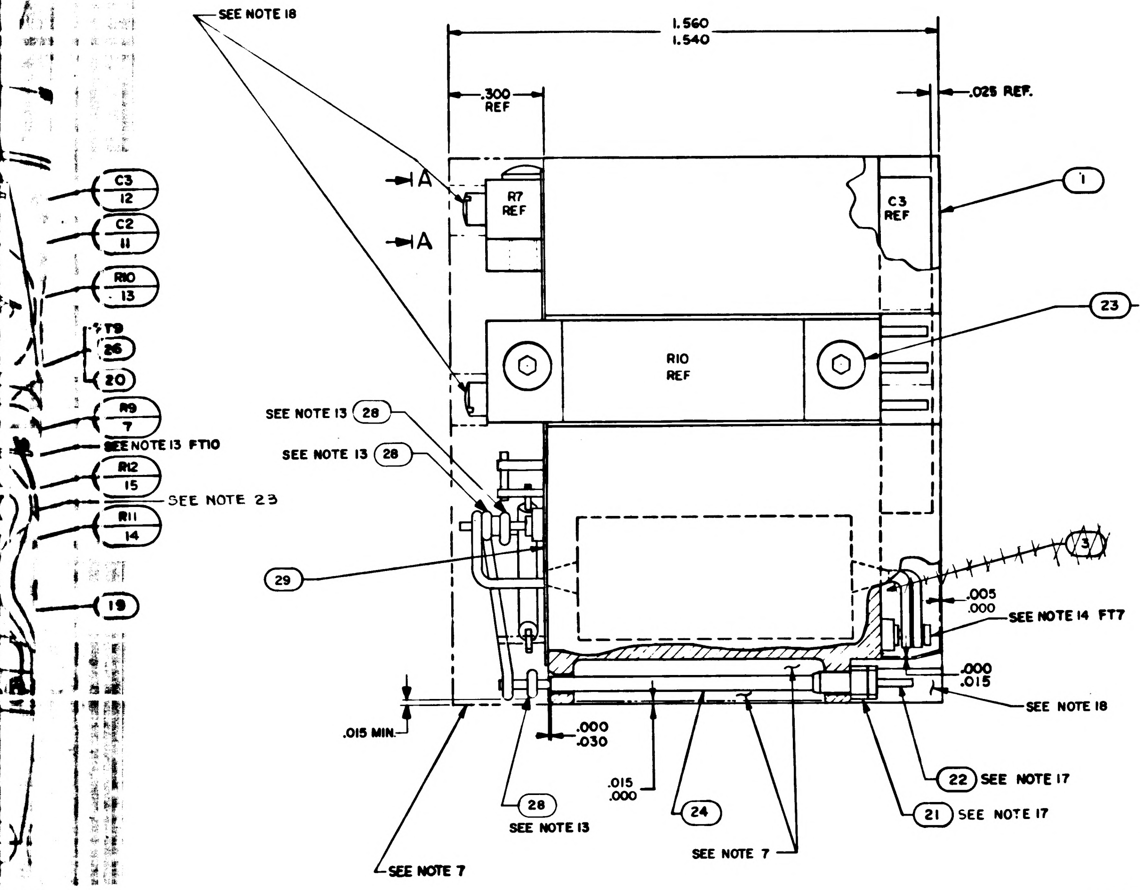
-021 CONFIGURATION

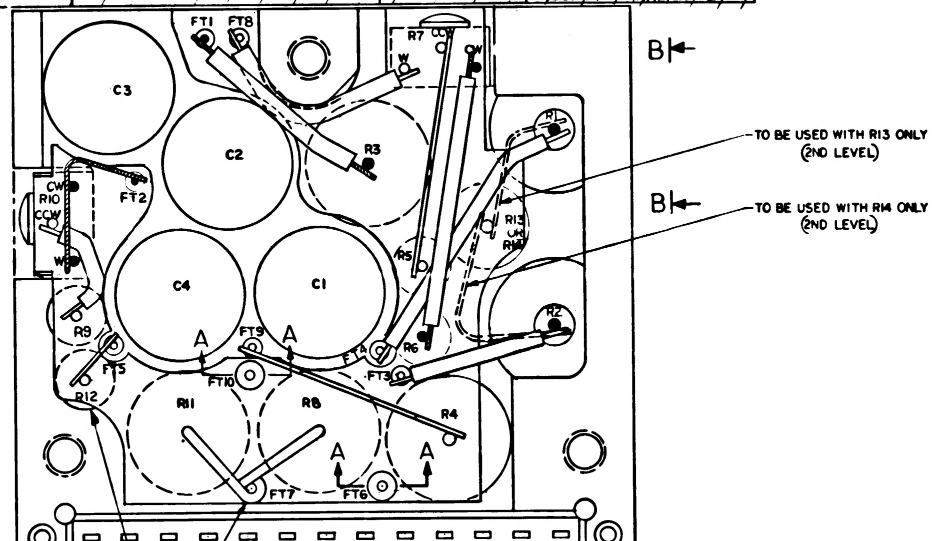
1007509

REV	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 73	65	
B	REVISED PER TDRR 1940	JUN 65	AJ
C	REVISED PER TDRR 19431	3 JUN 65	
D	REVISED PER TDRR 19499	5 JUN 65	
E	REVISED PER TDRR 19799	JUN 65	
F	REVISED PER TDRR 20143	65	
G	REVISED PER TDRR 20156	28 JUL 65	
H	REVISED PER TDRR 21120		
J	REVISED PER TDRR 21125	2 AUG 65	

TABLE I

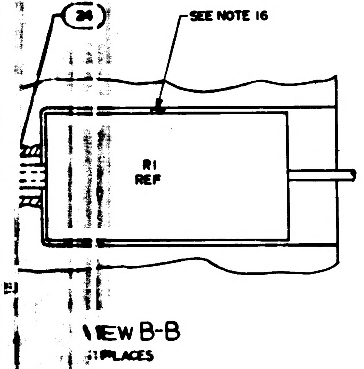
CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN. WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE


SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
C3 12
C2 11
R10 13
FT9 26
20
R9 7
SEE NOTE 13 FT10
R12 15
SEE NOTE 23
R11 14
19
A
A
R7 REF
C3 REF
1
23 SEE NOTE 6
R10 REF
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.005
.000
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
28 SEE NOTE 13
24
22 SEE NOTE 17
21 SEE NOTE 17
SEE NOTE 7
SEE NOTE 7

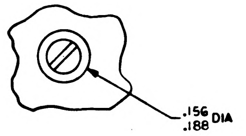

FT1
FT8
R7
CCW
W
CW
C3
C2
R3
R1
B
B
TO BE USED WITH R13 ONLY (2ND LEVEL)
TO BE USED WITH R14 ONLY (2ND LEVEL)
CW
R10
CCW
W
FT2
C4
C1
R5
R13
R14
R2
R9
FT5
FT9
A
A
R6
FT3
FT4
R12
R11
R8
R4
FT10
FT7
FT6
A
A
27 ~~SEE NOTE 5~~
SEE NOTE 13
SEE NOTE 24

R5 AND R6			
PART NO.	VALUE Ω	PART NO.	VALUE Ω
1010377-76	82.5K	1010377-94	105.0K
1010377-77	83.75K	1010377-95	106.25K
1010377-78	85.0K	1010377-96	107.5K
1010377-79	86.25K	1010377-97	108.75K
1010377-80	87.5K	1010377-98	110.0K
1010377-81	88.75K	1010377-99	111.25K
1010377-82	90.0K	1010377-100	112.5K
1010377-83	91.25K	1010377-101	113.75K
1010377-84	92.5K	1010377-102	115.0K
1010377-85	93.75K	1010377-103	116.25K
1010377-86	95.0K	1010377-104	117.5K
1010377-87	96.25K		
1010377-88	97.5K		
1010377-89	98.75K		
1010377-90	100.0K		
1010377-91	101.25K		
1010377-92	102.5K		
1010377-93	103.75K		

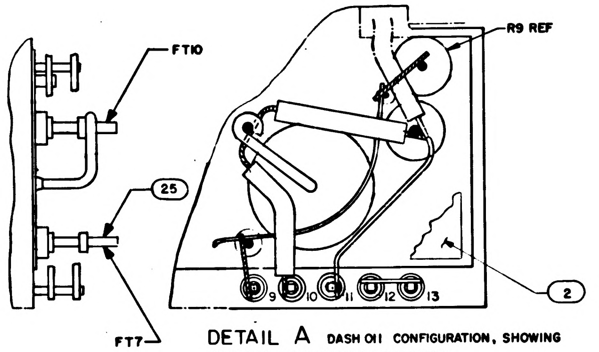
-011 CONFIGURATION


24
SEE NOTE 16
R1 REF

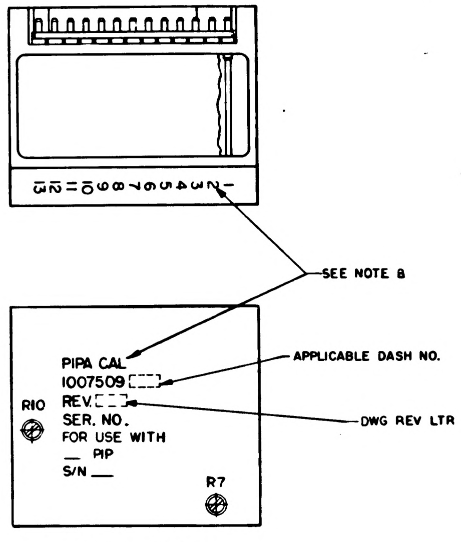
VIEW B-B
4 PLACES



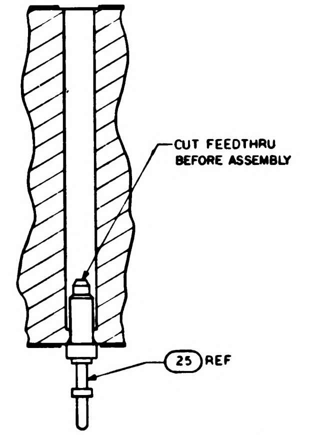
VIEW A-A
2 PLACES


FT10
25
FT7
R9 REF
2
9
10
11
12
13

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


1 2 3 4 5 6 7 8 9 10 11 12 13
SEE NOTE 8
PIPA CAL
1007509
REV.
SER. NO.
FOR USE WITH
__ PIP
S/N ___
R10
R7
APPLICABLE DASH NO.
DWG REV LTR

MARKING VIEW
SCALE 2/1


CUT FEEDTHRU BEFORE ASSEMBLY
25 REF

SECTION A-A
TYPICAL INSTALLATION FOR FT6 AND FT10

R13 AND R14	
PART NO.	VALUE
1010251-9	31.9K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251-20	61.8K
1010251-21	67.4K
1010251-22	74.2K
1010251-23	82.6K
1010251-24	92.9K
1010251-25	106K
1010251-26	124K
1010251-27	149K
1010251-28	187K
1010251-29	249K
1010251-30	373K
1010251-31	746K

C3 AND C4	
PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11	
PART NO.	VALUE Ω
1010834-1	61.556
1010834-2	60.934
1010834-3	60.326
1010834-4	59.729
1010834-5	59.144
1010834-6	58.570
1010834-7	58.008
1010834-8	57.456
1010834-9	56.914
1010834-10	56.383
1010834-11	55.861

R12	
PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

-011 CONFIGURATION

R5 AND R6			
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		☒	–		1009541	SCHEMATIC	REF
		–	☒		1010009	SCHEMATIC	REF
		1	–		1008585	INSULATOR, TOP	29
		AR			QQ-W-343 TYPE S	WIRE, COPPER	28
		1	1		1008540-13	GASKET, CONNECTOR MINIATURE	27
		AR	AR		1006776-22	INSULATION SLEEVING	26
		3	3		1006784-6	TERMINAL, FEEDTHRU	25
		AR	AR		1006776-20	INSULATION SLEEVING	24
		4	4		1000093-3	SCREW, BUTTON HD	23
		13	13		1006782-4	CONTACT, WRAPOST MALE MINAT	22
		13	13		1006775	INSULATOR, WRAPOST MALE MINAT	21
		AR	AR		1006757-8	WIRE, ELEC	20
		AR	AR		1006757-1	WIRE, ELEC	19
		AR	AR		1006776-21	INSULATION SLEEVING	18
							17
							16
		1	1		SEE NOTE 10	RESISTOR, WW	15
		1	1		SEE NOTE 10	RESISTOR, WW	14
		1	1		1010373-8	RESISTOR, VARIABLE	13
		2	2		SEE NOTE 10	CAPACITOR	12
		2	2		1010289-18	CAPACITOR	11
		1	1		1010834-12	RESISTOR, WW	10
		2	2		1010250-1	RESISTOR, WW	9
		2	2		SEE NOTE 10	RESISTOR, WW	8
		1	1		1010283-18	RESISTOR, WW 9.3K 0.1W ±1%	7
		1	1		SEE NOTE 10	RESISTOR	6
		2	2		1010262-2	RESISTOR, WW	5
		1	1		1010373-9	RESISTOR, VARIABLE	4
		~~1~~	~~1~~		~~1008018-2~~	~~INSULATOR, BOTTOM~~	3
		–	1		1008018-1	INSULATOR, TOP	2
		1	1		1008013	HEATSINK	1

QUANTITY REQUIRED
LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS XX±.02 XXX±.005
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Toro DATE 17 SEP 64
CHECKED 30 SEP 64
APPROVAL
APPROVAL 12/4/64
NASA APPROVAL
MIT APPROVAL

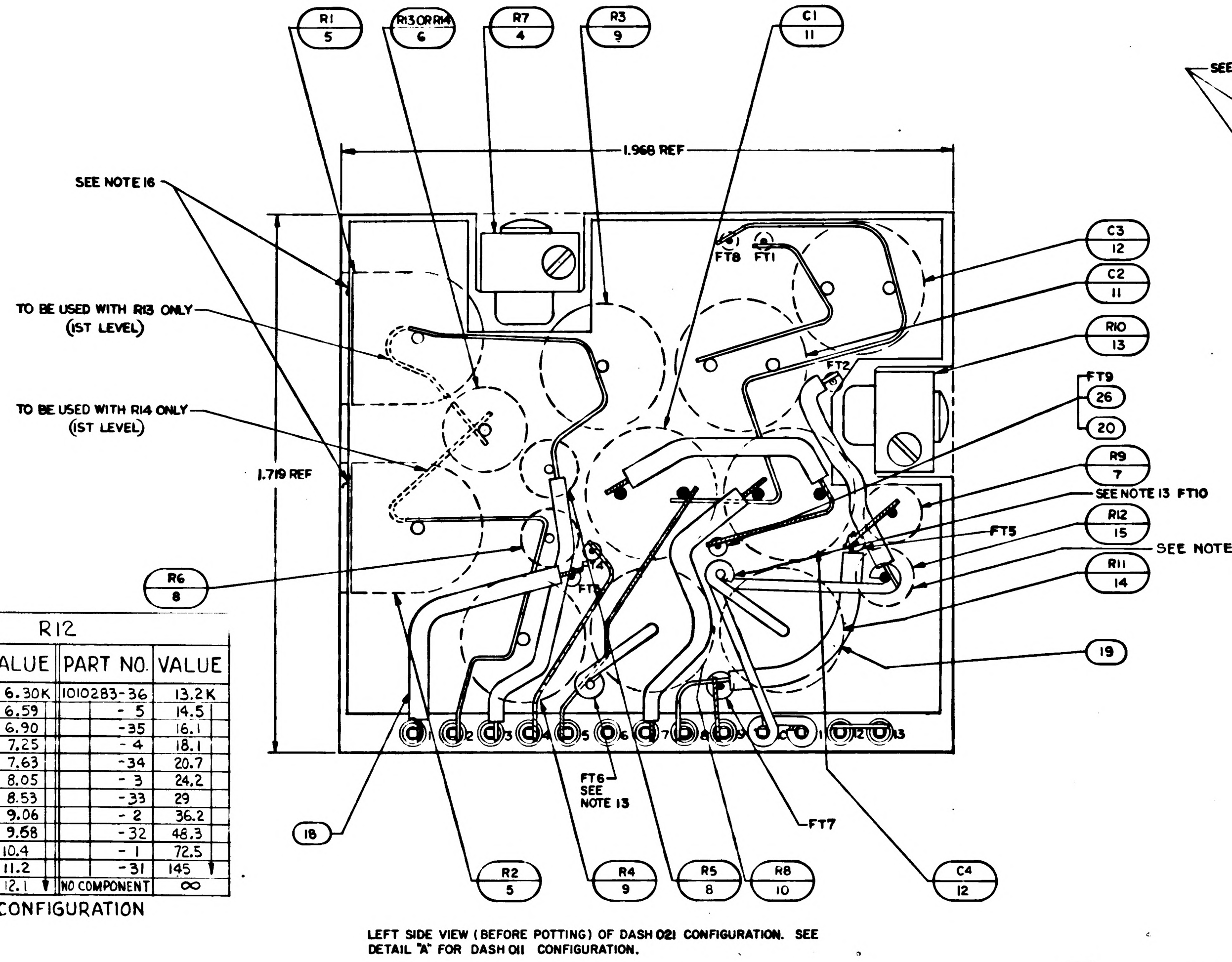
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PIPA CALIBRATION ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007509
SCALE 5/1
WT
SHEET 1 OF 1

1007509 REV LTR J SH 1

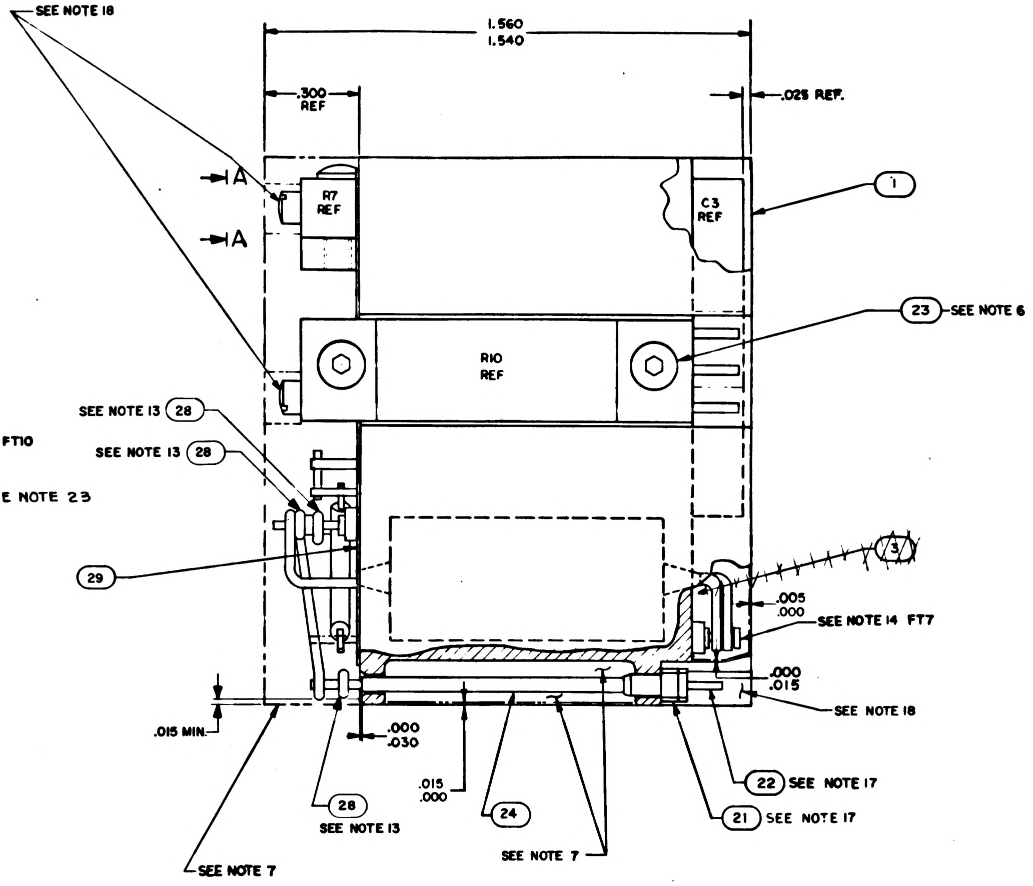
2/1007509


R1 5
R13 OR R14 6
R7 4
R3 9
C1 11
1.968 REF
SEE NOTE 16
TO BE USED WITH R13 ONLY (1ST LEVEL)
TO BE USED WITH R14 ONLY (1ST LEVEL)
1.719 REF
FT8
FT1
FT2
C3 12
C2 11
R10 13
FT9 26 20
R9 7
SEE NOTE 13 FT10
R12 15
FT5
R11 14
SEE NOTE 23
19
R6 8
18
FT6 SEE NOTE 13
FT7
R2 5
R4 9
R5 8
R8 10
C4 12

LEFT SIDE VIEW (BEFORE POTTING) OF DASH 021 CONFIGURATION. SEE DETAIL "A" FOR DASH 011 CONFIGURATION.

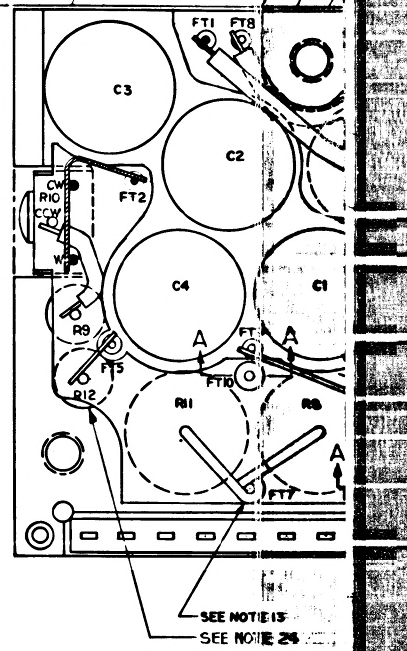
R12			
PART NO.	VALUE	PART NO.	VALUE
1010283-42	6.30K	1010283-36	13.2K
-11	6.59	- 5	14.5
-41	6.90	-35	16.1
-10	7.25	- 4	18.1
-40	7.63	-34	20.7
- 9	8.05	- 3	24.2
-39	8.53	-33	29
- 8	9.06	- 2	36.2
-38	9.68	-32	48.3
- 7	10.4	- 1	72.5
-37	11.2	-31	145
- 6	12.1	NO COMPONENT	∞

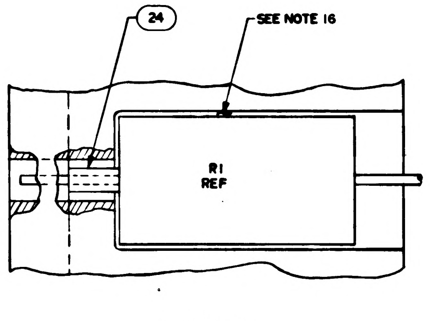
-021 CONFIGURATION


SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
R10 REF
23 SEE NOTE 6
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.005
.000
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
28 SEE NOTE 13
24
SEE NOTE 7
SEE NOTE 7
22 SEE NOTE 17
21 SEE NOTE 17

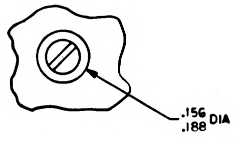
~~CONFIGURATION~~	~~BOND BETWEEN WAFER AN~~
~~WAFER AND FLAT HEATSINK~~	~~[illegible] OF AREA [illegible] FROM EXTE~~ ~~HEATSINK SURFACE. 80% OF~~ ~~[illegible] FROM EXTERNAL HEATSI~~ ~~SURFACE.~~
~~WAFER AND ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET [illegible] VERTICA~~ ~~SURFACE [illegible] .031.03~~ ~~EXTERNAL SURFACE.~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~x/A~~

TABLE I

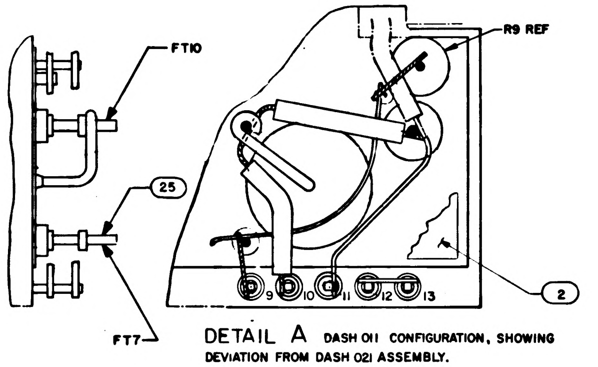

FT1
FT8
C3
C2
CW
R10
CCW
FT2
C4
C1
R9
A
A
FT5
FT10
R12
R11
R8
A
FT7
SEE NOTE 13
SEE NOTE 24


24
SEE NOTE 16
R1 REF

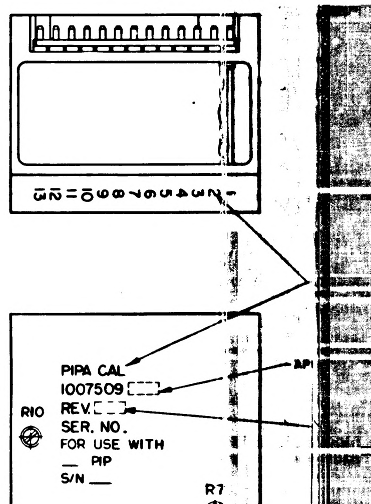
VIEW B-B
2 PLACES



VIEW A-A
2 PLACES


FT10
25
FT7
R9 REF
2
9
10
11
12
13

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


1 2 3 4 5 6 7 8 9 10 11 12 13
R10
R7

PIPA CAL
1007509 [ ]
REV. [ ]
SER. NO.
FOR USE WITH
__ PIP
S/N ___

MARKING VIEW
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. ~~BOND FIND NO. 27 TO FIND NO. 21 PER ND1002237~~
6. APPLY ZINC CHROMATE PRIMER MIL-P-8585 PER MIL-P-6808(ASG) TO FIND NO.23
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) USING CURING CYCLE II. UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
8. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO.6 THRU FIND NO. 12, FIND NO. 14 THRU FIND NO. 17 AND FIND NO. 25 PER ND1002009 METHOD H.
10. SELECT R5,R6,R11,R12,C3 & C4 PER ATP10C0013 FROM APPROPRIATE CHART
11. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069
12. AR DENOTES AS REQUIRED
13. SOLDER PER ND1002071
14. CUT FT7 AT TOP OF TURRET
15. PROCURE PER PS 1007009
16. BOND FIND NO.5 PER ND1002117
17. MUST MEET REQUIREMENTS OF ND1002136
18. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
19. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
20. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.
23. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) EXTEND THE COPPER RIBBON IN ONE CONTINUOUS PATH FROM FT-10 TO FT-2 AND FOLLOWING THE SAME GENERAL ROUTING AS IS THE CASE WHEN R12 IS USED. SLEEVE THE ENTIRE LENGTH OF THIS CONDUCTOR WITH FIND NO. 24
24. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) DELETE THE LOWER LEVEL RIBBON RUN FROM R12 TO FT5.

R13 AND R14	
PART NO.	VALUE
1010251 - 1	31.9K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251 - 20	61.8K
1010251 - 21	67.4K
1010251 - 22	74.2K
1010251 - 23	82.6K
1010251 - 24	92.9K
1010251 - 25	106K
1010251 - 26	124K
1010251 -27	149K
1010251 - 28	187K
1010251 - 29	249K
1010251 - 30	373K
1010251 - 31	746K

C3 AND C4	
PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11	
PART NO.	VALUE Ω
1010834-1	61.556
1010834-2	60.934
1010834-3	60.326
1010834-4	59.729
1010834-5	59.144
1010834-6	58.570
1010834-7	58.008
1010834-8	57.456
1010834-9	56.914
1010834-10	56.383
1010834-11	55.861

R12	
PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

-011 CONFIGURATION

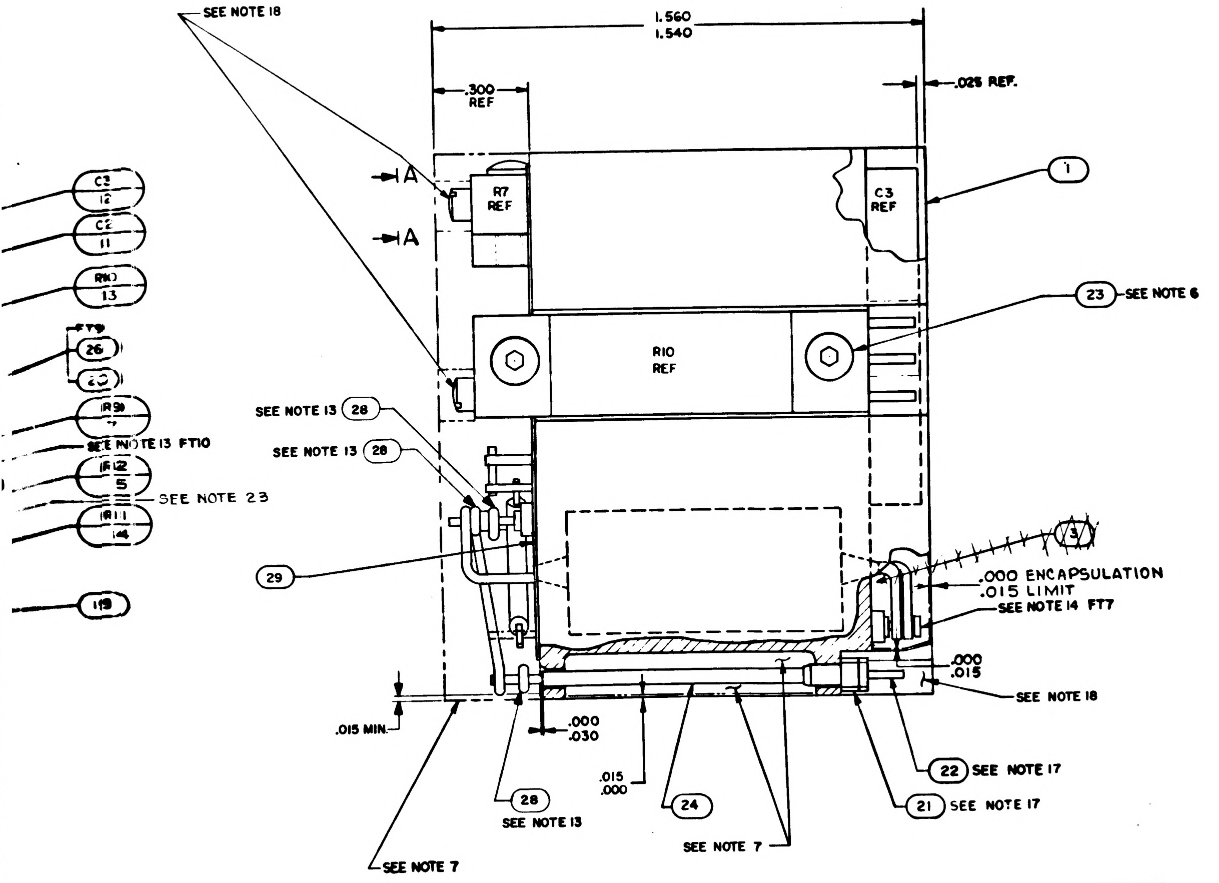
R5 AND R6			
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

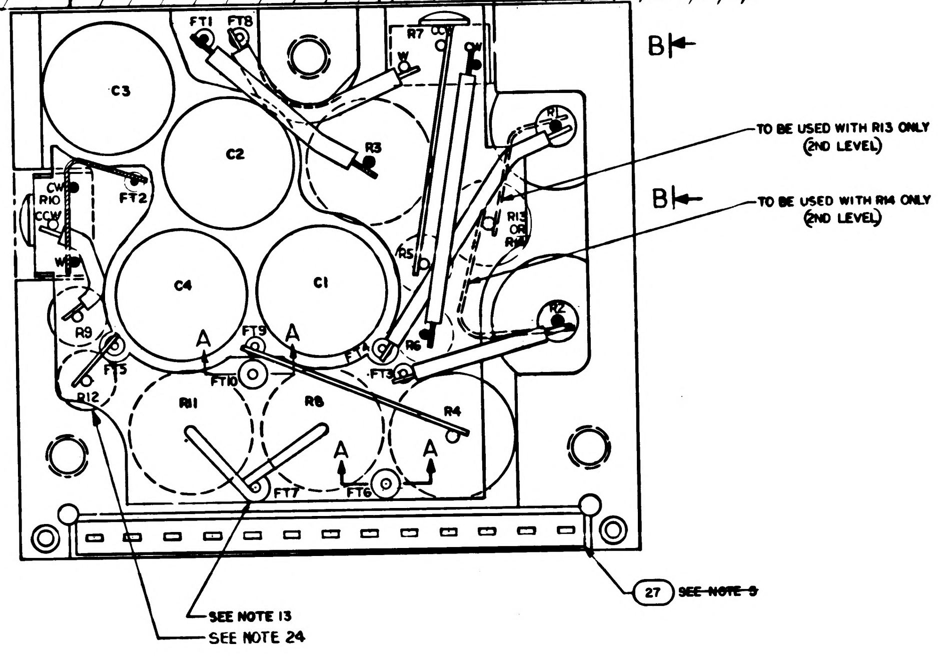
REV	DESCRIPTION	DATE	APPROVAL
A	REVISED PE TDRR 17311	12 AUG 65	
B	REVISED PER TDRR 19401	1 JUN 65	MG AU
C	REVISED PER TDRR 19431	3 JUN 65	
D	REVISED PER TDRR 19499	5 JUN 65	
E	REVISED PER TDRR 19799	JUN 65	
F	REVISED PER TDRR 20143	JUN 65	
G	REVISED PER TDRR 20156	28 JUN 65	MCR
H	REVISED PER TDRR 21120		
J	REVISED PER TDRR 21125	2 AUG 65	
K	REVISED PER TDRR 22973	OCT 65	

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN. WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE



SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
C3 12
C2 11
R10 13
FT9
26
25
R9
SEE NOTE 13 FT10
R12
5
SEE NOTE 23
R11 14
119
R10 REF
23 SEE NOTE 6
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.000 ENCAPSULATION
.015 LIMIT
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
22 SEE NOTE 17
21 SEE NOTE 17
28
SEE NOTE 13
24
SEE NOTE 7
SEE NOTE 7

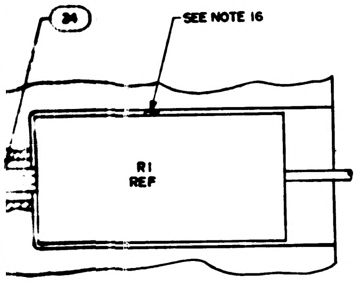


FT1
FT8
R7 CCW
W
CW
C3
C2
R3
R1
TO BE USED WITH R13 ONLY (2ND LEVEL)
B
B
TO BE USED WITH R14 ONLY (2ND LEVEL)
R13 OR R14
CW R10 CCW
W
FT2
C4
C1
R5
R2
R9
FT5
A
FT9
A
FT4
R6
FT3
FT10
R12
R11
R8
R4
A
A
FT7
FT6
SEE NOTE 13
SEE NOTE 24
27 SEE NOTE 9

R5 AND R6

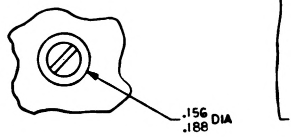
PART NO.	VALUE Ω	PART NO.	VALUE Ω
1010377-76	82.5K	1010377-94	105.0K
1010377-77	83.75K	1010377-95	106.25K
1010377-78	85.0K	1010377-96	107.5K
1010377-79	86.25K	1010377-97	108.75K
1010377-80	87.5K	1010377-98	110.0K
1010377-81	88.75K	1010377-99	111.25K
1010377-82	90.0K	1010377-100	112.5K
1010377-83	91.25K	1010377-101	113.75K
1010377-84	92.5K	1010377-102	115.0K
1010377-85	93.75K	1010377-103	116.25K
1010377-86	95.0K	1010377-104	117.5K
1010377-87	96.25K		
1010377-88	97.5K		
1010377-89	98.75K		
1010377-90	100.0K		
1010377-91	101.25K		
1010377-92	102.5K		
1010377-93	103.75K		

-011 CONFIGURATION

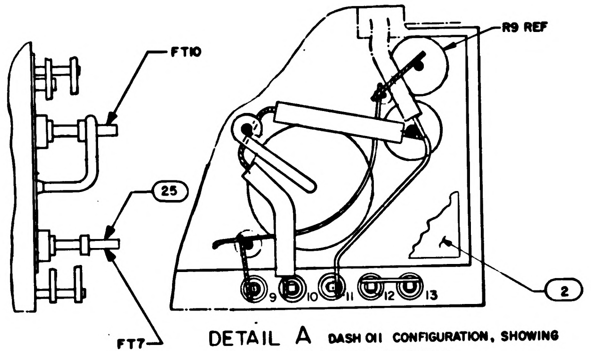


24
SEE NOTE 16
R1 REF

VIEW B-B
2 PLACES

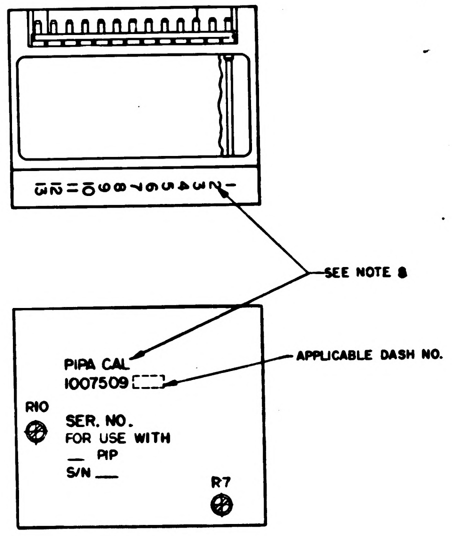


VIEW A-A
2 PLACES



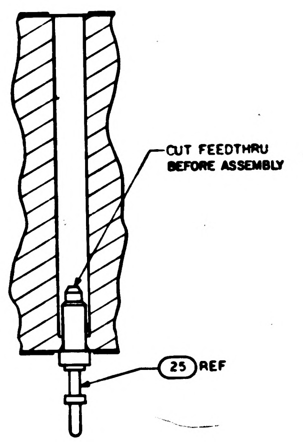
FT10
R9 REF
25
FT7
2
9
10
11
12
13

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.



SEE NOTE 8
PIPA CAL
1007509
APPLICABLE DASH NO.
R10
SER. NO.
FOR USE WITH
PIP
S/N
R7

MARKING VIEW
SCALE 2/1



CUT FEEDTHRU BEFORE ASSEMBLY
25 REF

SECTION A-A
TYPICAL INSTALLATION FOR FT6 AND FT10

QTY REQD -021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	–	1009541	SCHEMATIC	REF
–	☒	1010009	SCHEMATIC	REF
1	–	1008585	INSULATOR, TOP	29
AR		QQ-W-343 TYPE S	WIRE, COPPER	28
1	1	1008540-13	GASKET, CONNECTOR MINIATURE	27
AR	AR	1006776-22	INSULATION SLEEVING	26
3	3	1006784-6	TERMINAL, FEEDTHRU	25
AR	AR	1006776-20	INSULATION SLEEVING	24
4	4	1000093-3	SCREW, BUTTON HD	23
13	13	1006782-4	CONTACT, WRAPOST MALE MINAT	22
13	13	1006775	INSULATOR, WRAPOST MALE MINAT	21
AR	AR	1006757-8	WIRE, ELEC	20
AR	AR	1006757-1	WIRE, ELEC	19
AR	AR	1006776-21	INSULATION SLEEVING	18
				17
				16
1	1	SEE NOTE 10	RESISTOR, WW	15
1	1	SEE NOTE 10	RESISTOR, WW	14
1	1	1010373-8	RESISTOR, VARIABLE	13
2	2	SEE NOTE 10	CAPACITOR	12
2	2	1010289-18	CAPACITOR	11
1	1	1010834-12	RESISTOR, WW	10
2	2	1010250-1	RESISTOR, WW	9
2	2	SEE NOTE 10	RESISTOR, WW	8
1	1	1010283-18	RESISTOR, WW 93K 0.1W ±1%	7
1	1	SEE NOTE 10	RESISTOR	6
2	2	1010262-2	RESISTOR, WW	5
1	1	1010373-9	RESISTOR, VARIABLE	4
~~1~~	~~1~~	~~1008018-2~~	~~INSULATOR, BOTTOM~~	3
–	1	1008018-1	INSULATOR, TOP	2
1	1	1008013	HEATSINK	1

QUANTITY REQUIRED — EFFECTIVITY — LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Gino DATE 11 SEP 64
CHECKED A. Udowik 30 SEP 64
APPROVAL
J. M. BLYSHAK 3 DEC
APPROVAL 12/4/64
NASA APPROVAL W. J. 2-F-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PIPA CALIBRATION ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007509
SCALE 5/1
WT
SHEET 1 OF 1

R13 AND R14

PART NO.	VALUE
1010251 – 1	31.9K
1010251 – 10	33.4K
1010251 – 11	35.0K
1010251 – 12	36.8K
1010251 – 13	38.8K
1010251 – 14	41.0K
1010251 – 15	43.4K
1010251 – 16	46.2K
1010251 – 17	49.3K
1010251 – 18	52.9K
1010251 – 19	57.0K
1010251 – 20	61.8K
1010251 – 21	67.4K
1010251 – 22	74.2K
[illegible]	82.6K
[illegible]	92.9K
[illegible]	106K
[illegible]	124K
[illegible]	149K
[illegible]	187K
[illegible]	249K
[illegible]	373K
[illegible]	746K

C3 AND C4

PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11

PART NO.	VALUE Ω
1010834-1	61.556
1010834-2	60.934
1010834-3	60.326
1010834-4	59.729
1010834-5	59.144
1010834-6	58.570
1010834-7	58.008
1010834-8	57.456
1010834-9	56.914
1010834-10	56.383
1010834-11	55.861

R12

PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

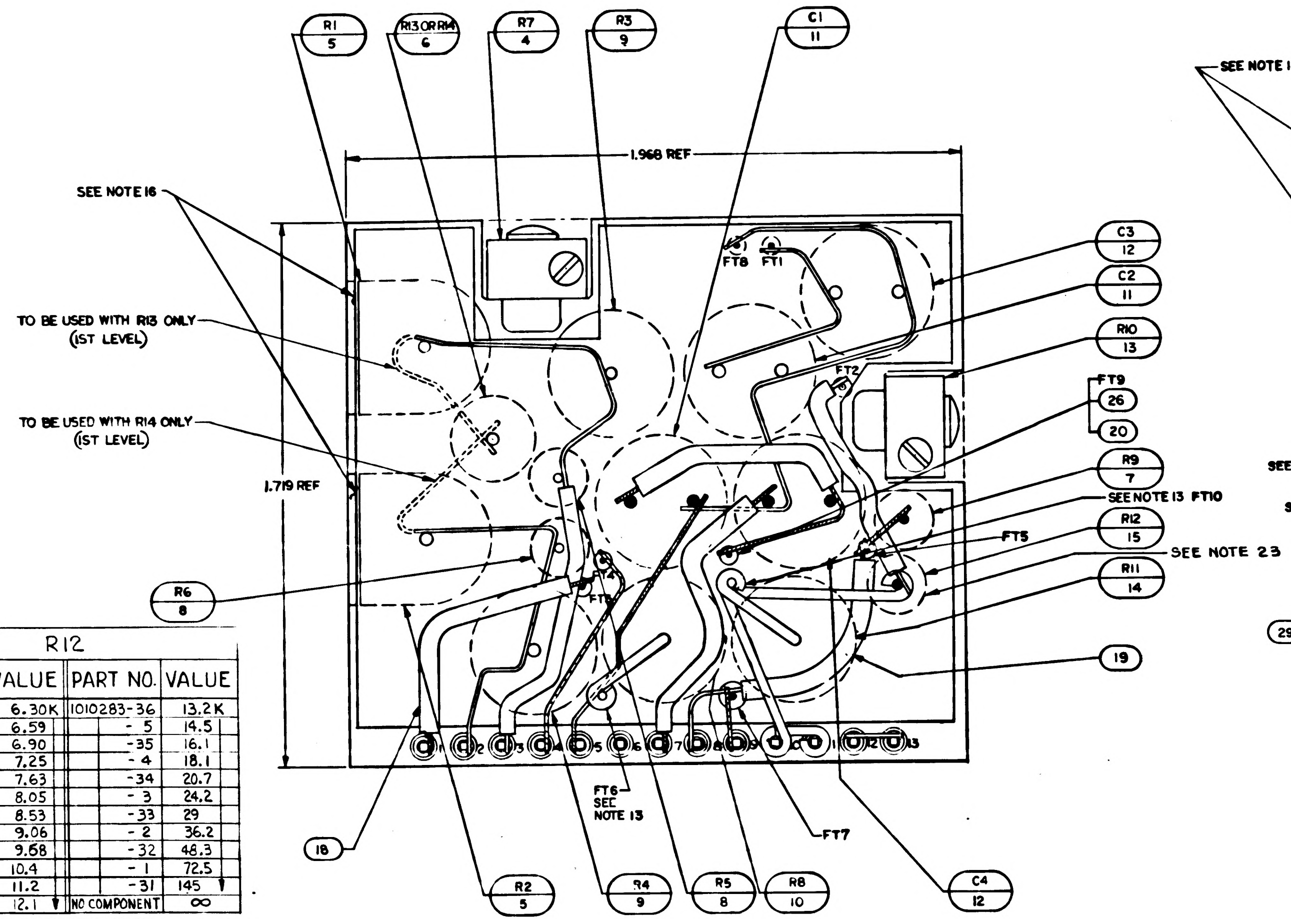
-011 CONFIGURATION

R5 AND R6

PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

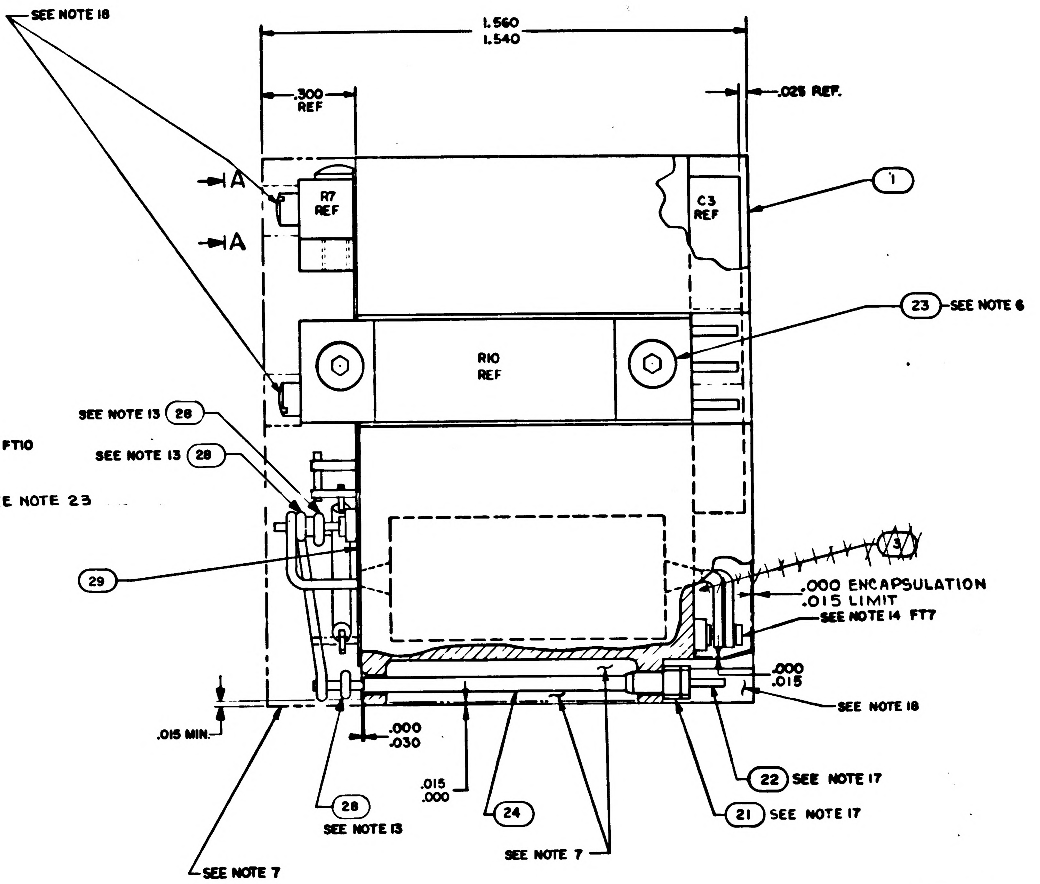
24

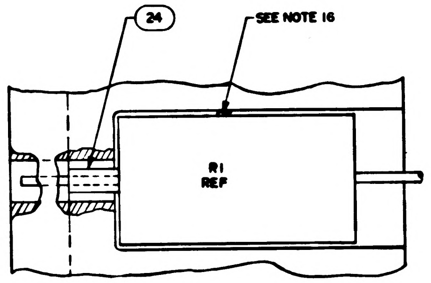

R1
5
R13 OR R14
6
R7
4
R3
9
C1
11
SEE NOTE 16
TO BE USED WITH R13 ONLY (1ST LEVEL)
TO BE USED WITH R14 ONLY (1ST LEVEL)
1.968 REF
1.719 REF
FT8
FT1
FT2
C3
12
C2
11
R10
13
FT9
26
20
R9
7
SEE NOTE 13 FT10
R12
15
FT5
SEE NOTE 23
R11
14
19
R6
8
FT6 SEE NOTE 13
FT7
18
R2
5
R4
9
R5
8
R8
10
C4
12

R12			
PART NO.	VALUE	PART NO.	VALUE
1010283-42	6.30K	1010283-36	13.2K
-11	6.59	- 5	14.5
-41	6.90	-35	16.1
-10	7.25	- 4	18.1
-40	7.63	-34	20.7
- 9	8.05	- 3	24.2
-39	8.53	-33	29
- 8	9.06	- 2	36.2
-38	9.58	-32	48.3
- 7	10.4	- 1	72.5
-37	11.2	-31	145
- 6	12.1	NO COMPONENT	∞

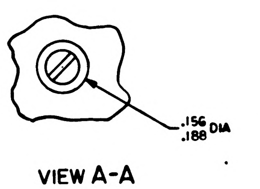
-021 CONFIGURATION

LEFT SIDE VIEW (BEFORE POTTING) OF DASH 021 CONFIGURATION. SEE DETAIL "A" FOR DASH 011 CONFIGURATION.

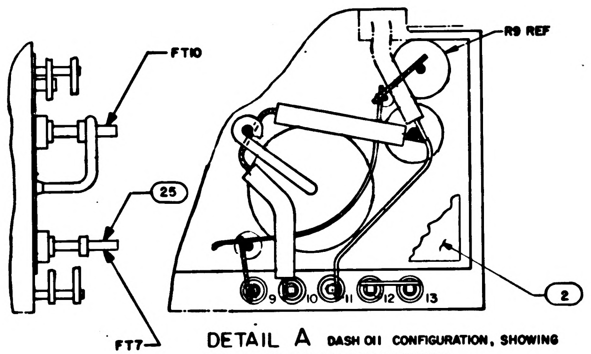

SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
23
SEE NOTE 6
R10 REF
SEE NOTE 13
28
SEE NOTE 13
28
29
.000 ENCAPSULATION
.015 LIMIT
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN
.000
.030
.015
.000
22
SEE NOTE 17
21
SEE NOTE 17
28
SEE NOTE 13
24
SEE NOTE 7
SEE NOTE 7


24
SEE NOTE 16
R1 REF

VIEW B-B
2 PLACES

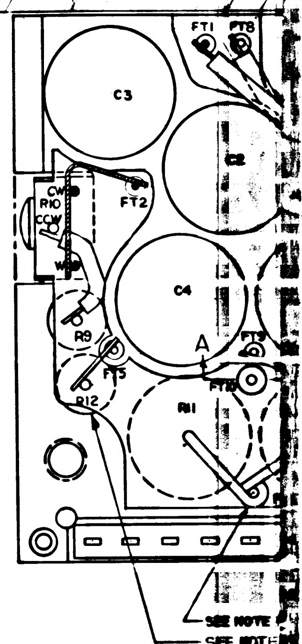


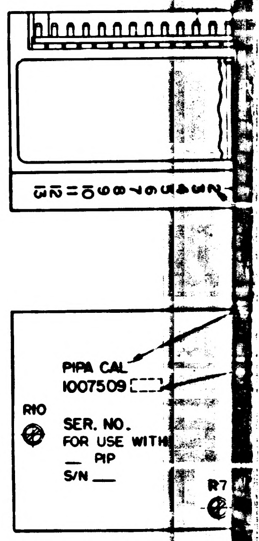
VIEW A-A
2 PLACES


FT10
25
FT7
R9 REF
2
9
10
11
12
13

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.

~~CONFIGURATION~~	~~BOND BETWEEN HEATSINK~~	
~~WAFER AND FLAT HEATSINK~~	[illegible]	
~~WAFER AND ADJACENT VERTICAL HEATSINK SURFACE~~	[illegible]	
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~		N/A


FT1
FT8
C3
C2
R10
FT2
C4
R9
FT5
R12
R11
A
B
B
SEE NOTE
SEE NOTE


PIPA CAL
1007509
R10
SER. NO.
FOR USE WITH
__ PIP
S/N __
R7

MARKING VIEW
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. ~~BOND FIND NO. 27 TO FIND NO. 21 PER ND1002237~~
6. APPLY ZINC CHROMATE PRIMER MIL-P-8585 PER MIL-P-6808(ASG) TO FIND NO. 23
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) USING CURING CYCLE II. UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
8. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO. 6 THRU FIND NO. 12, FIND NO. 14 THRU FIND NO. 17 AND FIND NO. 25 PER ND1002009 METHOD J.
10. SELECT R5, R6, R11, R12, C3 & C4 PER ATP10C0013 FROM APPROPRIATE CHART
11. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069
12. AR DENOTES AS REQUIRED
13. SOLDER PER ND1002071
14. CUT FT 7 AT TOP OF TURRET
15. PROCURE PER PS 1007009
16. BOND FIND NO. 5 PER ND1002117
17. MUST MEET REQUIREMENTS OF ND1002136
18. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
19. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
20. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
23. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) EXTEND THE COPPER RIBBON IN ONE CONTINUOUS PATH FROM FT-10 TO FT-2 AND FOLLOWING THE SAME GENERAL ROUTING AS IS THE CASE WHEN R12 IS USED. SLEEVE THE ENTIRE LENGTH OF THIS CONDUCTOR WITH FIND NO. 24
24. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) DELETE THE LOWER LEVEL RIBBON RUN FROM R12 TO FT5.
25. AFTER FINAL SYSTEM LEVEL ADJUSTMENT, SEAL ADJUSTING SCREWS PER ND1002009 METHOD J.

R13 AND R14	
PART NO.	VALUE
1010251 - 1	31.8K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251 - 20	61.8K
1010251 - 21	67.4K
1010251 - 22	74.2K
1010251 - 23	82.6K
1010251 - 24	92.9K
1010251 - 25	106K
1010251 - 26	124K
1010251 -27	149K
1010251 - 28	187K
1010251 - 29	249K
1010251 - 30	373K
1010251 - 31	746K

C3 AND C4	
PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11	
PART NO.	VALUE Ω
1010834-1	61.556
1010834-2	60.934
1010834-3	60.326
1010834-4	59.729
1010834-5	59.144
1010834-6	58.570
1010834-7	58.008
1010834-8	57.456
1010834-9	56.914
1010834-10	56.383
1010834-11	55.861

R12	
PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

-011 CONFIGURATION

R5 AND R6			
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

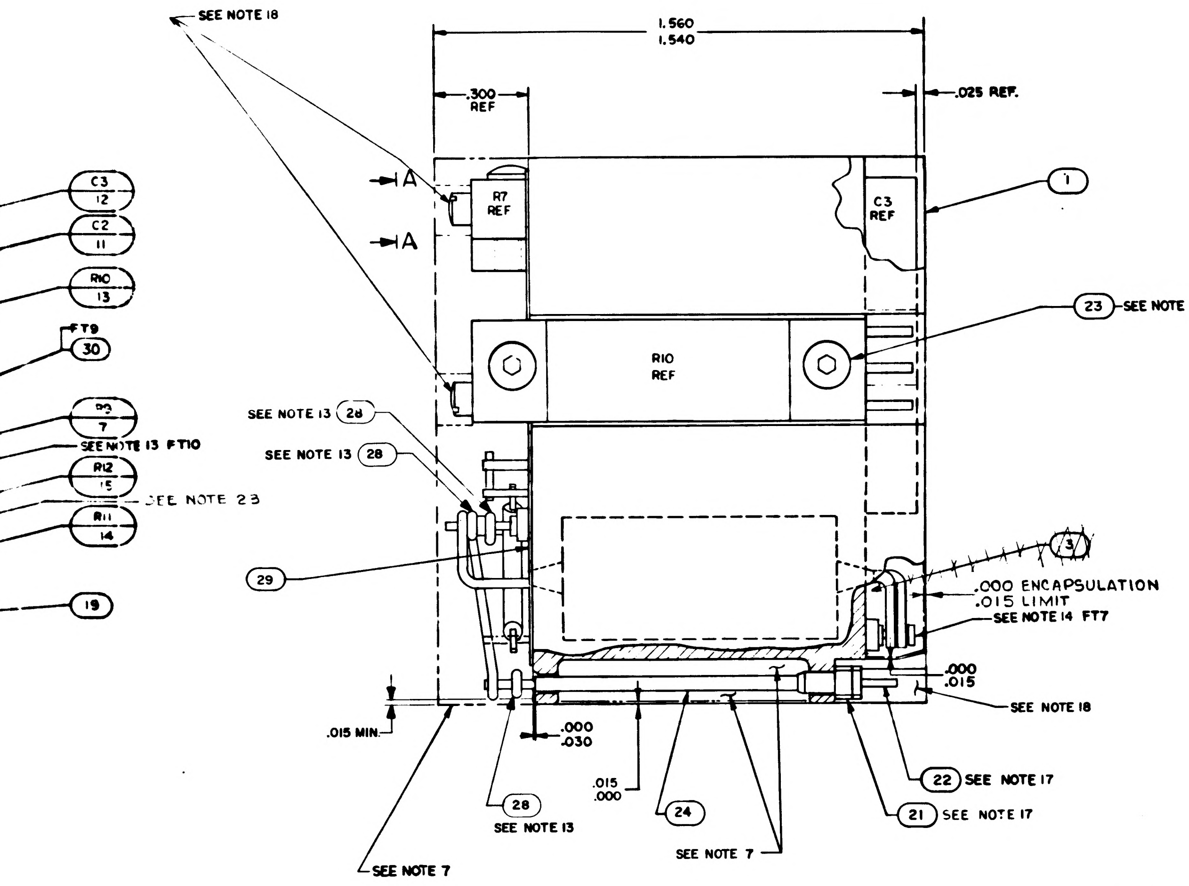
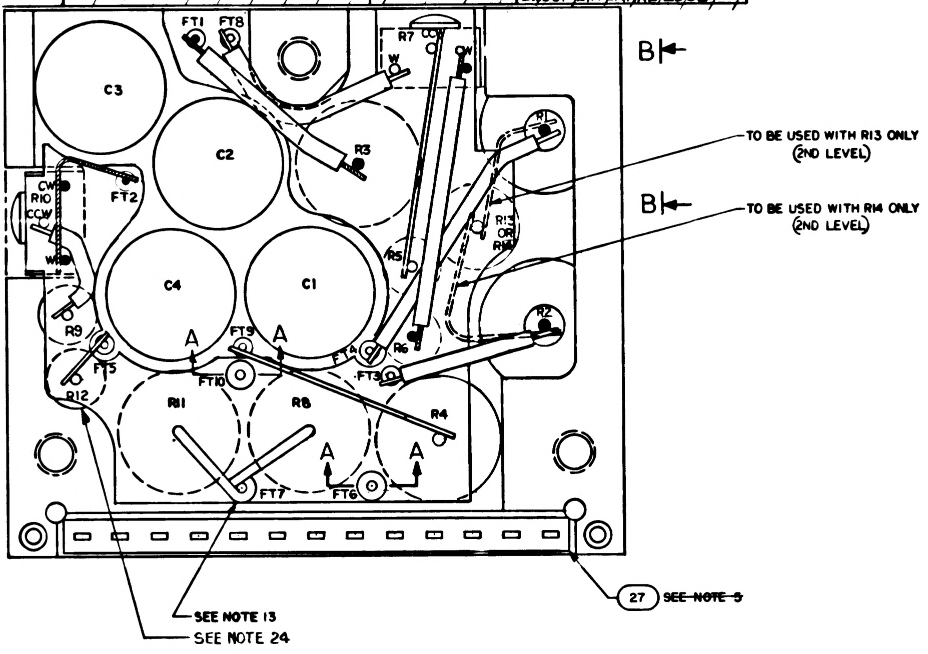

SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
C3 12
C2 11
R10 13
FT9 30
7
R7 REF
C3 REF
1
23 SEE NOTE 6
R10 REF
SEE NOTE 13 28
SEE NOTE 13 28
SEE NOTE 13 FT10
R12 15
SEE NOTE 23
R11 14
19
29
3
.000 ENCAPSULATION
.015 LIMIT
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
28
SEE NOTE 13
24
SEE NOTE 7
22 SEE NOTE 17
21 SEE NOTE 17
SEE NOTE 7

TABLE I

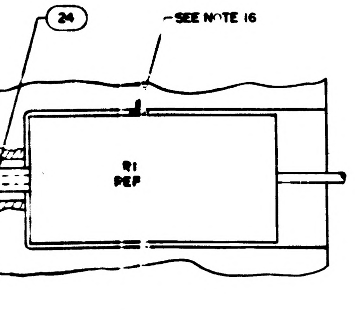
CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN. WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 7311	[illegible] 65	RS
B	REVISED PER TDRR 19401	1-JUN 65	MG AU
C	REVISED PER TDRR 19431	3 JUN 65	
D	REVISED PER TDRR 19499	5 JUN 65	
E	REVISED PER TDRR 19799	7 JUN 65	
F	REVISED PER TDRR 20143	[illegible] JUN 65	
G	REVISED PER TDRR 20136	28 JUN 65	MCR
H	REVISED PER TDRR 21120	[illegible]	
J	REVISED PER TDRR 21125	2 AUG 65	
K	REVISED PER TDRR 22973	20 OCT 65	CP
L	REVISED PER TDRR 23388	6 NOV 65	

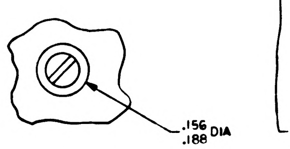

B
B
C3
FT1
FT8
R7
CCW
CW
W
C2
R3
R1
R10
CCW
FT2
R13 OR R14
R5
C4
C1
R9
FT9
A
A
FT3
R6
R2
R12
FT10
R11
R8
R4
A
A
FT7
FT6
TO BE USED WITH R13 ONLY (2ND LEVEL)
TO BE USED WITH R14 ONLY (2ND LEVEL)
SEE NOTE 13
SEE NOTE 24
27 ~~SEE NOTE 5~~

R5 AND R6			
PART NO.	VALUE Ω	PART NO.	VALUE Ω
1010377-76	82.5K	1010377-94	105.0K
1010377-77	83.75K	1010377-95	106.25K
1010377-78	85.0K	1010377-96	107.5K
1010377-79	86.25K	1010377-97	108.75K
1010377-80	87.5K	1010377-98	110.0K
1010377-81	88.75K	1010377-99	111.25K
1010377-82	90.0K	1010377-100	112.5K
1010377-83	91.25K	1010377-101	113.75K
1010377-84	92.5K	1010377-102	115.0K
1010377-85	93.75K	1010377-103	116.25K
1010377-86	95.0K	1010377-104	117.5K
1010377-87	96.25K		
1010377-88	97.5K		
1010377-89	98.75K		
1010377-90	100.0K		
1010377-91	101.25K		
1010377-92	102.5K		
1010377-93	103.75K		

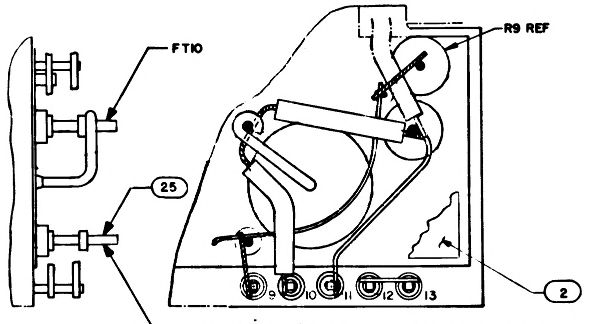
-011 CONFIGURATION


24
SEE NOTE 16
R1
REF

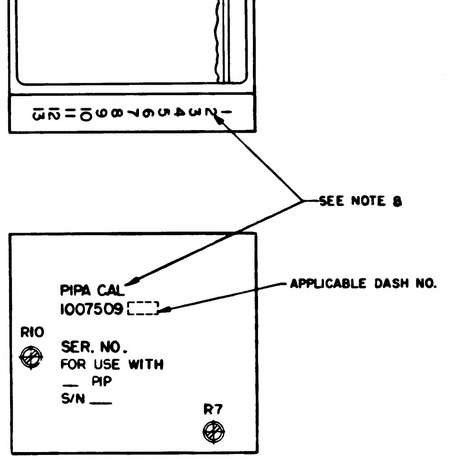
VIEW B-B
2 PLACES



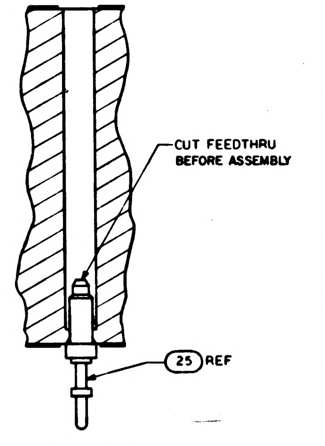
VIEW A-A
2 PLACES


FT10
R9 REF
25
FT7
9
10
11
12
13
2

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 8
APPLICABLE DASH NO.
PIPA CAL
1007509
R10
SER. NO.
FOR USE WITH
__ PIP
S/N ___
R7

MARKING VIEW
SCALE 2/1


CUT FEEDTHRU BEFORE ASSEMBLY
25 REF

SECTION A-A
TYPICAL INSTALLATION FOR FT6 AND FT10

R13 AND R14	
PART NO	VALUE
1010251 - 1	31.[illegible]K
1010251-10	33.1K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.3K
1010251-14	4[illegible]K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251-20	6[illegible].9K
[illegible]-21	6[illegible]K
[illegible]-22	7[illegible]K
[illegible]-23	[illegible]
[illegible]-24	9[illegible]
[illegible]-25	10[illegible]K
[illegible]	12[illegible]K
[illegible]	14[illegible]K
[illegible]	1[illegible]K
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible] 6K

C3 AND C4	
PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11	
PART NO.	VALUE Ω
1010834-1	61.556
1010834-2	60.934
1010834-3	60.326
1010834-4	59.729
1010834-5	59.144
1010834-6	58.570
1010834-7	58.008
1010834-8	57.456
1010834-9	56.914
1010834-10	56.383
1010834-11	55.861

R12	
PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

-011 CONFIGURATION

R5 AND R6			
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

		QUANTITY REQUIRED 021	QUANTITY REQUIRED 011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		☒	–		1009541	SCHEMATIC	REF
		–	☒		1010009	SCHEMATIC	REF
		AR	AR		1010848-2	WIRE, ELECTRICAL-NICKEL	30
		1	–		1008585	INSULATOR, TOP	29
		AR			QQ-W-343 TYPE S	WIRE, COPPER	28
		1	1		1008540-13	GASKET, CONNECTOR MINIATURE	27
		~~AR~~	~~AR~~		~~1006776-22~~	~~INSULATION SLEEVING~~	26
		3	3		1006784-6	TERMINAL, FEEDTHRU	25
		AR	AR		1006776-20	INSULATION SLEEVING	24
		4	4		1000093-3	SCREW, BUTTON HD	23
		13	13		1006782-4	CONTACT, WRAPOST MALE MINAT	22
		13	13		1006775	INSULATOR, WRAPOST MALE MINAT	21
		~~AR~~	~~AR~~		~~1006757-8~~	~~WIRE, ELEC~~	20
		AR	AR		1006757-1	WIRE, ELEC	19
		AR	AR		1006776-21	INSULATION SLEEVING	18
							17
							16
		1	1		SEE NOTE 10	RESISTOR, WW	15
		1	1		SEE NOTE 10	RESISTOR, WW	14
		1	1		1010373-8	RESISTOR, VARIABLE	13
		2	2		SEE NOTE 10	CAPACITOR	12
		2	2		1010289-18	CAPACITOR	11
		1	1		1010834-12	RESISTOR, WW	10
		2	2		1010250-1	RESISTOR, WW	9
		2	2		SEE NOTE 10	RESISTOR, WW	8
		1	1		1010283-18	RESISTOR, WW 9.3K 0.1W ±1%	7
		1	1		SEE NOTE 10	RESISTOR	6
		2	2		1010262-2	RESISTOR, WW	5
		1	1		1010373-9	RESISTOR, VARIABLE	4
		~~1~~	~~1~~		~~1008018-2~~	~~INSULATOR, BOTTOM~~	3
		–	1		1008018-1	INSULATOR, TOP	2
		1	1		1008013	HEATSINK	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS XX±.02 XXX±.005
ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. Contract NAS 9-497
DRAWN Foro DATE 17 SEP 64
CHECKED R. Udpvch 30 SEP 64
APPROVAL
J MELYSNAK 3 DEC
APPROVAL 12/4/64
NASA APPROVAL 12-7-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PIPA CALIBRATION ASSEMBLY

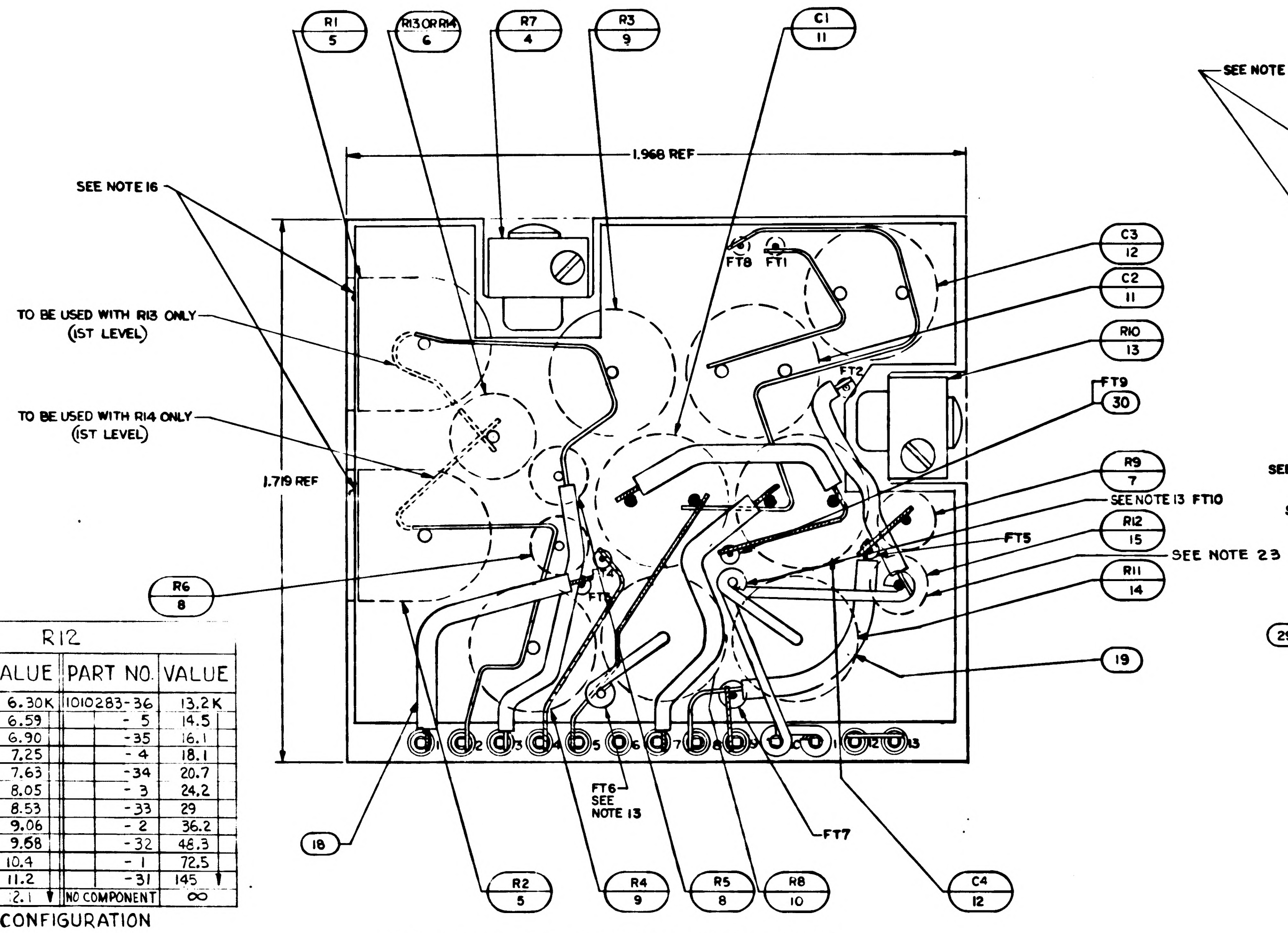
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007509
SCALE 5/1
WT
SHEET 1 OF 1

1007509 L

1007509 REV L SH 1

24

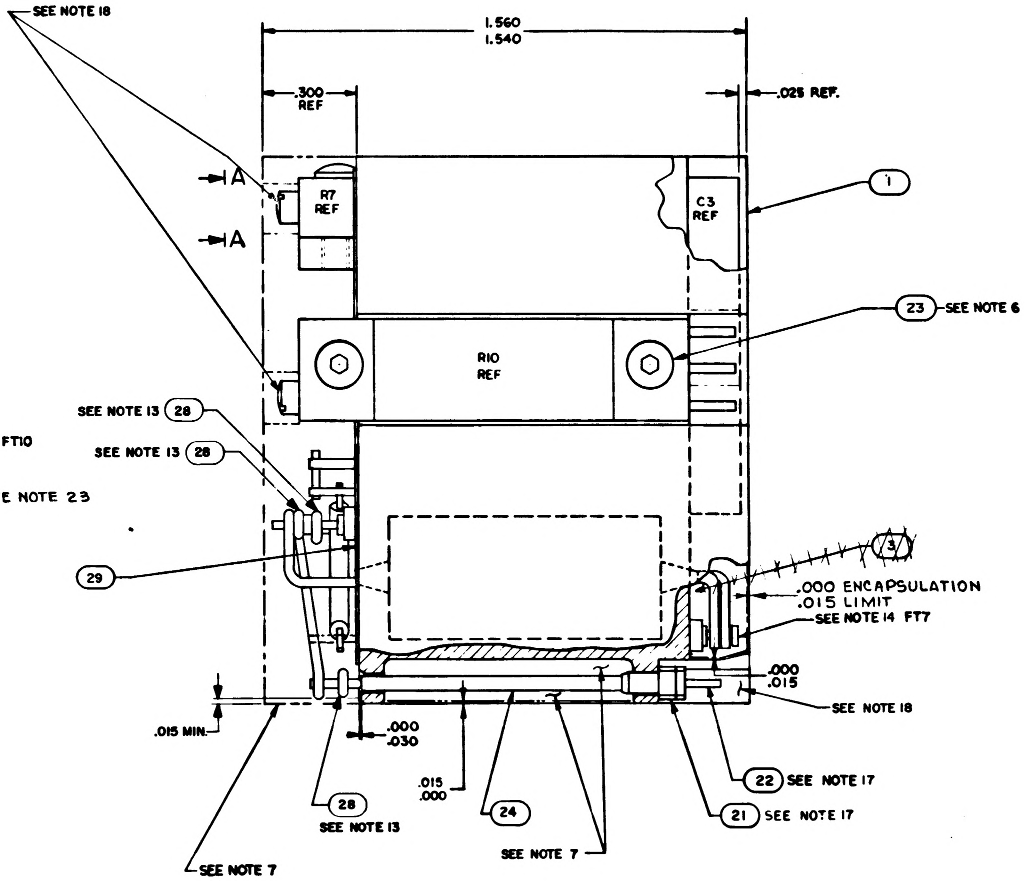
27 1007509


R1 5
R13 OR R14 6
R7 4
R3 9
C1 11
SEE NOTE 16
TO BE USED WITH R13 ONLY (1ST LEVEL)
TO BE USED WITH R14 ONLY (1ST LEVEL)
1.968 REF
1.719 REF
FT8 FT1
FT2
C3 12
C2 11
R10 13
FT9 30
R9 7
SEE NOTE 13 FT10
FT5
R12 15
SEE NOTE 23
R11 14
R6 8
19
18
FT6 SEE NOTE 13
FT7
R2 5
R4 9
R5 8
R8 10
C4 12

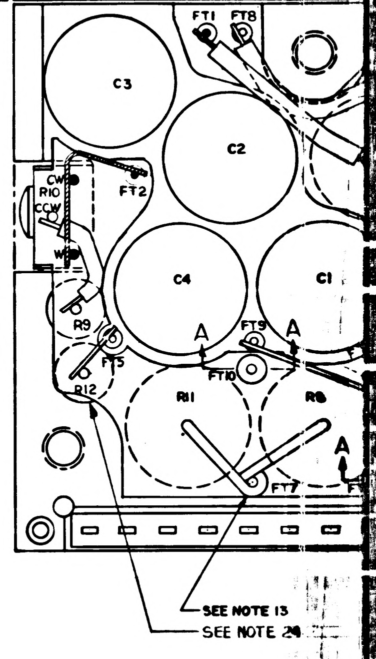
LEFT SIDE VIEW (BEFORE POTTING) OF DASH 021 CONFIGURATION. SEE DETAIL "A" FOR DASH 011 CONFIGURATION.

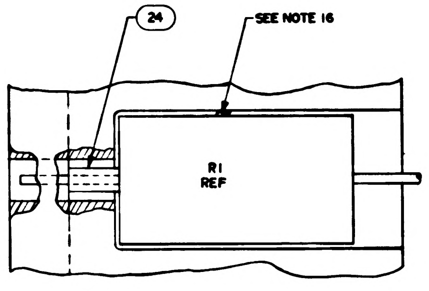
R12			
PART NO.	VALUE	PART NO.	VALUE
1010283-42	6.30K	1010283-36	13.2K
-11	6.59	-5	14.5
-41	6.90	-35	16.1
-10	7.25	-4	18.1
-40	7.63	-34	20.7
-9	8.05	-3	24.2
-39	8.53	-33	29
-8	9.06	-2	36.2
-38	9.68	-32	48.3
-7	10.4	-1	72.5
-37	11.2	-31	145
-6	12.1	NO COMPONENT	∞

-021 CONFIGURATION

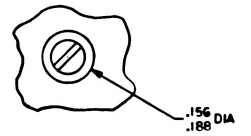

SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
23 SEE NOTE 6
R10 REF
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.000 ENCAPSULATION
.015 LIMIT
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
28
SEE NOTE 13
24
SEE NOTE 7
22 SEE NOTE 17
21 SEE NOTE 17
SEE NOTE 7

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK
WAFER AND FLAT HEATSINK	20% OF AREA 2 FROM EXTER HEATSINK SURFACE. 80% OF .25 FROM EXTERNAL HEATSIN SURFACE.
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERT SURFACE TO A THIN .03 .03 EXTERNAL SURFACE.
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A

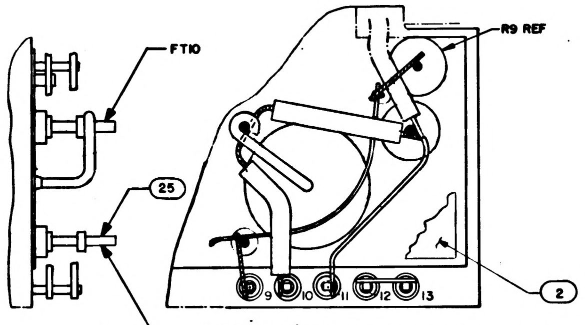

FT1 FT8
C3
C2
CW
R10
CCW
FT2
C4
C1
R9
FT9
A
A
FT5
FT10
R12
R11
R6
A
FT7
SEE NOTE 13
SEE NOTE 24


24
SEE NOTE 16
R1 REF

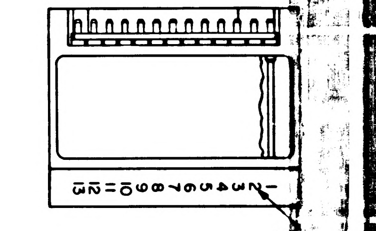
VIEW B-B
2 PLACES



VIEW A-A
2 PLACES


FT10
R9 REF
25
FT7
9 10 11 12 13
2

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


1 2 3 4 5 6 7 8 9 10 11 12 13

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. ~~BOND FIND NO. 27 TO FIND NO. 21 PER ND1002237~~
6. APPLY ZINC CHROMATE PRIMER MIL-P-8585 PER MIL-P-6808(ASG) TO FIND NO.23
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) USING CURING CYCLE II. UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
8. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO.6 THRU FIND NO. 12, FIND NO. 14 THRU FIND NO. 17 AND FIND NO. 25 PER ND1002009 METHOD J.
10. SELECT R5,R6,R11,R12,C3 & C4 PER ATP10C0013 FROM APPROPRIATE CHART
11. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069
12. AR DENOTES AS REQUIRED
13. SOLDER PER ND1002071
14. CUT FT7 AT TOP OF TURRET
15. PROCURE PER PS 1007009
16. BOND FIND NO.5 PER ND1002117
17. MUST MEET REQUIREMENTS OF ND1002136
18. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
19. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
20. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE I. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
23. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) EXTEND THE COPPER RIBBON IN ONE CONTINUOUS PATH FROM FT-10 TO FT-2 AND FOLLOWING THE SAME GENERAL ROUTING AS IS THE CASE WHEN R12 IS USED. SLEEVE THE ENTIRE LENGTH OF THIS CONDUCTOR WITH FIND NO. 24
24. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) DELETE THE LOWER LEVEL RIBBON RUN FROM R12 TO FT5.
25. AFTER FINAL SYSTEM LEVEL ADJUSTMENT, SEAL ADJUSTING SCREWS PER ND1002009 METHOD J.

R13 AND R14	
PART NO.	VALUE
1010251 - 1	31.9K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251 - 20	61.8K
1010251 - 21	67.4K
1010251 - 22	74.2K
1010251 - 23	82.6K
1010251 - 24	92.9K
1010251 - 25	106K
1010251 - 26	124K
1010251 -27	149K
1010251 - 28	187K
1010251 - 29	249K
1010251 - 30	373K
1010251 - 31	746K

C3 AND C4	
PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

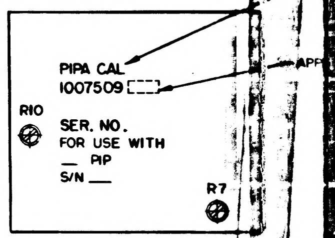
R11	
PART NO.	VALUE Ω
1010834-1	61.556
1010834-2	60.934
1010834-3	60.326
1010834-4	59.729
1010834-5	59.144
1010834-6	58.570
1010834-7	58.008
1010834-8	57.456
1010834-9	56.914
1010834-10	56.383
1010834-11	55.861

R12	
PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

-011 CONFIGURATION

R5 AND R6			
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION


PIPA CAL
1007509
R10
SER. NO.
FOR USE WITH
__ PIP
S/N ___
R7
APP

MARKING VIEW
SCALE 2/1

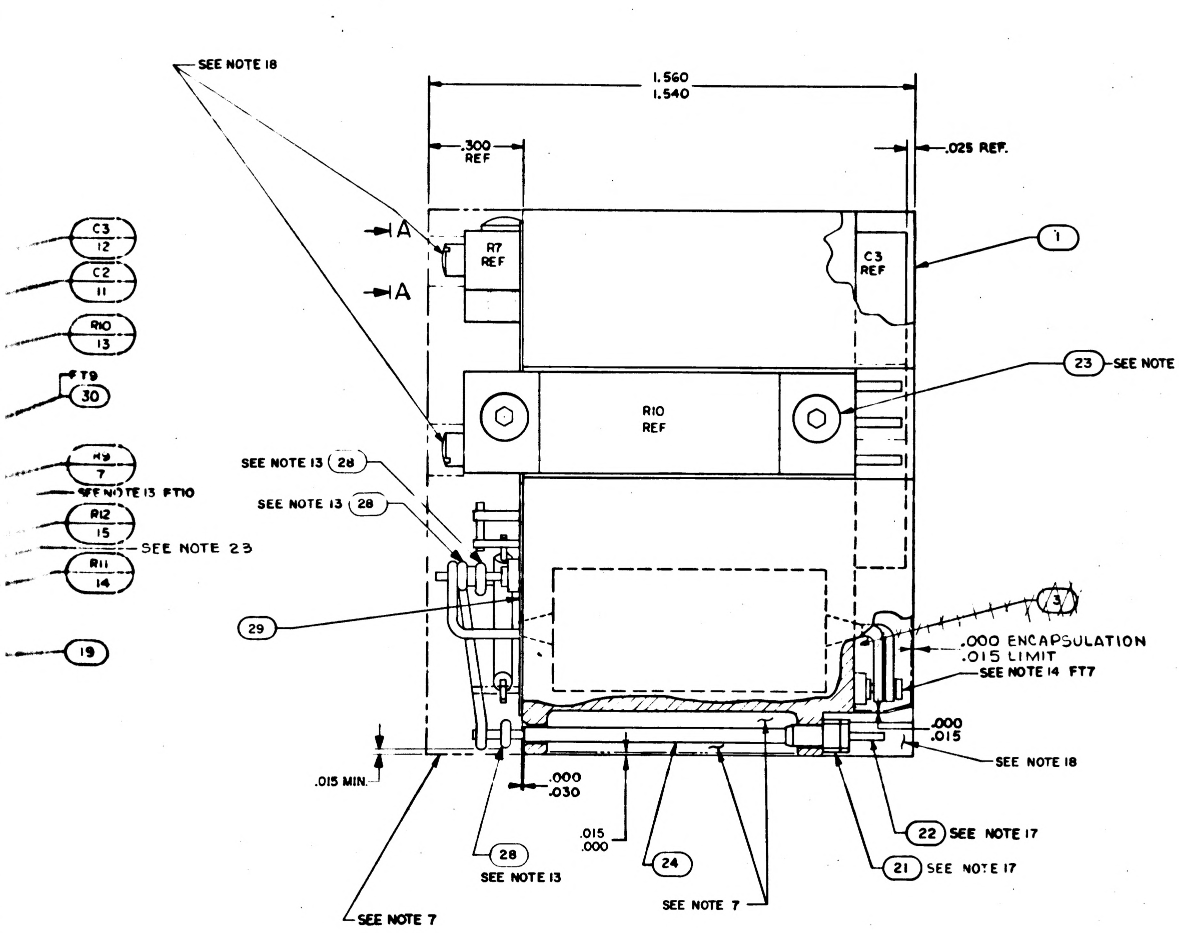
1007509 SH 1

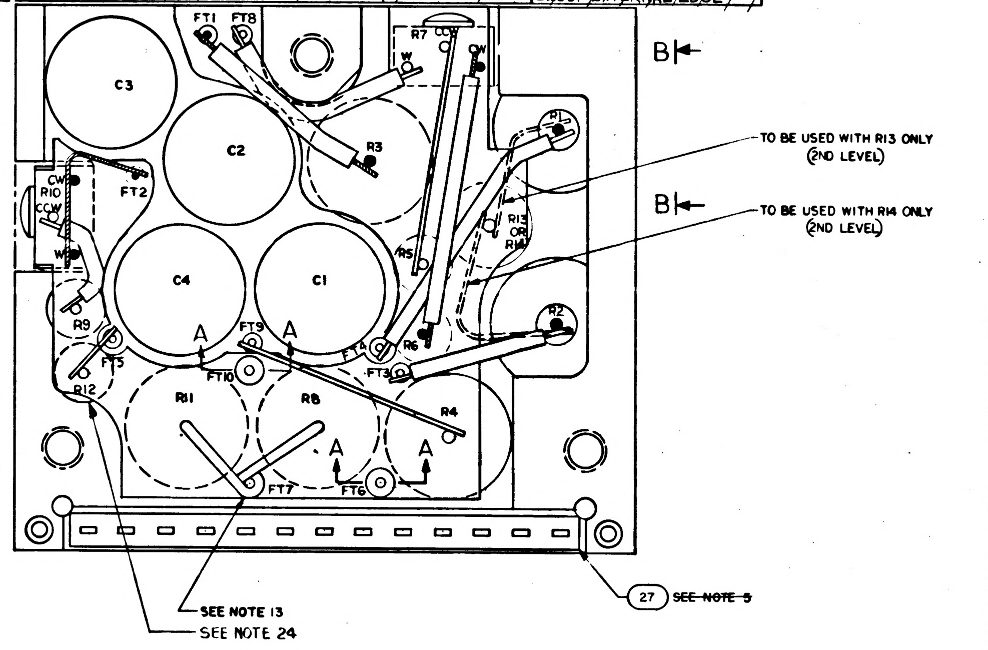
1/1007509

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR :7311	[illegible] 65	RS EF
B	REVISED PER TDRR 19401	1-JUN 65	MG AU
C	REVISED PER TDRR 19431	3 JUN 65	JO EF
D	REVISED PER TDRR 19499	5 JUN 65	JO [illegible]
E	REVISED PER TDRR 19799	7 JUN 65	JWP EF
F	REVISED PER TDRR 20143	[illegible] JUN 65	eh [illegible]
G	REVISED PER TDRR 20136	23 JUN 65	MCR [illegible]
H	REVISED PER TDRR 21120	[illegible]	RWH
J	REVISED PER TDRR 21125	2 AUG 65	RLP [illegible]
K	REVISED PER TDRR 22973	20 OCT 65	JWP CP
L	REVISED PER TDRR 23388	16 NOV 65	[illegible]
M	REVISED PER TDRR 26397	23 FEB 66	RLP [illegible]

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK - FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN. WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ±.03 OF EXTERNAL EDGE

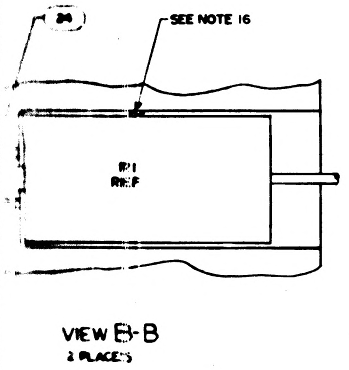

SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
C3 12
C2 11
R10 13
FT9 30
23 SEE NOTE 6
R10 REF
7
SEE NOTE 13 28
SEE NOTE 13 FT10
SEE NOTE 13 28
R12 15
SEE NOTE 23
R11 14
19
29
3
.000 ENCAPSULATION
.015 LIMIT
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
28 SEE NOTE 13
24
SEE NOTE 7
22 SEE NOTE 17
21 SEE NOTE 17
SEE NOTE 7


FT1
FT8
R7
CCW
CW
W
C3
C2
R3
R1
B
B
TO BE USED WITH R13 ONLY (2ND LEVEL)
TO BE USED WITH R14 ONLY (2ND LEVEL)
FT2
CW
R10
CCW
W
R5
R13 OR R14
C4
C1
R2
R9
A
FT9
A
R6
FT4
FT3
FT5
FT10
R12
R11
R8
R4
A
A
FT7
FT6
SEE NOTE 13
SEE NOTE 24
27 ~~SEE NOTE 5~~

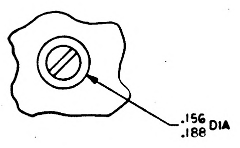
PART NO.	VALUE Ω	PART NO.	VALUE Ω
1010377-76	82.5K	1010377-94	105.0K
1010377-77	83.75K	1010377-95	106.25K
1010377-78	85.0K	1010377-96	107.5K
1010377-79	86.25K	1010377-97	108.75K
1010377-80	87.5K	1010377-98	110.0K
1010377-81	88.75K	1010377-99	111.25K
1010377-82	90.0K	1010377-100	112.5K
1010377-83	91.25K	1010377-101	113.75K
1010377-84	92.5K	1010377-102	115.0K
1010377-85	93.75K	1010377-103	116.25K
1010377-86	95.0K	1010377-104	117.5K
1010377-87	96.25K		
1010377-88	97.5K		
1010377-89	98.75K		
1010377-90	100.0K		
1010377-91	101.25K		
1010377-92	102.5K		
1010377-93	103.75K		

R5 AND R6

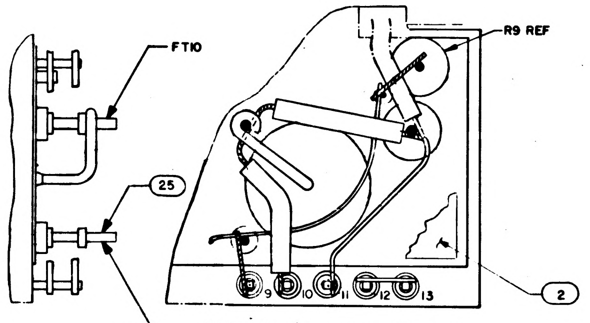
-011 CONFIGURATION


24
SEE NOTE 16
R1 REF

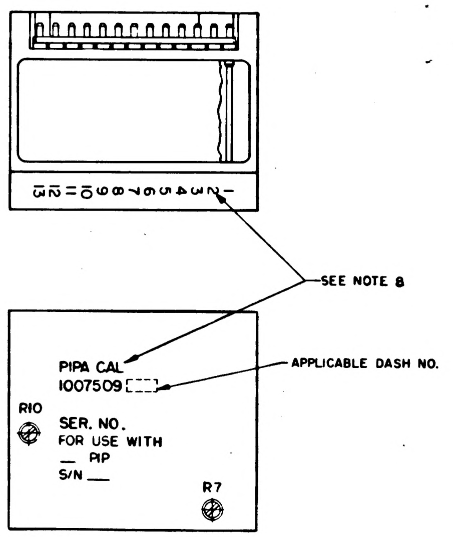
VIEW B-B
2 PLACES



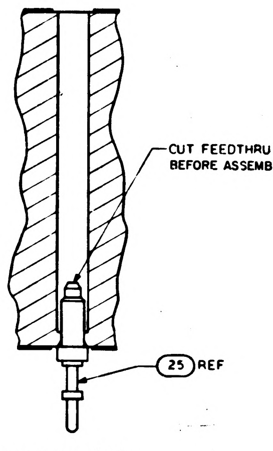
VIEW A-A
2 PLACES


FT10
R9 REF
25
FT7
9
10
11
12
13
2

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


SEE NOTE 8
PIPA CAL
1007509
APPLICABLE DASH NO.
SER. NO.
FOR USE WITH
PIP
S/N
R10
R7

MARKING VIEW
SCALE 2/1


CUT FEEDTHRU BEFORE ASSEMBLY
25 REF

SECTION A-A
TYPICAL INSTALLATION FOR FT6 AND FT10

	031	021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	☒	☒	–		1009541	SCHEMATIC	REF
	–	–	☒		1010009	SCHEMATIC	REF
	AR	–	–		SEE NOTE 26	MOISTUREPROOFING	31
	AR	AR	AR		1010849-2	WIRE, ELECTRICAL-NICKEL	30
	1	1	–		1008585	INSULATOR, TOP	29
	AR	AR	–		QQ-W-343 TYPE S	WIRE, COPPER	28
	1	1	1		1008540-13	GASKET, CONNECTOR MINIATURE	27
		~~AR~~	~~AR~~		~~1006776-22~~	~~INSULATION SLEEVING~~	26
	3	3	3		1006784-6	TERMINAL, FEEDTHRU	25
	AR	AR	AR		1006776-20	INSULATION SLEEVING	24
	4	4	4		1000093-3	SCREW, BUTTON HD	23
	13	13	13		1006782-4	CONTACT, WRAPOST MALE MINAT	22
	13	13	13		1006775	INSULATOR, WRAPOST MALE MINAT	21
		~~AR~~	~~AR~~		~~1006757-8~~	~~WIRE, ELEC~~	20
	AR	AR	AR		1006757-1	WIRE, ELEC	19
	AR	AR	AR		1006776-21	INSULATION SLEEVING	18
							17
							16
	1	1	1		SEE NOTE 10	RESISTOR, WW	15
	1	1	1		SEE NOTE 10	RESISTOR, WW	14
	1	1	1		1010373-8	RESISTOR, VARIABLE	13
	2	2	2		SEE NOTE 10	CAPACITOR	12
	2	2	2		1010289-18	CAPACITOR	11
	1	1	1		1010834-12	RESISTOR, WW	10
	2	2	2		1010250-1	RESISTOR, WW	9
	2	2	2		SEE NOTE 10	RESISTOR, WW	8
	1	1	1		1010283-18	RESISTOR, WW 9.3K 0.1W ±1%	7
	1	1	1		SEE NOTE 10	RESISTOR	6
	2	2	2		1010262-2	RESISTOR, WW	5
	1	1	1		1010373-9	RESISTOR, VARIABLE	4
		~~+~~	~~+~~		~~1006016-2~~	~~INSULATOR, BOTTOM~~	3
	–	–	1		1008018-1	INSULATOR, TOP	2
	1	1	1		1008013	HEATSINK	1

QUANTITY REQUIRED
LIST OF MATERIALS

R13 AND R14

PART NO	VALUE
[illegible]-1	[illegible]
[illegible]-10	[illegible]
[illegible]-11	[illegible]
[illegible]-12	[illegible]
[illegible]-13	[illegible]
[illegible]-14	[illegible]
[illegible]-15	[illegible]
[illegible]-16	[illegible]
[illegible]-17	[illegible]
[illegible]-18	[illegible]
[illegible]-19	[illegible]
[illegible]-20	61.8K
[illegible]-21	[illegible]
[illegible]-22	[illegible]
[illegible]-23	[illegible]
[illegible]-24	[illegible]
[illegible]-25	[illegible]
[illegible]-26	[illegible]
[illegible]-27	[illegible]
[illegible]-28	[illegible]
[illegible]-29	[illegible]
[illegible]-30	[illegible]
[illegible]-31	[illegible]

C3 AND C4

PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11

PART NO.	VALUE Ω
1010834-1	61.556
1010834-2	60.934
1010834-3	60.326
1010834-4	59.729
1010834-5	59.144
1010834-6	58.570
1010834-7	58.008
1010834-8	57.456
1010834-9	56.914
1010834-10	56.383
1010834-11	55.861

R12

PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

-011 CONFIGURATION

R5 AND R6

PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± – DECIMALS XX±.02 XXX±.005 ANGLES ± –
DO NOT SCALE THIS DRAWING
MATERIAL –
HEAT TREATMENT –
FINAL FINISH –

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Toro DATE 7 SEP 64
CHECKED J. Udovich 30 SEP 64
APPROVAL
APPROVAL 12/4/64
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PIPA CALIBRATION
ASSEMBLY

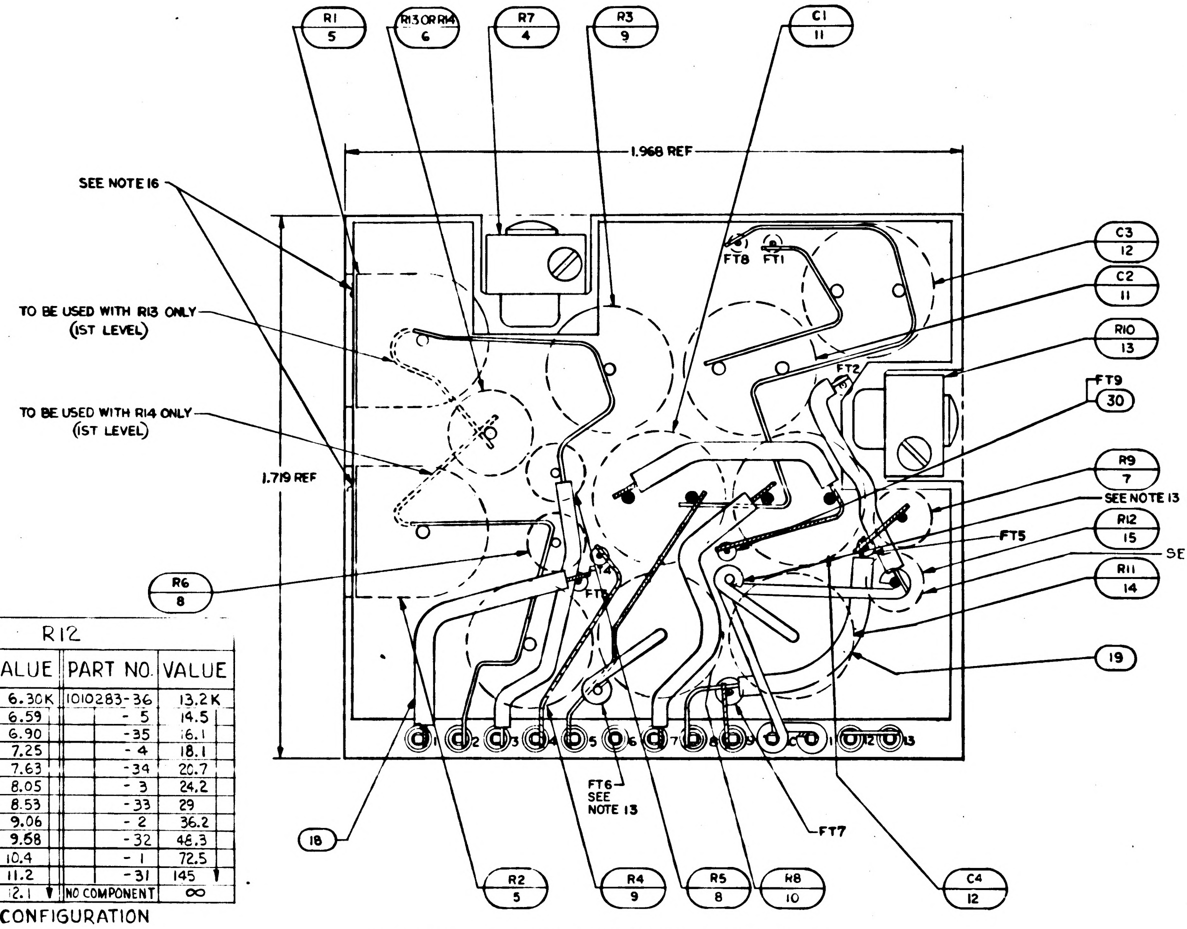
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	1007509

SCALE 5/1 WT SHEET 1 OF 1

1007509 REV M SH 1

2710075 09

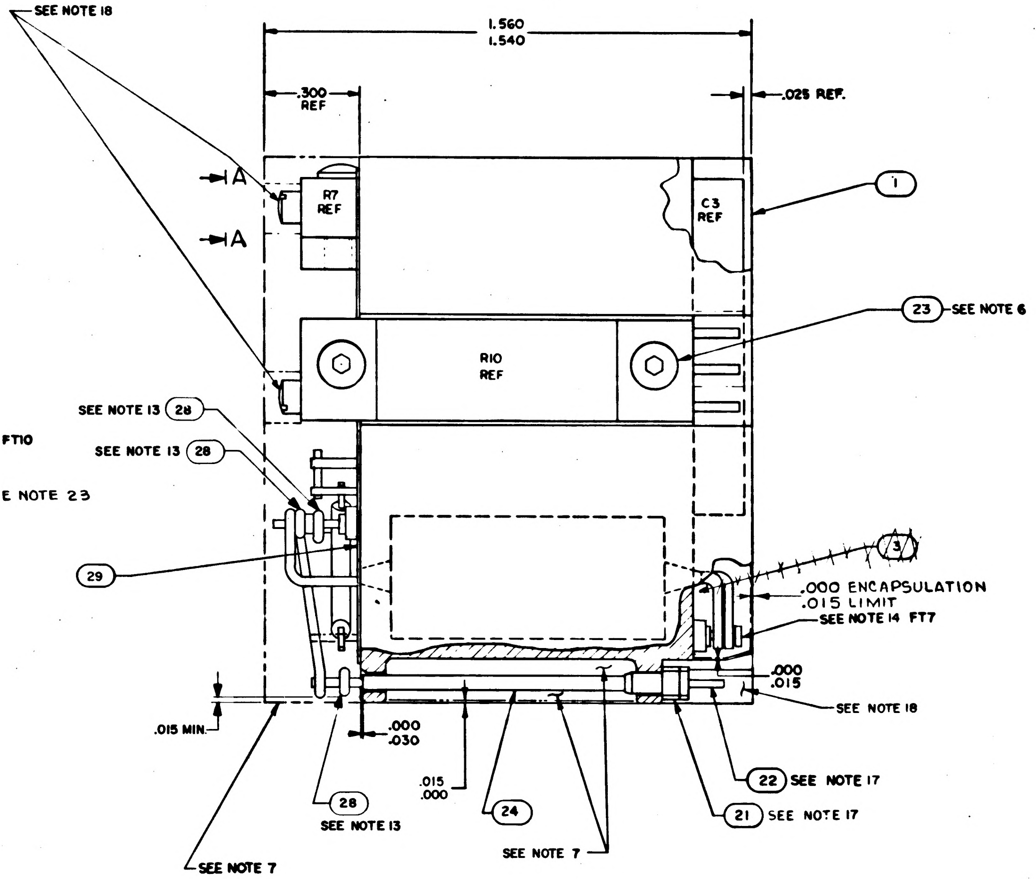
JH


R1
5
R13 OR R14
6
R7
4
R3
9
C1
11
SEE NOTE 16
TO BE USED WITH R13 ONLY (1ST LEVEL)
TO BE USED WITH R14 ONLY (1ST LEVEL)
1.968 REF
1.719 REF
FT8
FT1
FT2
C3
12
C2
11
R10
13
FT9
30
R9
7
SEE NOTE 13 FT10
R12
15
FT5
SEE NOTE 23
R11
14
19
R6
8
18
1 2 3 4 5 6 7 8 9 10 11 12 13
FT6
SEE NOTE 13
FT7
R2
5
R4
9
R5
8
R8
10
C4
12

R12			
PART NO.	VALUE	PART NO.	VALUE
1010283-42	6.30K	1010283-36	13.2K
-11	6.59	-5	14.5
-41	6.90	-35	16.1
-10	7.25	-4	18.1
-40	7.63	-34	20.7
-9	8.05	-3	24.2
-39	8.53	-33	29
-8	9.06	-2	36.2
-38	9.58	-32	48.3
-7	10.4	-1	72.5
-37	11.2	-31	145
-6	12.1	NO COMPONENT	∞

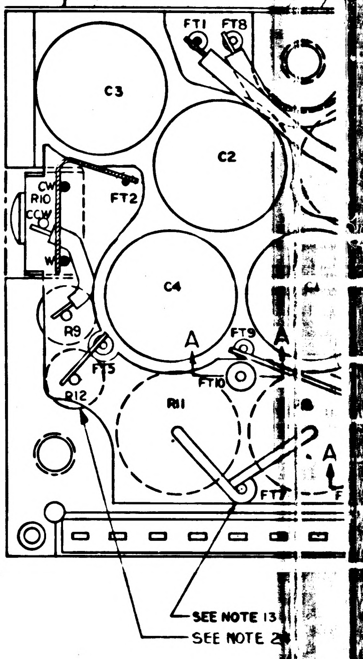
-021 CONFIGURATION

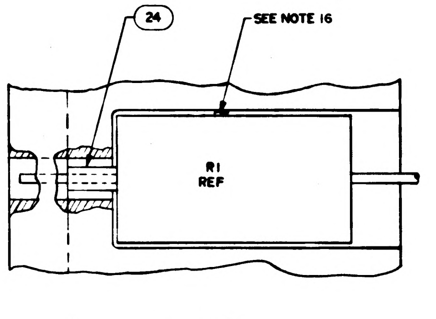
LEFT SIDE VIEW (BEFORE POTTING) OF DASH 021 CONFIGURATION. SEE DETAIL "A" FOR DASH 011 CONFIGURATION.


SEE NOTE 18
1.560
1.540
.300
REF
.025 REF.
A
A
R7
REF
C3
REF
1
R10
REF
23
SEE NOTE 6
SEE NOTE 13
28
SEE NOTE 13
28
29
3
.000 ENCAPSULATION
.015 LIMIT
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
28
SEE NOTE 13
24
22 SEE NOTE 17
21 SEE NOTE 17
SEE NOTE 7
SEE NOTE 7

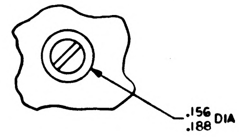
TABLE

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AN~~
~~WAFER AND FLAT HEATSINK~~	~~00% OF AREA .12 FROM EXTE HEATSINK SURFACE. 80% OF .25 FROM EXTERNAL HEATSI SURFACE.~~
~~WAFER AND ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICA SURFACE TO WITHIN .03 .03 EXTERNAL SURFACE~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~

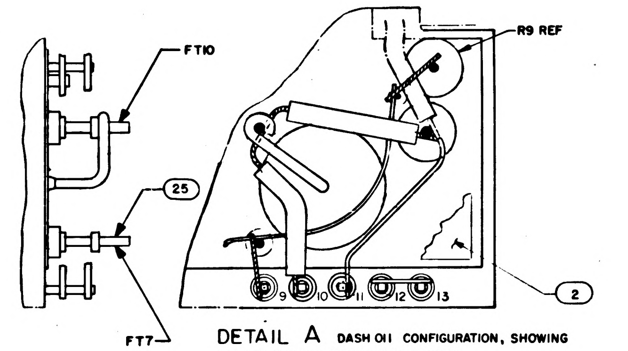

FT1
FT8
C3
C2
CW
R10
CCW
FT2
C4
R9
FT3
A
FT9
A
R12
FT10
R11
A
FT7
SEE NOTE 13
SEE NOTE 2


24
SEE NOTE 16
R1
REF

VIEW B-B
2 PLACES



VIEW A-A
2 PLACES


FT10
25
FT7
R9 REF
9
10
11
12
13
2

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. ~~BOND FIND NO. 27 TO FIND NO. 21 PER ND1002237~~
6. APPLY ZINC CHROMATE PRIMER MIL-P-8585 PER MIL-P-6808(ASG) TO FIND NO.23
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM) USING CURING CYCLE II. UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
8. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
9. STAKE FIND NO.6 THRU FIND NO. 12, FIND NO. 14 THRU FIND NO. 17 AND FIND NO. 25 PER ND1002009 METHOD J.
10. SELECT R5, R6, R11, R12, C3 & C4 PER ATP10C0013 FROM APPROPRIATE CHART
11. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069
12. AR DENOTES AS REQUIRED
13. SOLDER PER ND1002071
14. CUT FT7 AT TOP OF TURRET
15. PROCURE PER PS 1007009
16. BOND FIND NO.5 PER ND1002117
17. MUST MEET REQUIREMENTS OF ND1002136
18. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND
19. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
20. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
22. EXCEPT FOR THE MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
23. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) EXTEND THE COPPER RIBBON IN ONE CONTINUOUS PATH FROM FT-10 TO FT-2 AND FOLLOWING THE SAME GENERAL ROUTING AS IS THE CASE WHEN R12 IS USED. SLEEVE THE ENTIRE LENGTH OF THIS CONDUCTOR WITH FIND NO. 24
24. WHEN NO COMPONENT IS INSERTED IN THE R12 SLOT (R12=∞) DELETE THE LOWER LEVEL RIBBON RUN FROM R12 TO FT5.
25. AFTER FINAL SYSTEM LEVEL ADJUSTMENT, SEAL ADJUSTING SCREWS PER ND1002009 METHOD J.
26. MOISTUREPROOF PER ND1002292 AS REQUIRED BY FIND NO. (31) USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD 1008867 AFTER PAINTING AND STENCILLING.

R13 AND R14	
PART NO.	VALUE
1010251-1	31.9K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251-20	61.8K
1010251-21	67.4K
1010251-22	74.2K
1010251-23	82.6K
1010251-24	92.9K
1010251-25	106K
1010251-26	124K
1010251-27	149K
1010251-28	187K
1010251-29	249K
1010251-30	373K
1010251-31	746K

C3 AND C4	
PART NO.	VALUE UF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

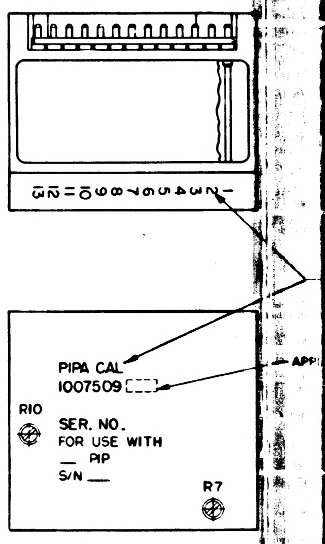
R11	
PART NO.	VALUE Ω
1010834-1	61.556
1010834-2	60.934
1010834-3	60.326
1010834-4	59.729
1010834-5	59.144
1010834-6	58.570
1010834-7	58.008
1010834-8	57.456
1010834-9	56.914
1010834-10	56.383
1010834-11	55.861

R12	
PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

-011 CONFIGURATION

R5 AND R6			
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

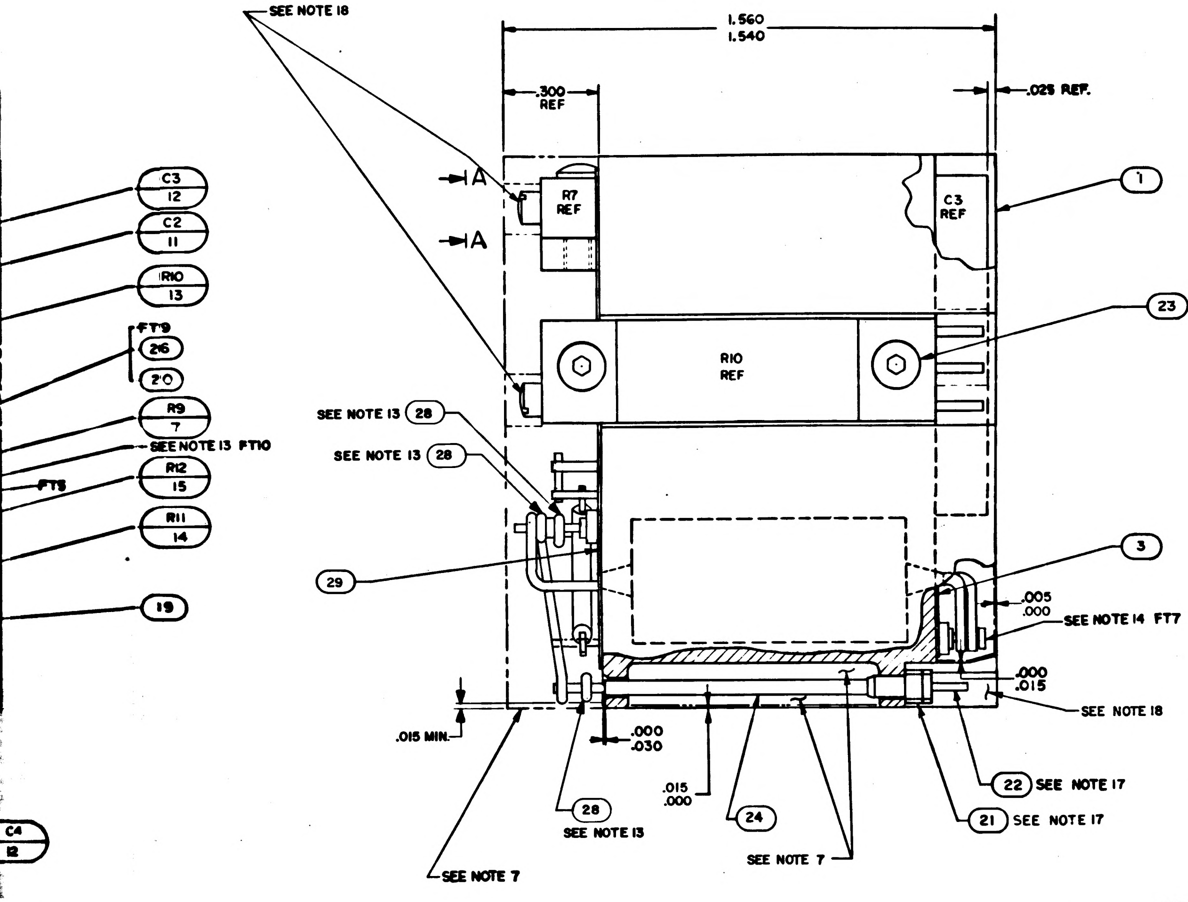

1 2 3 4 5 6 7 8 9 10 11 12 13
APP
PIPA CAL
1007509
R10
SER. NO.
FOR USE WITH
__ PIP
S/N ___
R7

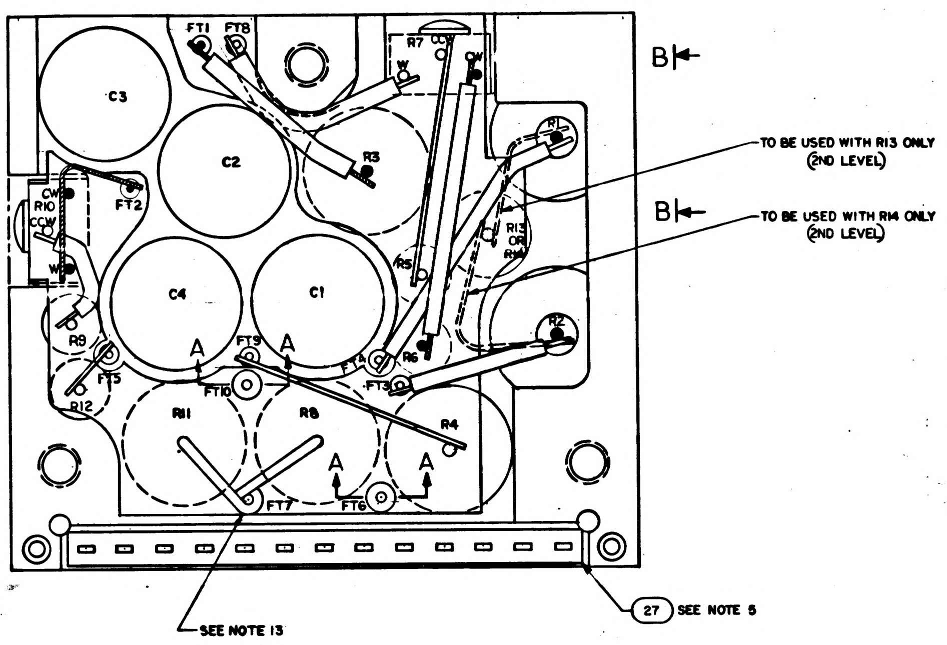
MARKING VIEW
SCALE 2/1

1007509 M

REVISIONS

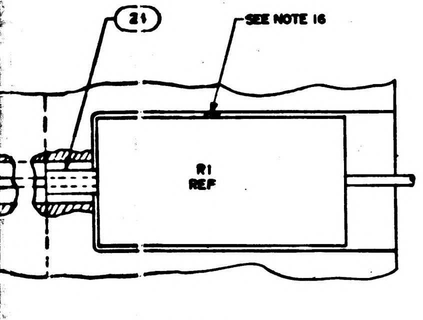
SYM	DESCRIPTION	DATE	APPROVAL


SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
C3 12
C2 11
R10 13
FT9 26
20
R10 REF
23 SEE NOTE 6
R9 7
SEE NOTE 13 FT10
SEE NOTE 13 28
SEE NOTE 13 28
FT8
R12 15
R11 14
19
29
3
.005 .000
SEE NOTE 14 FT7
.000 .015
SEE NOTE 18
.015 MIN.
.000 .030
.015 .000
28 SEE NOTE 13
24
22 SEE NOTE 17
21 SEE NOTE 17
SEE NOTE 7
SEE NOTE 7
C4 12

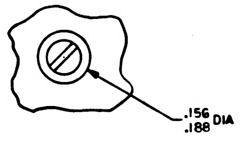

FT1
FT8
R7
CCW
CW
W
C3
C2
R3
R1
FT2
CW
R10
CCW
W
R13 OR R14
R5
B
B
TO BE USED WITH R13 ONLY (2ND LEVEL)
TO BE USED WITH R14 ONLY (2ND LEVEL)
C4
C1
R9
A
FT9
A
R6
FT3
R2
FT10
FT5
FT4
R12
R11
R8
R4
A
A
FT7
FT6
SEE NOTE 13
27 SEE NOTE 5

R5 AND R6			
PART NO.	VALUE Ω	PART NO.	VALUE Ω
1010377-76	82.5K	1010377-94	105.0K
1010377-77	83.75K	1010377-95	106.25K
1010377-78	85.0K	1010377-96	107.5K
1010377-79	86.25K	1010377-97	108.75K
1010377-80	87.5K	1010377-98	110.0K
1010377-81	88.75K	1010377-99	111.25K
1010377-82	90.0K	1010377-100	112.5K
1010377-83	91.25K	1010377-101	113.75K
1010377-84	92.5K	1010377-102	115.0K
1010377-85	93.75K	1010377-103	116.25K
1010377-86	95.0K	1010377-104	117.5K
1010377-87	96.25K		
1010377-88	97.5K		
1010377-89	98.75K		
1010377-90	100.0K		
1010377-91	101.25K		
1010377-92	102.5K		
1010377-93	103.75K		

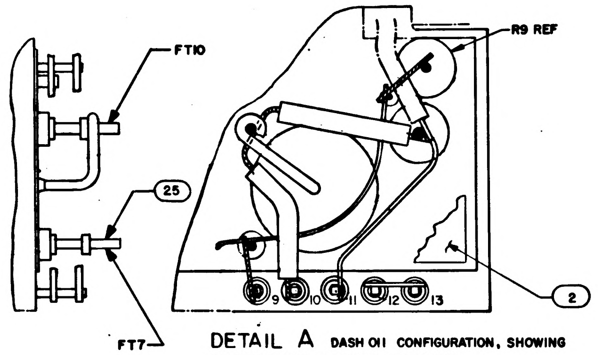
-011 CONFIGURATION


21
SEE NOTE 16
R1 REF

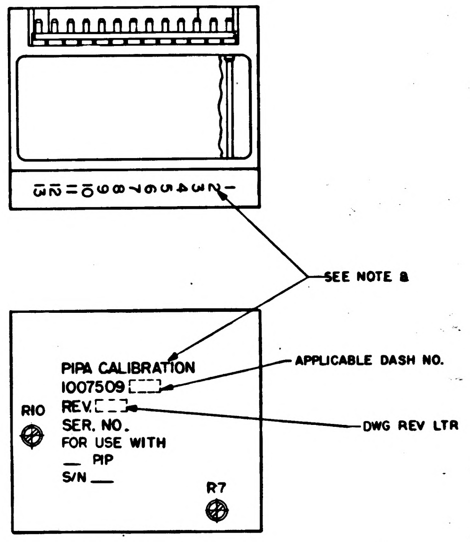
VIEW B-B
2 PLACES



VIEW A-A
2 PLACES

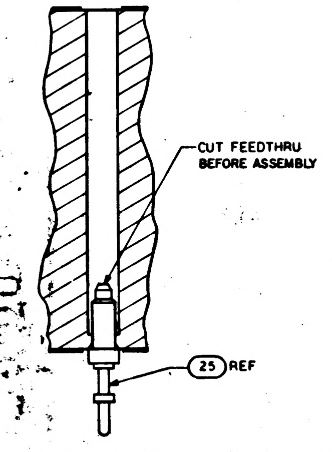

FT10
25
FT7
R9 REF
2
9
10
11
12
13

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


SEE NOTE 8
APPLICABLE DASH NO.
DWG REV LTR
R10
R7

PIPA CALIBRATION
1007509
REV.
SER. NO.
FOR USE WITH
___ PIP
S/N ___

MARKING VIEW
SCALE 2/1


CUT FEEDTHRU BEFORE ASSEMBLY
25 REF

SECTION A-A
TYPICAL INSTALLATION FOR FT6 AND FT10

R13 AND R14	
PART NO.	VALUE
1010251 - 1	31.8K
101025 -10	33.4K
101025 -11	35.0K
101025 -12	36.8K
101025 -13	38.8K
101025 -14	41.0K
101025 -15	43.4K
101025 -16	46.2K
101025 -17	49.3K
101025 -18	52.9K
101025 -19	57.0K
1010251 - 20	61.8K
1010251 - 21	67.4K
1010251 - 22	74.2K
1010251 - 23	82.6K
1010251 - 24	92.9K
1010251 - 25	[illegible]K
1010251 - 26	[illegible].4K
101025 -27	149K
101025 -28	187K
101025 -29	249K
101025 -30	373K
[illegible] -31	746K

C3 AND C4	
PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11	
PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12	
PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

R5 AND R6			
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		☒	–		1009541	SCHEMATIC	REF
		–	☒		1010009	SCHEMATIC	REF
		1	–		1008585	INSULATOR, TOP	29
		AR			QQ-W-343 TYPE S	WIRE, COPPER	28
		1	1		1008540-13	GASKET, CONNECTOR MINIATURE	27
		AR	AR		1006776-22	INSULATION SLEEVING	26
		3	3		1006784-6	TERMINAL, FEEDTHRU	25
		AR	AR		1006776-20	INSULATION SLEEVING	24
		4	4		1000093-3	SCREW, BUTTON HD	23
		13	13		1006782-4	CONTACT, WRAPOST MALE MINAT	22
		13	13		1006775	INSULATOR, WRAPOST MALE MINAT	21
		AR	AR		1006757-8	WIRE, ELEC	20
		AR	AR		1006757-1	WIRE, ELEC	19
		AR	AR		1006776-21	INSULATION SLEEVING	18
							17
							16
		1	1		SEE NOTE 10	RESISTOR, WW	15
		1	1		SEE NOTE 10	RESISTOR, WW	14
		1	1		1010373-8	RESISTOR, VARIABLE	13
		2	2		SEE NOTE 10	CAPACITOR	12
		2	2		1010289-18	CAPACITOR	11
		1	1		1010253-12	RESISTOR, WW	10
		2	2		1010250-1	RESISTOR, WW	9
		2	2		SEE NOTE 10	RESISTOR, WW	8
		1	1		1010283-18	RESISTOR, WW 93K 0.1W ±1%	7
		1	1		SEE NOTE 10	RESISTOR	6
		2	2		1010262-2	RESISTOR, WW	5
		1	1		1010373-9	RESISTOR, VARIABLE	4
		1	1		1008018-2	INSULATOR, BOTTOM	3
		–	1		1008018-1	INSULATOR, TOP	2
		1	1		1008013	HEATSINK	1

QUANTITY REQUIRED
LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XX ± .02 XXX ± .005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
Contract NAS 9-497
DRAWN Toro DATE 17 SEP 64
CHECKED A. Udovich 30 SEP 64
APPROVAL
J. M. ELZYNAK 3 DEC 64
APPROVAL
NASA APPROVAL W J Rhine 12-8-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

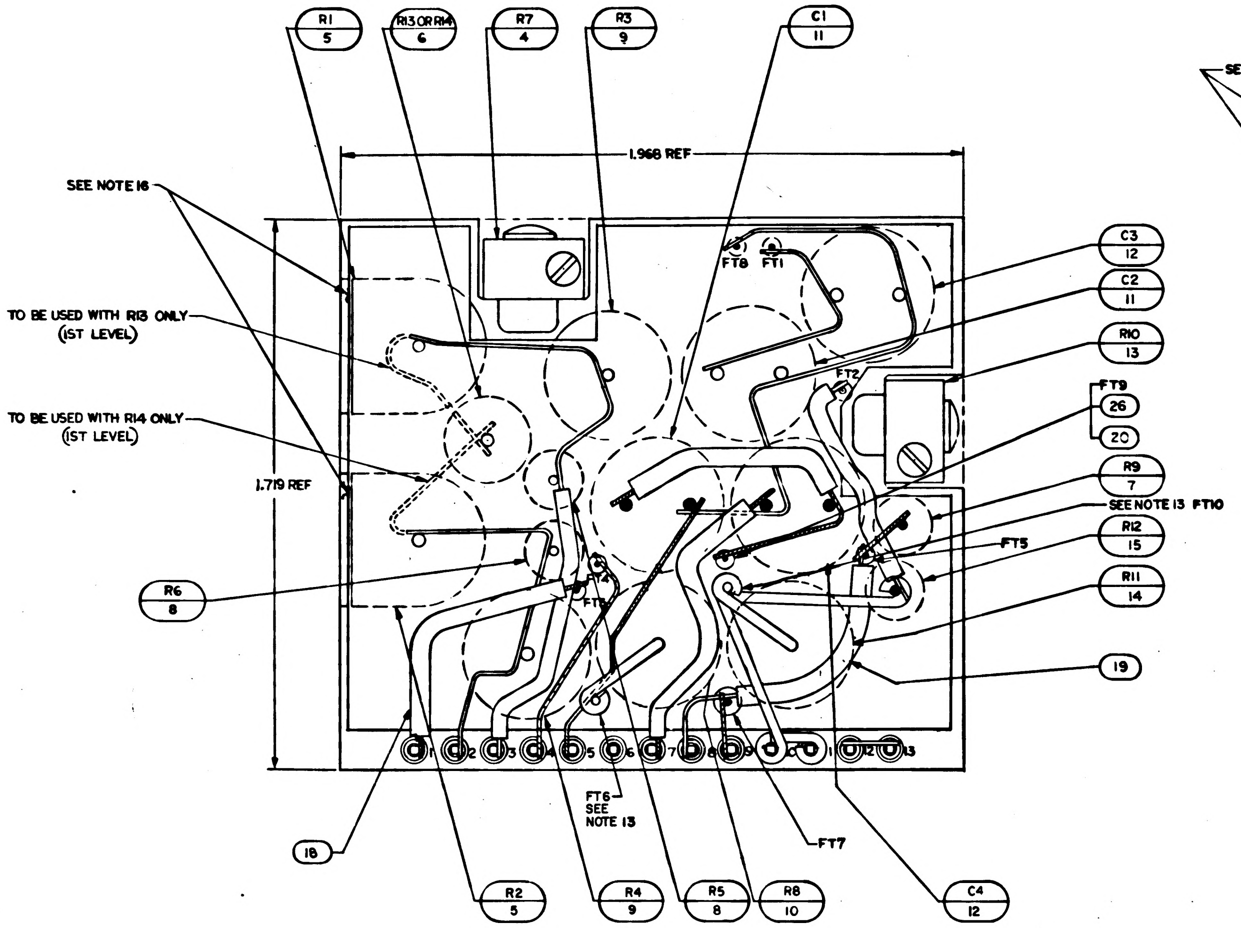
PIPA CALIBRATION ASSEMBLY

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007509
SCALE 5/1
WT
SHEET 1 OF 1

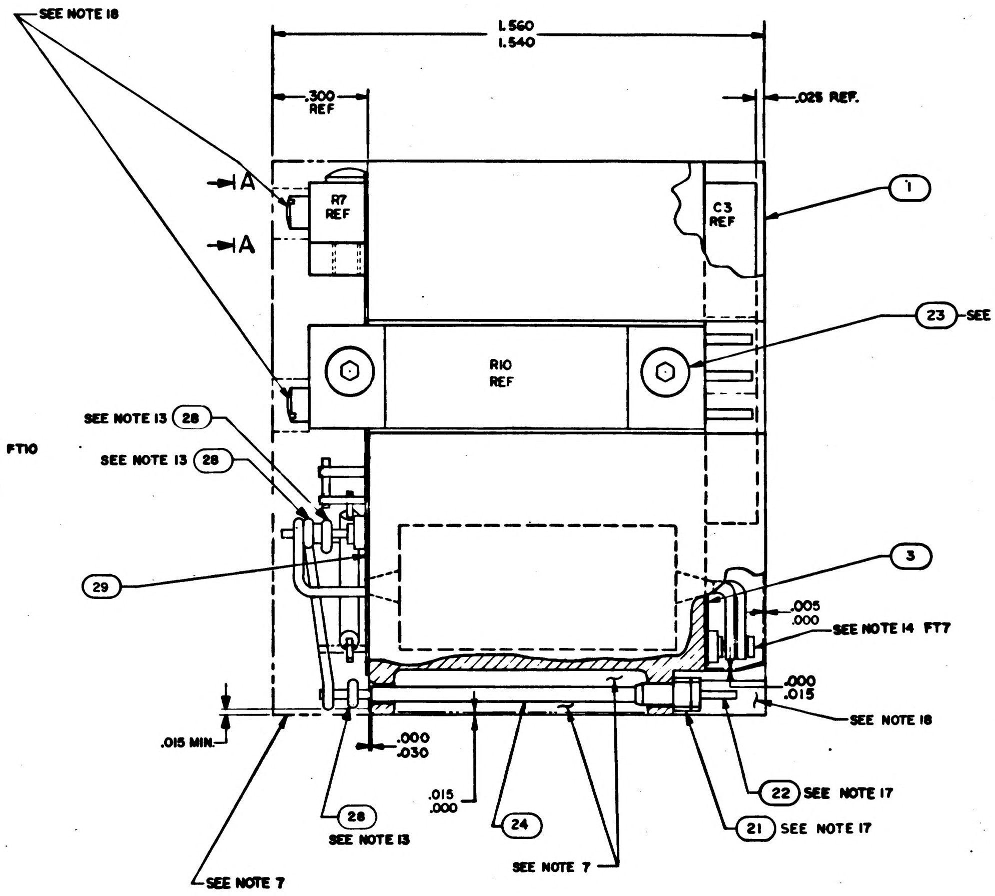
1007509

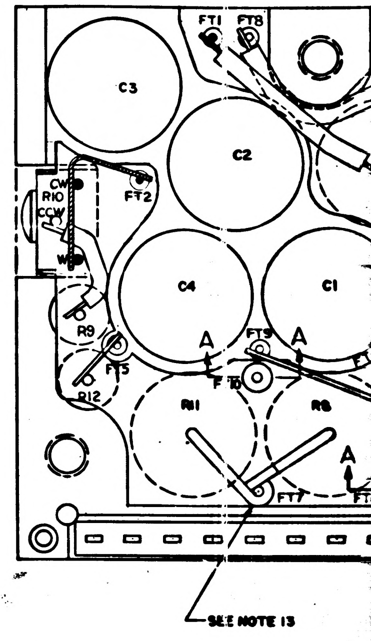
1007509

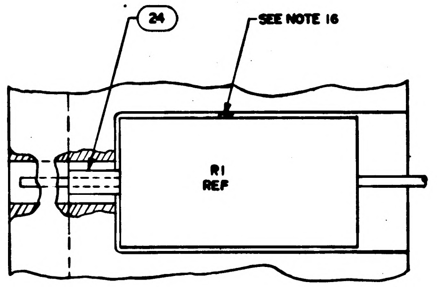
F-2


R1 5
R13 OR R14 6
R7 4
R3 9
C1 11
1.968 REF
SEE NOTE 16
TO BE USED WITH R13 ONLY (1ST LEVEL)
TO BE USED WITH R14 ONLY (1ST LEVEL)
1.719 REF
FT8
FT1
FT2
C3 12
C2 11
R10 13
FT9 26 20
R9 7
SEE NOTE 13 FT10
R12 15
FT5
R11 14
R6 8
FT4
FT3
19
1 2 3 4 5 6 7 8 9 10 11 12 13
FT6 SEE NOTE 13
FT7
18
R2 5
R4 9
R5 8
R8 10
C4 12

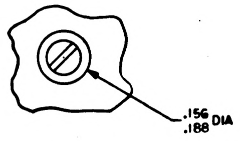
LEFT SIDE VIEW (BEFORE POTTING) OF DASH 021 CONFIGURATION. SEE DETAIL "A" FOR DASH 011 CONFIGURATION.


SEE NOTE 18
1.560
1.540
.300 REF
.025 REF.
A
A
R7 REF
C3 REF
1
R10 REF
23 SEE NOTE 6
SEE NOTE 13 28
SEE NOTE 13 28
29
3
.005
.000
SEE NOTE 14 FT7
.000
.015
SEE NOTE 18
.015 MIN.
.000
.030
.015
.000
28 SEE NOTE 13
24
SEE NOTE 7
SEE NOTE 7
22 SEE NOTE 17
21 SEE NOTE 17

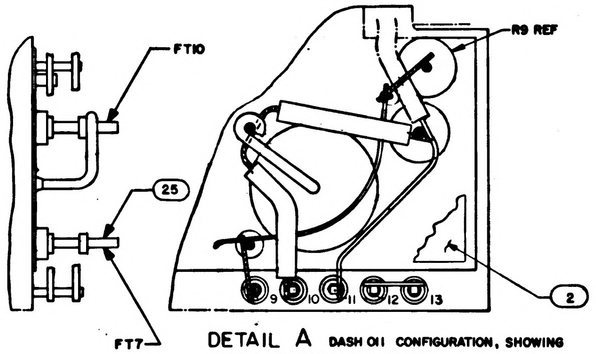

FT1
FT8
C3
C2
CW
R10
CCW
FT2
C4
C1
A
FT9
A
R9
FT5
R12
R1
R6
A
FT7
SEE NOTE 13


24
SEE NOTE 16
R1 REF

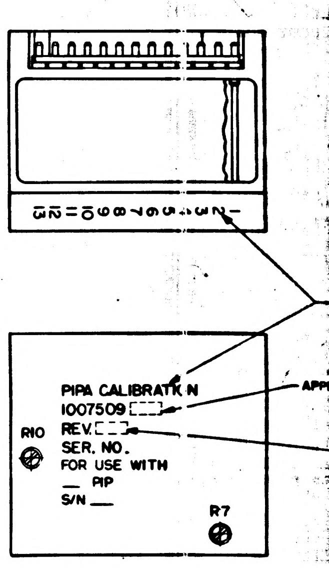
VIEW B-B
2 PLACES



VIEW A-A
2 PLACES


FT10
R9 REF
25
2
FT7
9
10
11
12
13

DETAIL A DASH 011 CONFIGURATION, SHOWING DEVIATION FROM DASH 021 ASSEMBLY.


13 12 11 10 9 8 7 6 5 4 3 2 1
PIPA CALIBRATION
1007509
REV.
SER. NO.
FOR USE WITH
__ PIP
S/N __
R10
R7
APP

MARKING VIEW
SCALE 2/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. BOND FIND NO. 27 TO FIND NO. 21 PER ND1002237
6. APPLY ZINC CHROMATE PRIMER MIL-P-8585 PER MIL-P-6808(ASG) TO FIND NO.23
7. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
8. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN.
9 STAKE FIND NO.6 THRU FIND NO. 12, FIND NO. 14 THRU FIND NO. 17 AND FIND NO. 25 PER ND1002009 METHOD C
10. SELECT R5,R6,R11,R12,C3 & C4 PER ATP1000013 FROM APPROPRIATE CHART
11. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND1002069
12. AR DENOTES AS REQUIRED
13. SOLDER PER ND1002071
14. CUT FT7 AT TOP OF TURRET
15. PROCURE PER PS 1007009
16. BOND FIND NO.5 PER ND1002117
17. MUST MEET REQUIREMENTS OF ND1002136
18. INDICATED AREA TO BE FREE OF ENCAPSULATION COMPOUND

R13 AND R14

PART NO.	VALUE
1010251 - 1	31.8K
1010251-10	33.4K
1010251-11	35.0K
1010251-12	36.8K
1010251-13	38.8K
1010251-14	41.0K
1010251-15	43.4K
1010251-16	46.2K
1010251-17	49.3K
1010251-18	52.9K
1010251-19	57.0K
1010251 - 20	61.8K
1010251 - 21	67.4K
1010251 - 22	74.2K
1010251 - 23	82.6K
1010251 - 24	92.9K
1010251 - 25	106K
1010251 - 26	124K
1010251 -27	149K
1010251 - 28	187K
1010251 - 29	249K
1010251 - 30	373K
1010251 - 31	746K

C3 AND C4

PART NO.	VALUE uF
1010289-1	.0100
1010289-2	.0108
1010289-3	.0116
1010289-4	.0124
1010289-5	.0132
1010289-6	.0140
1010289-7	.0148
1010289-8	.0156
1010289-9	.0164
1010289-10	.0172
1010289-11	.0180
1010289-12	.0188
1010289-13	.0196
1010289-14	.0204
1010289-15	.0212
1010289-16	.0220
1010289-17	.0228

R11

PART NO.	VALUE Ω
1010253-1	61.556
1010253-2	60.934
1010253-3	60.326
1010253-4	59.729
1010253-5	59.144
1010253-6	58.570
1010253-7	58.008
1010253-8	57.456
1010253-9	56.914
1010253-10	56.383
1010253-11	55.861

R12

PART NO.	VALUE
1010283-1	72.5K
1010283-2	36.2K
1010283-3	24.2K
1010283-4	18.1K
1010283-5	14.5K
1010283-6	12.1K
1010283-7	10.4K
1010283-8	9.06K
1010283-9	8.05K
1010283-10	7.25K
1010283-11	6.59K

R5 AND R6

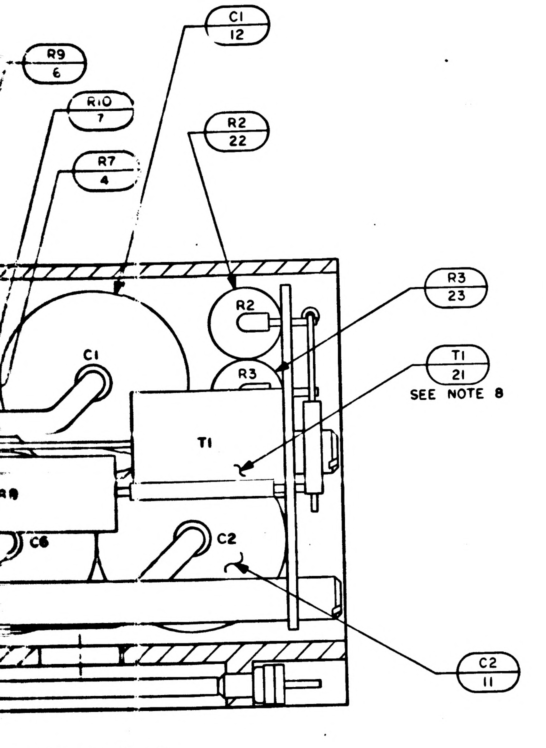
PART NO.	VALUE	PART NO.	VALUE
1010377-337	82.5K	1010377-16	105.0 K
1010377-338	83.75K	1010377-17	106.25K
1010377-339	85.0K	1010377-18	107.5K
1010377-344	86.25K	1010377-19	108.75K
1010377-2	87.5K	1010377-20	110.0 K
1010377-3	88.75K	1010377-21	111.25K
1010377-4	90.0K	1010377-22	112.5K
1010377-5	91.25K	1010377-340	113.75K
1010377-6	92.5K	1010377-341	115.0K
1010377-7	93.75K	1010377-342	116.25
1010377-8	95.0K	1010377-343	117.5K
1010377-9	96.25K		
1010377-10	97.5K		
1010377-11	98.75K		
1010377-12	100.0K		
1010377-13	101.25K		
1010377-14	102.5K		
1010377-15	103.75K		

-021 CONFIGURATION

1007509

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 15420	3-5	

REVISIONS 13094



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R10 7
R7 4
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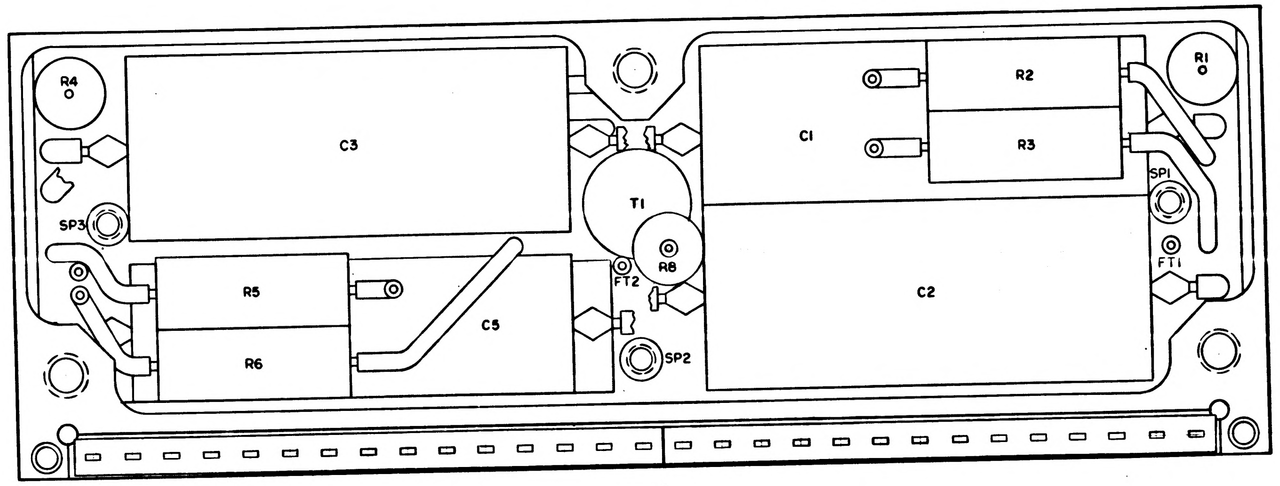
R3 23
T1 21 SEE NOTE 8
R2
R3
C1
T1
C6
C2
C2 11

SECTION A-A



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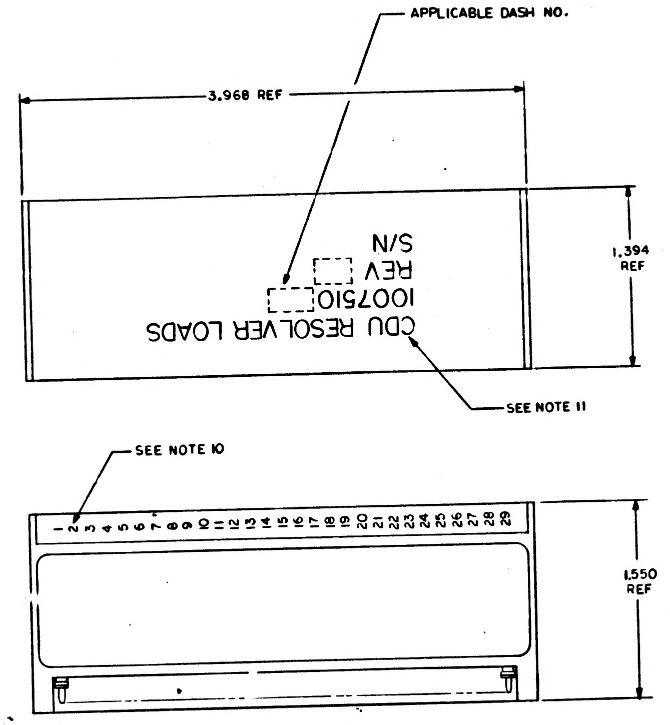
SP1
FT1
C2

SECTION C-C



APPLICABLE DASH NO.
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CDU RESOLVER LOADS
1007510
REV
S/N
1.394 REF
SEE NOTE 11
SEE NOTE 10
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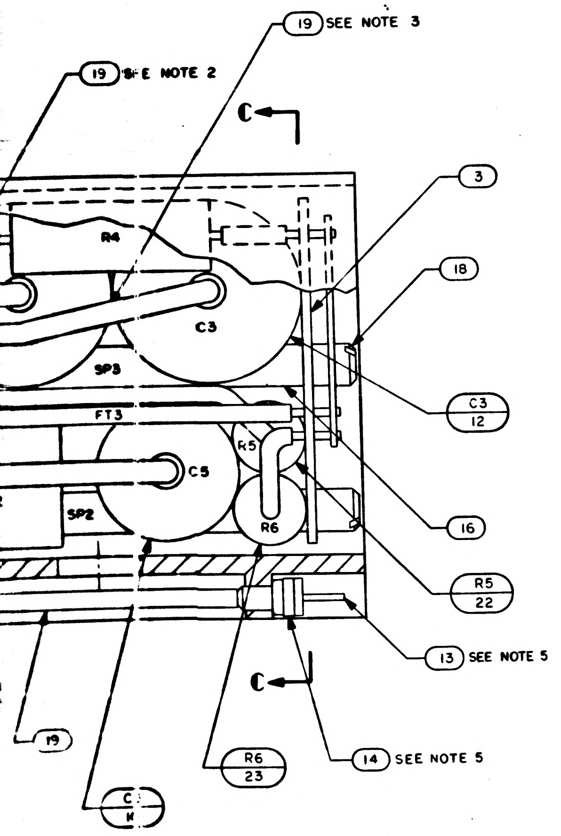
1.550 REF

MARKING DRAWING
SCALE 2/1



19 SEE NOTE 3
19 SEE NOTE 2
C
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R5
C5
SP2
R6
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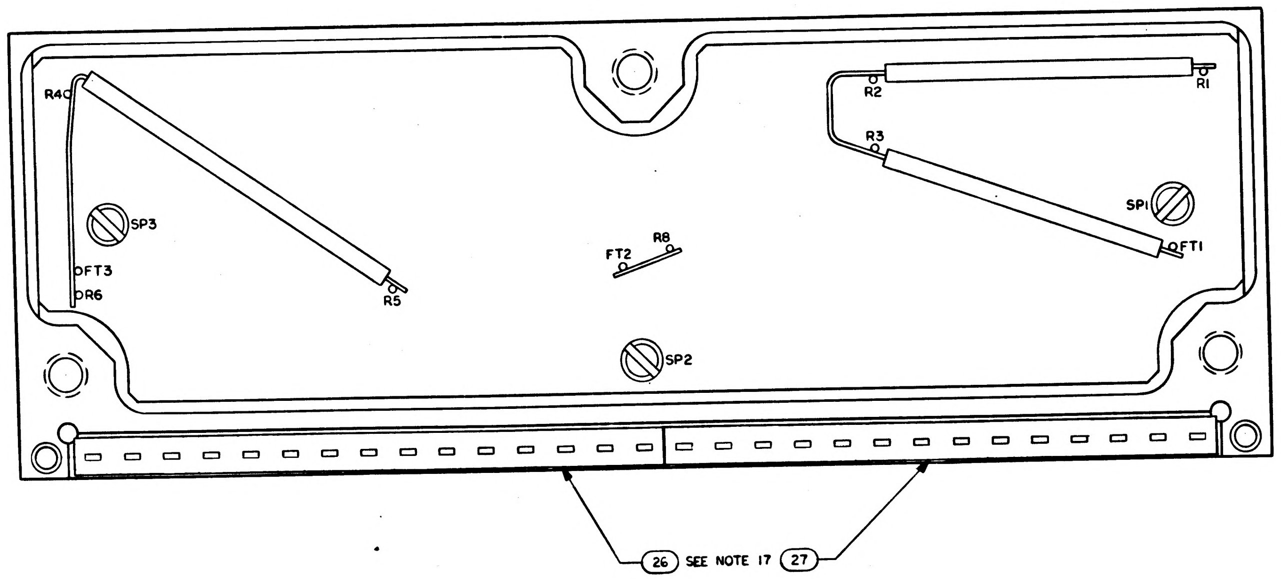
R5 22
13 SEE NOTE 5
C
14 SEE NOTE 5
R6 23
19
C



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SP3
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R6
R5
FT2
R8
SP2
R2
R1
R3
SP1
FT1
26 SEE NOTE 17 27

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1009501	SCHEMATIC	REF
AR	1006776-21	INSULATION SLEEVING ELECTRICAL	28
1	1008540 14	GASKET	27
1	1008540-15	GASKET	26
AR	106757 - 8	.020 DIA WIRE ELECTRICAL	25
2	1010790 - 3	RELAY	24
2	1010363-215	RESISTOR	23
2	1010363-247	RESISTOR	22
1	1010467	TRANSFORMER	21
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	20
AR	1006776-20	INSULATION SLEEVING ELECTRICAL	19
3	1008161-1	SCREW, CAP SLOTTED HEAD	18
3	1008161-2	SCREW, CAP SLOTTED HEAD	17
3	1015135-021	SPACER, NYLON	16
AR	1006757-1	.010 X .020 WIRE ELECTRICAL	15
29	1006775	INSULATOR, WRAPOST MALE MIN	14
29	1006782-5	CONTACT, WRAPOST MALE MIN	13
2	1010316-89	CAPACITOR	12
2	1010316-79	CAPACITOR	11
1	1010316-92	CAPACITOR	10
1	1010316-81	CAPACITOR	9
2	1010363 - 421	RESISTOR	8
1	1010363 - 221	RESISTOR	7
1	1010363 - 265	RESISTOR	6
1	1010363 - 431	RESISTOR	5
1	1010363 - 443	RESISTOR	4
1	1008503	WIRING BOARD, BOTTOM	3
1	1008501	WIRING BOARD, TOP	2
1	1008504	FRAME	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN Mahoney DATE 8-7-64
CHECKED
APPROVAL 22
APPROVAL 9/22/64
NASA APPROVAL 9-28-64
MIT APPROVAL 9/28/64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CDU RESOLVER LOADS ASSEMBLY

CODE IDENT NO. SIZE J NASA DRAWING NO. 1007510
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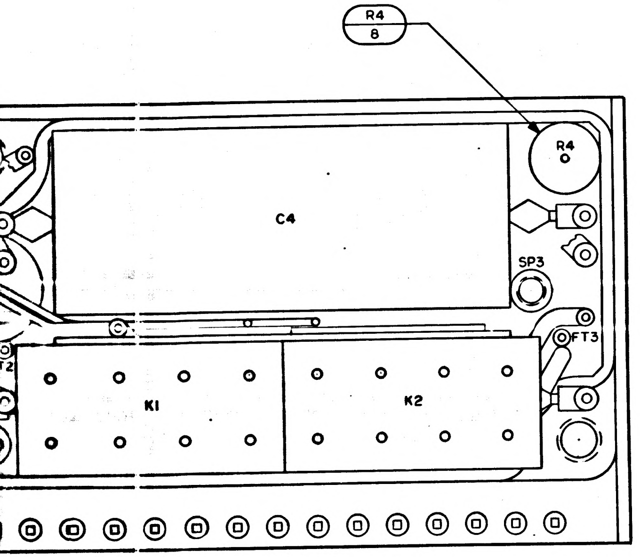
1007510 A

F3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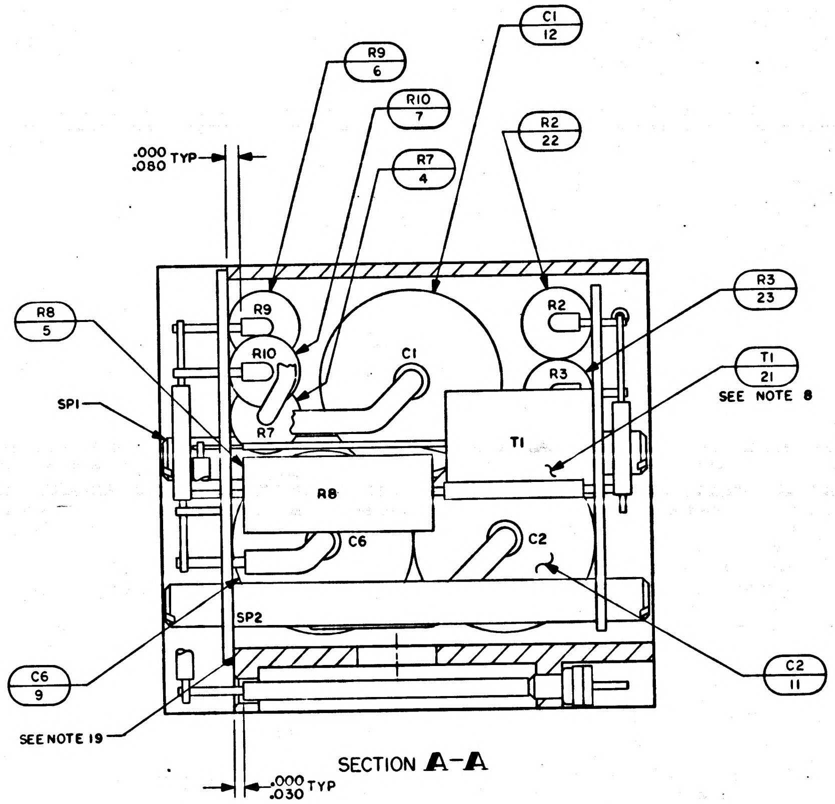
K1
K2

D-D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R3
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21
SEE NOTE 8
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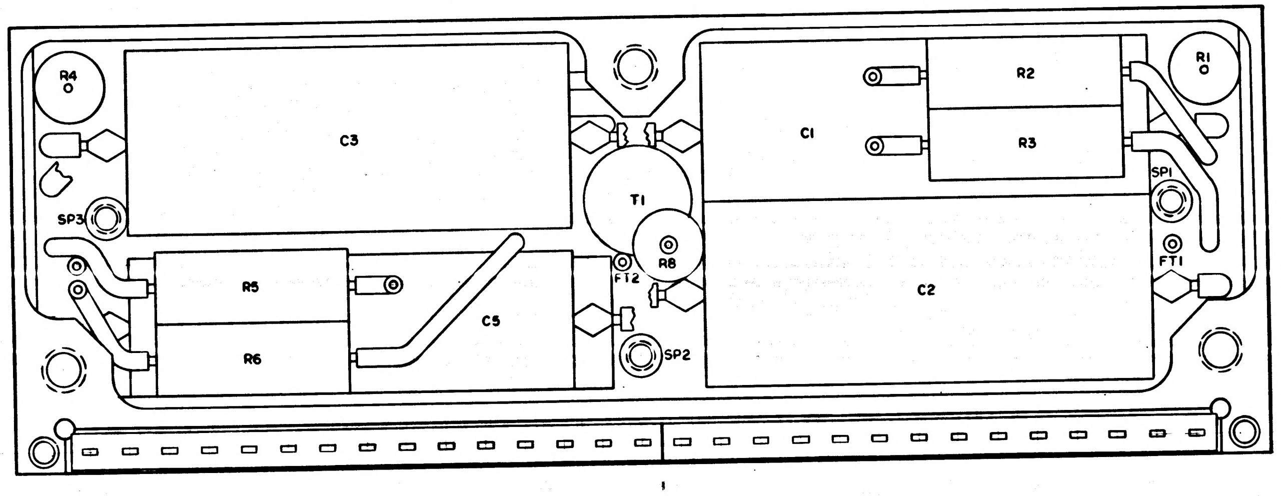
5
SP1
.000
.080 TYP
C1
T1
R8
C6
C2
SP2
C6
9
C2
11
SEE NOTE 19
.000
.030 TYP

SECTION A-A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C3
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R2
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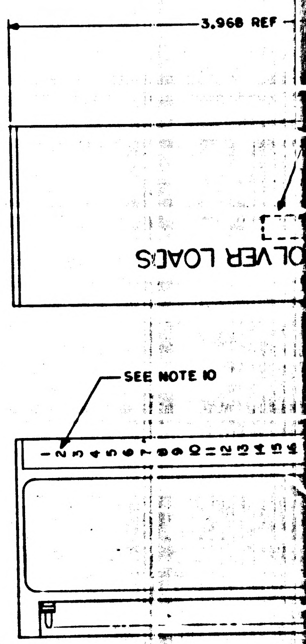
SP1
FT1
SP3
R5
R6
C5
R8
FT2
SP2
C2

SECTION C-C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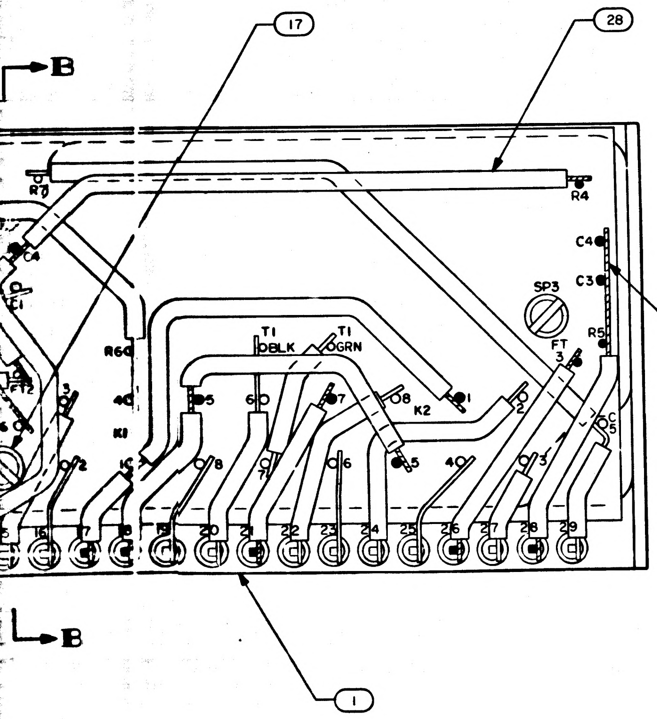
OLVER LOADS
SEE NOTE 10

MARKING
SCALE 2


B
17
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C4
C3
SP3
R5
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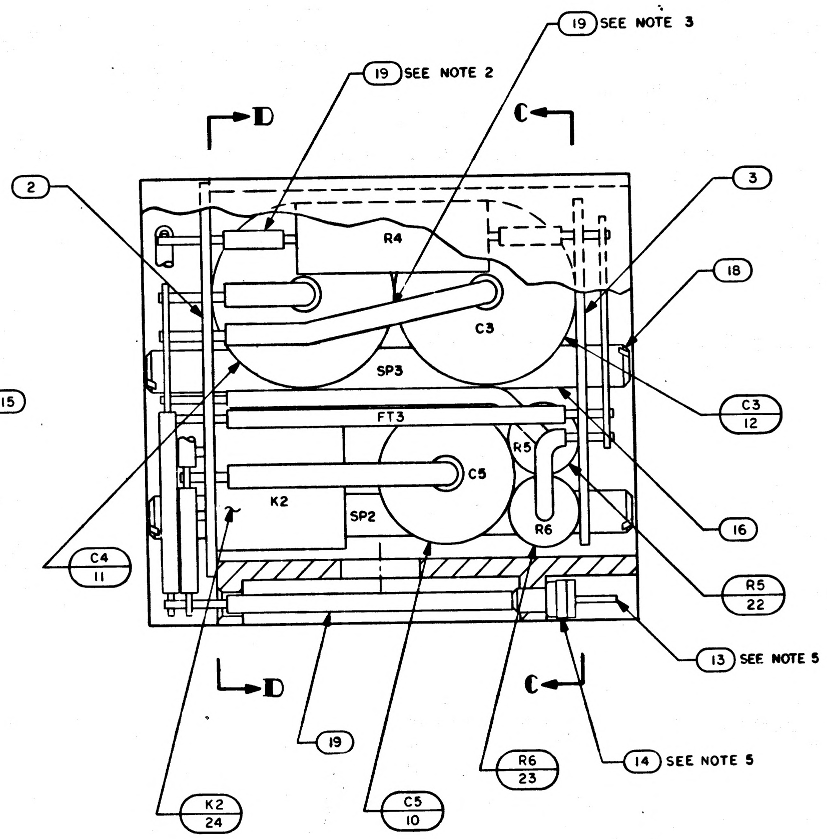
T1 GRN
K1
K2
FT
1
15
B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D
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2
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R5
R6
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SP2
C3
12
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C
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R6
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C5
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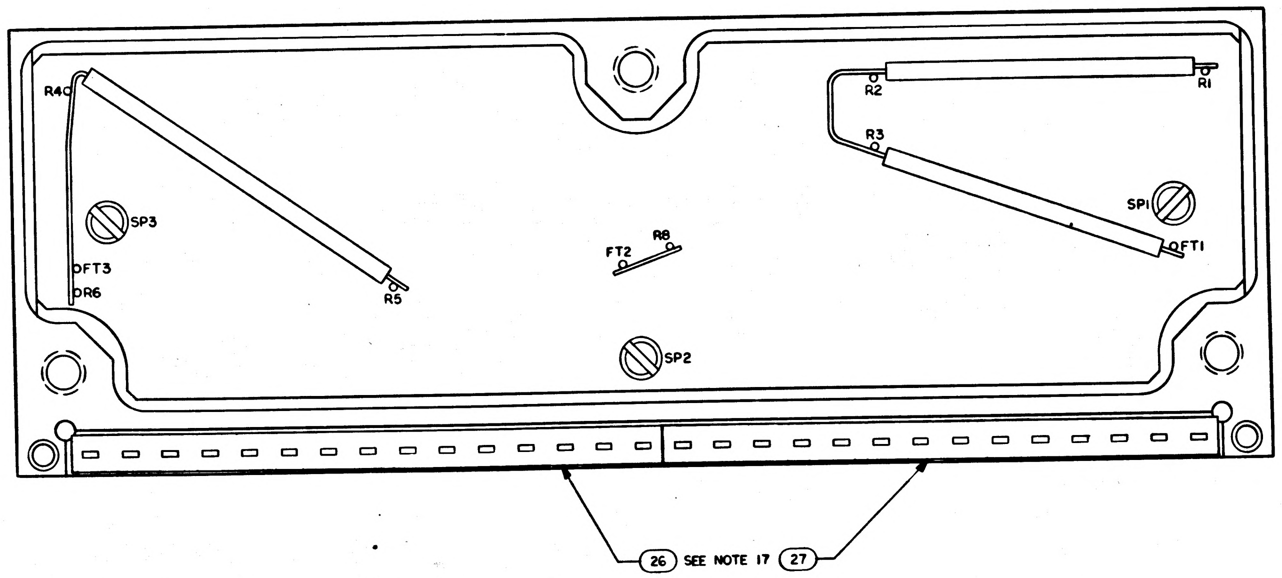

R4
R2
R1
R3
SP3
SP1
FT1
FT3
R6
R5
FT2
R8
SP2
26 SEE NOTE 17
27

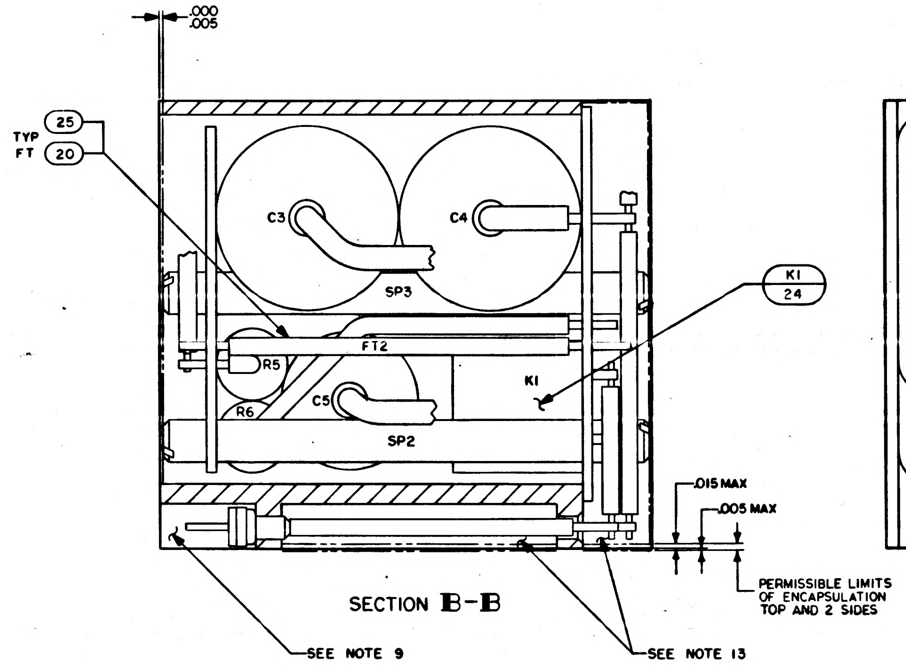
NEXT ASSY | USED ON
APPLICATION

MASTER

1007510

F2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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.005
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FT 20
C3
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K1
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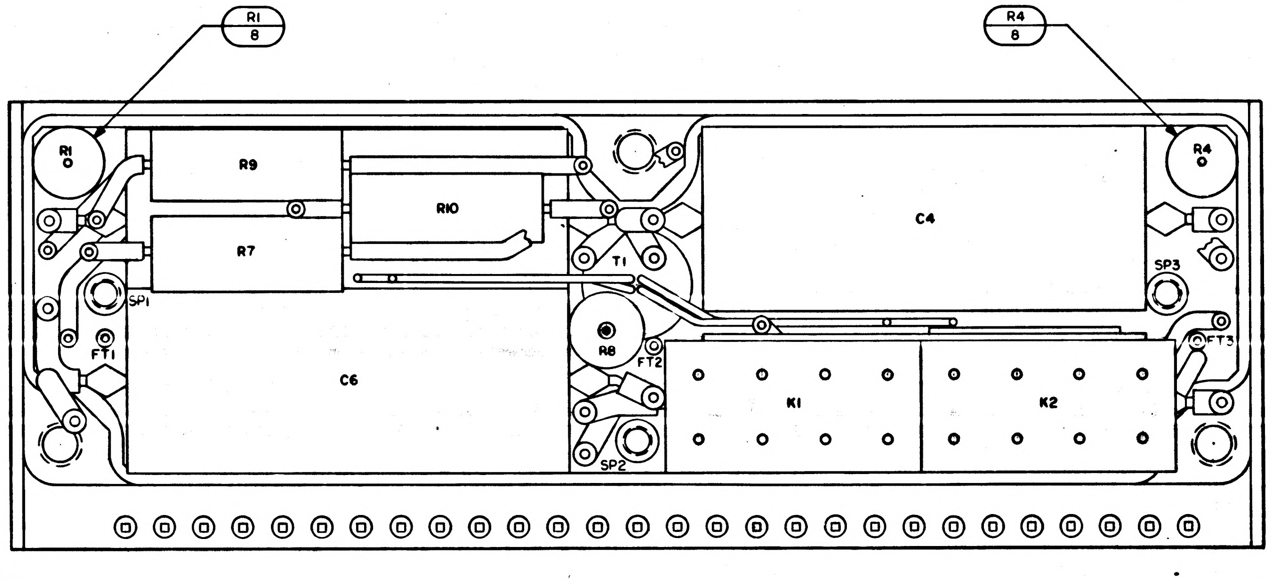
.005 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND 2 SIDES
SEE NOTE 9
SEE NOTE 13

SECTION B-B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K2
FT3
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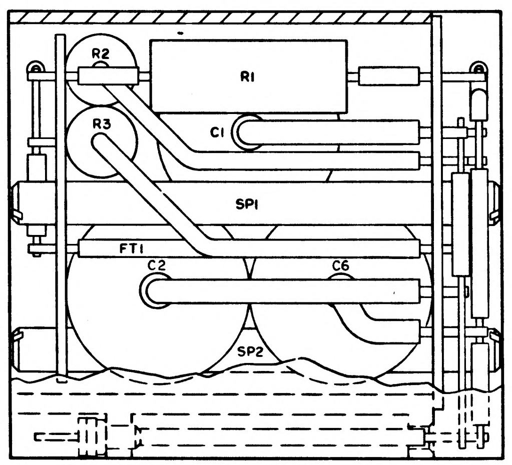
R4

SECTION D-D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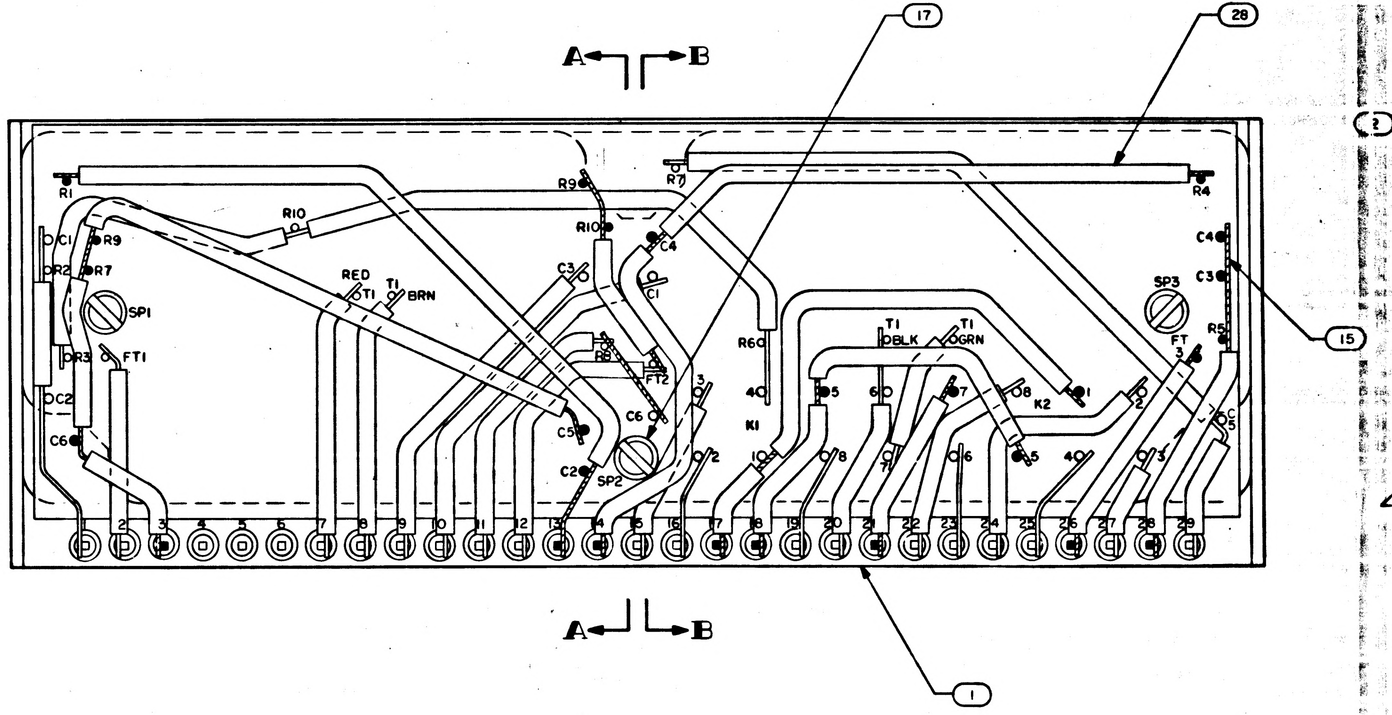
C6
SP2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C2
C6
RED
T1
T1 BRN
C3
C1
C4
R6
FT2
R8
C6
C5
C2
SP2
K1
T1 BLK
T1 GRN
SP3
C4
C3
R5
FT 3
K2
15
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
1

.000
.080
R3
SP1
C6 9
SEE NOTE 19
2
C4 11

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TYPICAL INSULATION FOR ALL RESISTORS
3. TYPICAL INSULATION FOR ALL CAPACITORS
4. WORKMANSHIP REQUIREMENT PER ND 1002069
5. ASSEMBLE FIND NO.13 AND 14 PER ND 1002136
6. SP DENOTES SPACER
7. BOND RESISTORS RELAYS AND CAPACITORS TO FIND NO. 2 AND TO EACH OTHER AS SHOWN, PER ND 1002004, TYPE I
8. BOND FIND NO. 21 TO FIND NO. 3 PER ND 1002004, TYPE I
9. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
10. MARK .100/.060 HIGH WHITE CHARACTERS PER ND 1002019, CENTRALIZE AS SHOWN
11. MARK .140/.100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023, CENTRALIZE AS SHOWN
12. AR DENOTES AS REQUIRED
13. ENCAPSULATE PER ND 1002002 BLACK POLYURETHANE FOAM, REMOVE ALL FLASHING
14. FT DENOTES FEED THRU
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
16. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
17. BOND FIND NO. 26 AND FIND NO. 27 TO FIND NO. 14 PER ND 1002237
18. WELD PER ND 1002005
19. BOND FIND NO. 2 TO FIND NO. 1 PER ND 1002004, TYPE I
20. PROCURE PER PS 1007510

APOLLO G&N Specification
PS1007510 A
Original Issue Date: 17Feb65
Release Authority: TDRR 16518
Class A Release

PROCUREMENT SPECIFICATION
FOR
CDU RESOLVER LOADS MODULE ASSEMBLY

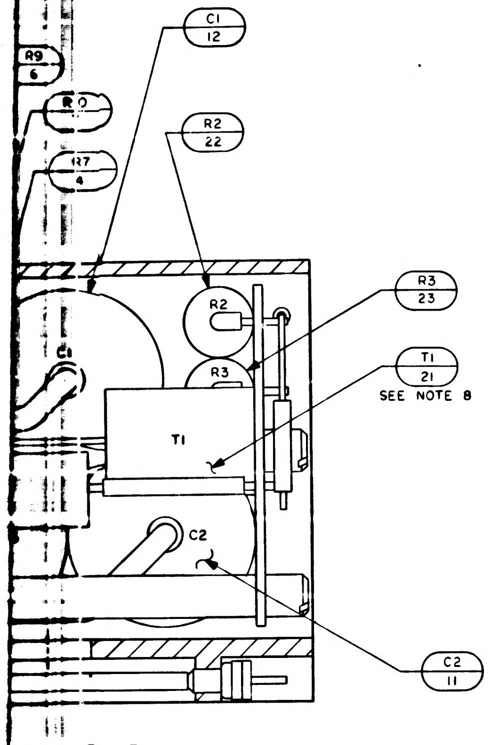
Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
3/18/65	A	17549	4	MGM	TM

This specification consists of page 1 to 5 inclusive.

APPROVALS	NASA/MSC	STAFF Member MIT/IL	Proj. Engr. eng spec writer ACSP

REVISIONS 13094			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 15420	[illegible]	[illegible]
B	REVISED PER TDRR 16626	26 FEB 65	[illegible]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R3 23
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SEE NOTE 8
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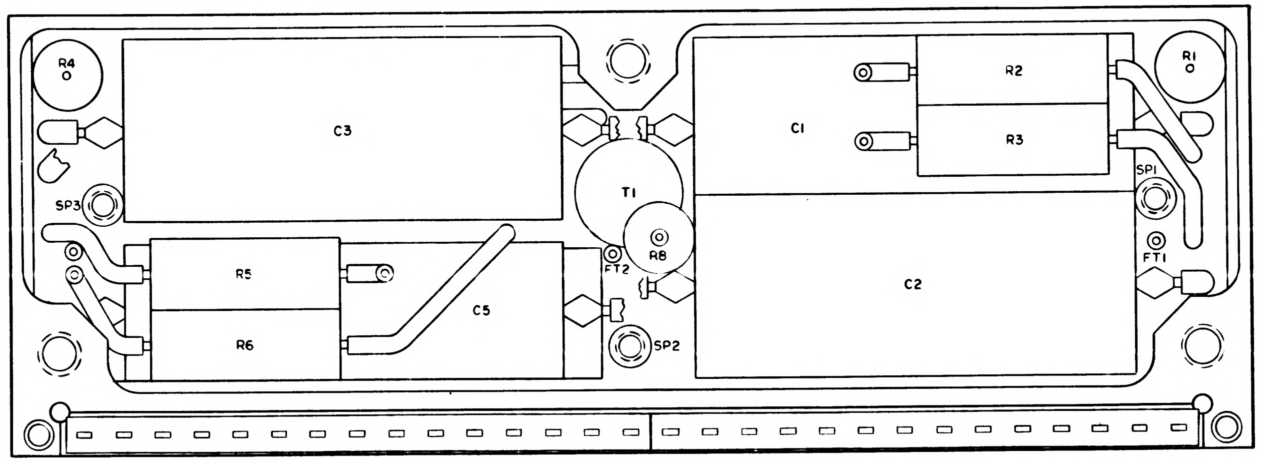
CTION A-A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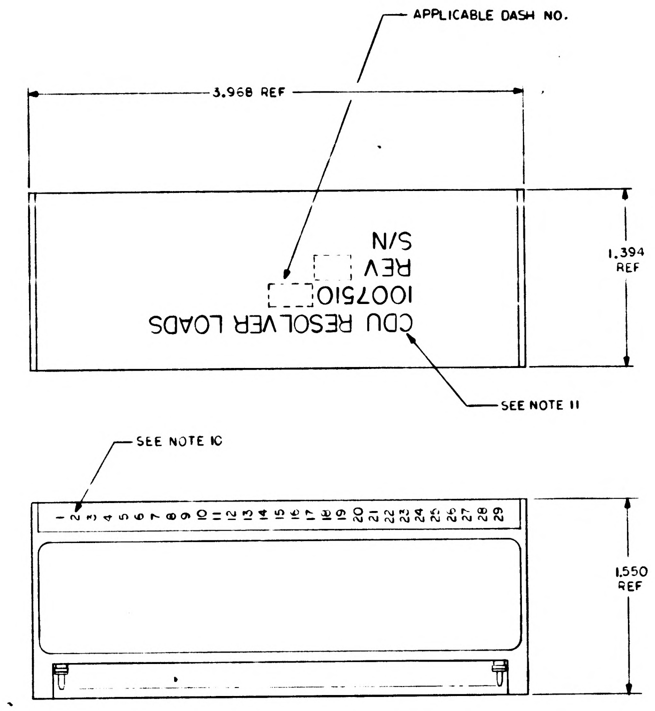
SECTION C-C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1.394 REF
CDU RESOLVER LOADS
1007510
REV
S/N
SEE NOTE 11
SEE NOTE 10
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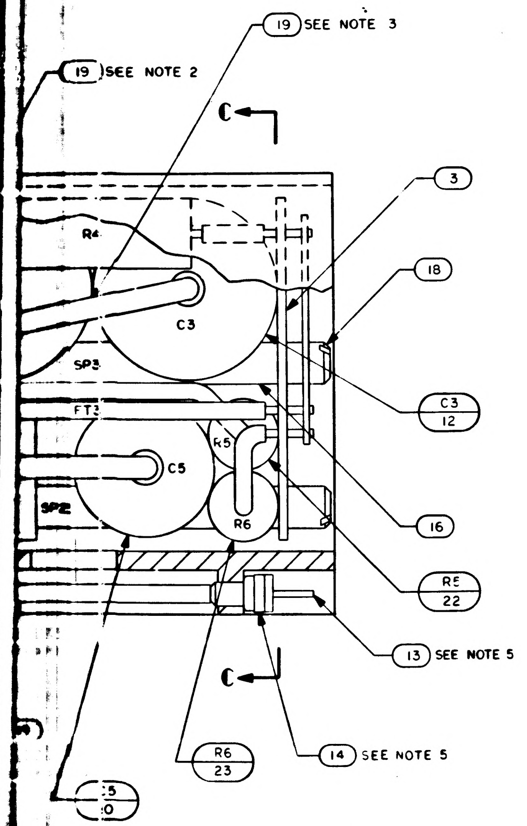
1.550 REF

MARKING DRAWING
SCALE 2/1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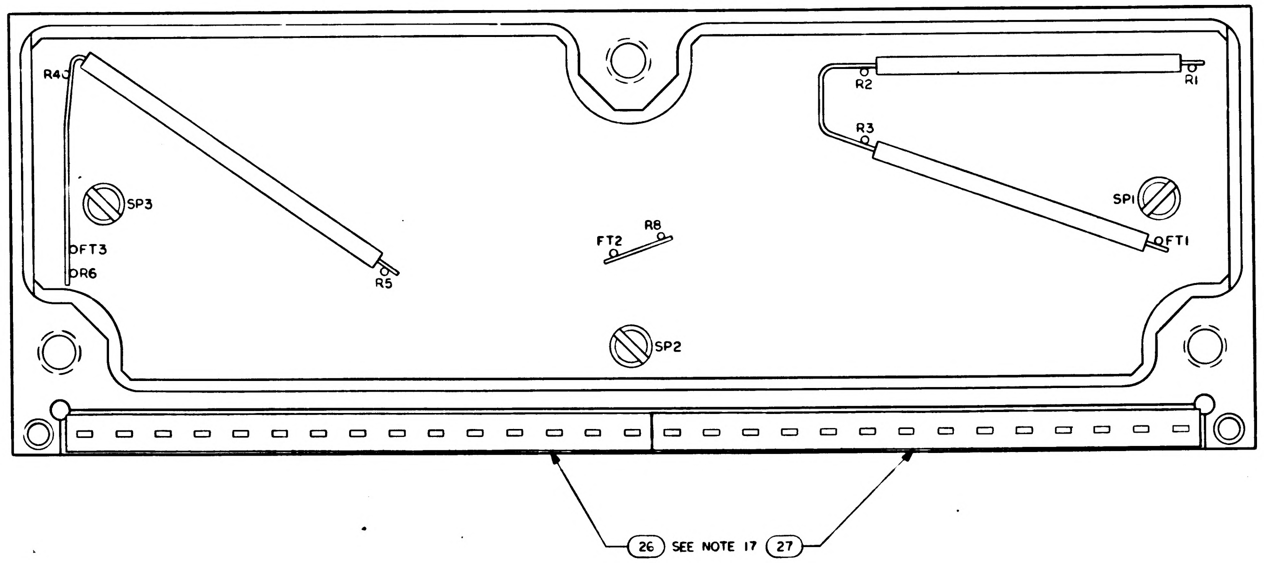
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SP1
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FT2
R8
R5
FT1
SP2
26 SEE NOTE 17 27

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1009501	SCHEMATIC	REF
AR	1006776-21	INSULATION SLEEVING ELECTRICAL	28
1	1008540 14	GASKET	27
1	1008540-15	GASKET	26
AR	106757-8	.020 DIA WIRE ELECTRICAL	25
2	1010790-3	RELAY	24
2	1010363-215	RESISTOR	23
2	1010363-247	RESISTOR	22
1	1010467	TRANSFORMER	21
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	20
AR	1006776-20	INSULATION SLEEVING ELECTRICAL	19
3	1008161-1	SCREW, CAP SLOTTED HEAD	18
3	1008161-2	SCREW, CAP SLOTTED HEAD	17
3	1015135-021	SPACER, NYLON	16
AR	1006757-1	.010 X .020 WIRE ELECTRICAL	15
29	1006775	INSULATOR, WRAPOST MALE MIN	14
29	1006782-5	CONTACT, WRAPOST MALE MIN	13
2	1010316-89	CAPACITOR	12
2	1010316-79	CAPACITOR	11
1	1010316-92	CAPACITOR	10
1	1010316-81	CAPACITOR	9
2	1010363-421	RESISTOR	8
1	1010363-221	RESISTOR	7
1	1010363-265	RESISTOR	6
1	1010363-431	RESISTOR	5
1	1010363-443	RESISTOR	4
1	1008503	WIRING BOARD, BOTTOM	3
1	1008501	WIRING BOARD, TOP	2
1	1008504	FRAME	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT
DRAWN DATE 8-7-64
CHECKED
APPROVAL 22 Sept 64
APPROVAL 9/22/64
NASA APPROVAL 9-28-64
MIT APPROVAL 9/25/64

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

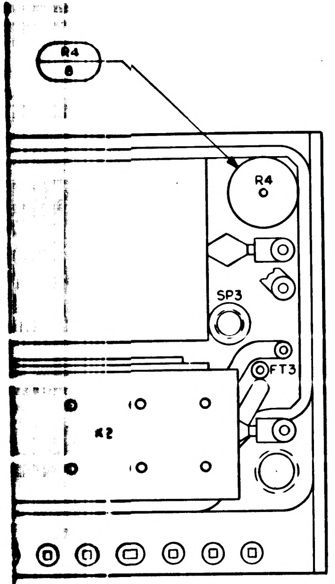
CDU RESOLVER LOADS
ASSEMBLY

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007510
SCALE 5/1
WT —
SHEET 1 OF 1

1007510

(3H)

3/1007510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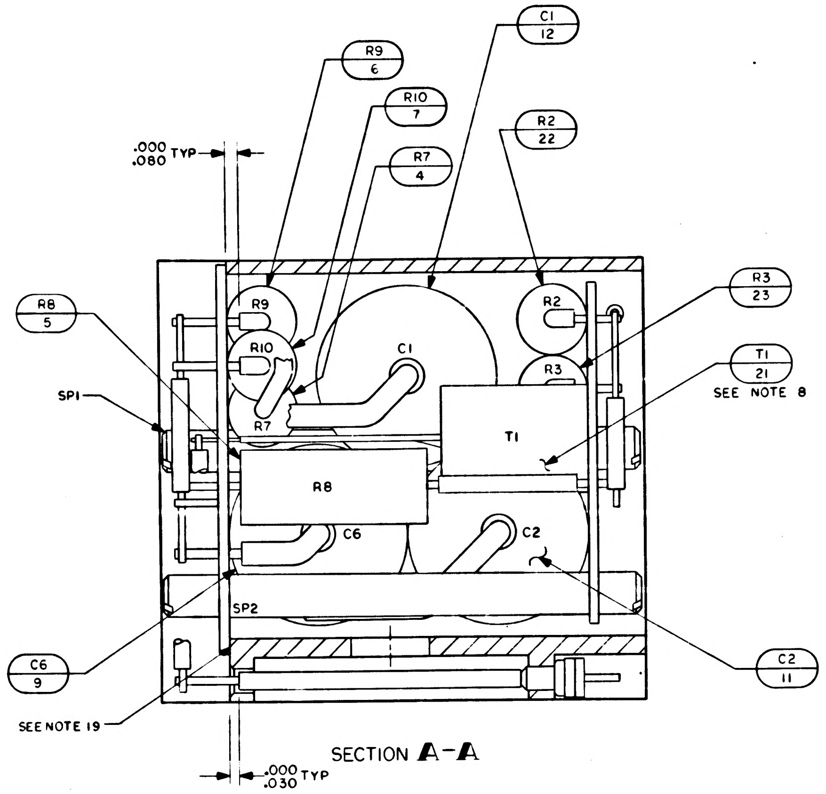
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C1
R2
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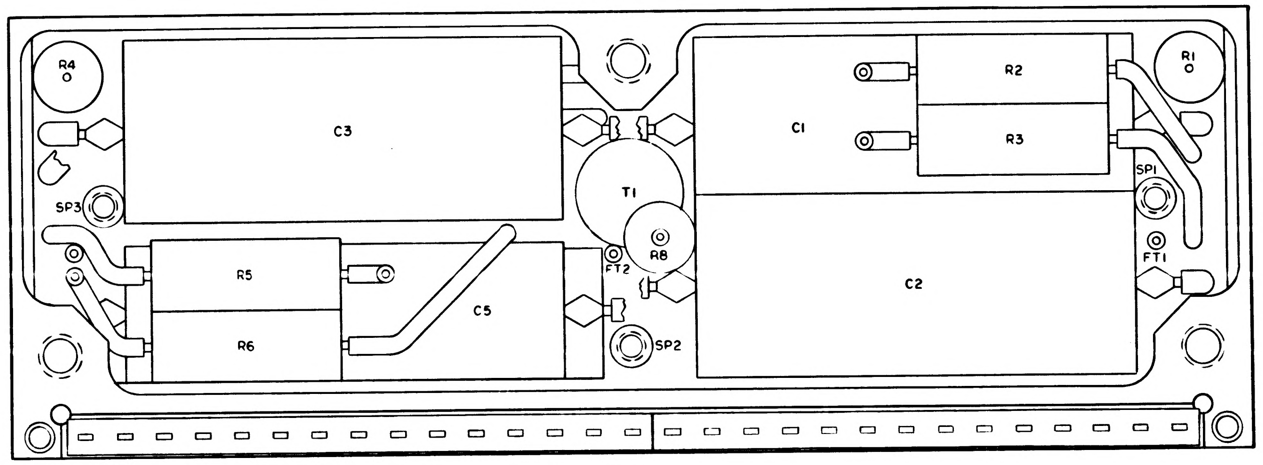
SECTION **A-A**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R6
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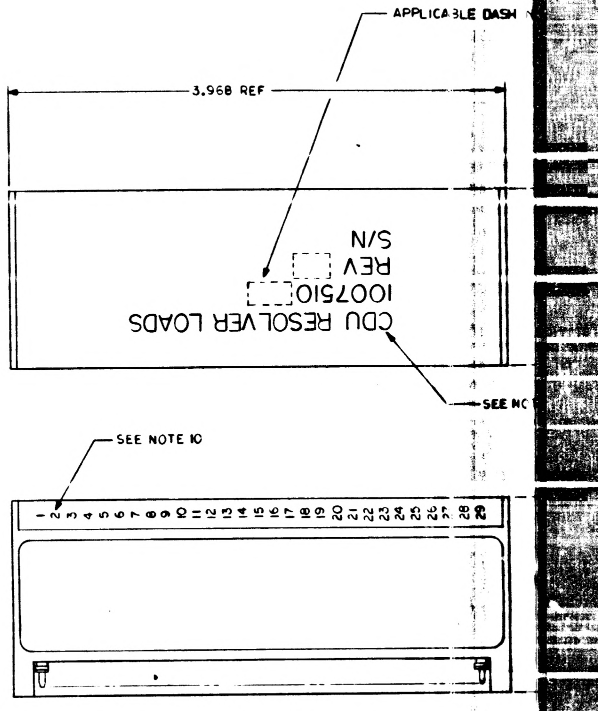
C2
SP2

SECTION **C-C**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3.968 REF
S/N
REV
1007510
CDU RESOLVER LOADS
SEE NO
SEE NOTE 10
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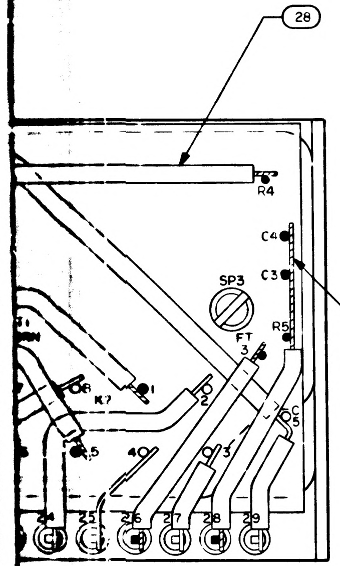
MARKING DRAWING
SCALE 2/1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FT
R5
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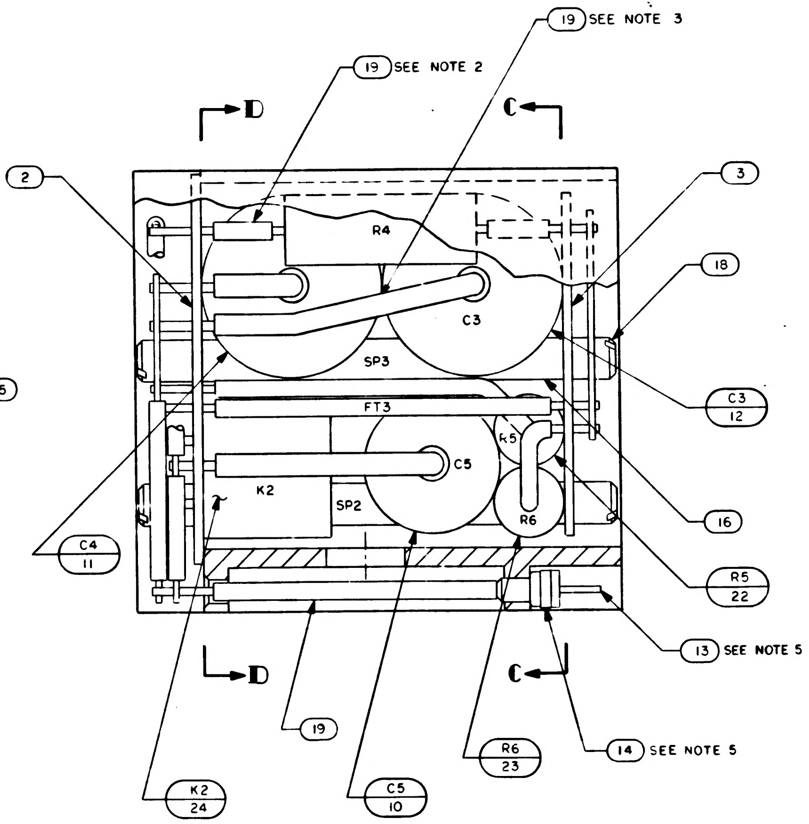
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19 SEE NOTE 2
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SP2
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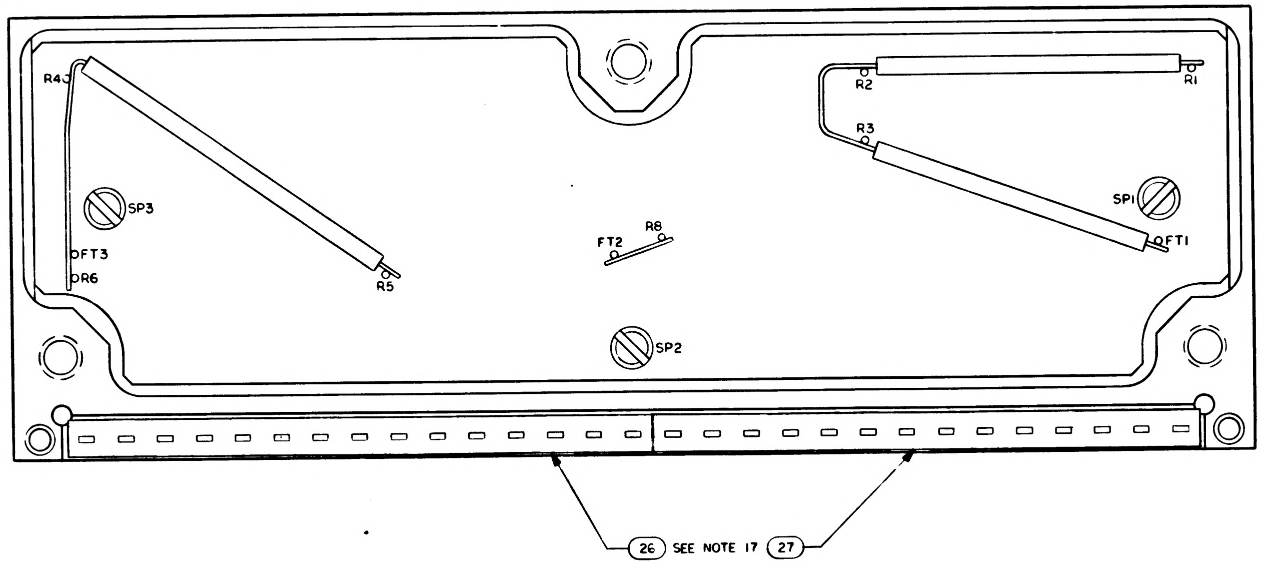
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R1
R3
SP3
SP1
FT3
R6
FT2
R8
FT1
R5
SP2
26 SEE NOTE 17 27

X	1009501
AR	1006776
1	1008540
1	1008540-
AR	106757-
2	1010790-
2	1010363-
2	1010363-
1	101046
AR	1006776-
AR	1006776-
3	1008161-
3	1008161-
3	1015135-
AR	1006757-
29	1006775
29	1006782
2	1010316-
2	1010316-
1	1010316
1	1010316
2	1010363
1	1010363
1	1010363
	1010363
1	1010363
1	100850
1	100850
	100850
QTY REQD	

NEXT ASSY	USED ON
APPLICATION	

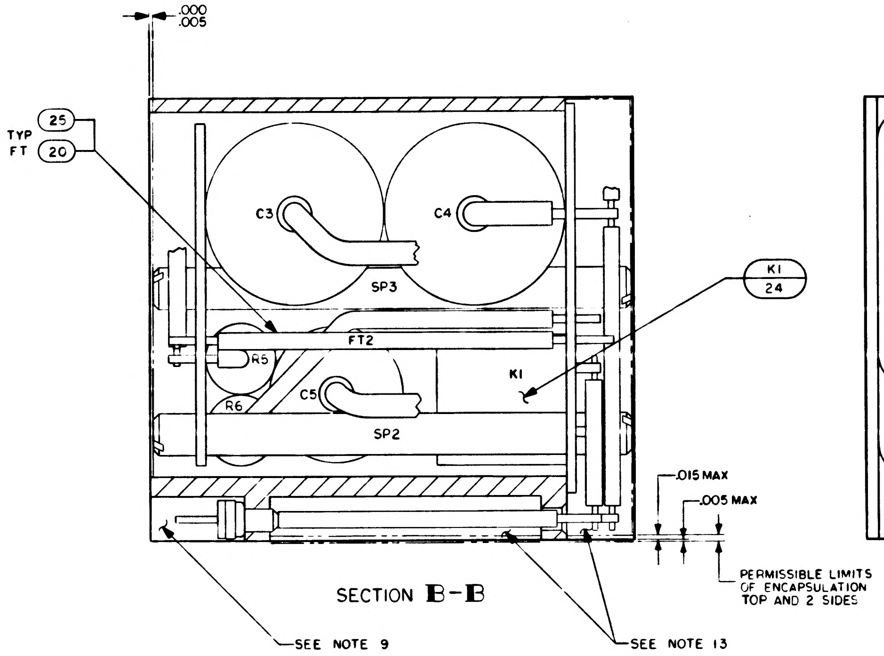
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

INSTRUMENTA
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

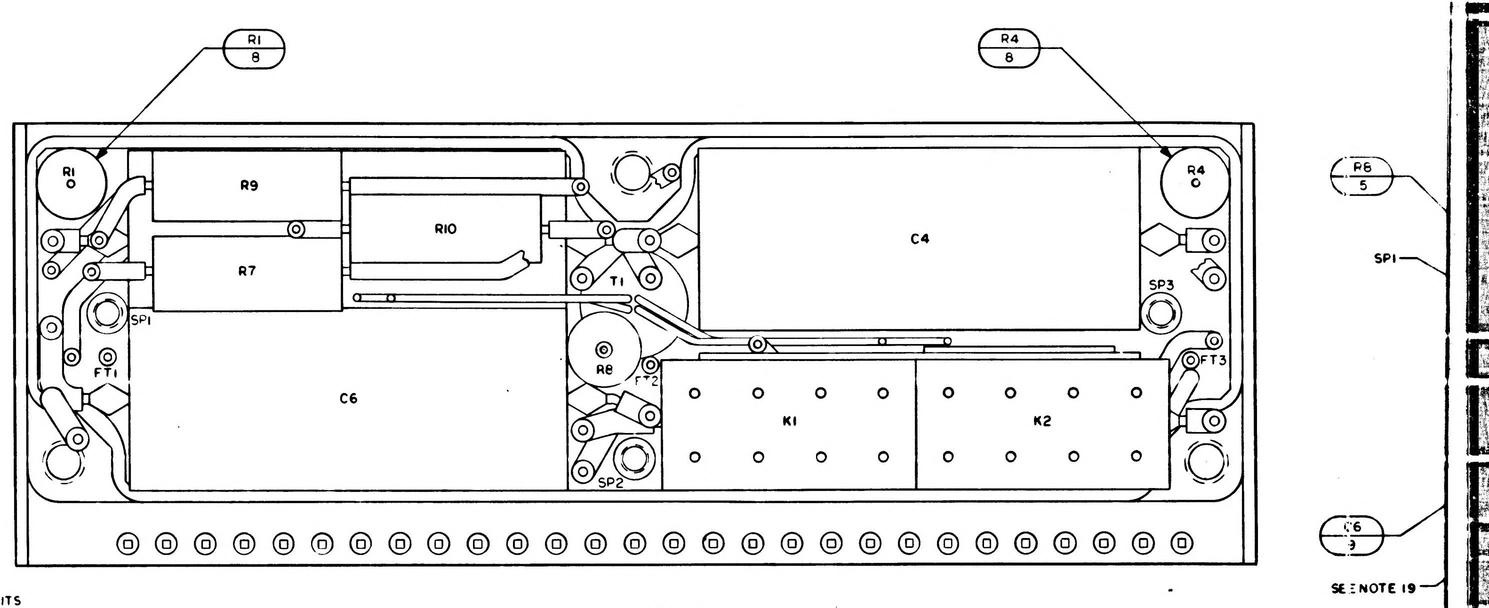
1007510

2/1007510

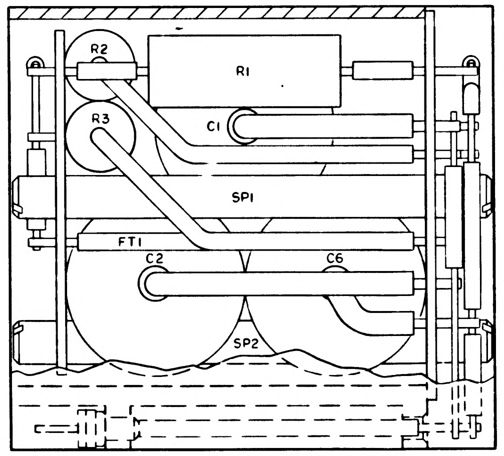
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

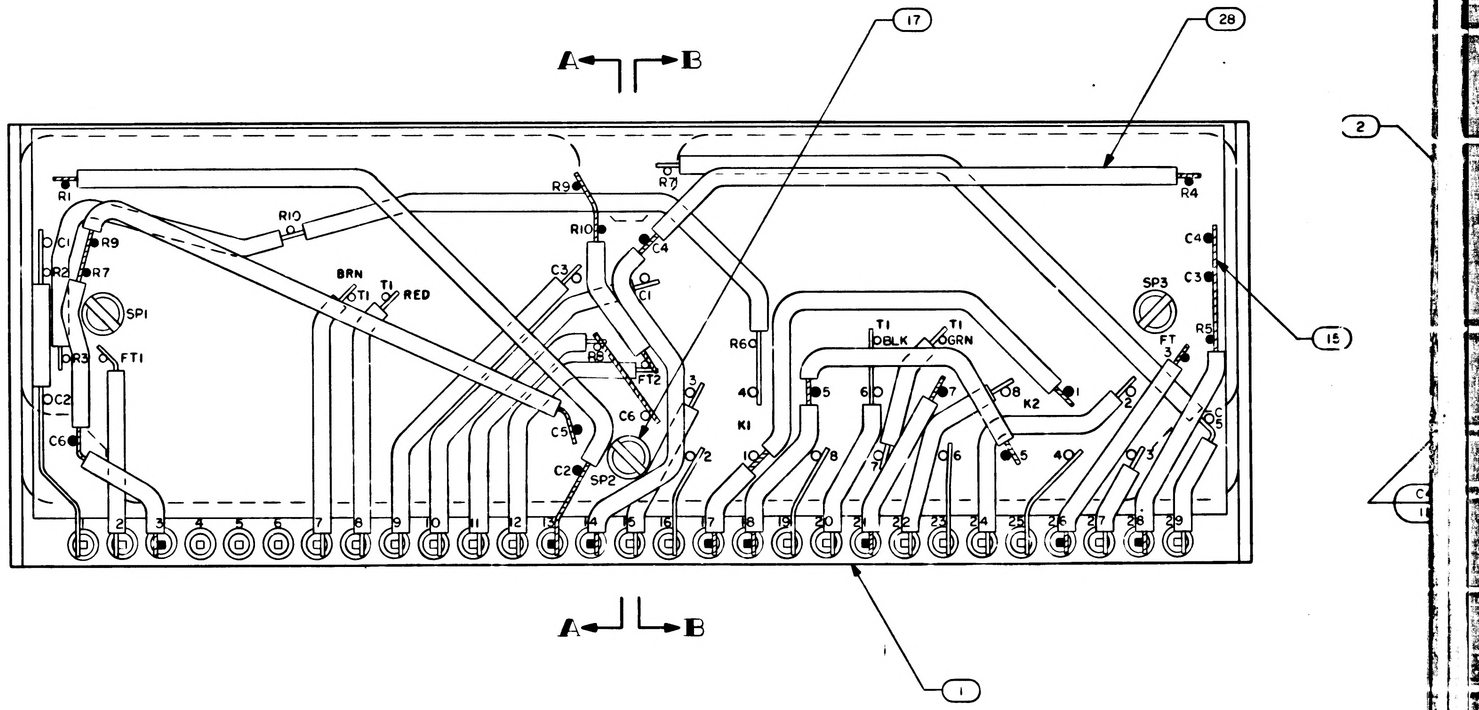

.000
.005
TYP FT
25
20
C3
C4
SP3
K1
24
FT2
R5
R6
C5
SP2
K1
.015 MAX
.005 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND 2 SIDES
SEE NOTE 9
SEE NOTE 13

SECTION B-B


R1
8
R4
8
R1
R9
R7
R10
C4
R4
T1
SP3
SP1
FT1
C6
R8
FT2
K1
K2
FT3
SP2
R6
5
SP1
C6
3
SEE NOTE 19

SECTION D-D


R2
R1
R3
C1
SP1
FT1
C2
C6
SP2


17
28
A
B
2
R1
R9
R10
R7
R4
C4
C3
C1
R9
R2
R7
SP1
R3
FT1
C2
C6
BRN
T1
RED
C3
R10
C4
R6
K1
FT2
C5
C6
C2
SP2
SP3
R5
T1
BLK
T1
GRN
K2
FT
15
1
2
3
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22
23
24
25
26
27
28
29
A
B
1

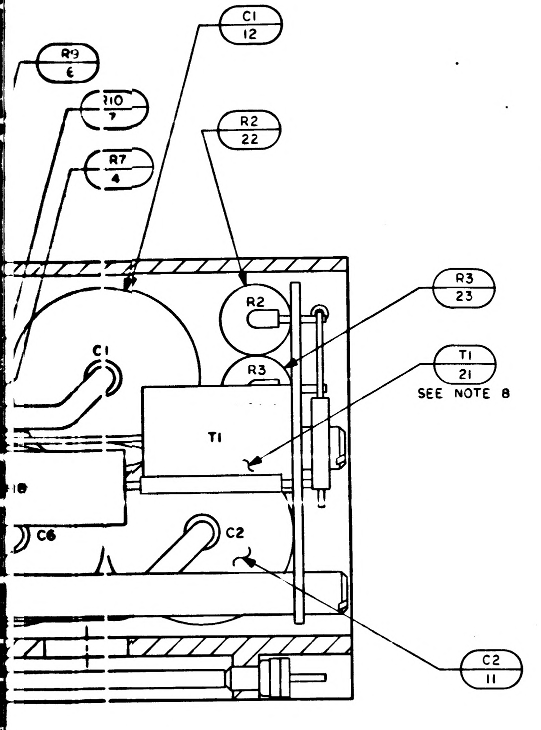
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TYPICAL INSULATION FOR ALL RESISTORS
3. TYPICAL INSULATION FOR ALL CAPACITORS
4. WORKMANSHIP REQUIREMENT PER ND 1002069
5. ASSEMBLE FIND NO.13 AND 14 PER ND 1002136
6. SP DENOTES SPACER
7. BOND RESISTORS RELAYS AND CAPACITORS TO FIND NO. 2 AND TO EACH OTHER AS SHOWN. PER ND 1002004, TYPE I
8. BOND FIND NO. 21 TO FIND NO. 3 PER ND 1002004, TYPE I
9. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
10. MARK .100 / .060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
11. MARK .140 / .100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
12. AR DENOTES AS REQUIRED
13. ENCAPSULATE PER ND 1002002 BLACK POLYURETHANE FOAM. REMOVE ALL FLASHING
14. FT DENOTES FEED THRU
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
16. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
17. BOND FIND NO. 26 AND FIND NO. 27 TO FIND NO. 14 PER ND 1002237
18. WELD PER ND 1002005
19. BOND FIND NO. 2 TO FIND NO. 1 PER ND 1002004, TYPE I
20. PROCURE PER PS 1007510

1007510

1/1007510

REVISIONS 13094			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 15420		
B	REVISED PER TDRR 16626	26 FEB 65	
C	REVISED PER TDRR 17304	65	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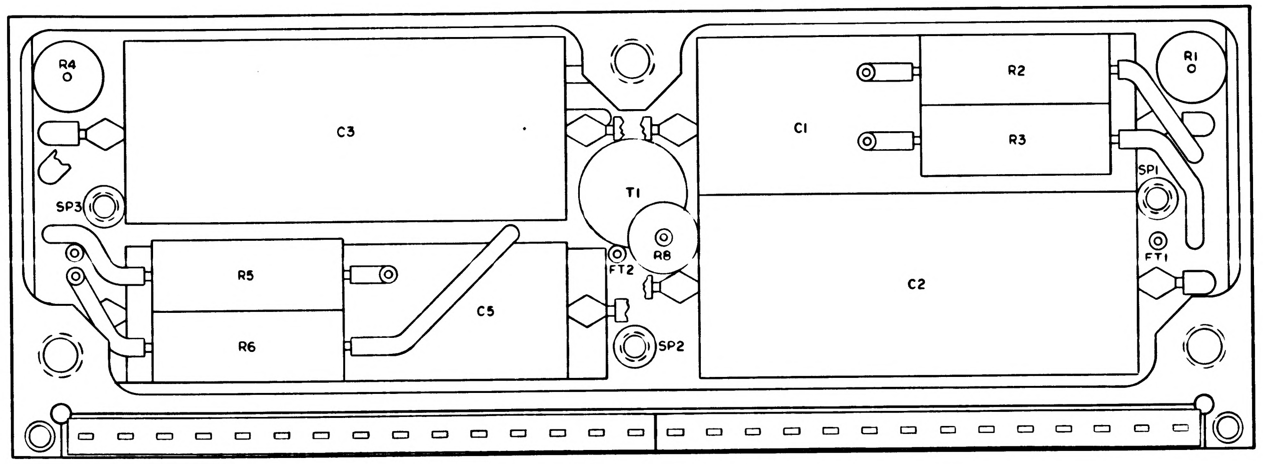
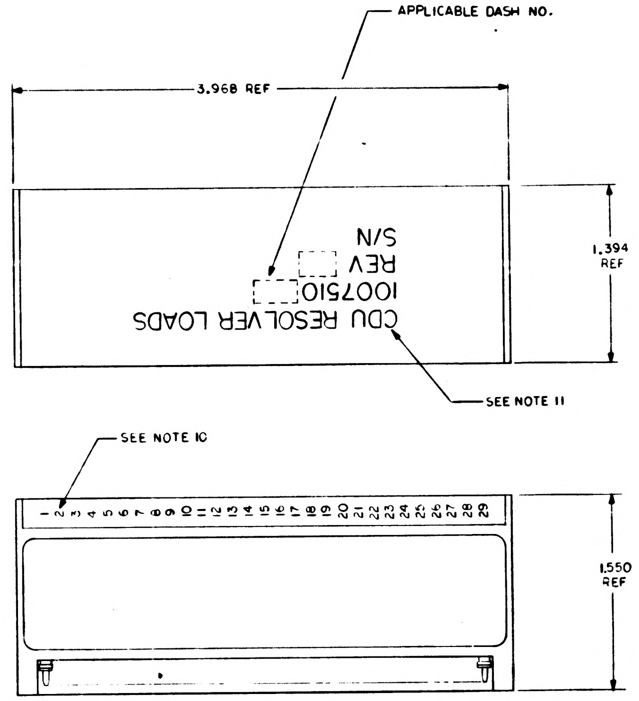
R9 6
R10 7
R7 4
R2 22
R3 23
T1 21
SEE NOTE 8
C1
R2
R3
T1
18
C6
C2
C2 11

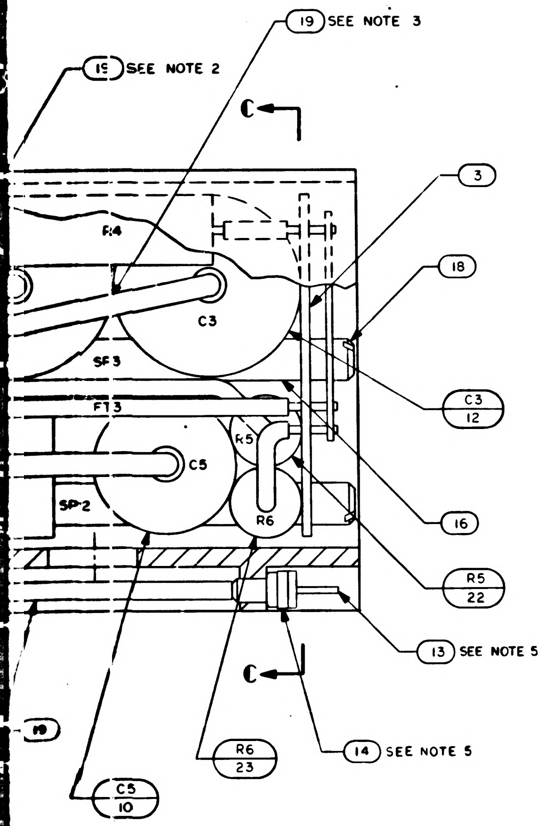
SECTION A-A


R4
C3
SP3
R5
R6
C5
T1
R8
FT2
SP2
C1
R2
R3
R1
SP1
FT1
C2

SECTION C-C


APPLICABLE DASH NO.
3.968 REF
CDU RESOLVER LOADS
1007510-
REV
S/N
1.394 REF
SEE NOTE 11
SEE NOTE 10
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
1.550 REF

MARKING DRAWING
SCALE 2/1


19 SEE NOTE 3
15 SEE NOTE 2
C
3
18
R4
C3
SF3
FT3
C5
SP2
R5
R6
C3 12
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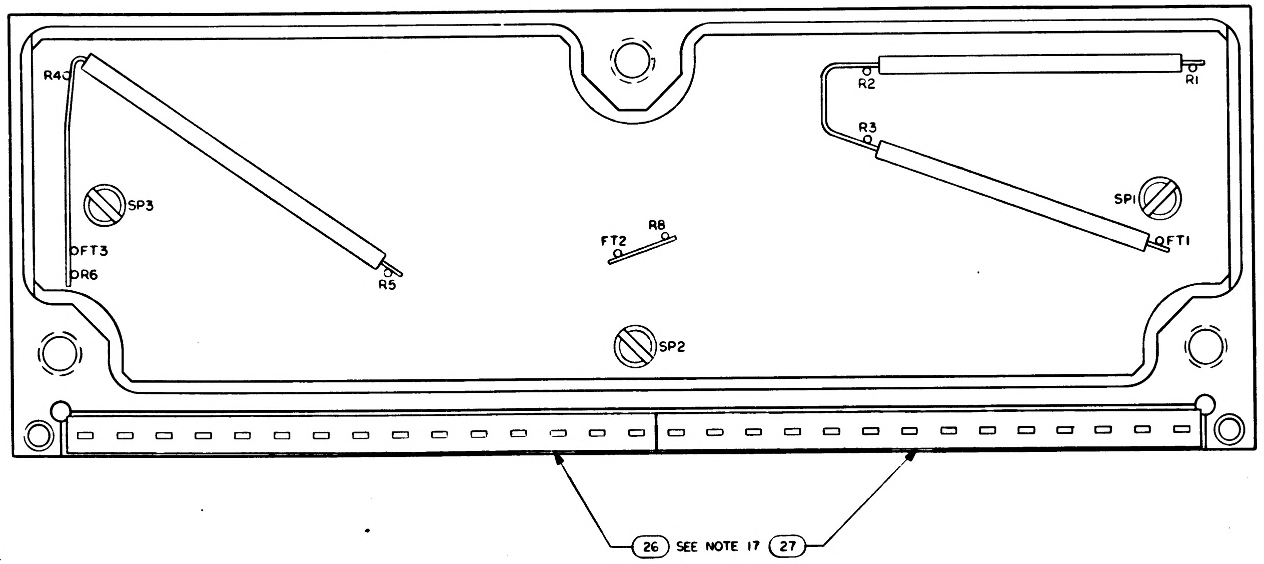
R5 22
13 SEE NOTE 5
C
14 SEE NOTE 5
R6 23
C5 10
19


R4
SP3
FT3
R6
R5
FT2
R8
SP2
R2
R1
R3
SP1
FT1
26 SEE NOTE 17
27

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1003501	SCHEMATIC	REF
AR	1006776-21	INSULATION SLEEVING ELECTRICAL	28
1	1008540 14	GASKET	27
1	1008540-15	GASKET	26
AR	106757 - 8	.020 DIA WIRE ELECTRICAL	25
2	1010790 - 3	RELAY	24
2	1010363-215	RESISTOR	23
2	1010363-247	RESISTOR	22
1	1010467	TRANSFORMER	21
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	20
AR	1006776-20	INSULATION SLEEVING ELECTRICAL	19
3	1008161-1	SCREW,CAP SLOTTED HEAD	18
3	1008161-2	SCREW,CAP SLOTTED HEAD	17
3	1015135-021	SPACER, NYLON	16
AR	1006757-1	.010 X .020 WIRE ELECTRICAL	15
29	1006775	INSULATOR,WRAPOST MALE MIN	14
29	1006782-5	CONTACT,WRAPOST MALE MIN	13
2	1010316-89	CAPACITOR	12
2	1010316-79	CAPACITOR	11
1	1010316-92	CAPACITOR	10
1	1010316-81	CAPACITOR	9
2	1010363-421	RESISTOR	8
1	1010363-221	RESISTOR	7
1	1010363-265	RESISTOR	6
1	1010363-431	RESISTOR	5
1	1010363-443	RESISTOR	4
1	1008503	WIRING BOARD, BOTTOM	3
1	1008501	WIRING BOARD ,TOP	2
1	1008504	FRAME	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

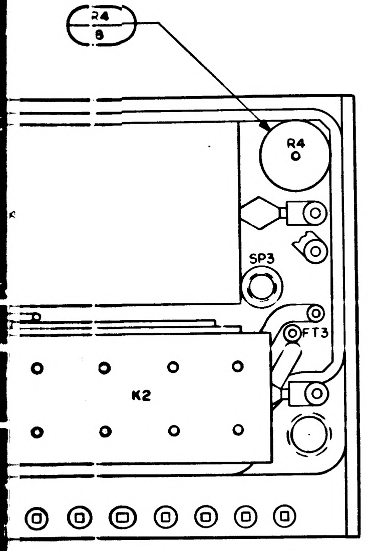
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 8-7-64
CHECKED
APPROVAL 22 Sep 64
APPROVAL 9/22/64
NASA APPROVAL 9-28-64
MIT APPROVAL 9/29/64

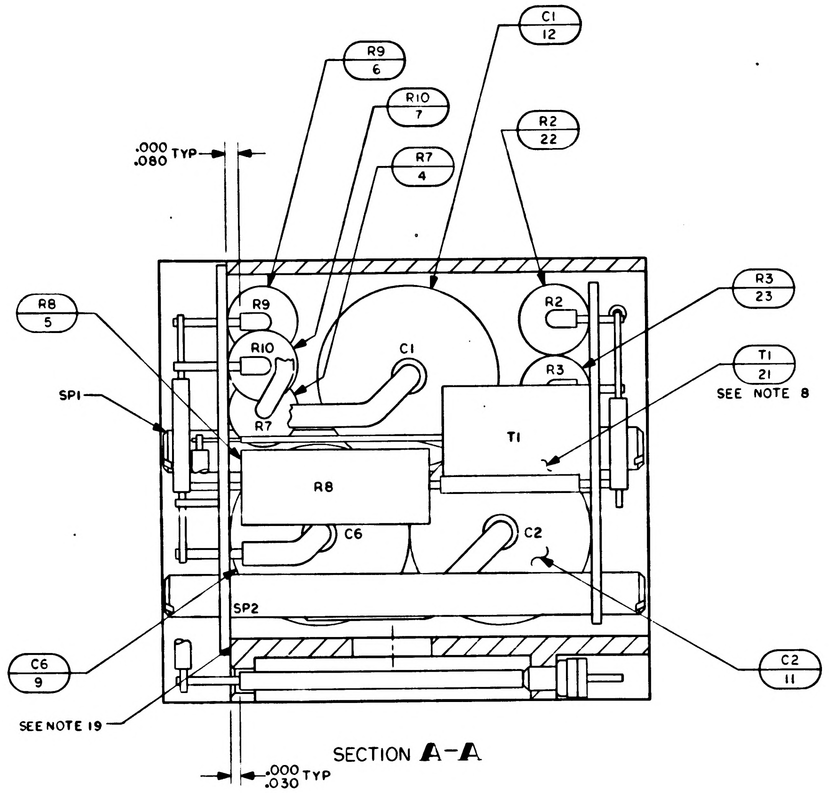
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

CDU RESOLVER LOADS ASSEMBLY

CODE IDENT NO. | SIZE J | NASA DRAWING NO. 1007510
SCALE 5/1 | WT — | SHEET 1 OF 1



R4 8
R4
SP3
FT3
K2



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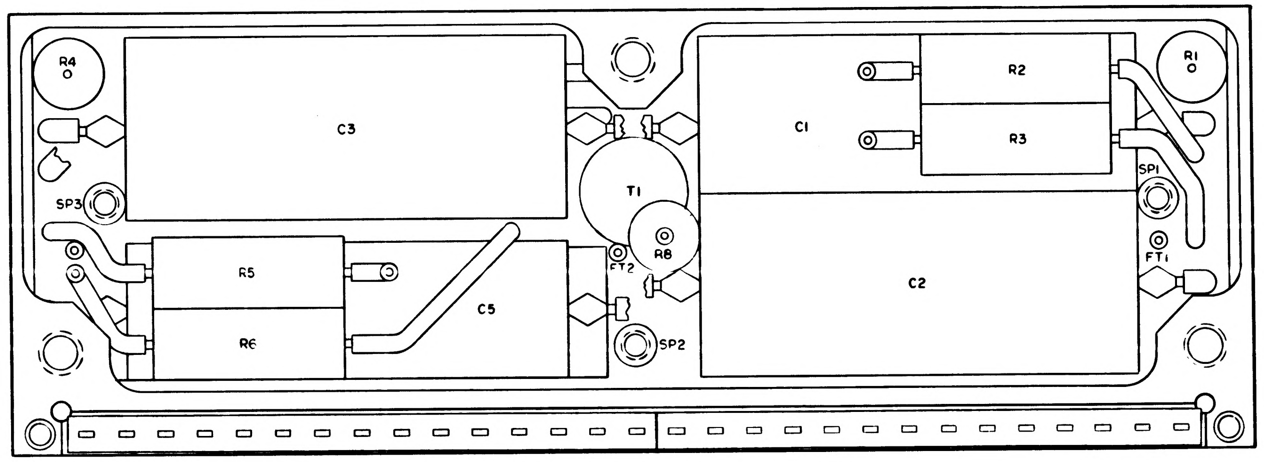
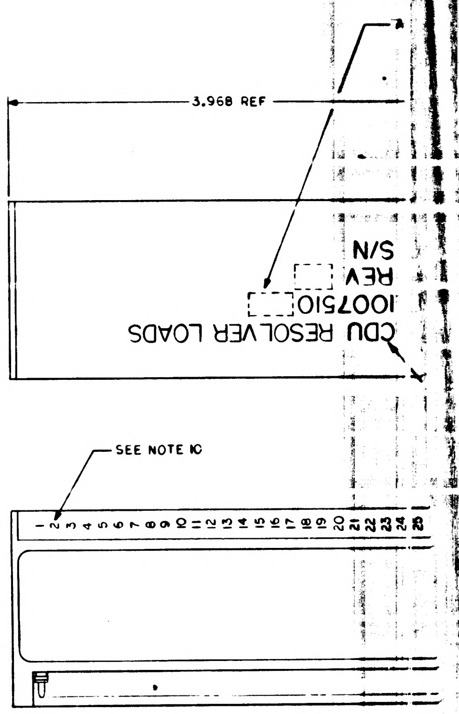
R10 7
R7 4
C1 12
R2 22
R3 23
T1 21 SEE NOTE 8
R8 5
SP1
.000 .080 TYP
R9
R10
R7
C1
R2
R3
T1
R8
C6
C2
SP2
C6 9
C2 11
SEE NOTE 19
.000 .030 TYP

SECTION A-A



R4
C3
SP3
R5
R6
C5
T1
R8
FT2
SP2
C1
R2
R3
C2
R1
SP1
FT1

SECTION C-C



3.968 REF
CDU RESOLVER LOADS
1007510
REV
S/N
SEE NOTE 10
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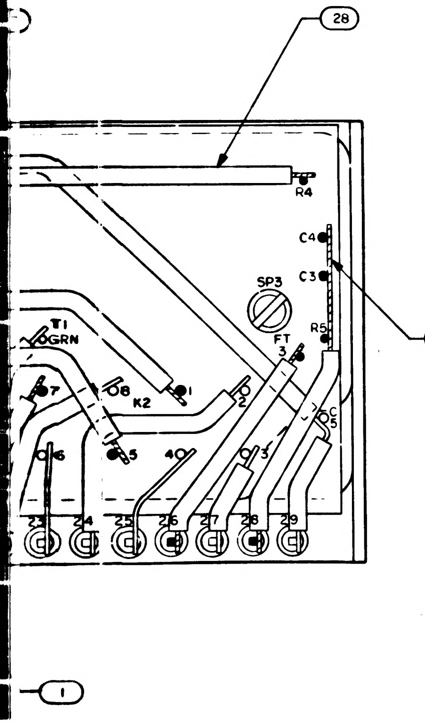
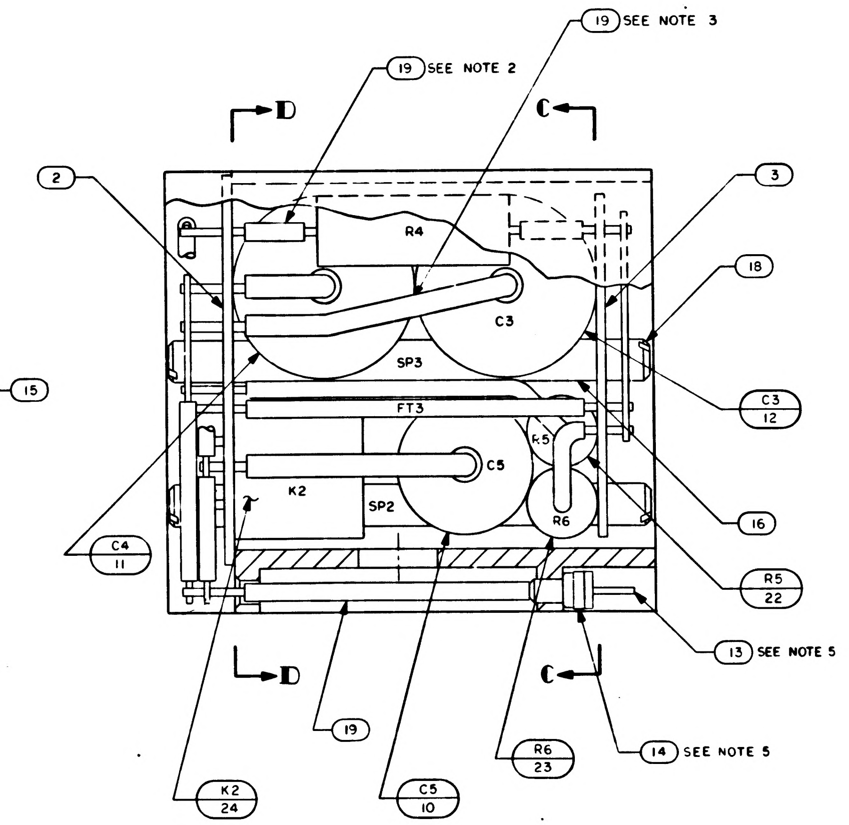
MARKING DRAWING

SCALE 2/1



28
R4
C4
C3
SP3
R5
T1
GRN
K2
FT
1



19 SEE NOTE 3
19 SEE NOTE 2
D
C
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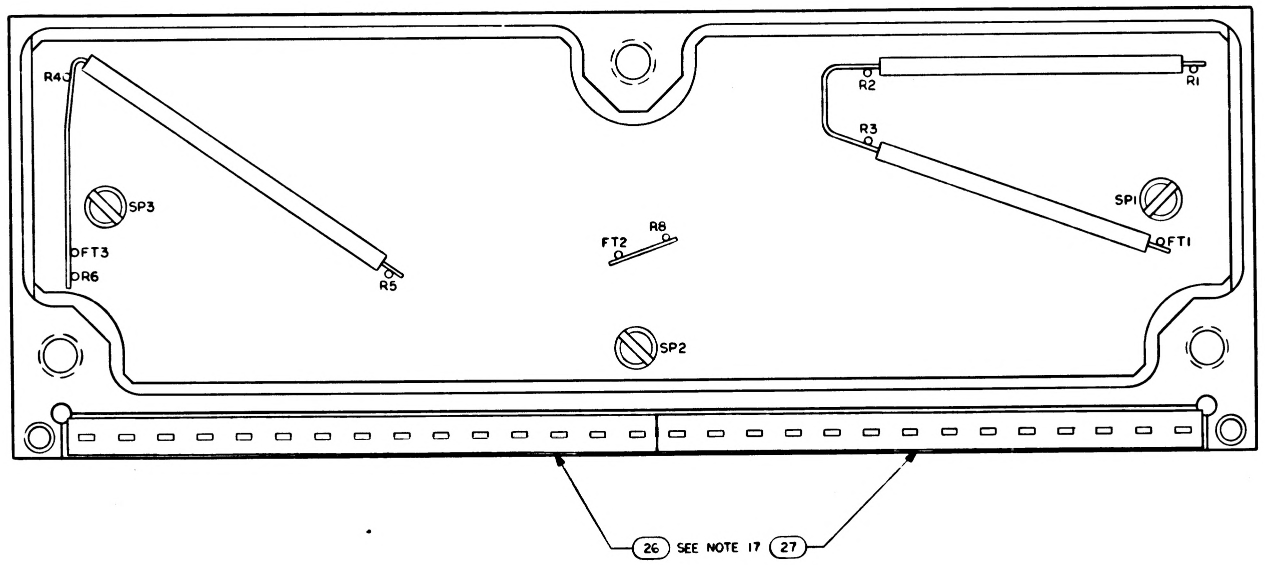
3
18
15
R4
C3
SP3
FT3
C5
R5
K2
SP2
R6
C3 12
16
R5 22
C4 11
13 SEE NOTE 5
14 SEE NOTE 5
19
K2 24
C5 10
R6 23



R4
R2
R1
R3
SP3
FT3
R6
R5
FT2
R8
SP1
FT1
SP2
26 SEE NOTE 17 27

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ± ± ± DO NOT SCALE THIS DRAWING
		MATERIAL
		HEAT TREATMENT
NEXT ASSY	USED ON	FINAL FINISH
APPLICATION		

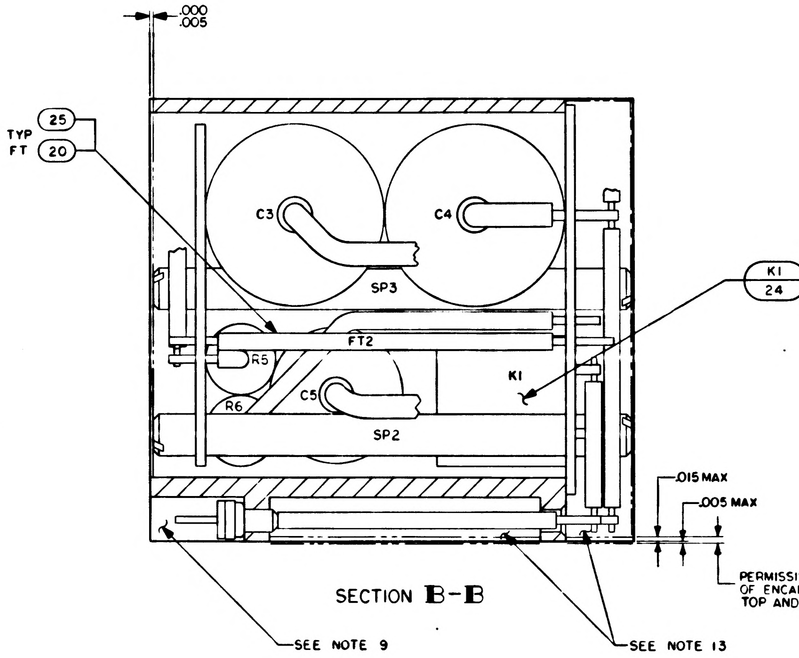
QTY REQD

011

	REV LTR	SH
1007510	C	1

2/1007510

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO


.000
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TYP
FT
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C4
SP3
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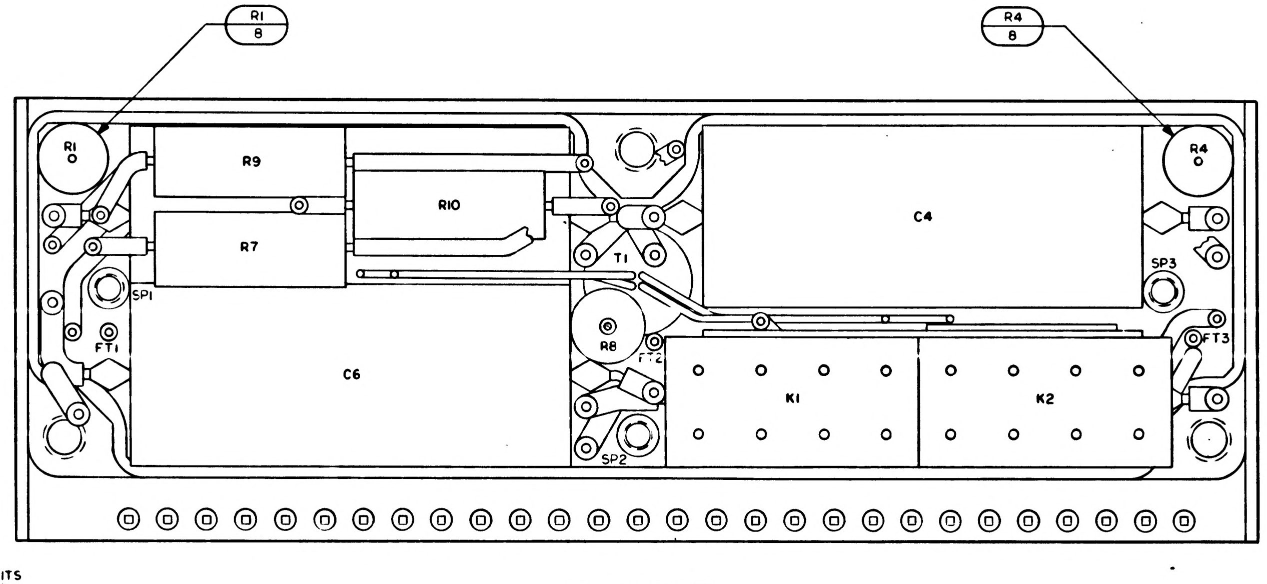
24
R5
FT2
R6
C5
K1
SP2
.015 MAX
.005 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND 2 SIDES
SEE NOTE 9
SEE NOTE 13

SECTION B-B


R1
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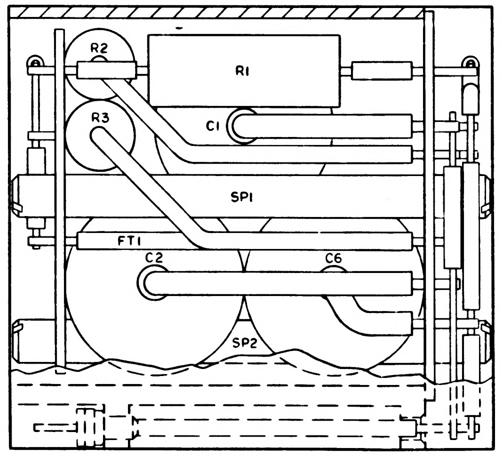
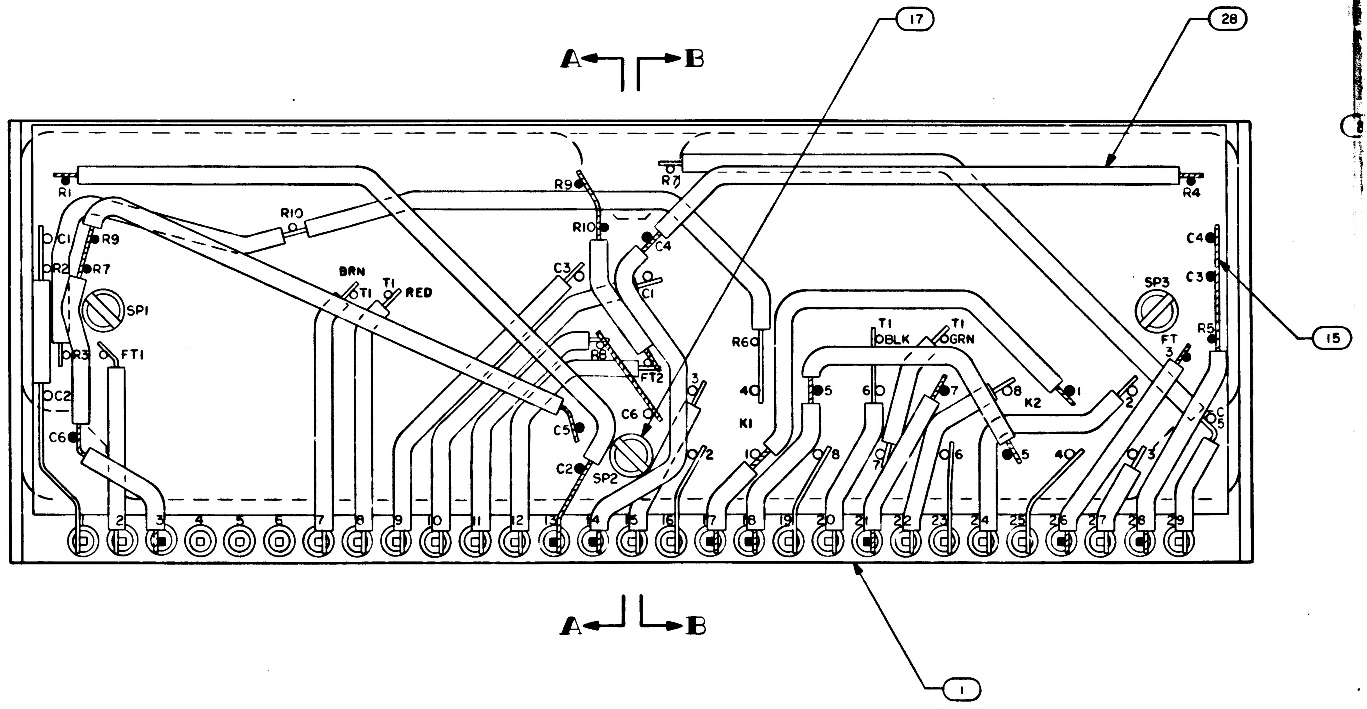
R4
8
R1
R9
R10
T1
C4
R4
R7
SP3
SP1
FT1
C6
R8
FT2
FT3
K1
K2
SP2

SECTION D-D


R2
R1
R3
C1
SP1
FT1
C2
C6
SP2


A
B
17
28
R9
R7
R1
R4
R10
R10
C4
C4
C3
C1
R9
R2
R7
BRN
T1
T1
RED
SP1
SP3
15
R3
FT1
R6
T1
DBLK
T1
GRN
C2
C6
C5
C6
K1
K2
FT
R5
C2
SP2
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24
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26
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28
29
A
B
1

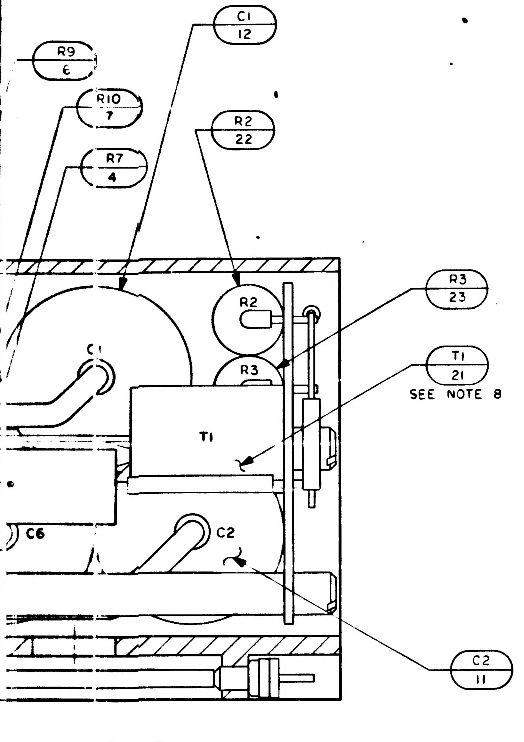
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TYPICAL INSULATION FOR ALL RESISTORS
3. TYPICAL INSULATION FOR ALL CAPACITORS
4. WORKMANSHIP REQUIREMENT PER ND 1002069
5. ASSEMBLE FIND NO.13 AND 14 PER ND 1002136
6. SP DENOTES SPACER
7. BOND RESISTORS RELAYS AND CAPACITORS TO FIND NO. 2 AND TO EACH OTHER AS SHOWN. PER ND 1002004, TYPE I
8. BOND FIND NO. 21 TO FIND NO. 3 PER ND 1002004, TYPE I
9. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
10. MARK .100/.060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
11. MARK .140/.100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
12. AR DENOTES AS REQUIRED
13. ENCAPSULATE PER ND 1002002 BLACK POLYURETHANE FOAM, REMOVE ALL FLASHING
14. FT DENOTES FEED THRU
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
16. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
17. BOND FIND NO. 26 AND FIND NO. 27 TO FIND NO. 14 PER ND 1002237
18. WELD PER ND 1002005
19. BOND FIND NO. 2 TO FIND NO. 1 PER ND 1002004, TYPE I
20. PROCURE PER PS 1007510
21. BOND A .15 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002137 TYPE I.

1007510	REV LTR	SH.
	C	1

17 1007510

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 15420		
B	REVISED PER TDRR 16626	26 FEB 65	AN
C	REVISED PER TDRR 17304	2 MAR 65	
D	REVISED PER TDRR 18520	23 APR 65	JWP



R9
6
R10
7
R7
4
C1
12
R2
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R3
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T1
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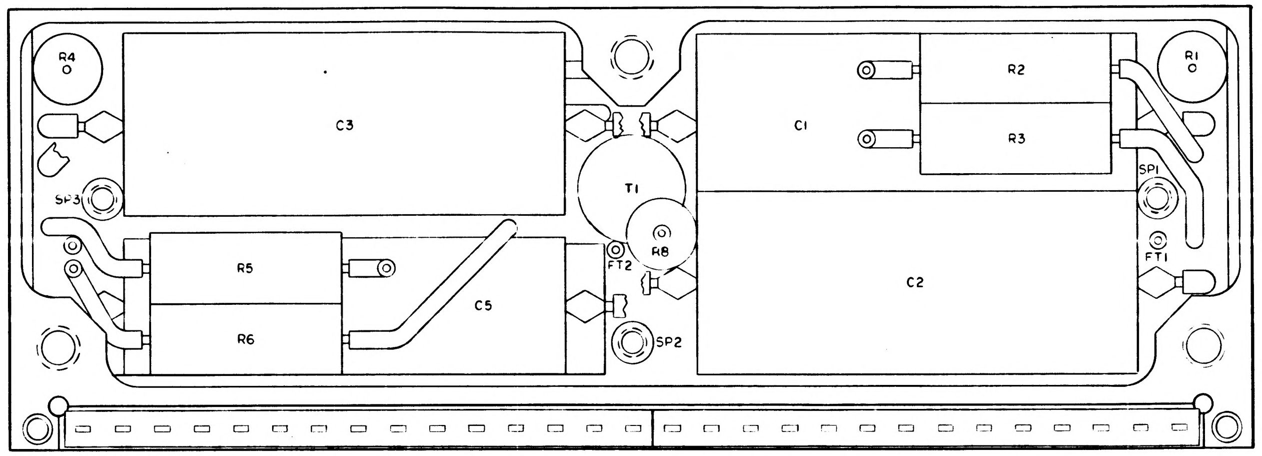
SEE NOTE 8
R2
R3
C1
T1
C6
C2
C2
11

SECTION A–A



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SP3
R5
R6
C5
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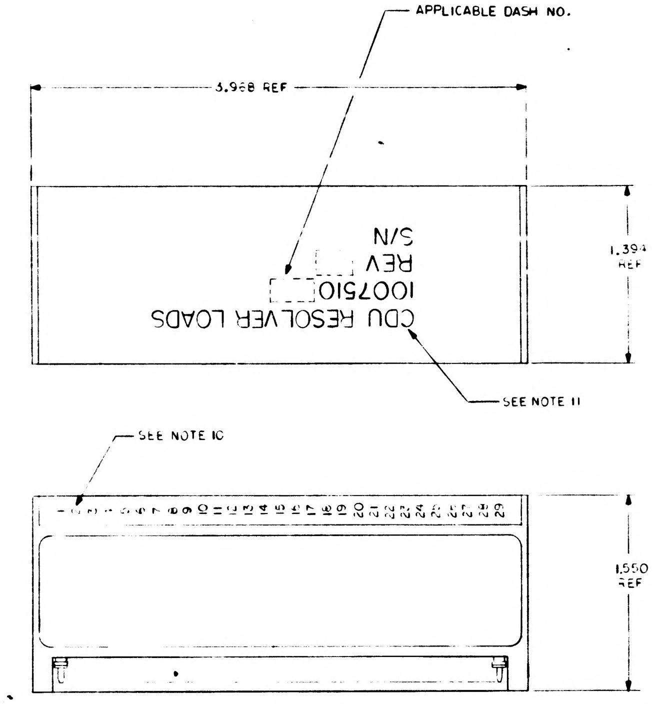
R8
FT2
SP2
C1
R2
R3
C2
SP1
FT1
R1

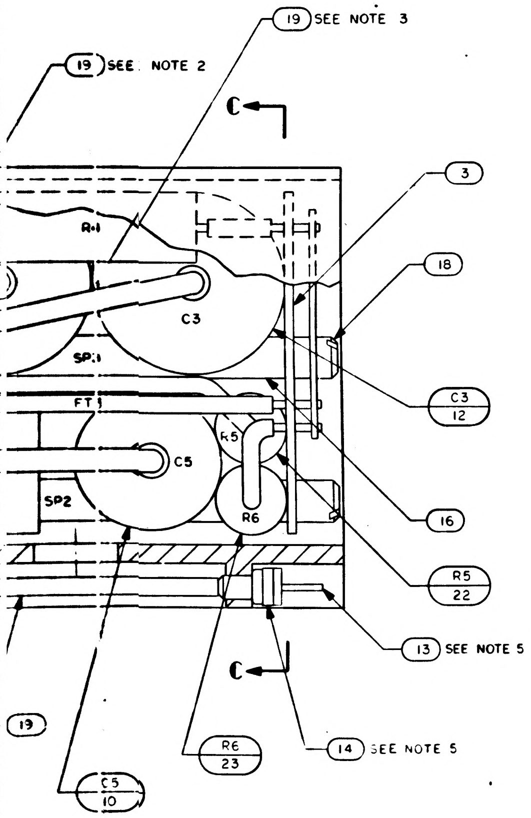
SECTION C–C



APPLICABLE DASH NO.
3.988 REF
CDU RESOLVER LOADS
1007510
REV
S/N
1.394 REF
SEE NOTE 11
SEE NOTE 10
1.550 REF

MARKING DRAWING

SCALE 2/1



19 SEE NOTE 3
19 SEE NOTE 2
C
R4
C3
SP1
FT1
C5
R5
R6
SP2
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C3
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13 SEE NOTE 5
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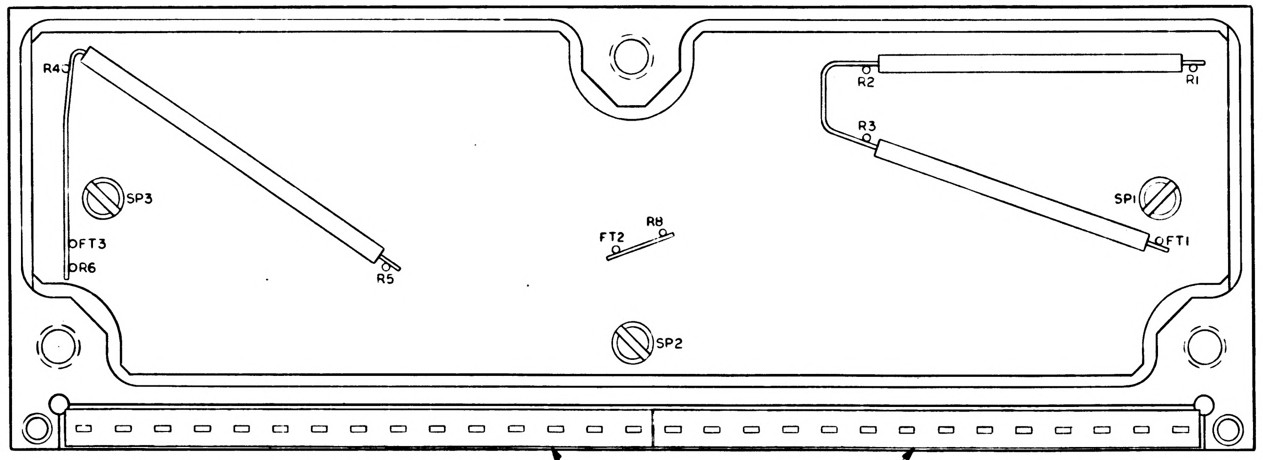
14 SEE NOTE 5
R6
23
C5
10
19



R4
R5
SP3
FT3
R6
R2
R1
R3
SP1
FT1
FT2
R8
SP2

26 SEE NOTE 17
27

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
	1003501	SCHEMATIC	REF
AR	1006776-21	INSULATION SLEEVING ELECTRICAL	28
1	1008540-14	GASKET	27
1	1008540-15	GASKET	26
AR	1006757-8	.020 DIA WIRE ELECTRICAL	25
2	1010790-3	RELAY	24
2	1010363-215	RESISTOR	23
2	1010363-247	RESISTOR	22
1	1010467	TRANSFORMER	21
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	20
AR	1006776-20	INSULATION SLEEVING ELECTRICAL	19
3	1008161-1	SCREW, CAP SLOTTED HEAD	18
3	1008161-2	SCREW, CAP SLOTTED HEAD	17
3	1015135-021	SPACER, NYLON	16
AR	1006757-1	.010 X .020 WIRE ELECTRICAL	15
29	1006779	INSULATOR, WRAPOST MALE MIN	14
29	1006782-5	CONTACT, WRAPOST MALE MIN	13
2	1010316-89	CAPACITOR	12
2	1010316-79	CAPACITOR	11
1	1010316-92	CAPACITOR	10
1	1010316-81	CAPACITOR	9
[illegible]	1010363-421	RESISTOR	8
1	1010363-221	RESISTOR	7
1	1010363-265	RESISTOR	6
1	1010363-431	RESISTOR	5
1	1010363-443	RESISTOR	4
1	1008503	WIRING BOARD, BOTTOM	3
1	1008501	WIRING BOARD, TOP	2
1	1008504	FRAME	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 8-7-64
CHECKED
APPROVAL 22 Sept 64
APPROVAL 9/22/64
NASA APPROVAL 9-26-64
MIT APPROVAL 9/25/64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

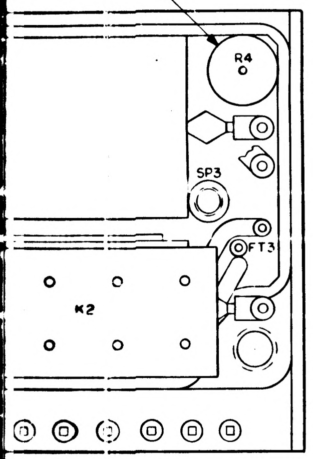
CDU RESOLVER LOADS
ASSEMBLY

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007510
SCALE 5/1
WT —
SHEET 1 OF 1

1007510 REV LTR D SH 1

34

1007510 D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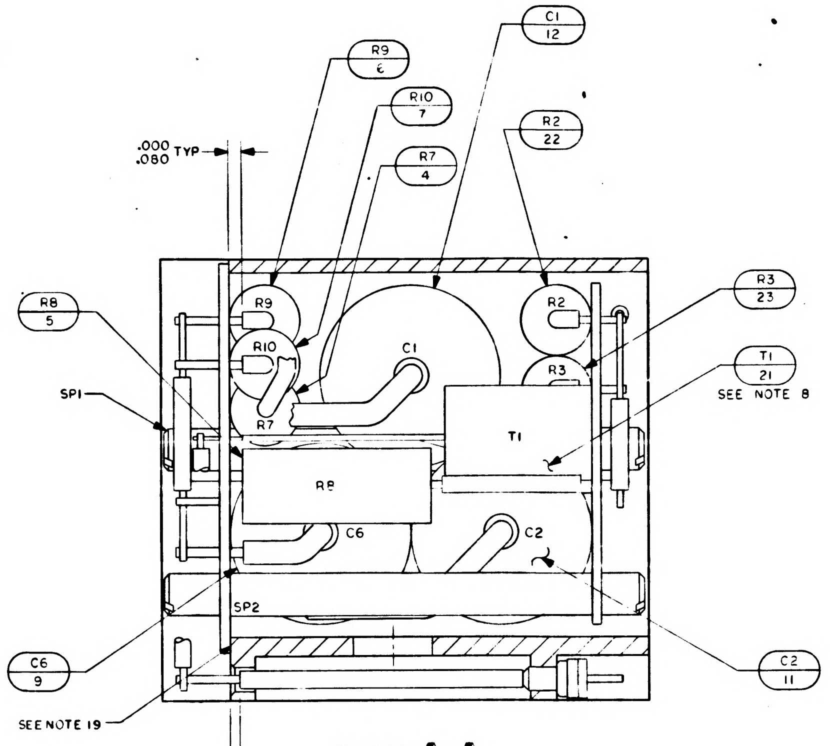
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12
R2
22
R3
23
T1
21
SEE NOTE 8
R8
5
SP1
C6
9
C2
11
SEE NOTE 19
.000
.080 TYP
.000
.030 TYP
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R10
R7
C1
R2
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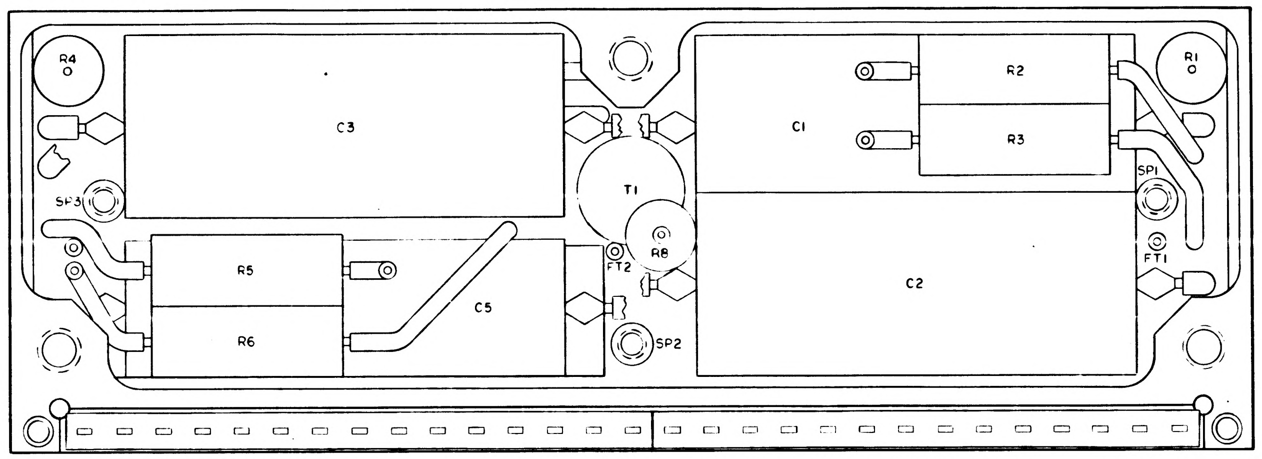
T1
R8
C6
C2
SP2

SECTION **A-A**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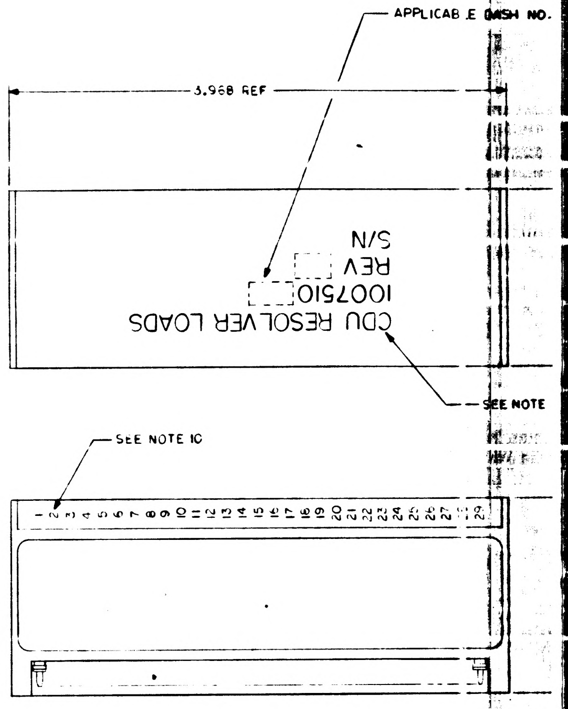
SP2

SECTION **C-C**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CDU RESOLVER LOADS
1007510
REV
S/N
SEE NOTE
SEE NOTE 10
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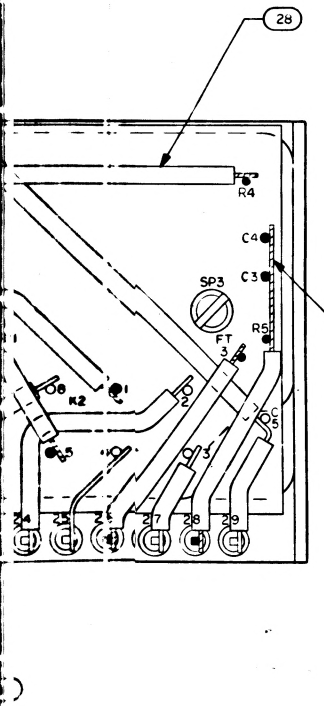
MARKING DRAWING
SCALE 2/1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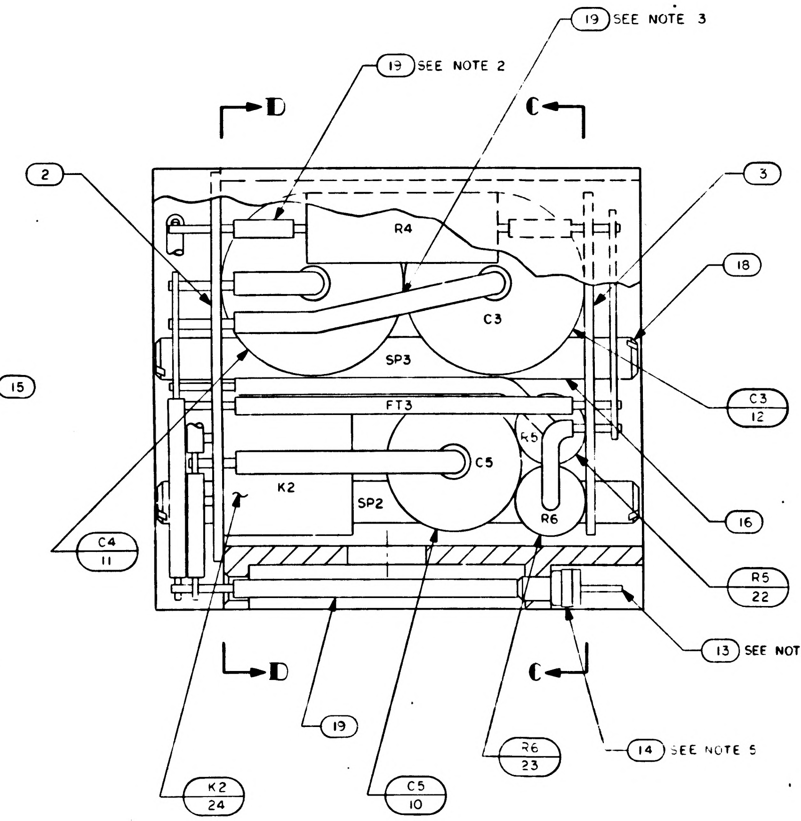
19 SEE NOTE 3
19 SEE NOTE 2
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C5
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SP2
R6
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C5
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K2
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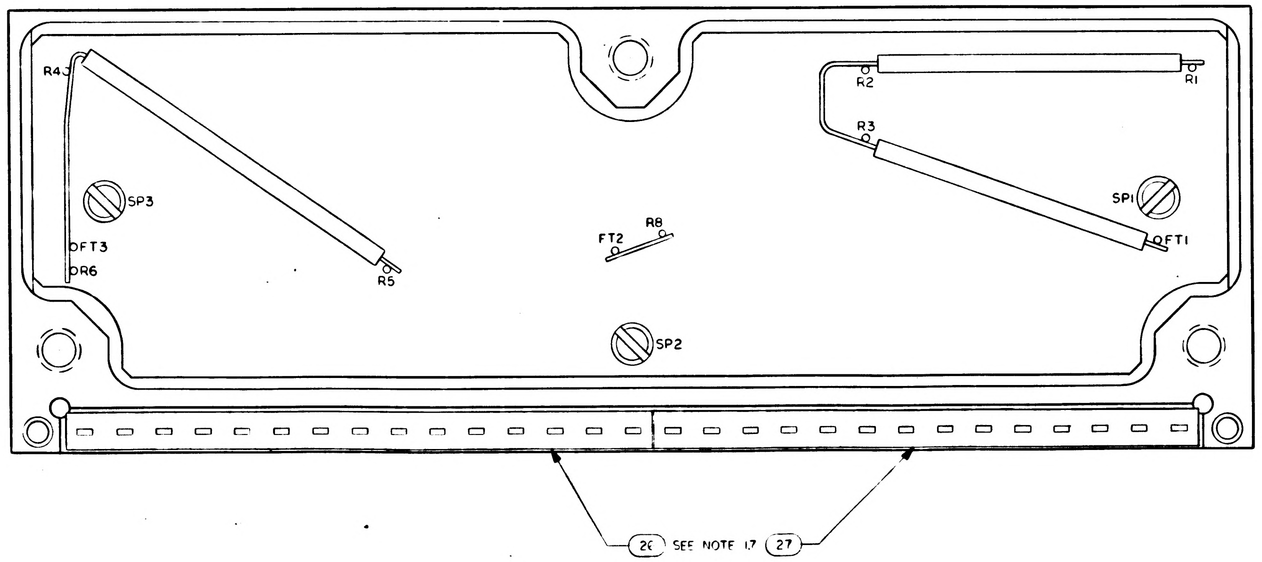
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R3
SP3
FT3
R6
R5
FT2
R8
SP1
FT1
SP2
26 SEE NOTE 17
27

☒	1009501
AR	1006776-21
1	1008540 14
1	1008540-15
AR	1006757-8
2	1010790- 3
2	1010363-2
2	1010363-24
1	1010467
AR	1006776-22
AR	1006776-20
3	1008161-1
3	1008161-2
3	1015135-02
AR	1006757-1
29	1006775
29	1006782-5
2	1010316-89
2	1010316-79
1	1010316-92
1	1010316-8
2	1010363-4
1	1010363-2
1	1010363-2
1	1010363-4
1	1010363-4
1	1008503
1	1008501
1	1008504
QTY REQD	PAR IDENTIF
-011	

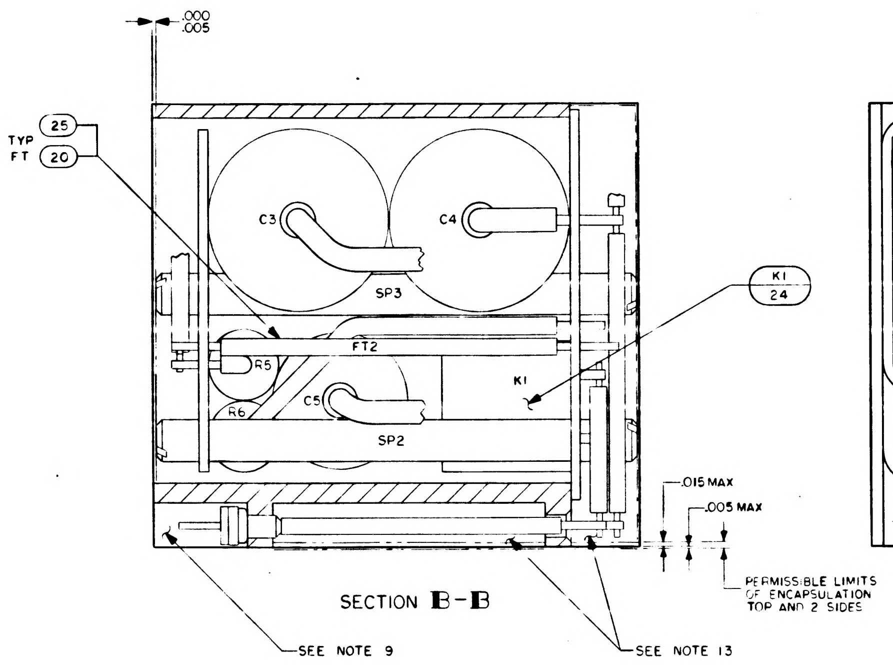
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ± DO NOT SCALE THIS DRAWING
		MATERIAL
		HEAT TREATMENT
NEXT ASSY	USED ON	FINAL FINISH
APPLICATION		

MIT
INSTRUMENTATIO
CAMBRIDGE, MAS

DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

1007510	REV LTR D	SH 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO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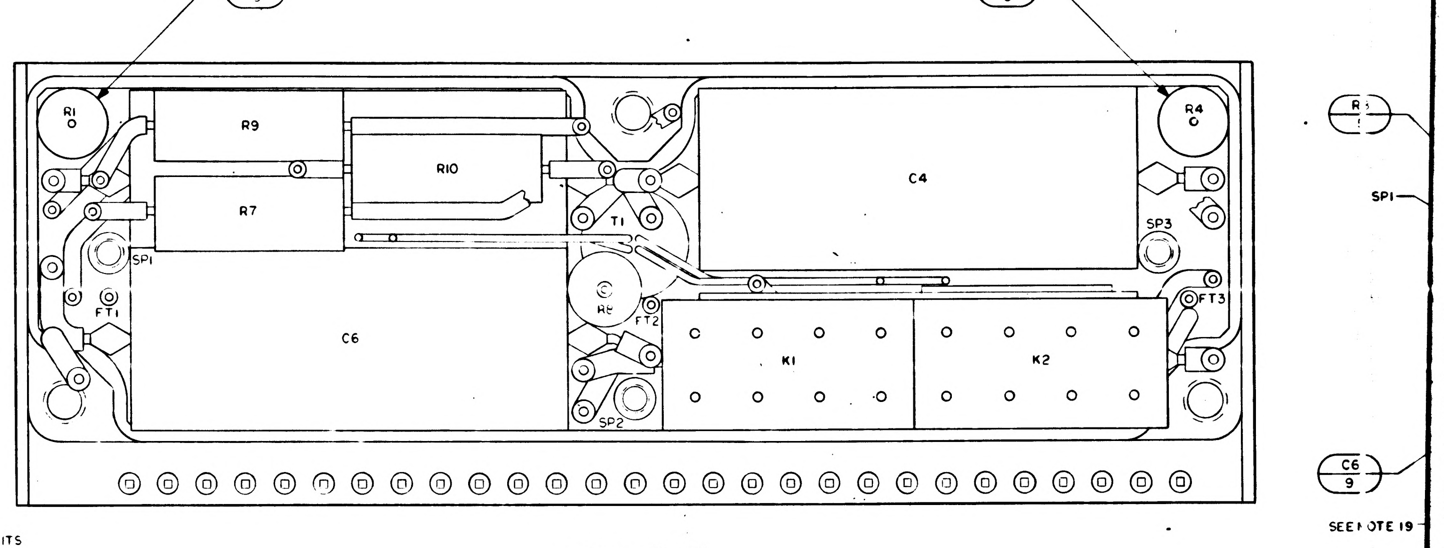
.005
TYP
FT
25
20
C3
C4
SP3
K1
24
FT2
R5
R6
C5
K1
SP2
.015 MAX
.005 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND 2 SIDES
SEE NOTE 9
SEE NOTE 13

SECTION B-B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R4
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R1
R9
R10
C4
R7
T1
SP3
SP1
FT1
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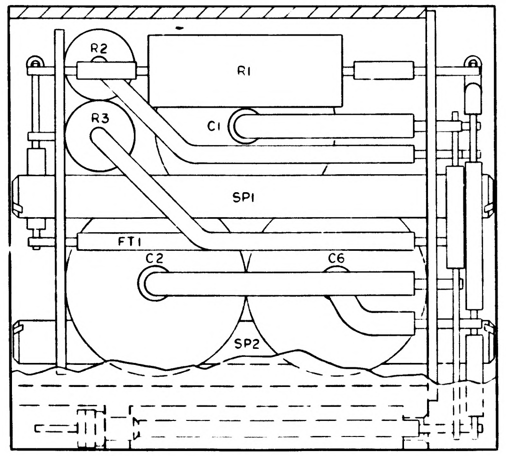
FT2
FT3
K1
K2
SP2
R4
SP1
C6
9
SEE NOTE 19

SECTION D-D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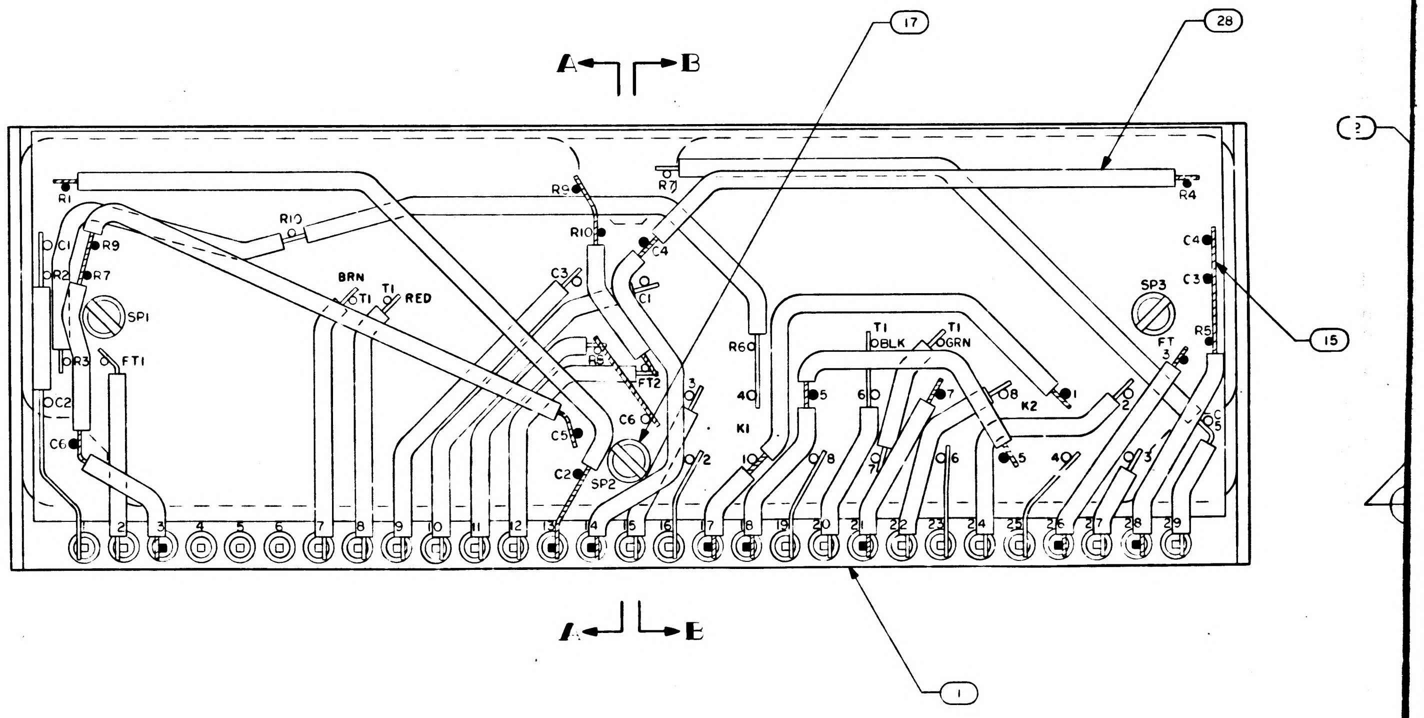
C2
C6
SP2


A
B
17
28
R1
R9
R7
R4
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R10
C1
R2
R7
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FT1
C2
C6
BRN
T1
RED
C3
C4
C1
R6
FT2
C5
C6
C2
SP2
K1
T1
BLK
T1
GRN
K2
SP3
C4
C3
R5
FT
15
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18
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21
22
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24
25
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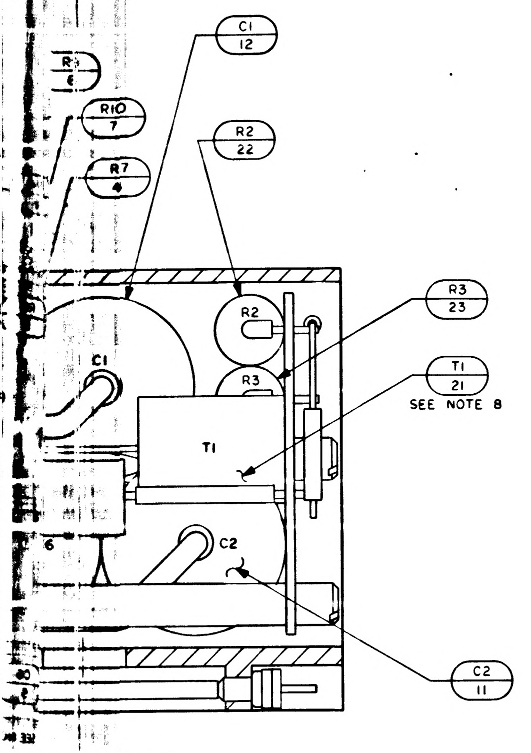
A
B
1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TYPICAL INSULATION FOR ALL RESISTORS
3. TYPICAL INSULATION FOR ALL CAPACITORS
4. WORKMANSHIP REQUIREMENT PER ND1002069
5. ASSEMBLE FIND NO.13 AND 14 PER ND1002136
6. SP DENOTES SPACER
7. BOND RESISTORS RELAYS AND CAPACITORS TO FIND NO.2 AND TO EACH OTHER AS SHOWN, PER ND1002004, TYPE I
8. BOND FIND NO.21 TO FIND NO.3 PER ND1002004, TYPE I
9. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
10. MARK .100/.060 HIGH WHITE CHARACTERS PER ND1002019. CENTRALIZE AS SHOWN
11. MARK .140/.100 HIGH WHITE CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
12. AR DENOTES AS REQUIRED
13. ENCAPSULATE PER ND1002002 BLACK POLYURETHANE FOAM, REMOVE ALL FLASHING
14. FT DENOTES FEED THRU
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
16. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
17. BOND FIND NO.26 AND FIND NO.27 TO FIND NO.14 PER ND1002237
18. WELD PER ND 1002005
19. BOND FIND NO.2 TO FIND NO.1 PER ND 1002004, TYPE I
20. PROCURE PER PS 1007510
21. **BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.**

	REV LTR	SH.
1007510	D	1

REVISIONS 13094			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 15420		
B	REVISED PER TDRR 16626	26 FEB 65	
C	REVISED PER TDRR 17304	2 MAR 65	
D	REVISED PER TDRR 18520	23 APR 65	
E	REVISED PER TDRR 18542	27 APR 65	A.N.


C1 12
R9 6
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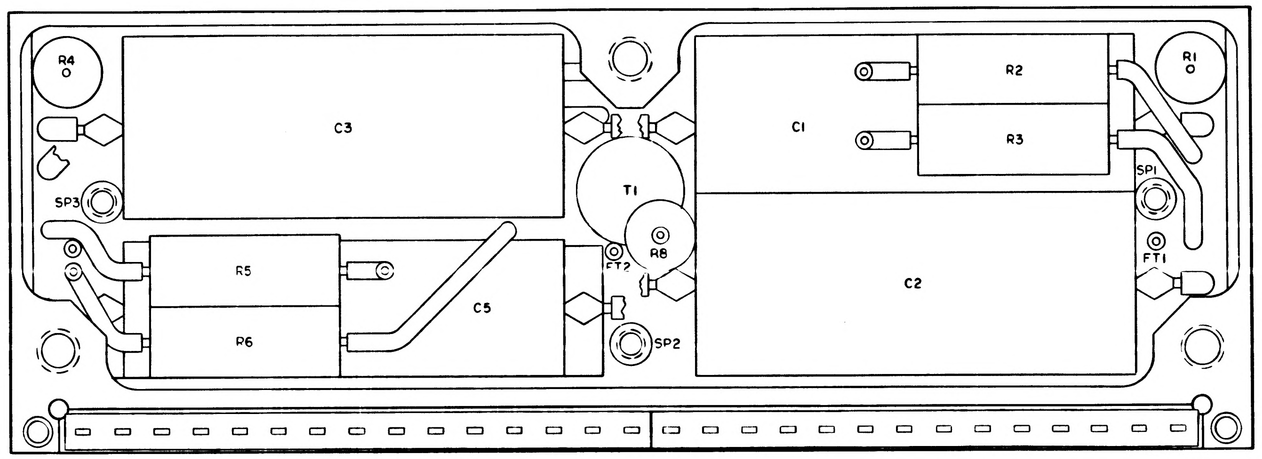
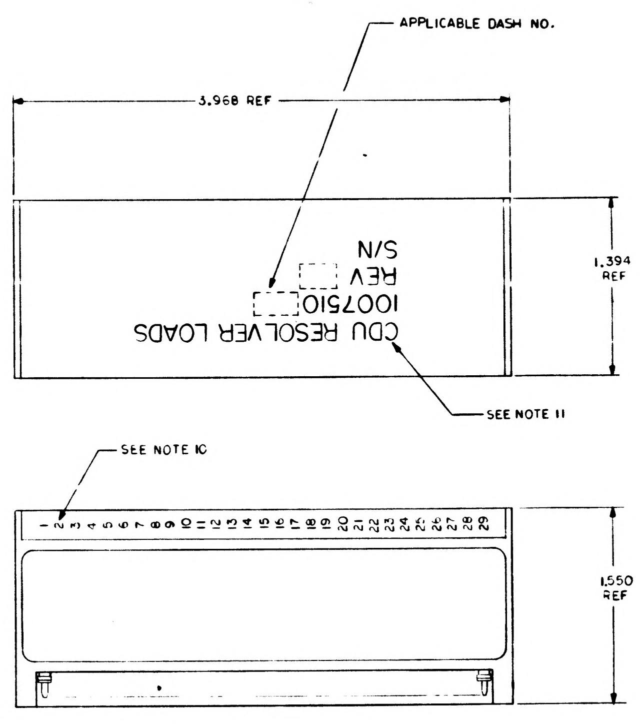
R7 4
R2 22
R3 23
T1 21 SEE NOTE 8
R2
R3
C1
T1
C2
C2 11
6

ECTION A-A


R4
C3
C1
R2
R3
R1
T1
SP3
SP1
R5
R6
C5
R8
FT2
FT1
C2
SP2

SECTION C-C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CDU RESOLVER LOADS
1007510
REV
S/N
SEE NOTE 11
SEE NOTE 10
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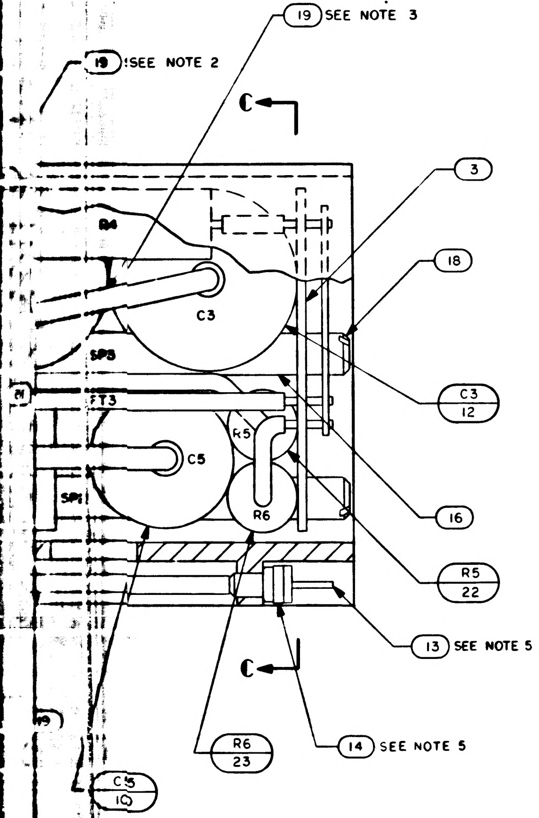
1.550 REF

MARKING DRAWING
SCALE 2/1


19 SEE NOTE 3
19 SEE NOTE 2
C
R4
C3
SP3
FT3
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R6
SP1
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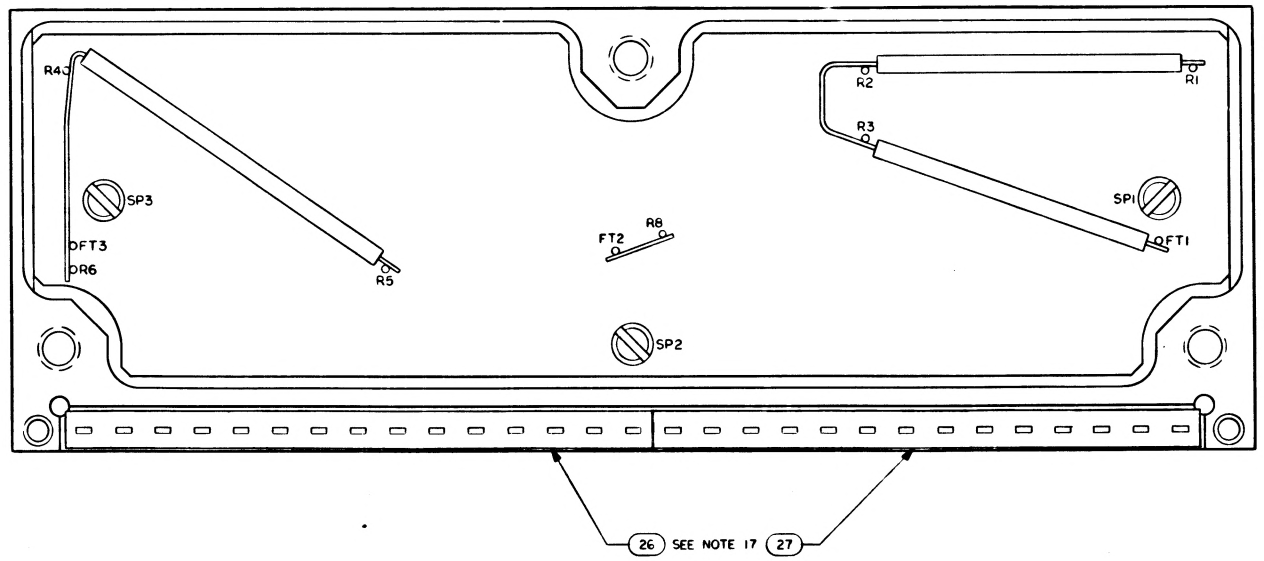
18
C3 12
16
R5 22
13 SEE NOTE 5
C
14 SEE NOTE 5
R6 23
C5 10


R4
R2
R1
R3
SP3
SP1
FT3
R6
FT2
R8
R5
FT1
SP2
26 SEE NOTE 17 27

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1009501	SCHEMATIC	REF
AR	1006776-21	INSULATION SLEEVING ELECTRICAL	28
1	1008540 14	GASKET	27
1	1008540-15	GASKET	26
AR	1006757-8	.020 DIA WIRE ELECTRICAL	25
2	1010790-3	RELAY	24
2	1010363-215	RESISTOR	23
2	1010363-247	RESISTOR	22
1	1010467	TRANSFORMER	21
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	20
AR	1006776-20	INSULATION SLEEVING ELECTRICAL	19
3	1008161-1	SCREW,CAP SLOTTED HEAD	18
3	1008161-2	SCREW,CAP SLOTTED HEAD	17
3	1015135-021	SPACER, NYLON	16
AR	1006757-1	.010 X .020 WIRE ELECTRICAL	15
29	1006775	INSULATOR,WRAPOST MALE MIN	14
29	1006782-5	CONTACT,WRAPOST MALE MIN	13
2	1010316-89	CAPACITOR	12
2	1010316-79	CAPACITOR	11
1	1010316-92	CAPACITOR	10
1	1010316-81	CAPACITOR	9
2	1010363-421	RESISTOR	8
1	1010363-221	RESISTOR	7
1	1010363-265	RESISTOR	6
1	1010363-431	RESISTOR	5
1	1010363-443	RESISTOR	4
1	1008503	WIRING BOARD, BOTTOM	3
1	1008501	WIRING BOARD, TOP	2
1	1008504	FRAME	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 8-7-64
CHECKED
APPROVAL
APPROVAL 9/22/64
NASA APPROVAL 9-28-64
MIT APPROVAL 9/29/64

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

CDU RESOLVER LOADS
ASSEMBLY

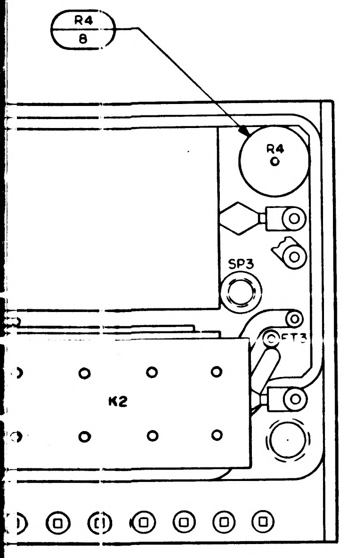
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO 1007510
SCALE 5/1
WT —
SHEET 1 OF 1

1007510 E

K1007510 REV E SH 1

3H

37 1007510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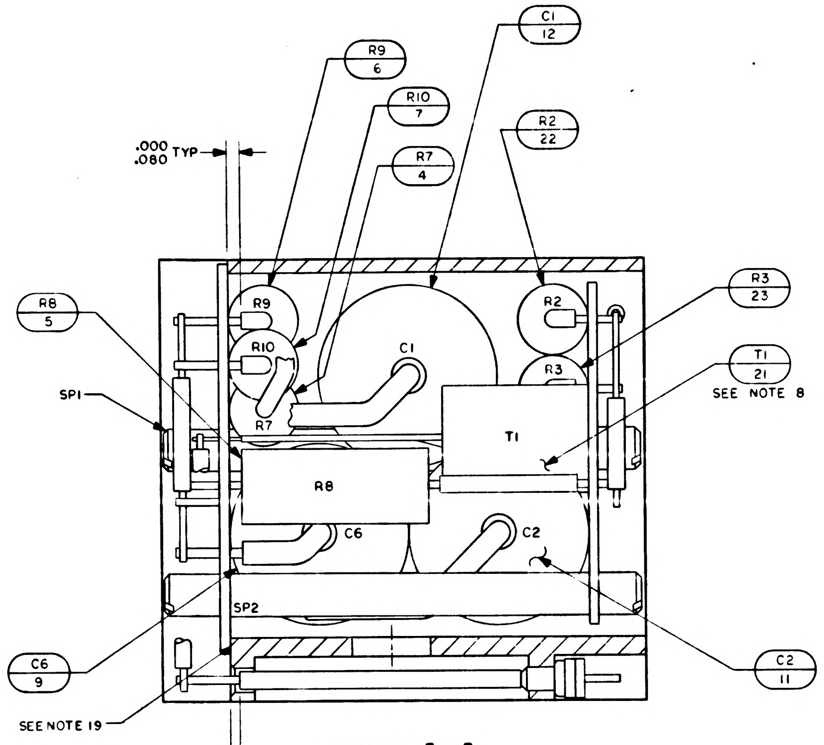
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.080 TYP
R9
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C1
12
R2
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23
T1
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SEE NOTE 8
R8
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SP1
R9
R10
R7
C1
R2
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C2
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SEE NOTE 19
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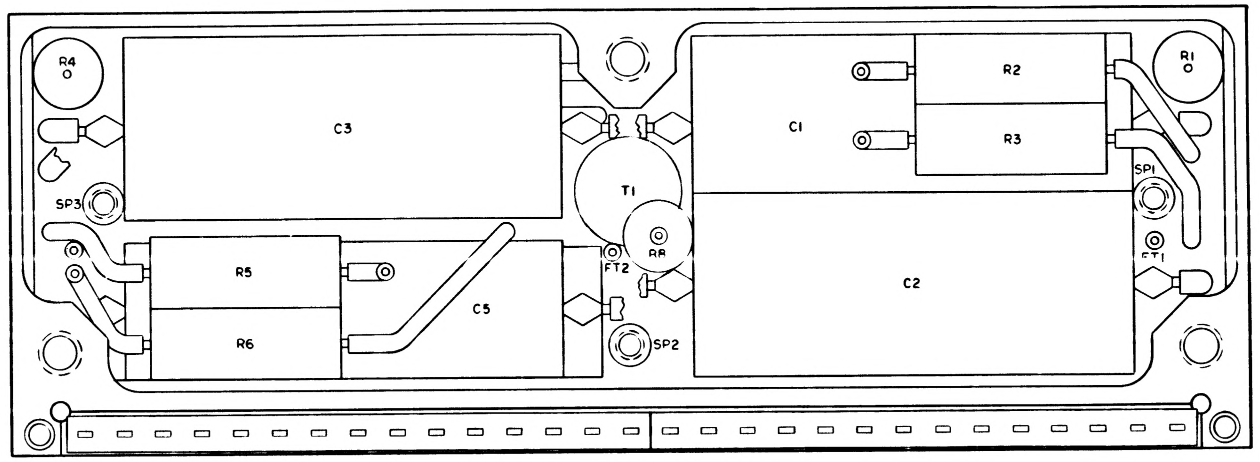
.030 TYP

SECTION **A-A**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SP1
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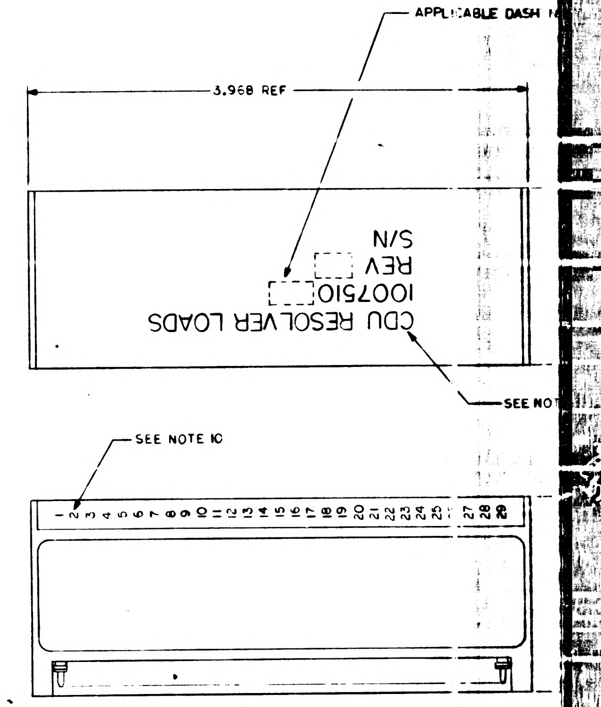
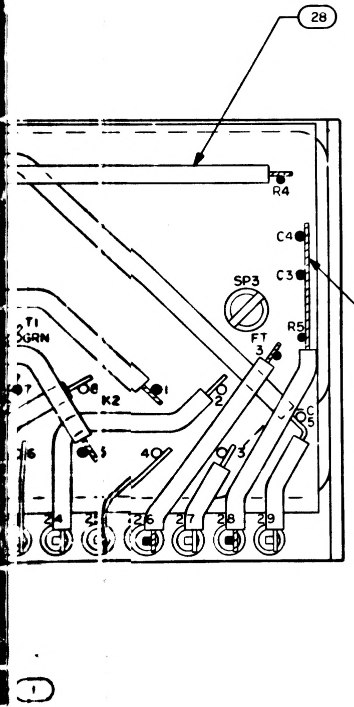
SP2
C2
FT1

SECTION **C-C**


APPLICABLE DASH
3.968 REF
CDU RESOLVER LOADS
1007510
REV
S/N
SEE NOTE
SEE NOTE 10
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

MARKING DRAWING
SCALE 2/1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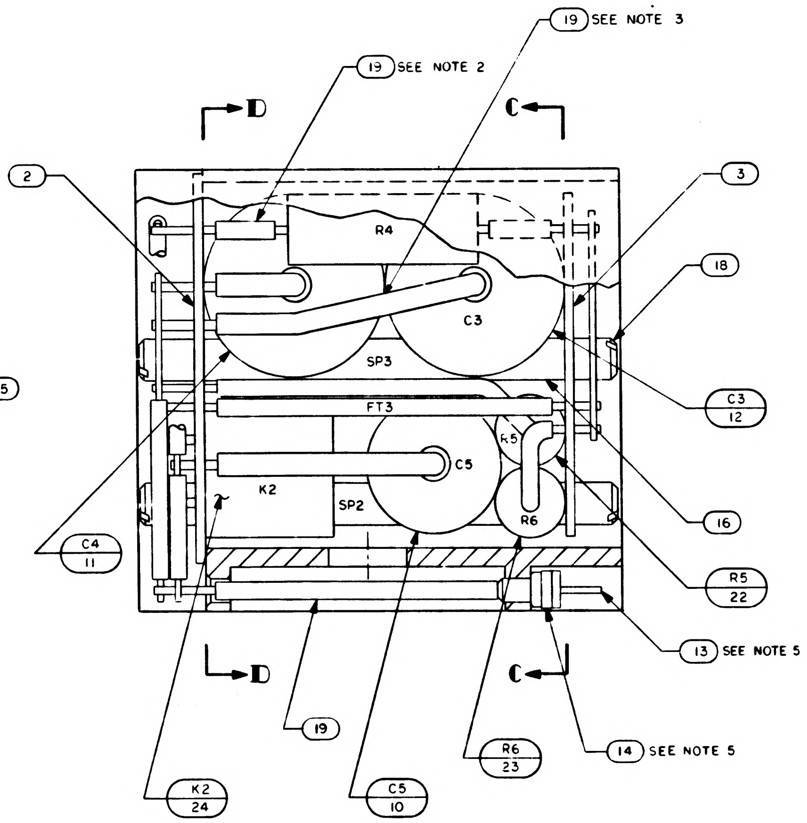
19 SEE NOTE 3
19 SEE NOTE 2
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C
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SP2
C5
R6
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13 SEE NOTE 5
D
C
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14 SEE NOTE 5
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C5
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K2
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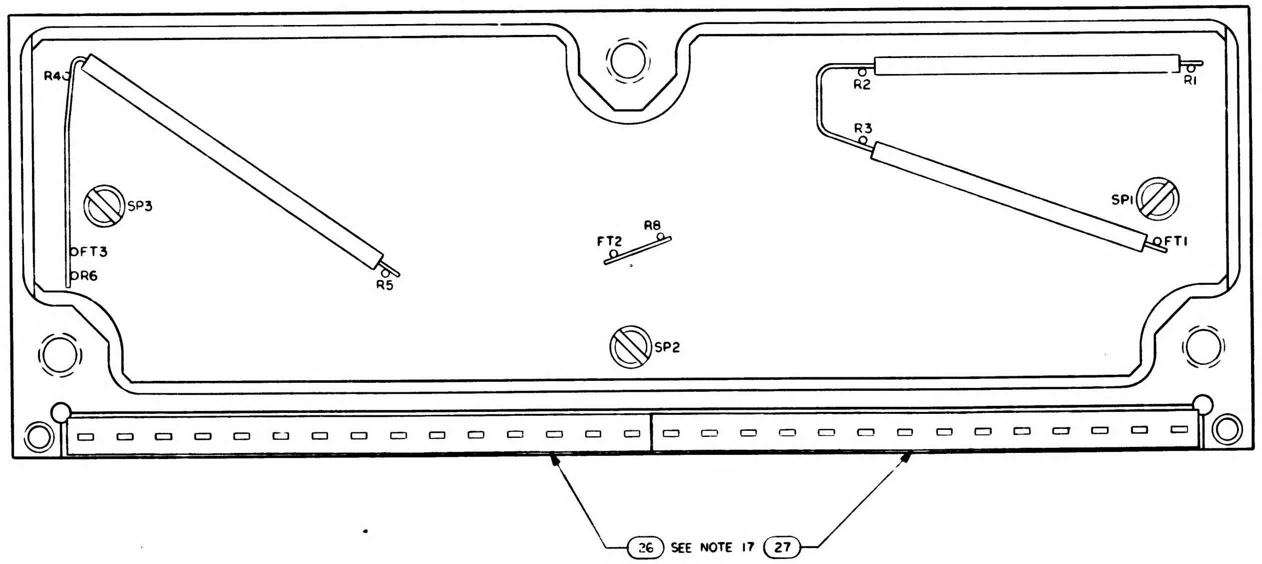
R4
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SP1
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FT3
R6
R5
FT2
R8
SP2
26 SEE NOTE 17
27

	100350
AR	1006776-
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1	1008540-
AR	1006757
2	1010790-
2	1010363-
2	1010363-
1	1010467
AR	1006776-
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AR	1006757-
29	1006775
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1	1010363
1	100850
1	100850
1	100850
QTY REQD	
11	

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

INSTRUMENTA
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

1007510	REV LTR E	SH 1

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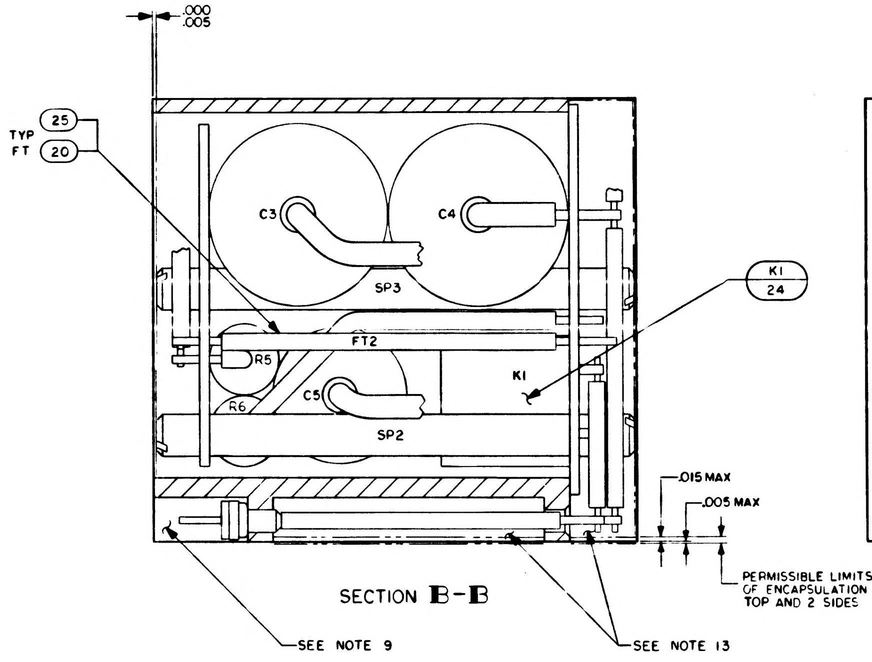
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TYP
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R5
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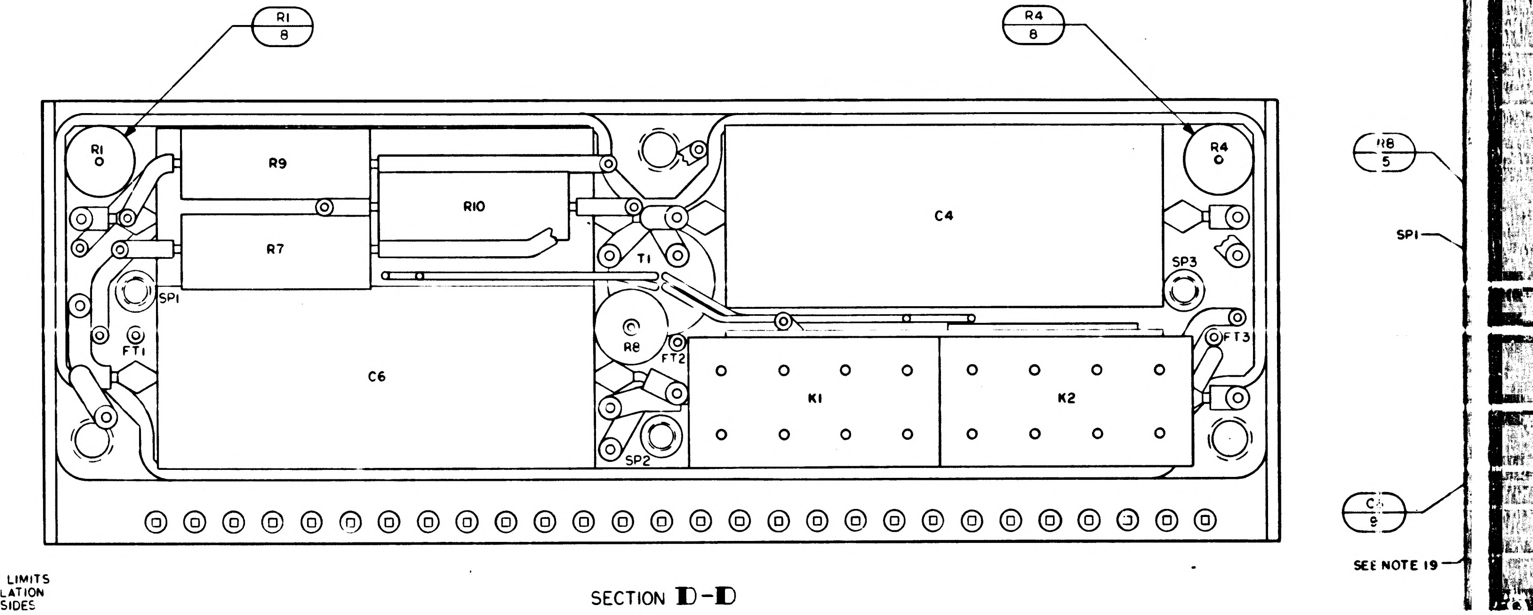
.005 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND 2 SIDES
SEE NOTE 9
SEE NOTE 13

SECTION B-B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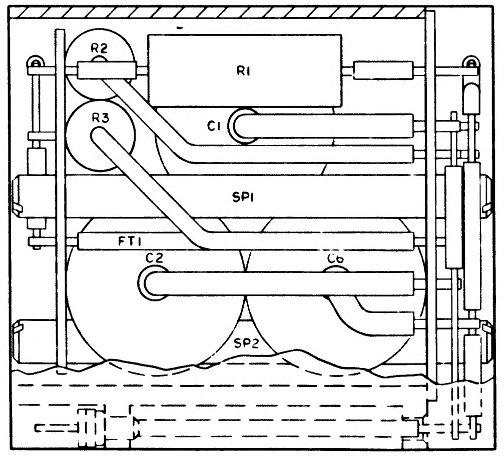
R4
R7
T1
SP3
SP1
FT1
R8
FT2
FT3
C6
K1
K2
SP2
18
5
SP1
C4
9
SEE NOTE 19

SECTION D-D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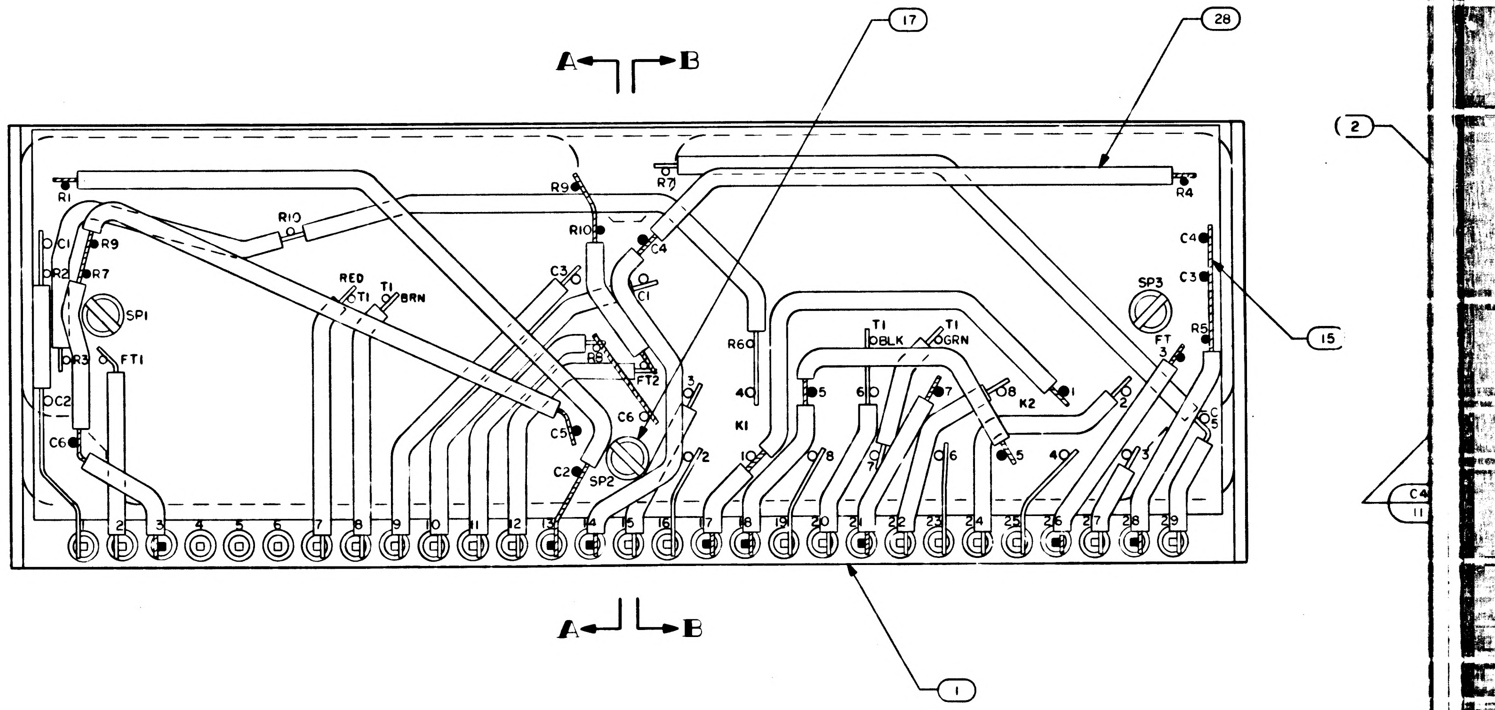
R3
C1
SP1
FT1
C2
C6
SP2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R4
R9
R7
R10
C1
R9
R2
R7
SP1
R3
FT1
C2
C6
RED
T1
T1
BRN
C3
C4
C1
R10
R8
FT2
C5
C2
SP2
C6
R6
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K1
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6
T1
BLK
T1
GRN
7
8
K2
1
SP3
C4
C3
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FT
R5
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C5
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C4
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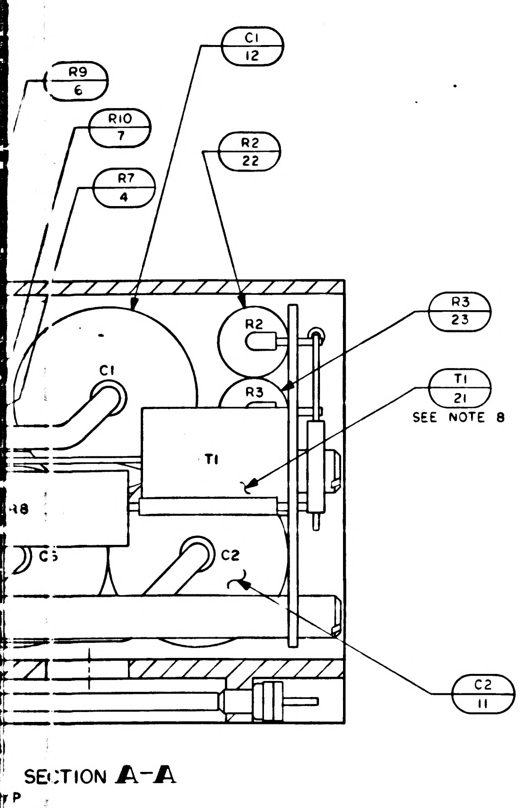
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TYPICAL INSULATION FOR ALL RESISTORS
3. TYPICAL INSULATION FOR ALL CAPACITORS
4. WORKMANSHIP REQUIREMENT PER ND1002069
5. ASSEMBLE FIND NO.13 AND 14 PER ND1002136
6. SP DENOTES SPACER
7. BOND RESISTORS RELAYS AND CAPACITORS TO FIND NO.2 AND TO EACH OTHER AS SHOWN, PER ND1002004, TYPE I
8. BOND FIND NO.21 TO FIND NO.3 PER ND1002004, TYPE I
9. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
10. MARK .100/.060 HIGH WHITE CHARACTERS PER ND1002019. CENTRALIZE AS SHOWN
11. MARK .140/.100 HIGH WHITE CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
12. AR DENOTES AS REQUIRED
13. ENCAPSULATE PER ND1002002 BLACK POLYURETHANE FOAM, REMOVE ALL FLASHING
14. FT DENOTES FEED THRU
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
16. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
17. BOND FIND NO.26 AND FIND NO.27 TO FIND NO.14 PER ND1002237
18. WELD PER ND1002005
19. BOND FIND NO.2 TO FIND NO.1 PER ND1002004, TYPE I
20. PROCURE PER PS 1007510
21. **BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.**

1007510	REV. LTR.	SH.
	E	1

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 15420		WK
B	REVISED PER TDRR 16626	26 FEB 65	AN CW
C	REVISED PER TDRR 17304	12-MAR 65	FM G EF
D	REVISED PER TDRR 18520	23 APR 65	JWP
E	REVISED PER TDRR 18542	27 APR 65	AN
F	REVISED PER TDRR 19409	1 JUN 65	MTM

REVISIONS 13094


SECTION A-A

R9 6
R10 7
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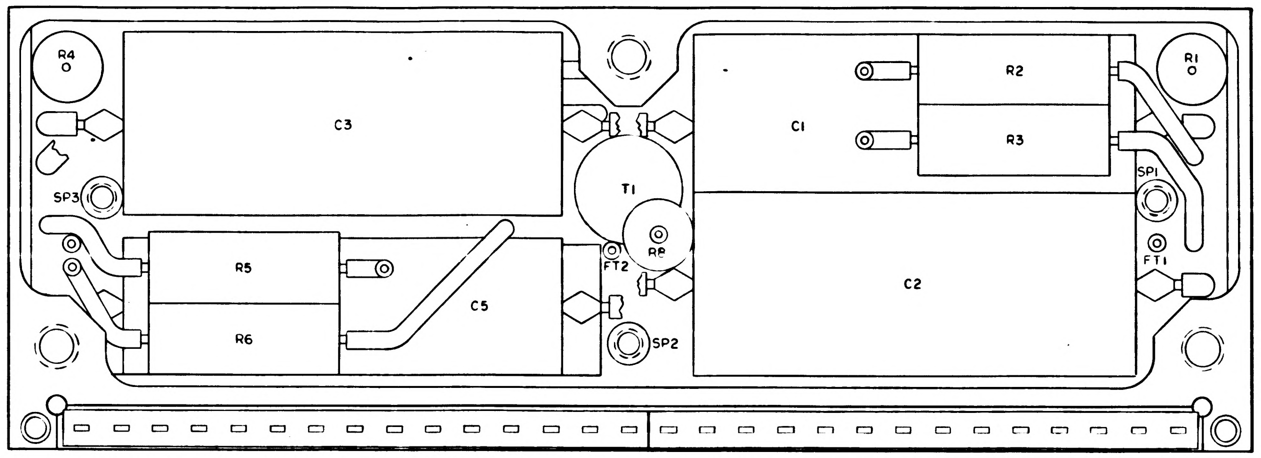
R2 22
R3 23
T1 21 SEE NOTE 8
C2 11
C1
R2
R3
T1
C2
C5


SECTION C-C

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C3
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SP3
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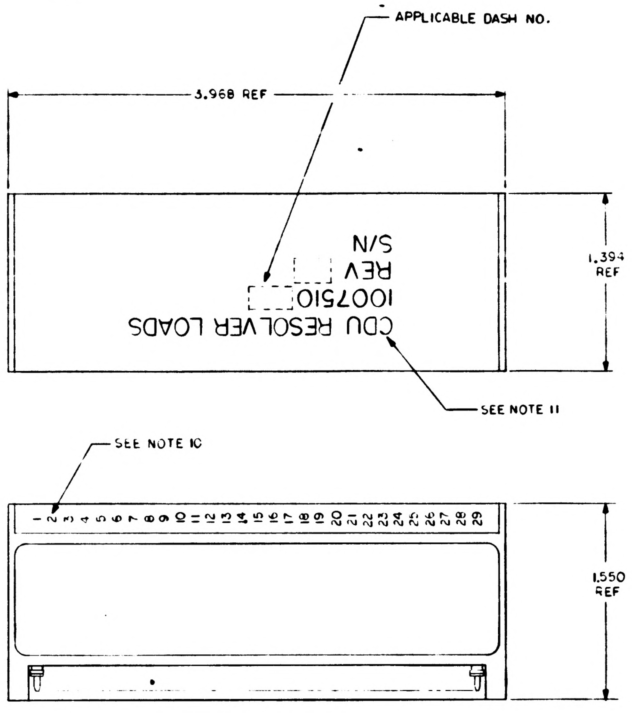
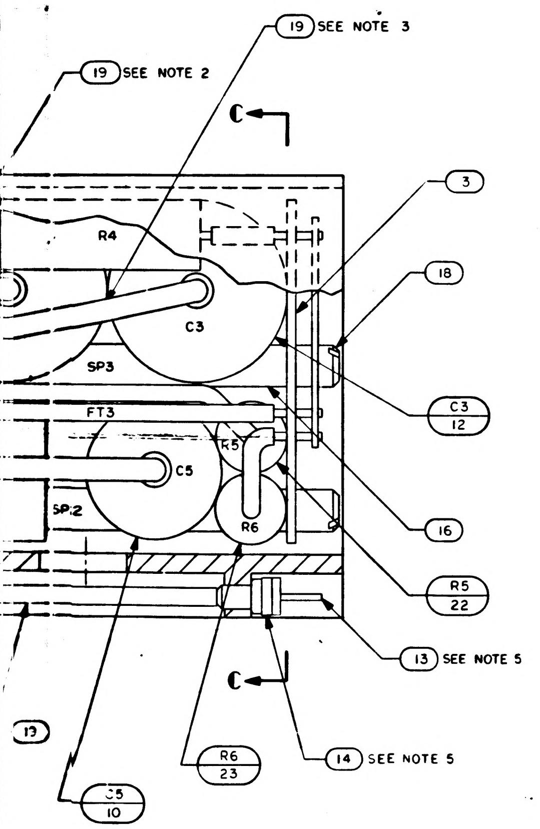
FT2
FT1
R5
R6
C5
C2
SP2


MARKING DRAWING
SCALE 2/1

APPLICABLE DASH NO.
3.968 REF
CDU RESOLVER LOADS
1007510
REV
S/N
1.394 REF
SEE NOTE 11
SEE NOTE 10
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
1.550 REF



19 SEE NOTE 3
19 SEE NOTE 2
C
3
18
R4
C3
SP3
FT3
R5
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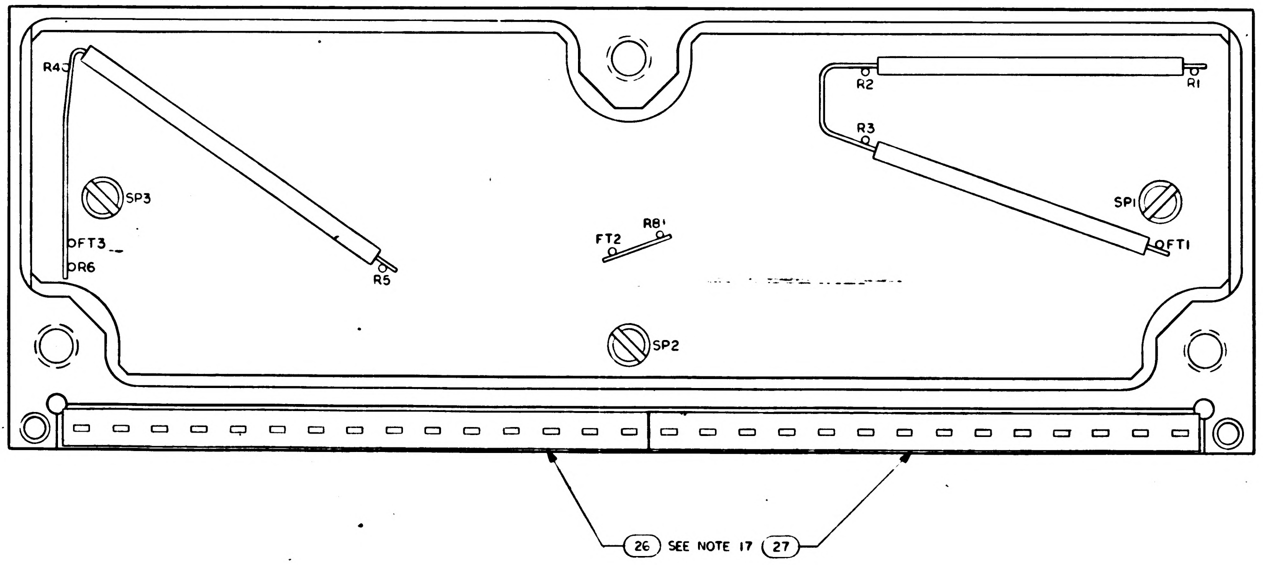
SP2
C3 12
16
R5 22
13 SEE NOTE 5
14 SEE NOTE 5
C
R6 23
C5 10
13



R4
R2
R1
R3
SP3
SP1
FT3
R6
R5
FT2
R8
FT1
SP2
26 SEE NOTE 17 27

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	1009501	SCHEMATIC	REF
AR	1006776-21	INSULATION SLEEVING ELECTRICAL	28
1	1008540 14	GASKET	27
1	1008540-15	GASKET	26
AR	1006757-8	.020 DIA WIRE ELECTRICAL	25
2	1010790-3	RELAY	24
2	1010363-215	RESISTOR	23
2	1010363-247	RESISTOR	22
1	1010467	TRANSFORMER	21
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	20
AR	1006776-20	INSULATION SLEEVING ELECTRICAL	19
3	1008161-1	SCREW, CAP SLOTTED HEAD	18
3	1008161-2	SCREW, CAP SLOTTED HEAD	17
3	1015135-021	SPACER, NYLON	16
AR	1006757-1	.010 X .020 WIRE ELECTRICAL	15
29	1006775	INSULATOR, WRAPOST MALE MIN	14
29	1006782-5	CONTACT, WRAPOST MALE MIN	13
2	1010316-89	CAPACITOR	12
2	1010316-79	CAPACITOR	11
1	1010316-92	CAPACITOR	10
1	1010316-81	CAPACITOR	9
2	1010363-421	RESISTOR	8
1	1010363-221	RESISTOR	7
1	1010363-265	RESISTOR	6
1	1010363-431	RESISTOR	5
1	1010363-443	RESISTOR	4
1	1008503	WIRING BOARD, BOTTOM	3
1	1008501	WIRING BOARD, TOP	2
1	1008504	FRAME	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 8-7-64
CHECKED
APPROVAL
APPROVAL 9/22/64
NASA APPROVAL 9-28-64
MIT APPROVAL 9-29-64

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

CDU RESOLVER LOADS ASSEMBLY

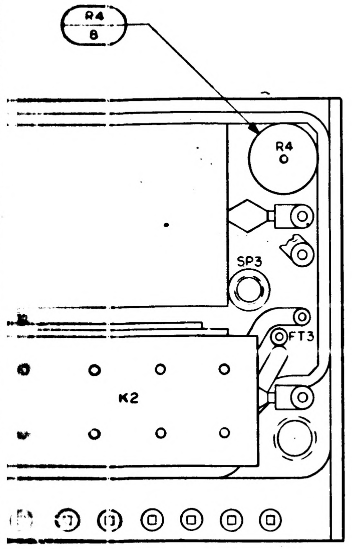
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007510
SCALE 5/1
WT
SHEET 1 OF 1

1007510 REV LTR F SH 1

F 1007510

1007510

37 1007510



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FT3
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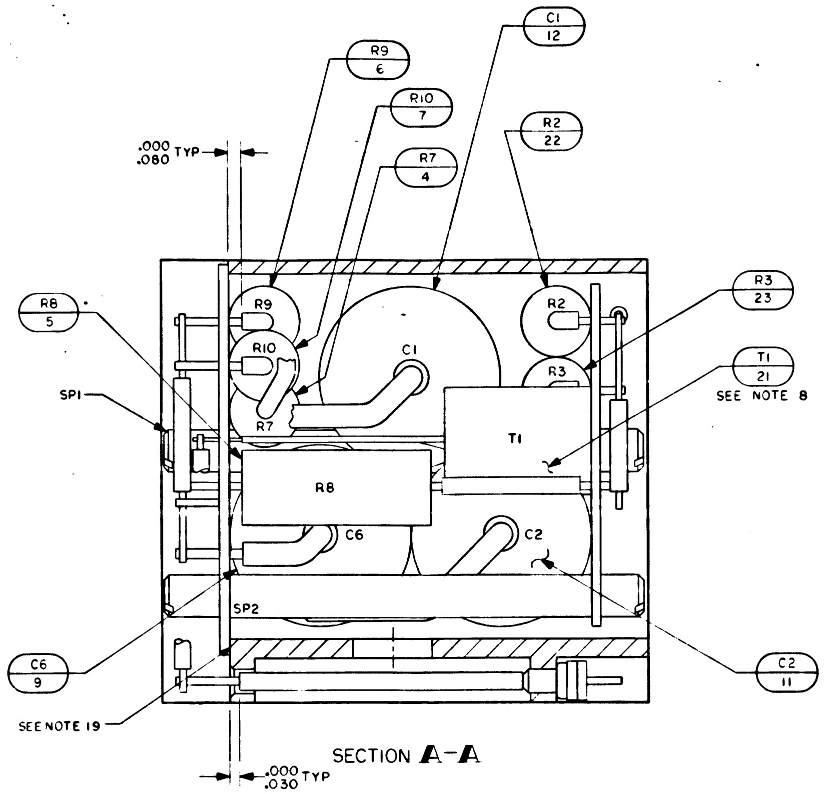

.000
.080 TYP
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R7
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C1
12
R2
22
R3
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T1
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SEE NOTE 8
R8
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SP1
R9
R10
R7
C1
R2
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C2
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C6
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C2
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SEE NOTE 19
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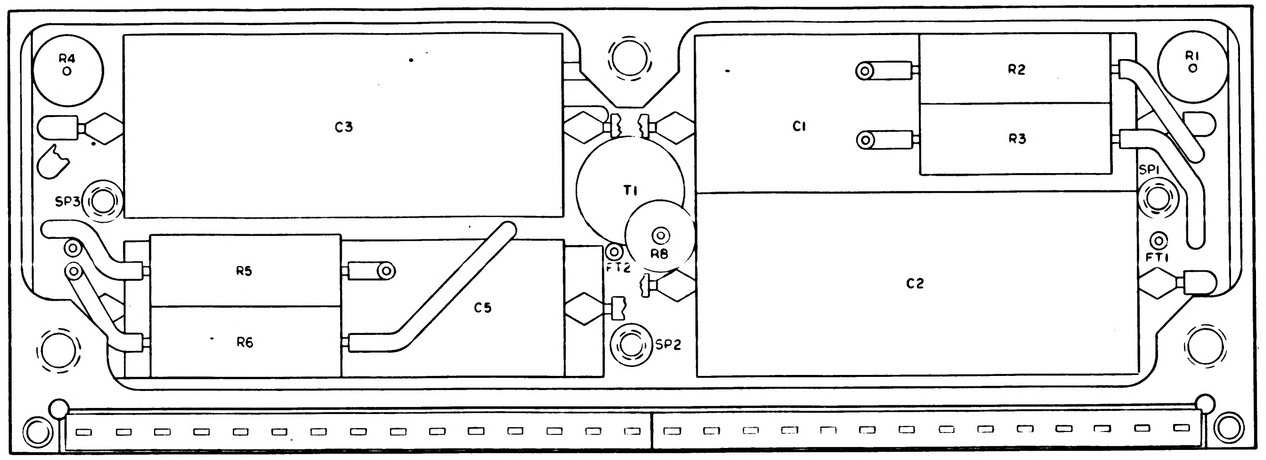
.030 TYP

SECTION A-A



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R6
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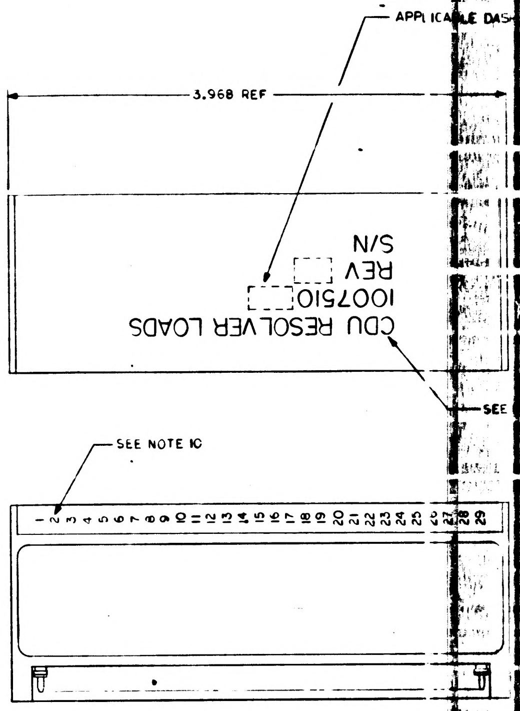
C2
SP2

SECTION C-C



APPLICABLE DAS
3.968 REF
S/N
REV
1007510
CDU RESOLVER LOADS
SEE
SEE NOTE 10
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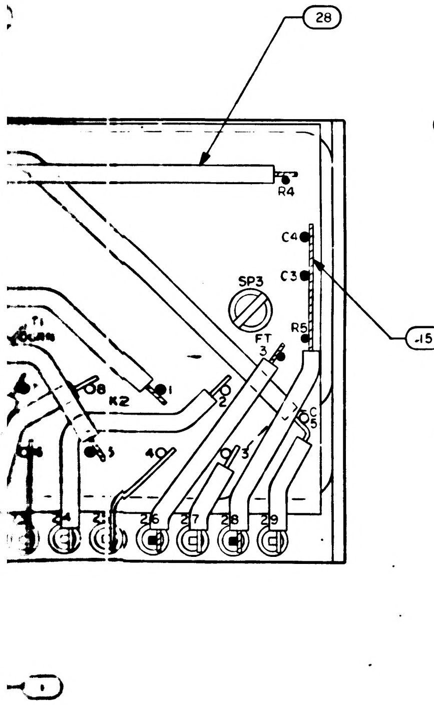
MARKING DRAWING
SCALE 2/1



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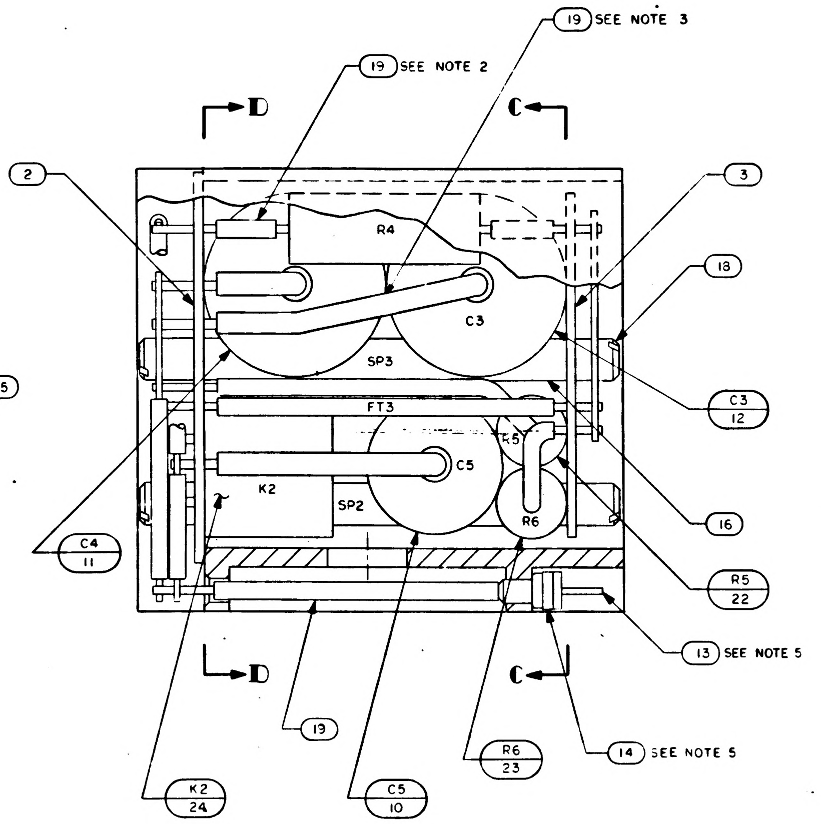

19 SEE NOTE 3
19 SEE NOTE 2
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C5
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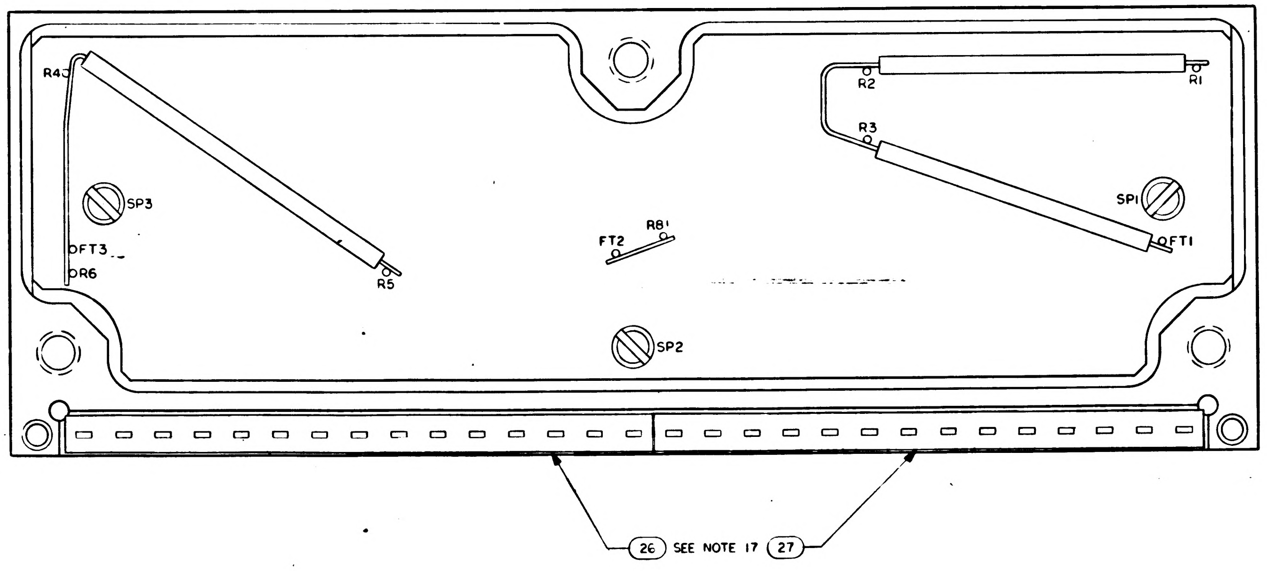

R4
R2
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FT2
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FT1
R5
SP2
26 SEE NOTE 17 27

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AR	10067
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AR	10067
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2	10103
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AR	10067
AR	10067
3	10081
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UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
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DO NOT SCALE THIS DRAWING
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NEXT ASSY	USED ON
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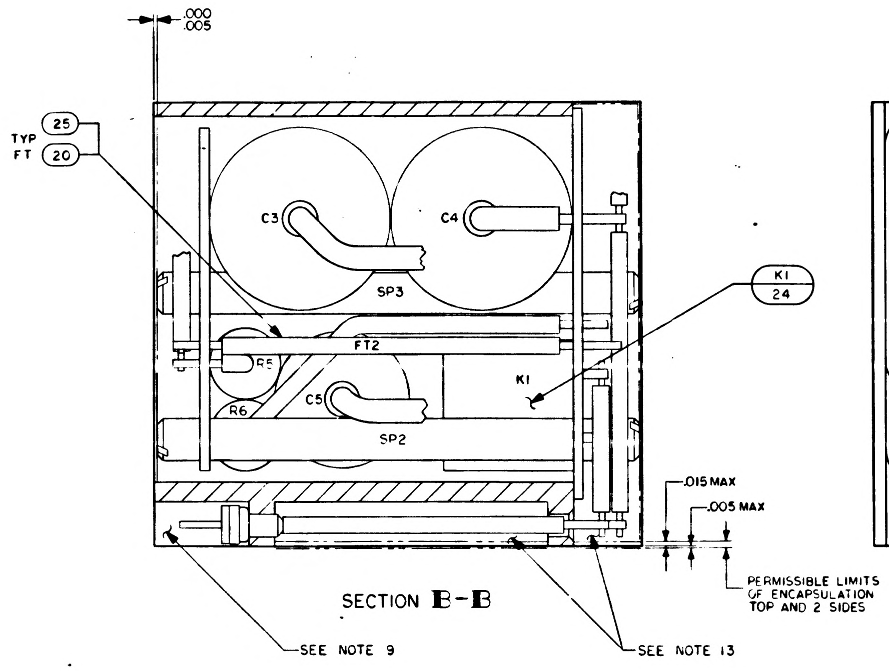
APPROVAL
NASA APPROVAL
MIT APPROVAL

1007510	REV LTR F	SH 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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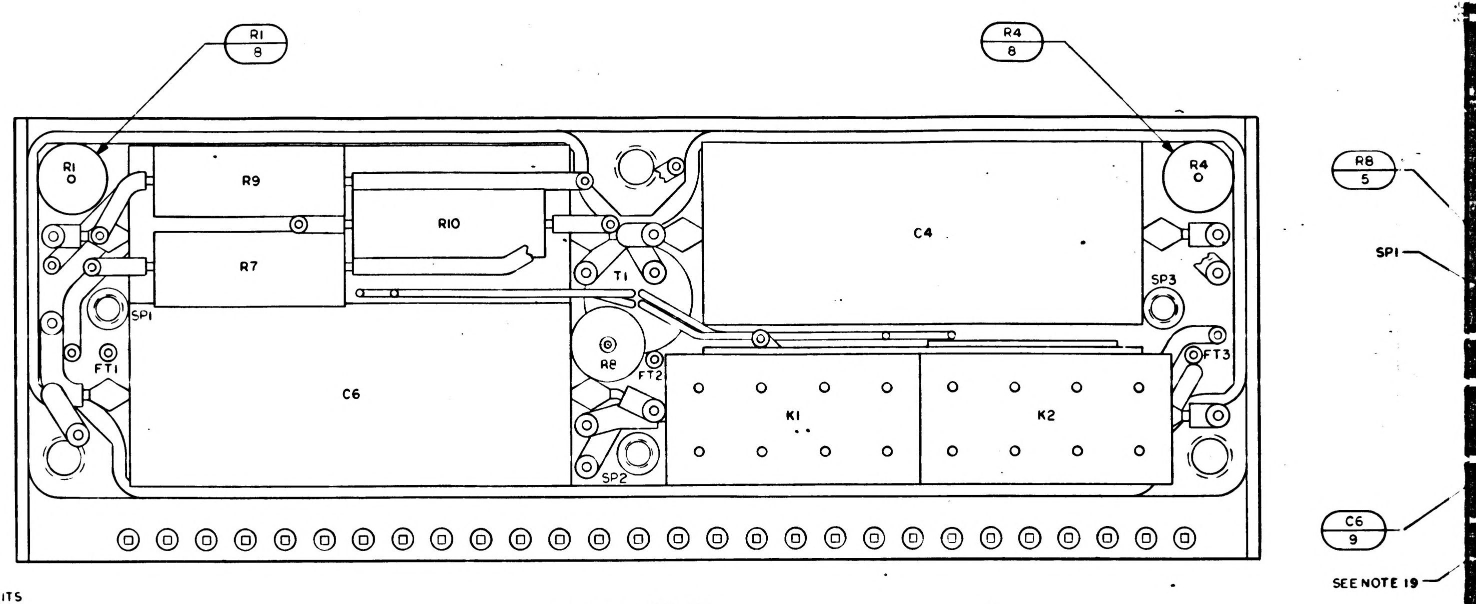
.005 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND 2 SIDES
SEE NOTE 9
SEE NOTE 13

SECTION B-B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SEE NOTE 19
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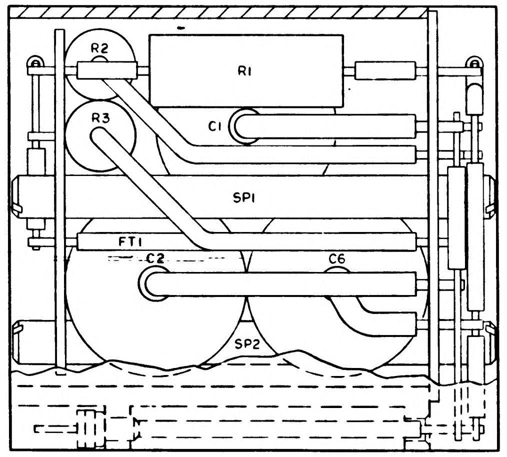
K2
SP2

SECTION D-D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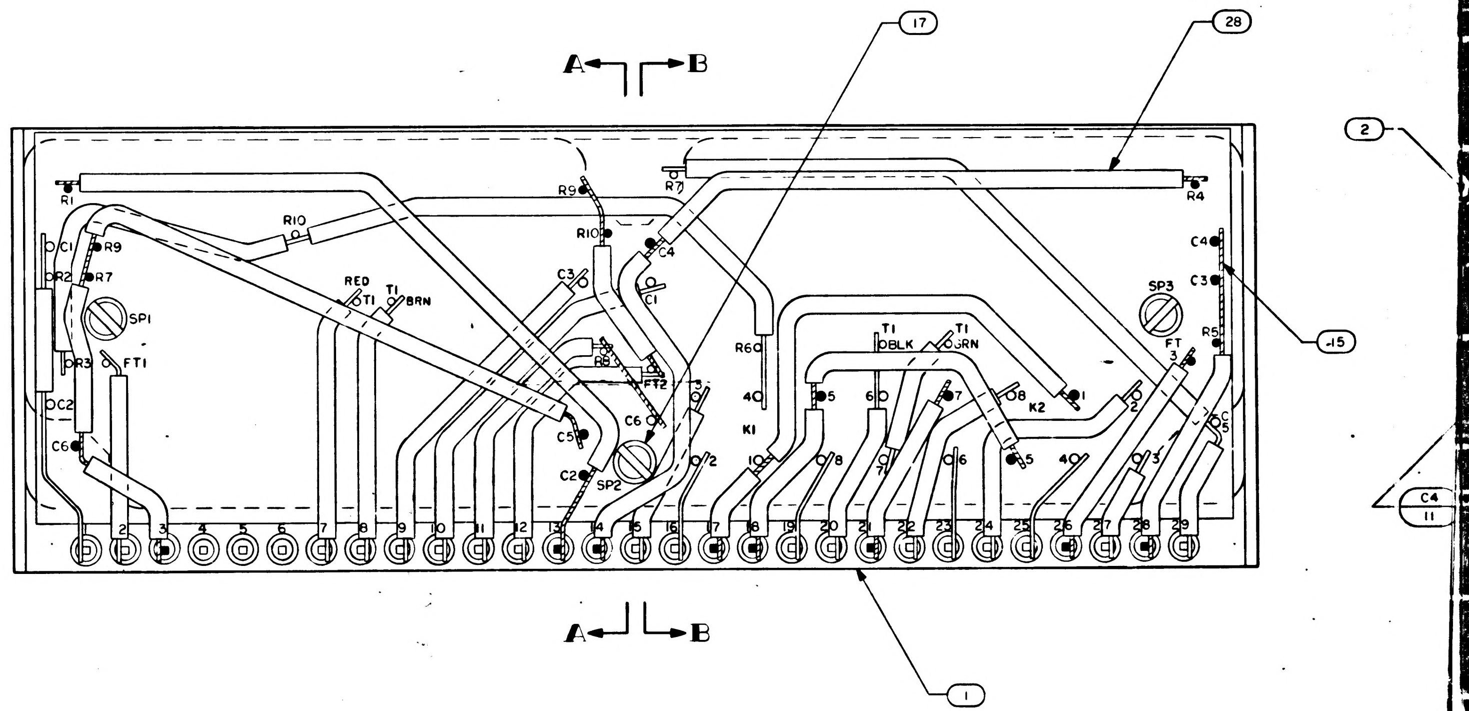
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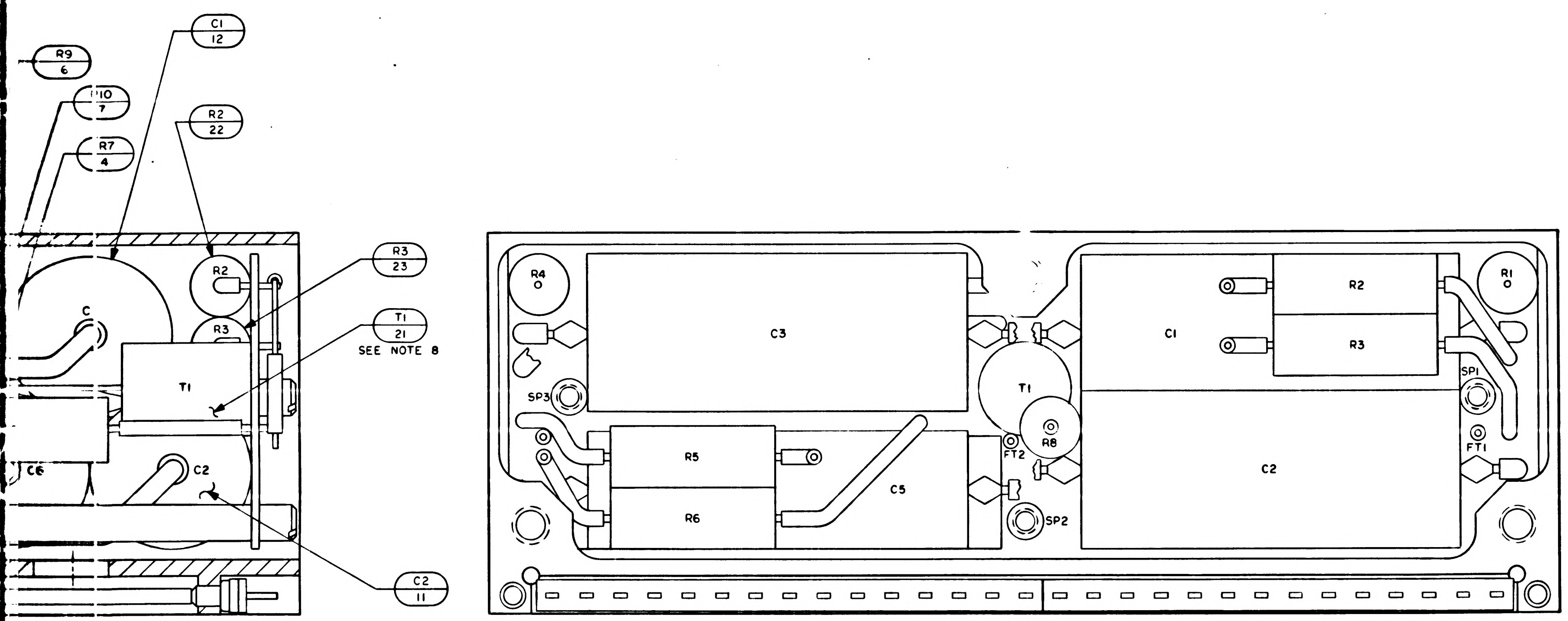
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TYPICAL INSULATION FOR ALL RESISTORS
3. TYPICAL INSULATION- FOR ALL CAPACITORS
4. WORKMANSHIP REQUIREMENT PER ND 1002069
5. ASSEMBLE FIND NO.13 AND 14 PER ND 1002136
6. SP DENOTES SPACER
7. BOND RESISTORS RELAYS AND CAPACITORS TO FIND NO. 2 AND TO EACH OTHER AS SHOWN. PER ND 1002004, TYPE I
8. BOND FIND NO. 21 TO FIND NO. 3 PER ND 1002004, TYPE I
9. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
10. MARK .100/.060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
11. MARK .140/.100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
12. AR DENOTES AS REQUIRED
13. ENCAPSULATE PER ND 1002002 BLACK POLYURETHANE FOAM, REMOVE ALL FLASHING
14. FT DENOTES FEED THRU
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
16. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
17. BOND FIND NO. 26 AND FIND NO. 27 TO FIND NO. 14 PER ND 1002237
18. WELD PER ND 1002005
19. BOND FIND NO.2 TO FIND NO.1 PER ND 1002004, TYPE I
20. PROCURE PER PS 1007510
~~21. BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
22. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.

	REV LTR	SH.
1007510	F	1

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 15420		WK
B	REVISED PER TDRR 16626	26 FEB 65	
C	REVISED PER TDRR 17304	12-MAR 65	
D	REVISED PER TDRR 18520	23 APR 65	
E	REVISED PER TDRR 18542	27 APR 65	
F	REVISED PER TDRR 19409	1 JUN 65	
G	REVISED PER TDRR 9483	2-JUN -65	

REVISIONS 13054



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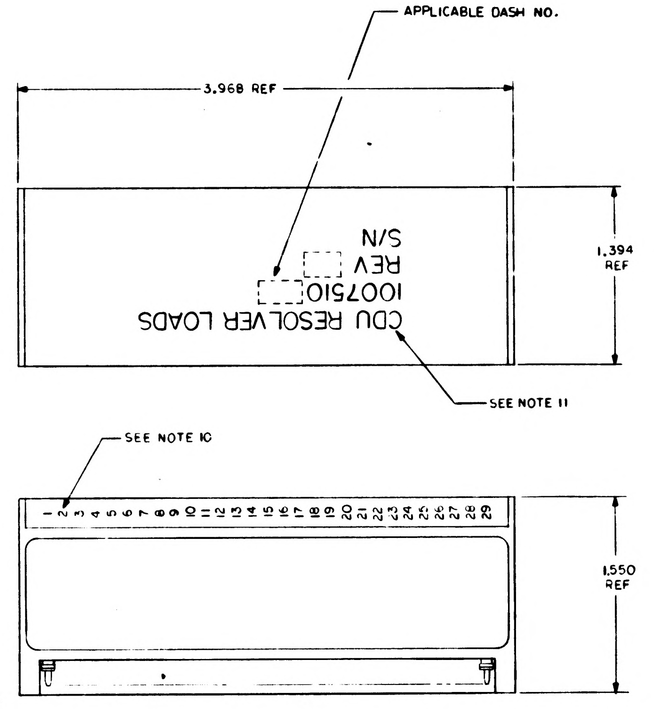
R10 7
R7 4
C1 12
R2 22
R3 23
T1 21 SEE NOTE 8
C2 11
R2
R3
T1
C6
C2
C
R4
C3
R1
C1
R2
R3
SP1
SP3
T1
R8
FT2
FT1
R5
R6
C5
C2
SP2

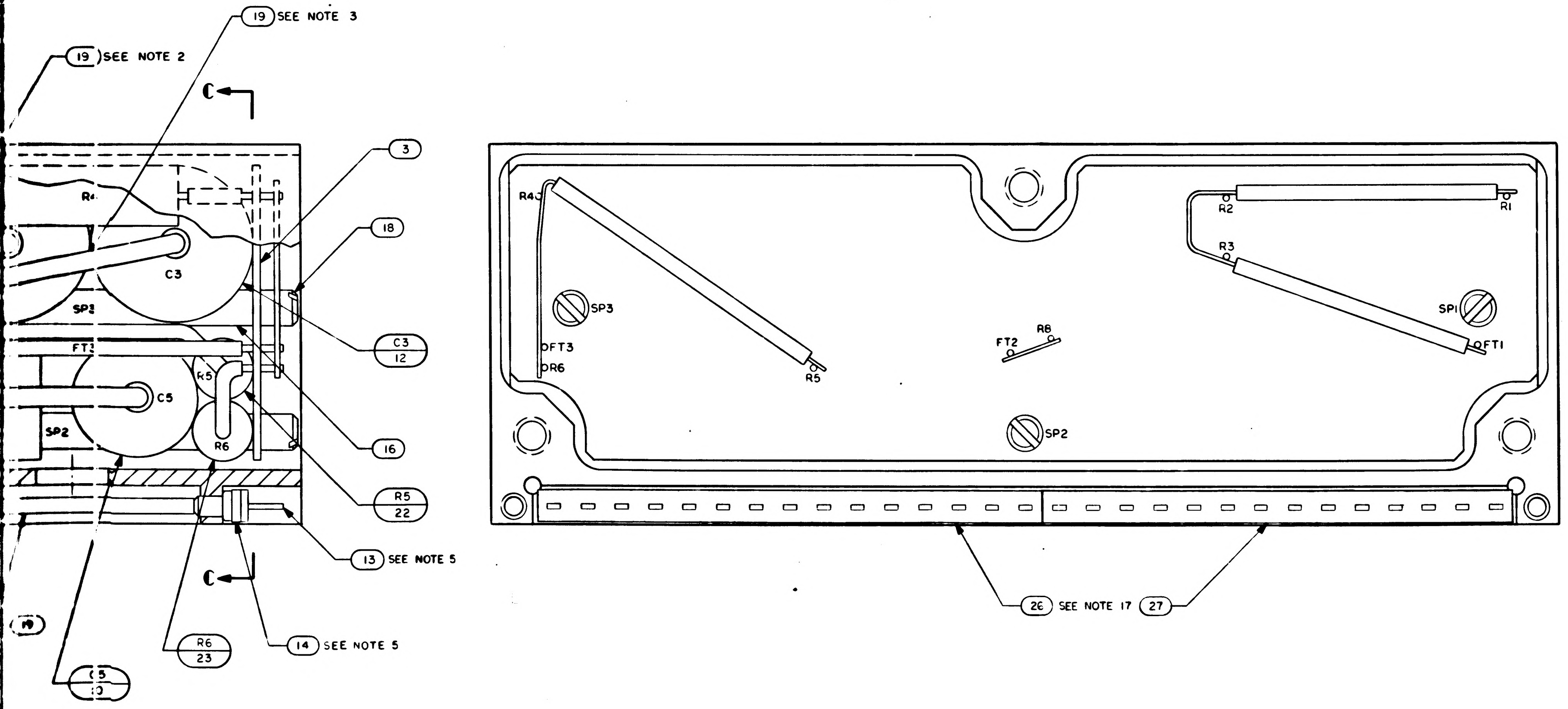
SECTION A-A

SECTION C-C



APPLICABLE DASH NO.
3.968 REF
1.394 REF
CDU RESOLVER LOADS
1007510
REV
S/N
SEE NOTE 11
SEE NOTE 10
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
1.550 REF

MARKING DRAWING
SCALE 2/1



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C
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18
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R5
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16
R5 22
13 SEE NOTE 5
14 SEE NOTE 5
R6 23
C5 10
19
C
R4
R2
R1
R3
SP3
SP1
FT3
R6
R5
FT2
R8
FT1
SP2
26 SEE NOTE 17 27

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1009501	SCHEMATIC	REF
AR	1006776-21	INSULATION SLEEVING ELECTRICAL	28
1	1008540 14	GASKET	27
1	1008540-15	GASKET	26
AR	1006757-8	.020 DIA WIRE ELECTRICAL	25
2	1010790- 3	RELAY	24
2	1010363-215	RESISTOR	23
2	1010363-247	RESISTOR	22
1	1010467	TRANSFORMER	21
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	20
AR	1006776-20	INSULATION SLEEVING ELECTRICAL	19
3	1008161-1	SCREW,CAP SLOTTED HEAD	18
3	1008161-2	SCREW,CAP SLOTTED HEAD	17
3	1015135-021	SPACER, NYLON	16
AR	1006757-1	.010 X .020 WIRE ELECTRICAL	15
29	1006775	INSULATOR,WRAPOST MALE MIN	14
29	1006782-5	CONTACT,WRAPOST MALE MIN	13
2	1010316-89	CAPACITOR	12
2	1010316-79	CAPACITOR	11
1	1010316-92	CAPACITOR	10
1	1010316-81	CAPACITOR	9
2	1010363-421	RESISTOR	8
1	1010363-221	RESISTOR	7
1	1010363-265	RESISTOR	6
1	1010363-431	RESISTOR	5
1	1010363-443	RESISTOR	4
1	1008503	WIRING BOARD, BOTTOM	3
1	1008501	WIRING BOARD ,TOP	2
1	1008504	FRAME	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN DATE 8-7-64
CHECKED
APPROVAL 22 Sept 64
APPROVAL 9/23/64
NASA APPROVAL 9-28-64
MIT APPROVAL 9/28/64

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

CDU RESOLVER LOADS
ASSEMBLY

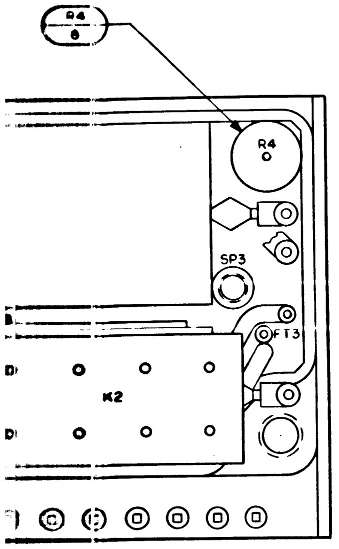
CODE IDENT NO 80230 | SIZE J | NASA DRAWING NO. 1007510
SCALE 5/1 | WT | SHEET 1 OF 1

1007510 REV G

3H

1007510 REV G SH 1

3/1007510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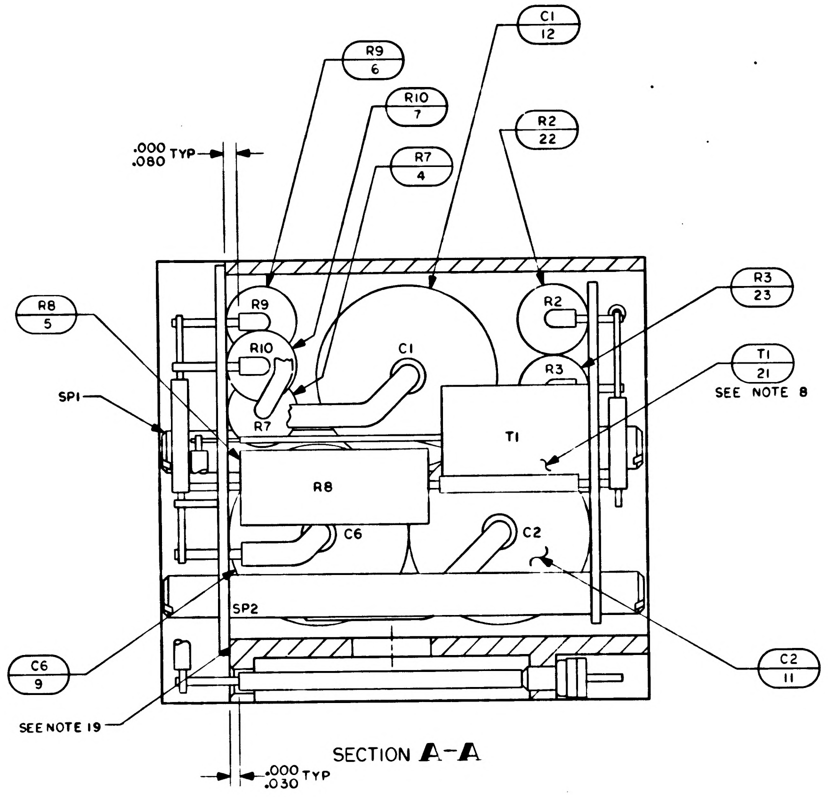
K2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R10
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R2
22
R7
4
.000
.080 TYP
R3
23
R8
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T1
21
SEE NOTE 8
SP1
R9
R10
R7
C1
R2
R3
T1
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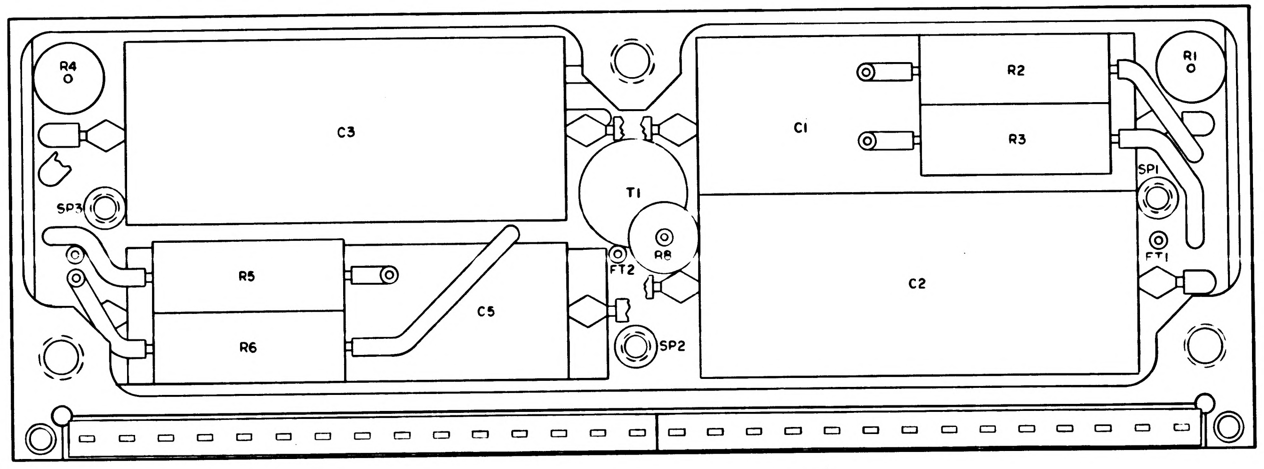
C2
SP2
C6
9
C2
11
SEE NOTE 19
.000
.030 TYP

SECTION A–A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R2
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R1
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SP1
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FT2
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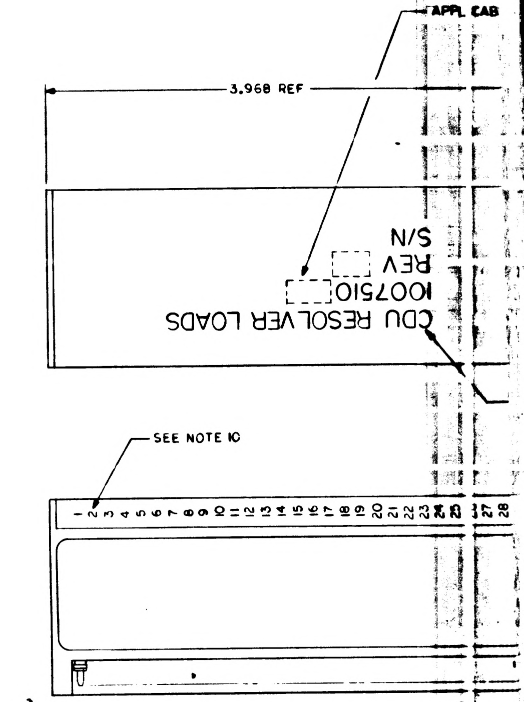
C2
R6
SP2

SECTION C–C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3.968 REF
S/N
REV
1007510
CDU RESOLVER LOADS
SEE NOTE 10
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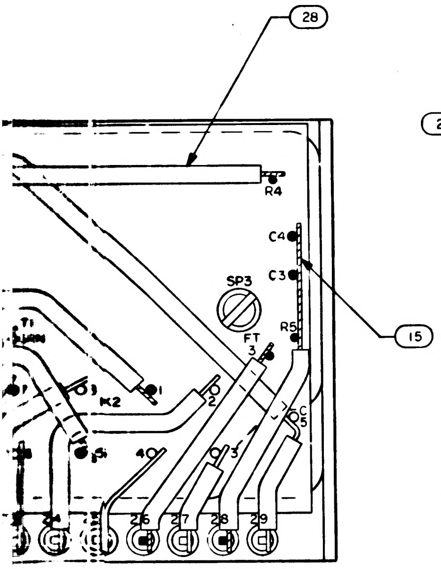
MARKING DRAWING
SCALE 2/1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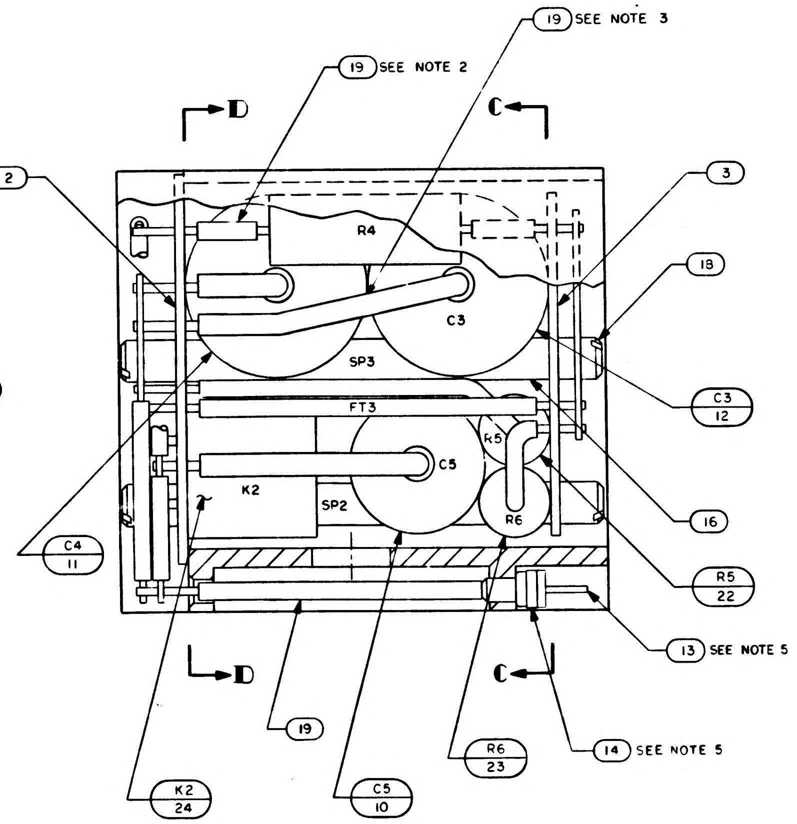
19 SEE NOTE 3
19 SEE NOTE 2
D
C
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R4
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SP3
FT3
C3
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C5
R5
K2
SP2
R6
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C4
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R5
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13 SEE NOTE 5
D
C
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R6
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14 SEE NOTE 5
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24
C5
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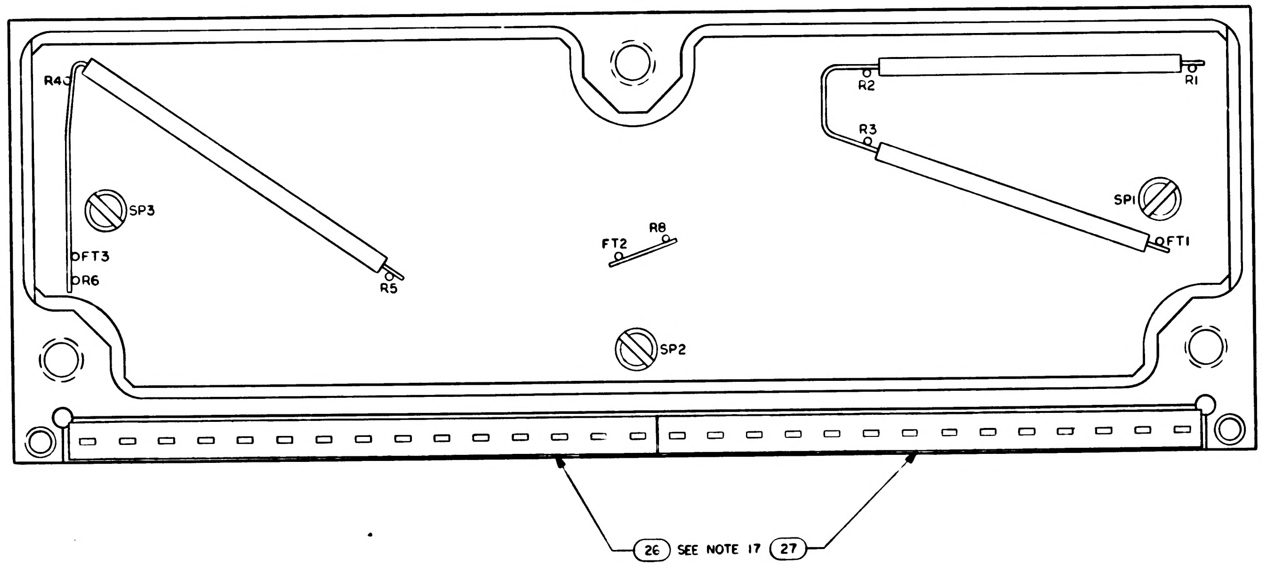
R4
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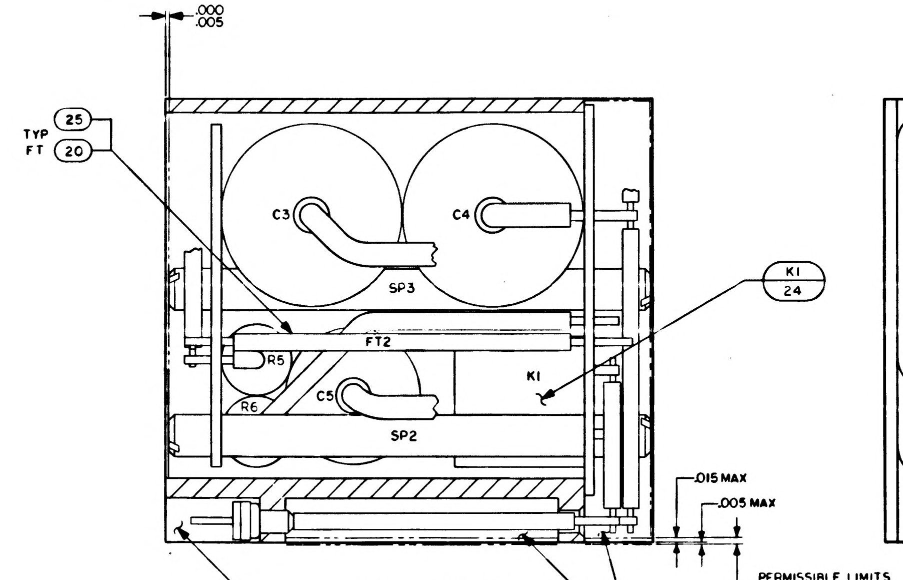
R3
SP3
SP1
FT3
R6
FT1
FT2
R8
R5
SP2
26 SEE NOTE 17 27

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ± DO NOT SCALE THIS DRAWING
		MATERIAL
		HEAT TREATMENT
NEXT ASSY	USED ON	FINAL FINISH
APPLICATION		

	REV LTR	SH
1007510	G	1

2/1007510

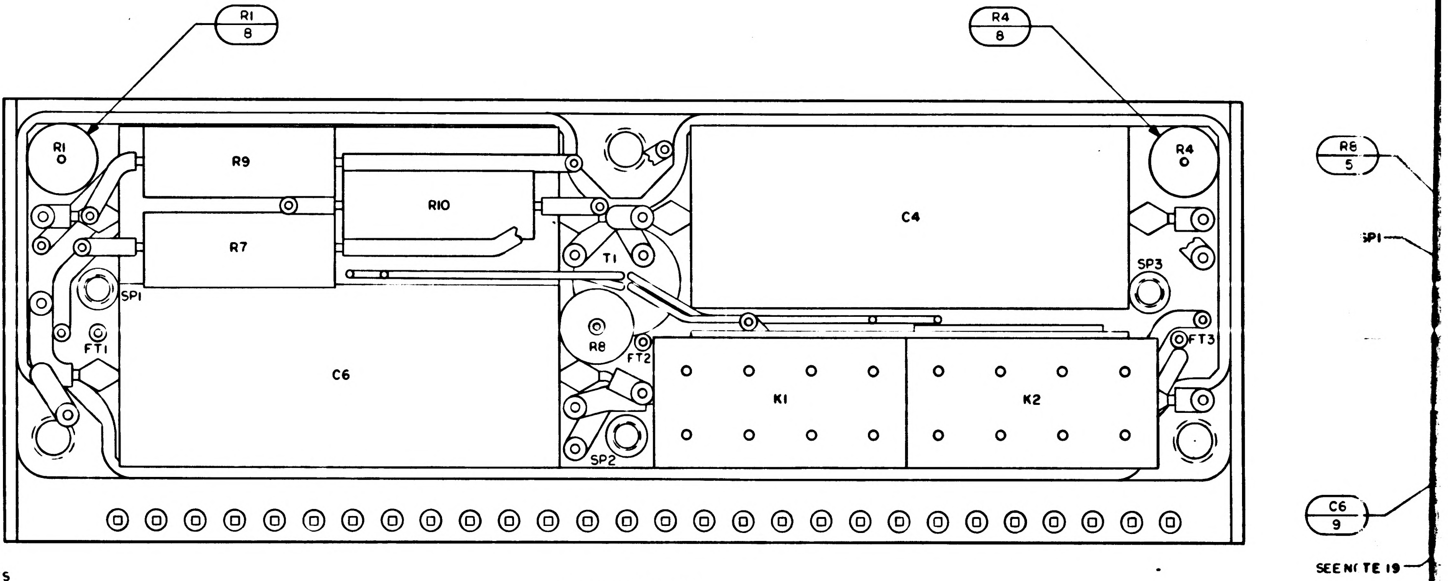
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


.000
.005
TYP FT
25
20
C3
C4
SP3
FT2
R5
R6
C5
K1
SP2
K1
24
.015 MAX
.005 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND 2 SIDES

SECTION B-B

SEE NOTE 9

SEE NOTE 13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R1
R9
R10
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T1
SP3
SP1
FT1
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FT3
SP2
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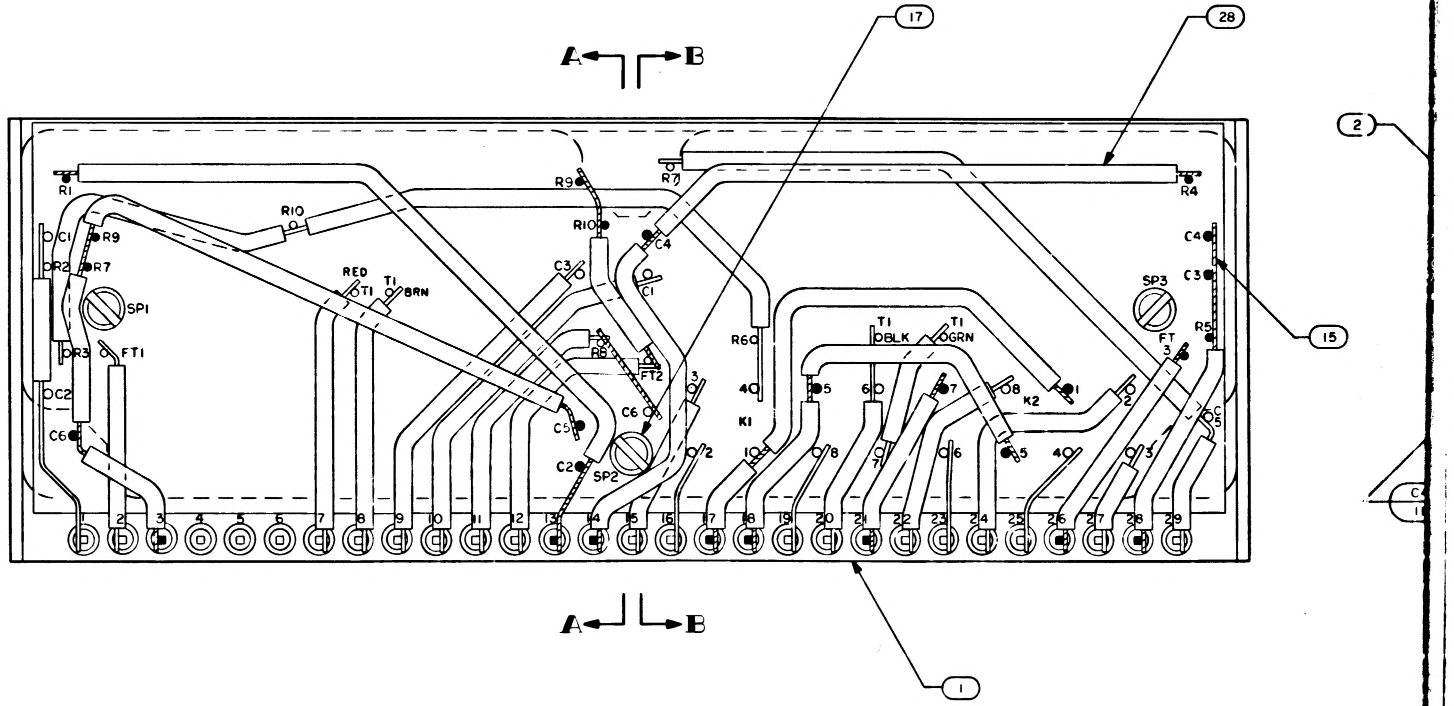
SP1
C6
9
SEE NOTE 19

SECTION D-D


A
B
17
28
R1
R10
R9
R7
R4
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R9
R2
R7
SP1
RED
T1
T1
BRN
C3
R10
C4
C1
R3
FT1
R8
FT2
R6
C2
C6
C5
C2
SP2
3
2
4
K1
1
T1
BLK
T1
GRN
5
6
7
8
K2
1
2
SP3
C4
C3
R5
FT 3
C 5
15
2
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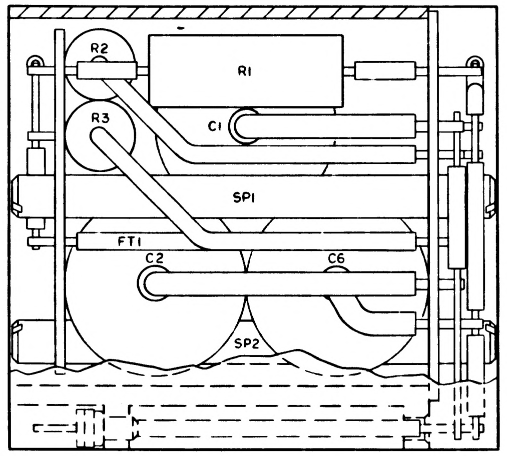
A
B
1


R2
R1
R3
C1
SP1
FT1
C2
C6
SP2

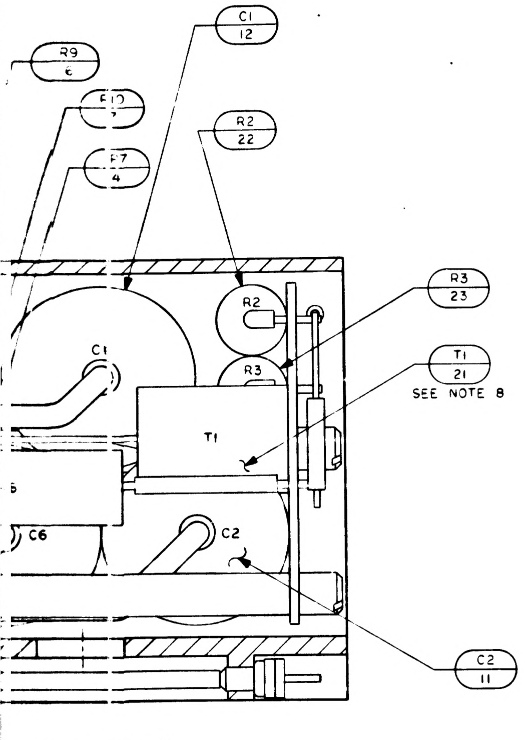
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TYPICAL INSULATION FOR ALL RESISTORS
3. TYPICAL INSULATION FOR ALL CAPACITORS
4. WORKMANSHIP REQUIREMENT PER ND 1002069
5. ASSEMBLE FIND NO.13 AND 14 PER ND 1002136
6. SP DENOTES SPACER
7. BOND RESISTORS RELAYS AND CAPACITORS TO FIND NO. 2 AND TO EACH OTHER AS SHOWN, PER ND 1002004, TYPE I
8. BOND FIND NO. 21 TO FIND NO. 3 PER ND 1002004, TYPE I
9. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
10. MARK .100/.060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
11. MARK .140/.100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
12. A R DENOTES AS REQUIRED
13. ENCAPSULATE PER ND 1002002 BLACK POLYURETHANE FOAM. REMOVE ALL FLASHING
14. FT DENOTES FEED THRU
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
16. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
17. BOND FIND NO. 26 AND FIND NO. 27 TO FIND NO. 14 PER ND 1002237
18. WELD PER ND 1002005
19. BOND FIND NO.2 TO FIND NO.1 PER ND 1002004, TYPE I
20. PROCURE PER PS 1007510
21. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
22. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 NOM ± .35 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
23. *CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.*
24. *EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140° F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.*

1007510	REV. LTR. G	SH. 1

17/1007510

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 15420	[illegible]	
B	REVISED PER TDRR 16626	26 FEB 65	
C	REVISED PER TDRR 17304	2-MAR 65	
D	REVISED PER TDRR 18520	23 APR 65	
E	REVISED PER TDRR 18542	27 APR 65	
F	REVISED PER TDRR 19409	1 JUN 65	
G	REVISED PER TDRR 9483	2-JUN -65	
H	REVISED PER TDRR 20143	[illegible]	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R10
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12
R2
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R3
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T1
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SEE NOTE 8
C1
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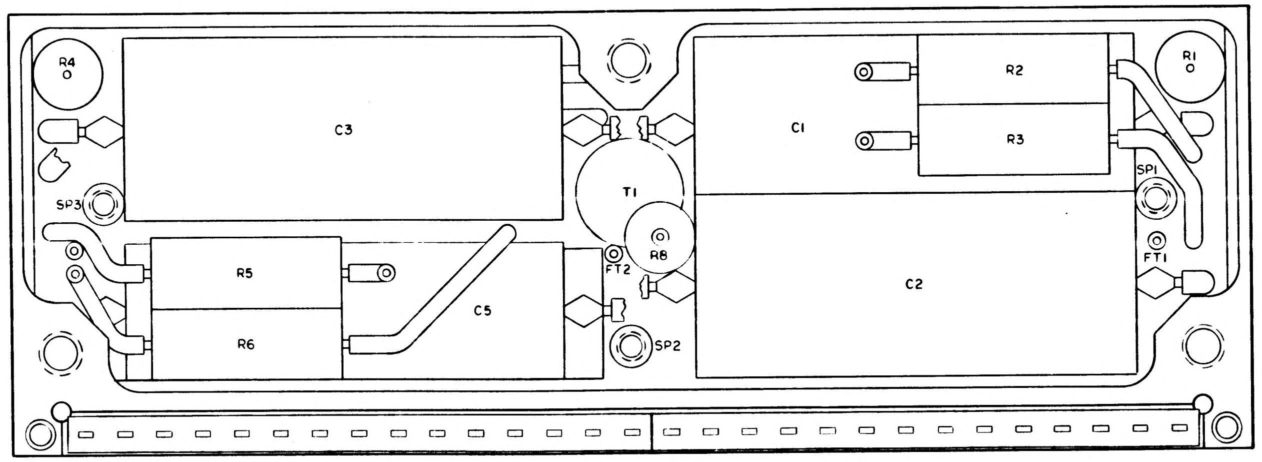
R3
T1
C6
C2
C2
11

SECTION A-A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C3
SP3
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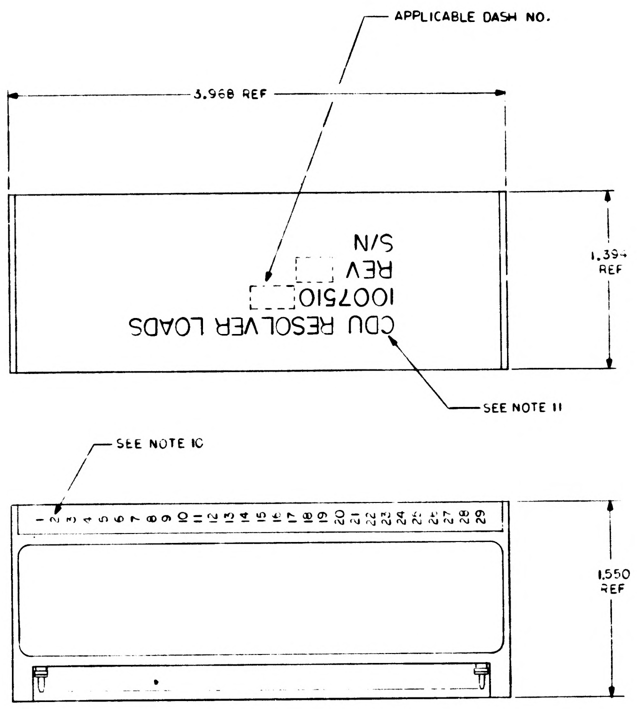
R1
SP1
FT1

SECTION C-C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1007510
REV
S/N
SEE NOTE 11
SEE NOTE 10
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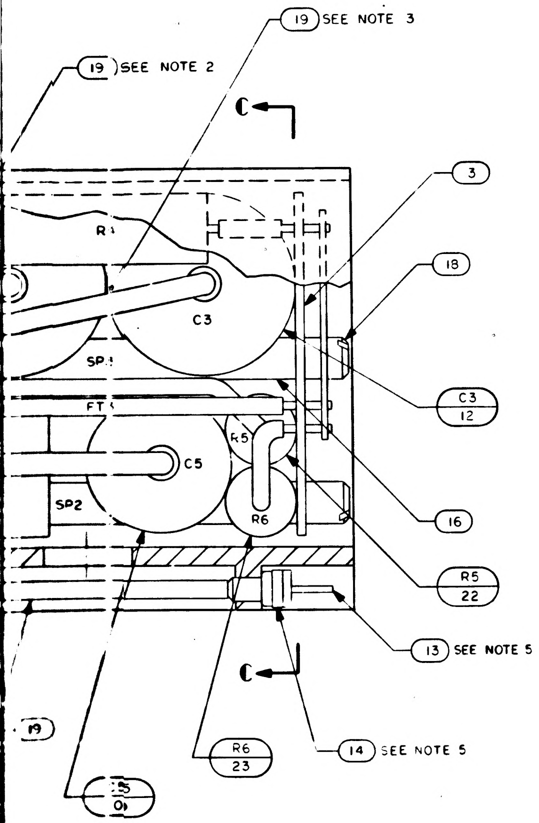
1.550 REF

MARKING DRAWING
SCALE 2/1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19 SEE NOTE 2
C
3
18
R1
C3
SP1
FT
C3
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R5
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SP2
R6
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R5
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13 SEE NOTE 5
C
R6
23
14 SEE NOTE 5
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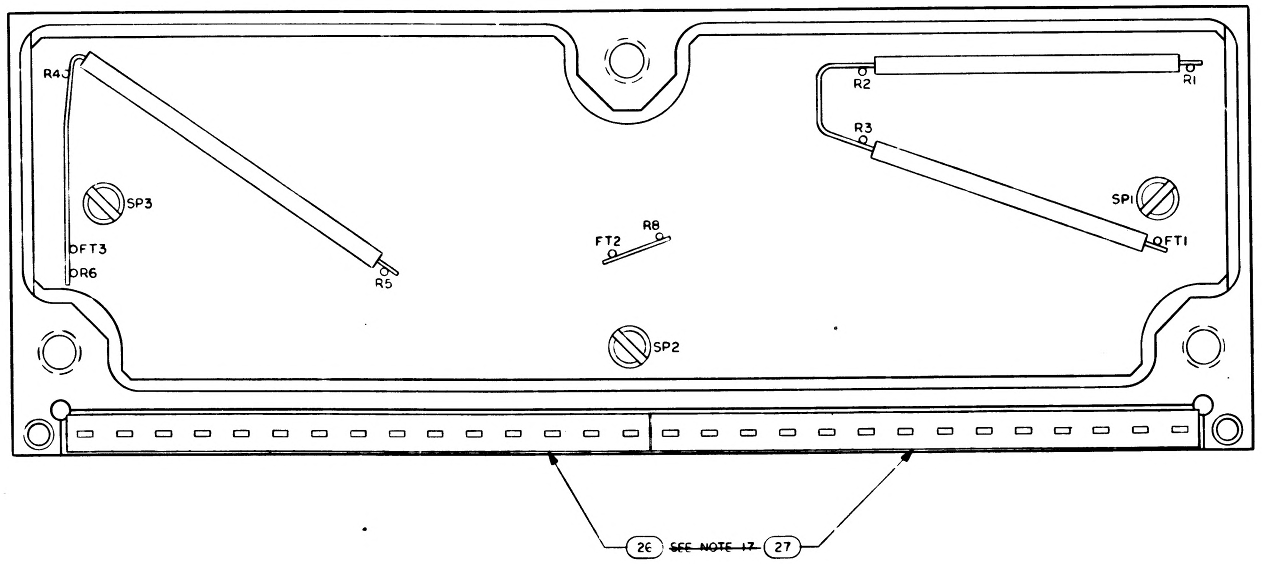
R4
SP3
FT3
R6
R5
FT2
R8
SP2
R2
R1
R3
SP1
FT1
26 SEE NOTE 17 27

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
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AR	1006776-21	INSULATION SLEEVING ELECTRICAL	28
1	1008540 14	GASKET	27
1	1008540-15	GASKET	26
AR	1006757-8	.020 DIA WIRE ELECTRICAL	25
2	1010790- 3	RELAY	24
2	1010363-215	RESISTOR	23
2	1010363-247	RESISTOR	22
1	1010467	TRANSFORMER	21
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	20
AR	1006776-20	INSULATION SLEEVING ELECTRICAL	19
3	1008161-1	SCREW,CAP SLOTTED HEAD	18
3	1008161-2	SCREW,CAP SLOTTED HEAD	17
3	1015135-021	SPACER, NYLON	16
AR	1006757-1	.010 X .020 WIRE ELECTRICAL	15
29	1006775	INSULATOR,WRAPOST MALE MIN	14
29	1006782-5	CONTACT,WRAPOST MALE MIN	13
2	1010316-89	CAPACITOR	12
2	1010316-79	CAPACITOR	11
1	1010316-92	CAPACITOR	10
1	1010316-81	CAPACITOR	9
2	1010363-421	RESISTOR	8
1	1010363-221	RESISTOR	7
1	1010363-265	RESISTOR	6
1	1010363-431	RESISTOR	5
1	1010363-443	RESISTOR	4
1	1008503	WIRING BOARD, BOTTOM	3
1	1008501	WIRING BOARD, TOP	2
1	1008504	FRAME	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 8-7-64
CHECKED
APPROVAL 22 Sept 64
APPROVAL 9/22/64
NASA APPROVAL 9-26-64
MIT APPROVAL 9/29/64

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

CDU RESOLVER LOADS ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
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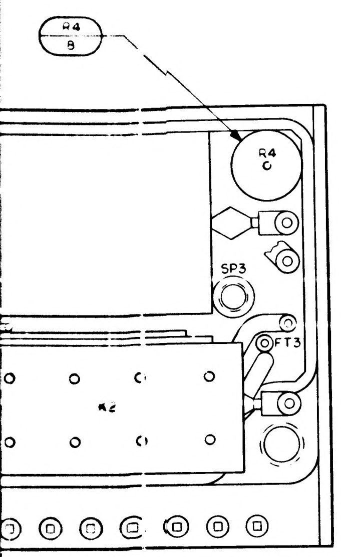
SCALE 5/1	WT	SHEET 1 OF 1

1007510 H

1007510 | REV LTR H | SH 1

3/1007510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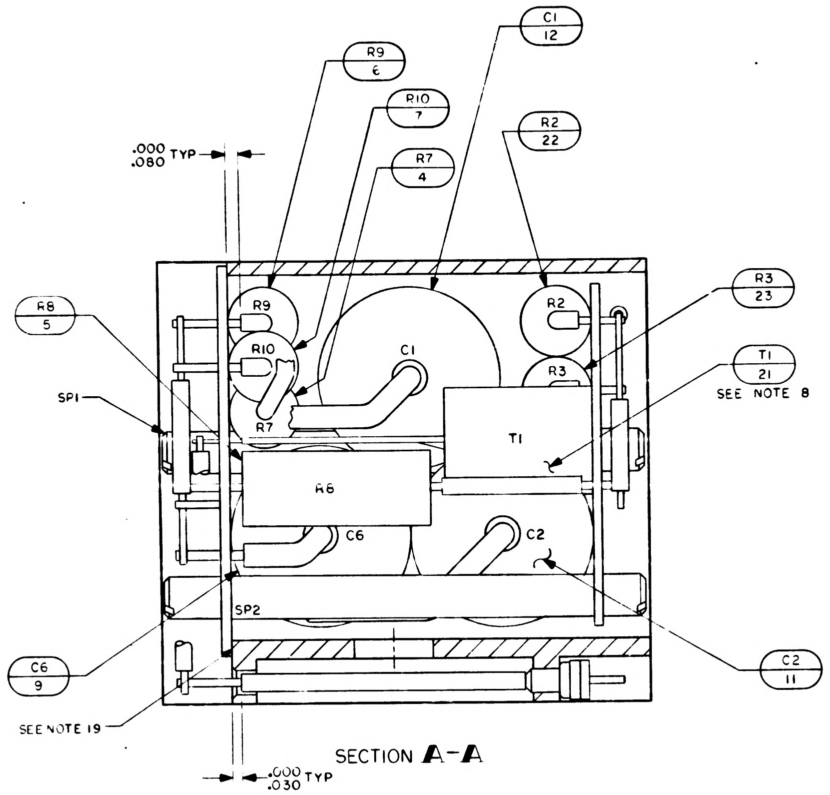
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SEE NOTE 8
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SP1
R9
R10
R7
C1
R2
R3
T1
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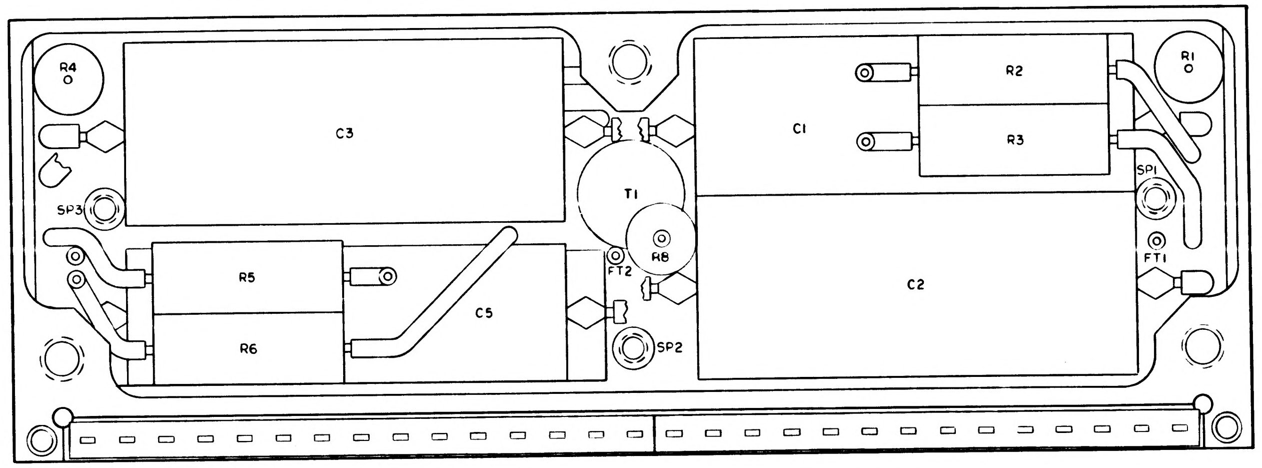
C2
11
SEE NOTE 19
.000 .080 TYP
.000 .030 TYP

SECTION **A-A**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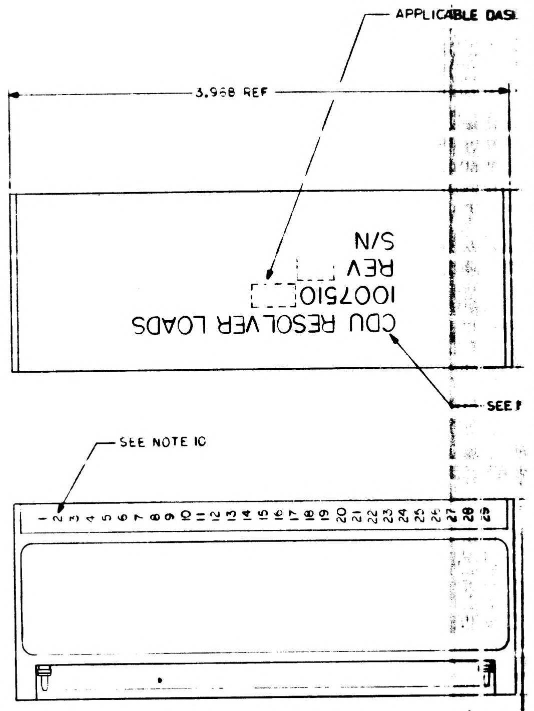
R3
C2
R1
SP1
FT1
SP3

SECTION **C-C**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REV
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SEE NOTE 10
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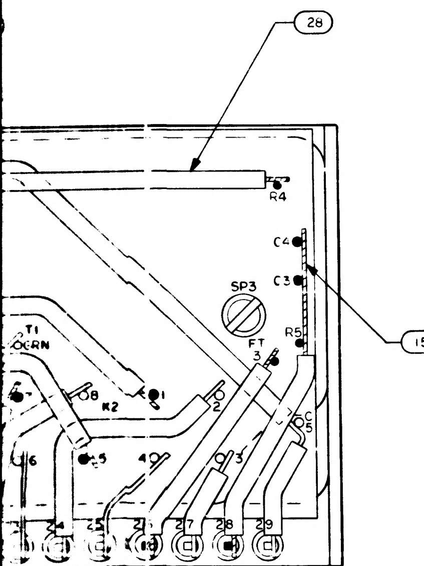
MARKING DRAWING
SCALE 2/1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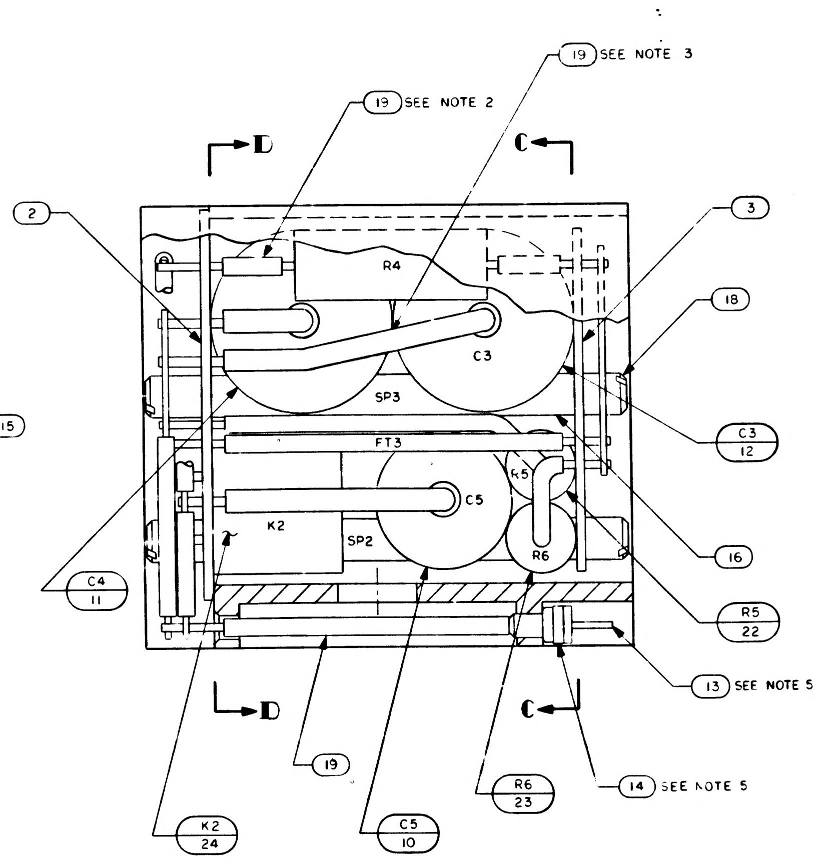
R1
25 26 27 28 29


19 SEE NOTE 3
19 SEE NOTE 2
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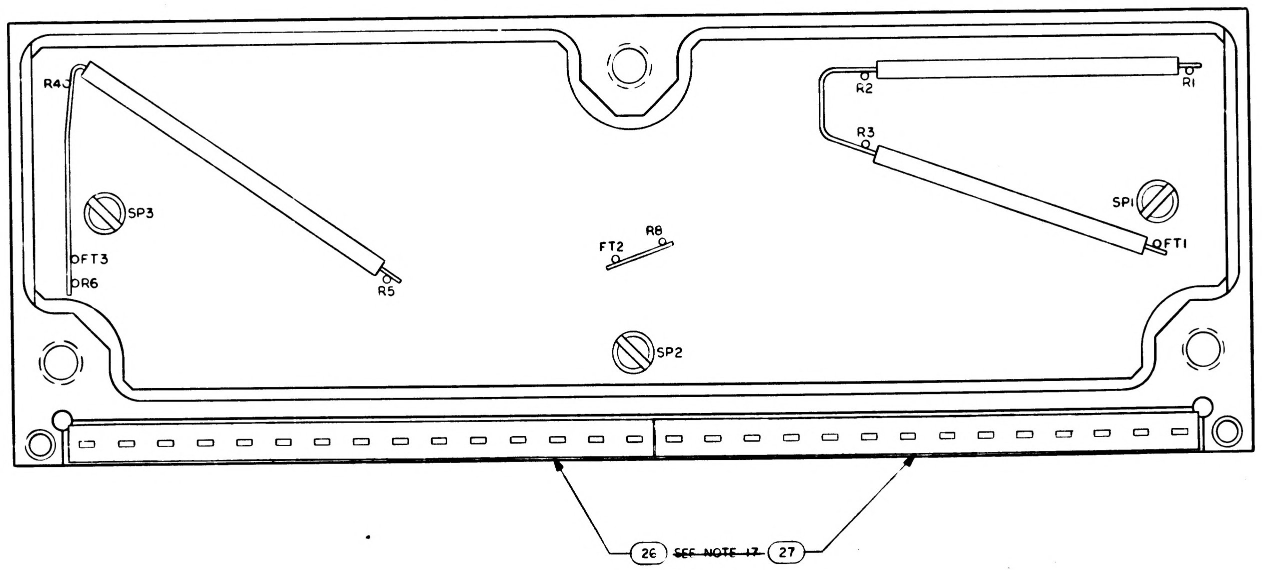
R4
R2
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SP3
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FT2
R8
FT3
R6
R5
FT1
SP2
26 SEE NOTE 17 27

☒	00950
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AR	00675
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2	01036
2	01036
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AR	0067
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1	0085
1	008
QTY REQD	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

HEAT TREATMENT

FINAL FINISH

NEXT ASSY | USED ON
APPLICATION

DRAWN
CHECKED
APPROVED
APPROVED
NASA APPROVAL
MIT APPROVAL

1007510 REV LTR H SH 1

2/1007510

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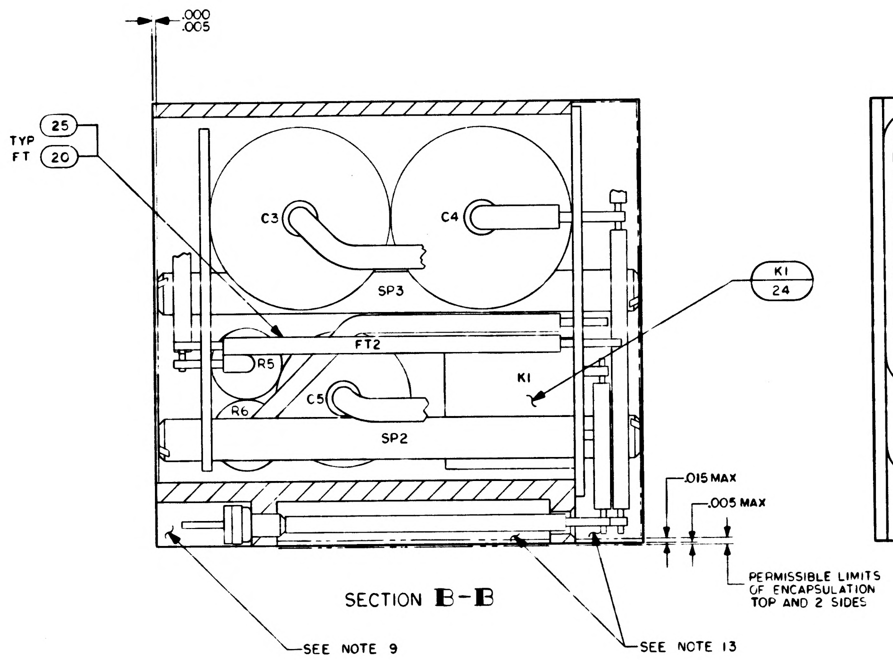
.000
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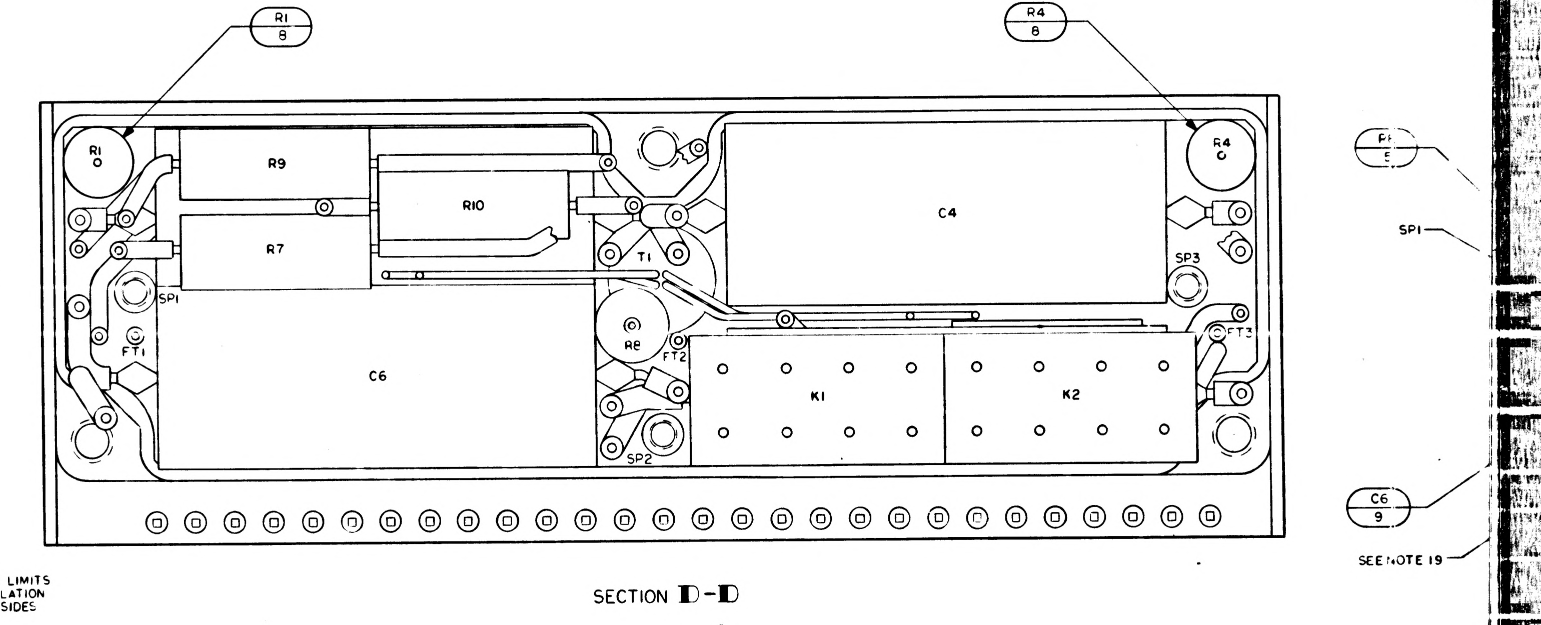
.005 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND 2 SIDES
SEE NOTE 9
SEE NOTE 13

SECTION B-B


R1
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R7
T1
SP3
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C6
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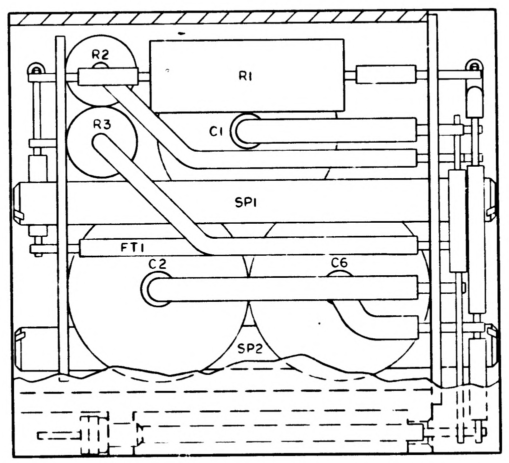
SP1
C6
9
SEE NOTE 19

SECTION D-D


R2
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FT1
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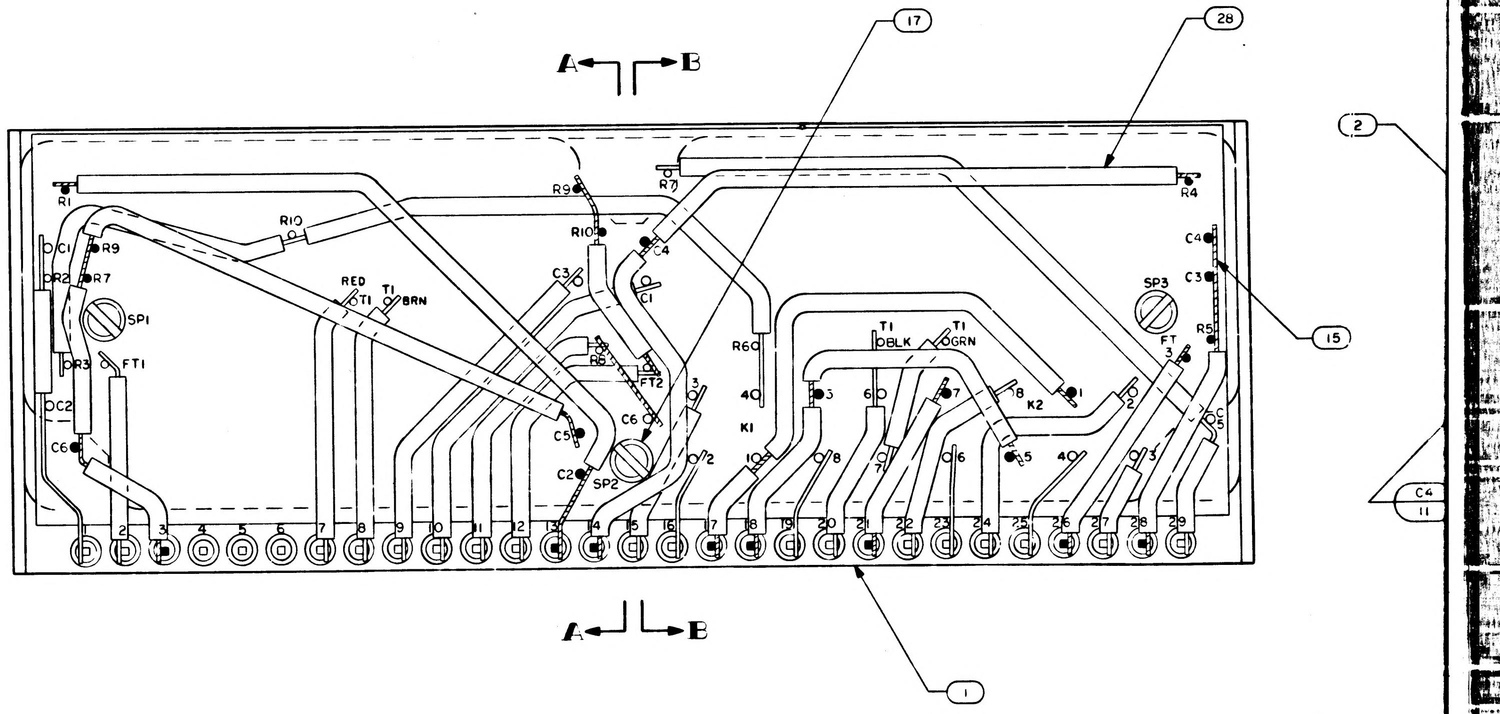
SP2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R9
R7
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RED T1
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NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
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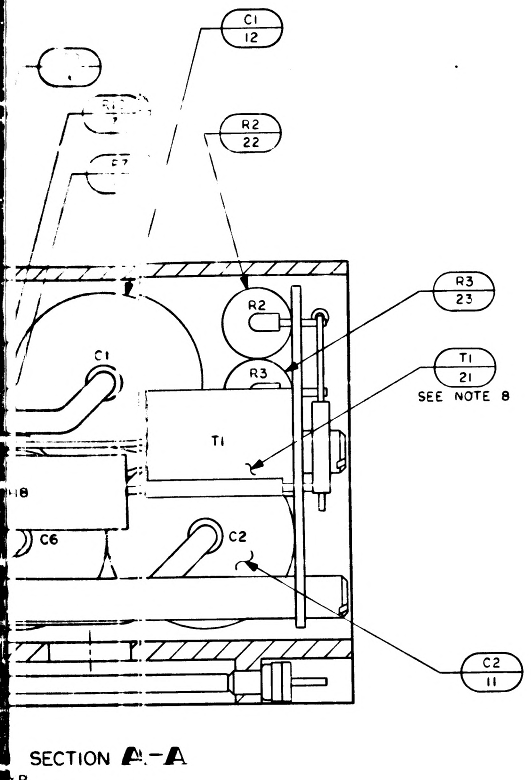
6. SP DENOTES SPACER
7. BOND RESISTORS RELAYS AND CAPACITORS TO FIND NO. 2 AND TO EACH OTHER AS SHOWN, PER ND 1002004, TYPE I
8. BOND FIND NO. 21 TO FIND NO. 3 PER ND 1002004, TYPE I
9. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
10. MARK .100 / .060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
11. MARK .140 / .100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
12. AR DENOTES AS REQUIRED
13. ENCAPSULATE PER ND 1002002 BLACK POLYURETHANE FOAM, REMOVE ALL FLASHING
14. FT DENOTES FEED THRU
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
16. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
17. ~~BOND FIND NO. 26 AND FIND NO. 27 TO FIND NO. 14 PER ND 1002237~~
18. WELD PER ND 1002005
19. BOND FIND NO.2 TO FIND NO.1 PER ND 1002004, TYPE I
20 PROCURE PER PS 1007510
21 ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
22. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140° F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

	REV. LTR.	SH.
1007510	H	1

1/1007510

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 15420		
B	REVISED PER TDRR 16626	26 FEB 65	
C	REVISED PER TDRR 17304	12-MAR 65	
D	REVISED PER TDRR 18520	23 APR 65	
E	REVISED PER TDRR 18542	27 APR 65	
F	REVISED PER TDRR 19409	1 JUN 65	
G	REVISED PER TDRR 9483	2-JUN -65	
H	REVISED PER TDRR 20143		
J	REVISED PER TDRR 22354	65	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SEE NOTE 8
R2
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T1
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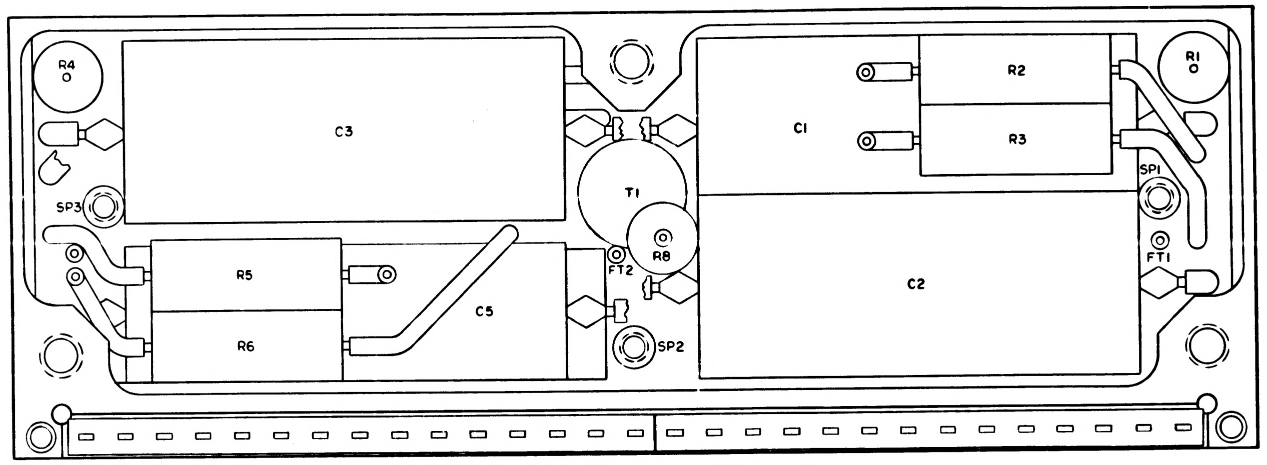
SECTION A-A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R2
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SP1
SP3
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R5
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FT2
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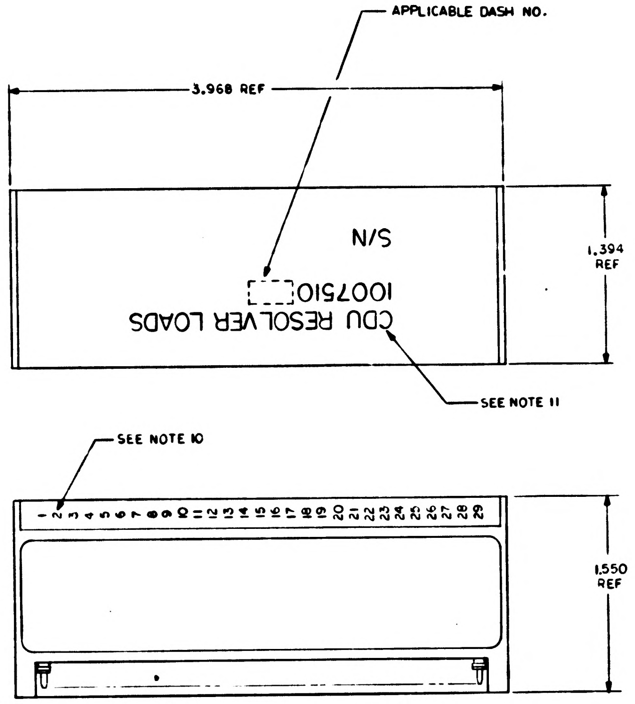
SP2

SECTION C-C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S/N
1007510
CDU RESOLVER LOADS
1.394 REF
SEE NOTE 11
SEE NOTE 10
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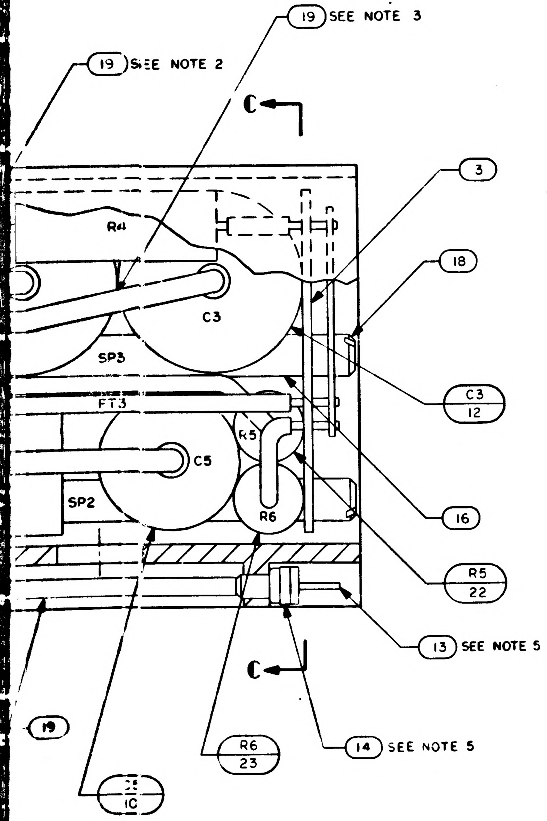
1.550 REF

MARKING DRAWING

SCALE 2/1


19 SEE NOTE 3
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C
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SP3
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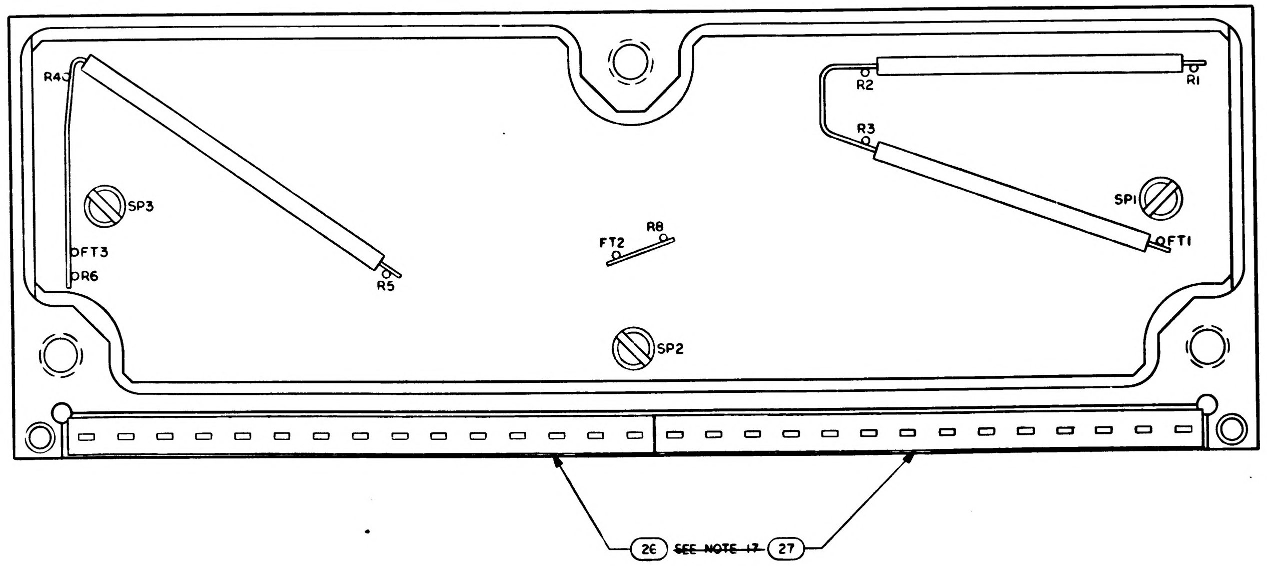
13 SEE NOTE 5
C
19
R6
23
14 SEE NOTE 5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FT2
R8
FT1
SP2
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SEE NOTE 17
27

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1009501	SCHEMATIC	REF
AR	1006776-21	INSULATION SLEEVING ELECTRICAL	28
1	1008540 14	GASKET	27
1	1008540-15	GASKET	26
AR	1006757-8	.020 DIA WIRE ELECTRICAL	25
2	1010790-3	RELAY	24
2	1010363-215	RESISTOR	23
2	1010363-247	RESISTOR	22
1	1010467	TRANSFORMER	21
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	20
AR	1006776-20	INSULATION SLEEVING ELECTRICAL	19
3	1008161-1	SCREW,CAP SLOTTED HEAD	18
3	1008161-2	SCREW, CAP SLOTTED HEAD	17
3	1015135-021	SPACER, NYLON	16
AR	1006757-1	.010 X .020 WIRE ELECTRICAL	15
29	1006775	INSULATOR, WRAPOST MALE MIN	14
29	1006782-5	CONTACT, WRAPOST MALE MIN	13
2	1010316-89	CAPACITOR	12
2	1010316-79	CAPACITOR	11
1	1010316-92	CAPACITOR	10
1	1010316-81	CAPACITOR	9
2	1010363-421	RESISTOR	8
1	1010363-221	RESISTOR	7
1	1010363-265	RESISTOR	6
1	1010363-431	RESISTOR	5
1	1010363-443	RESISTOR	4
1	1008503	WIRING BOARD, BOTTOM	3
1	1008501	WIRING BOARD, TOP	2
1	1008504	FRAME	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

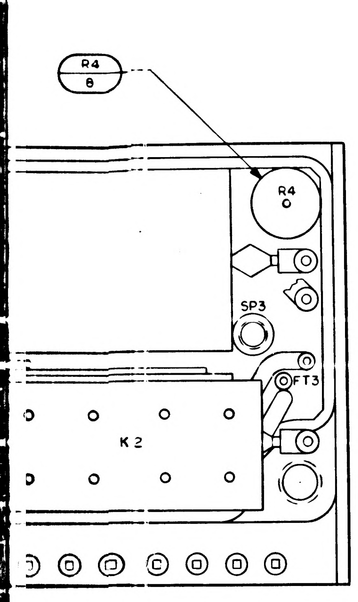
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN DATE 9-7-64
CHECKED
APPROVAL
APPROVAL 9/24/64
NASA APPROVAL 9-28-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

CDU RESOLVER LOADS
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007510
SCALE 5/1
WT
SHEET 1 OF 1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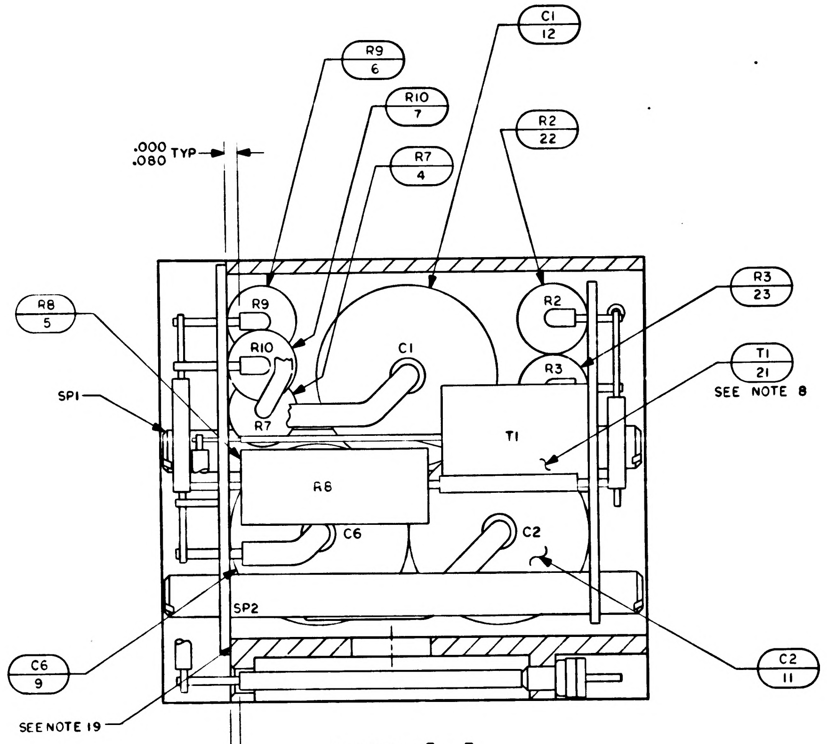
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R7
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R2
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R3
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T1
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SEE NOTE 8
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8
R8
5
SP1
.000
.080 TYP
R9
R10
C1
R2
R3
R7
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SP2
C6
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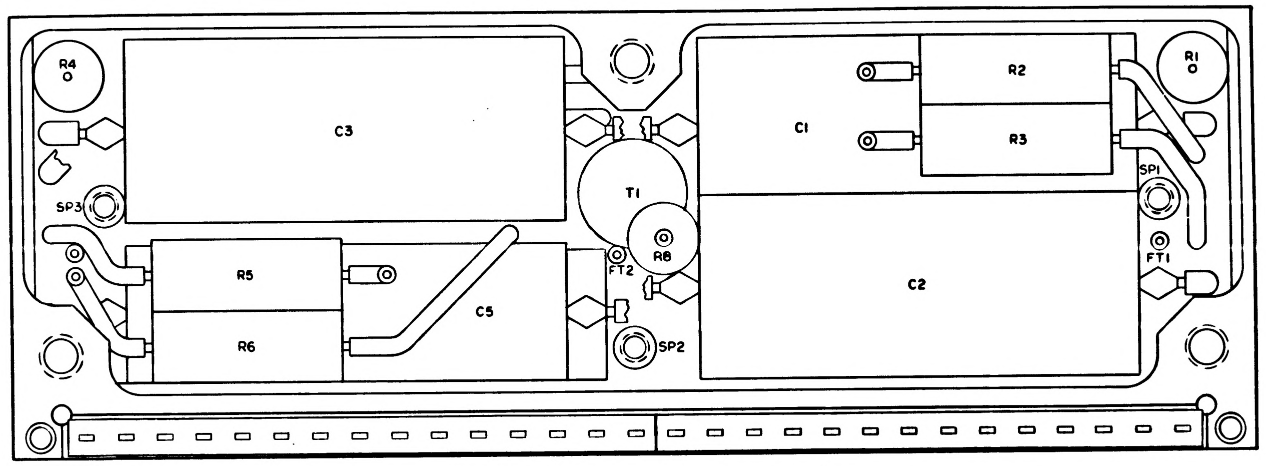
SEE NOTE 19
.000
.030 TYP

SECTION A-A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R8
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FT1
R5
R6
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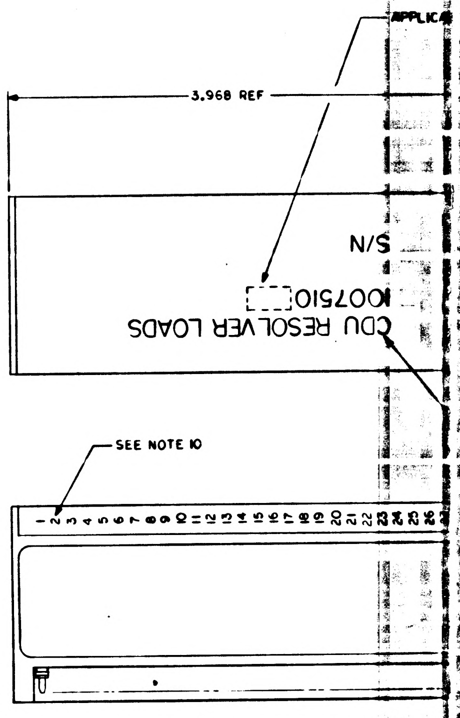
C2
SP2

SECTION C-C


APPLICA
3.968 REF
S/N
1007510
CDU RESOLVER LOADS
SEE NOTE 10
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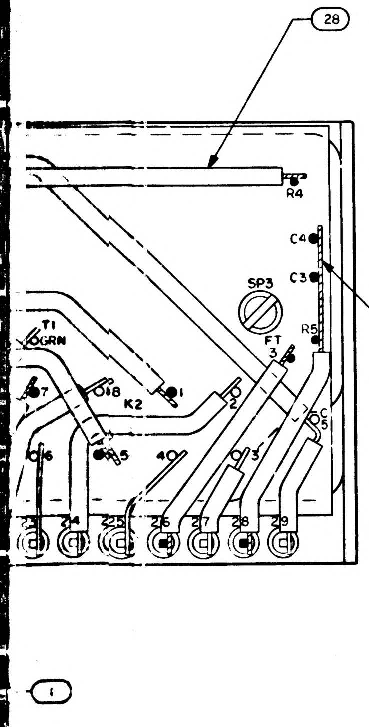
MARKING DRAWING
SCALE 2/1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R4
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T1
GRN
FT
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K2
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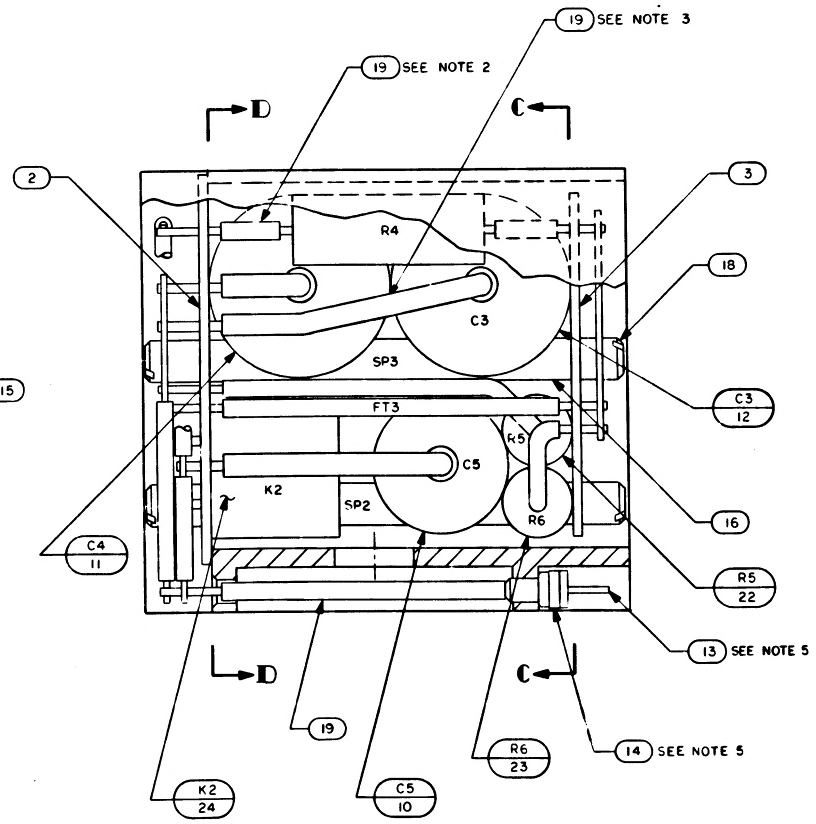
28
29


19 SEE NOTE 3
19 SEE NOTE 2
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C
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FT3
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SP2
15
C3
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13 SEE NOTE 5
D
C
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14 SEE NOTE 5
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C5
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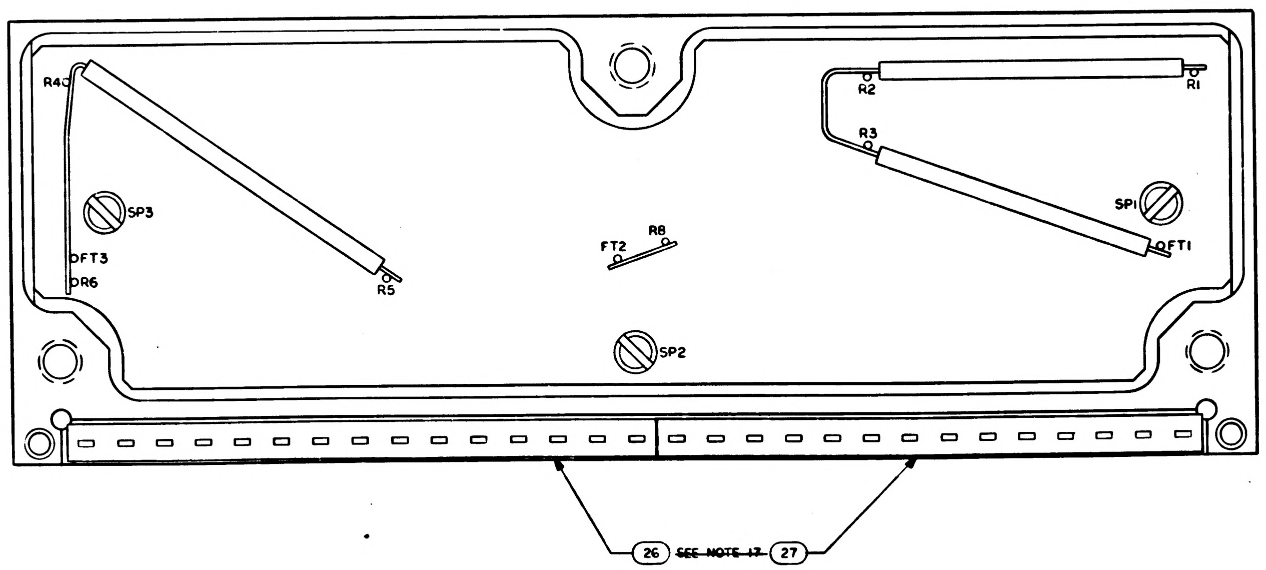
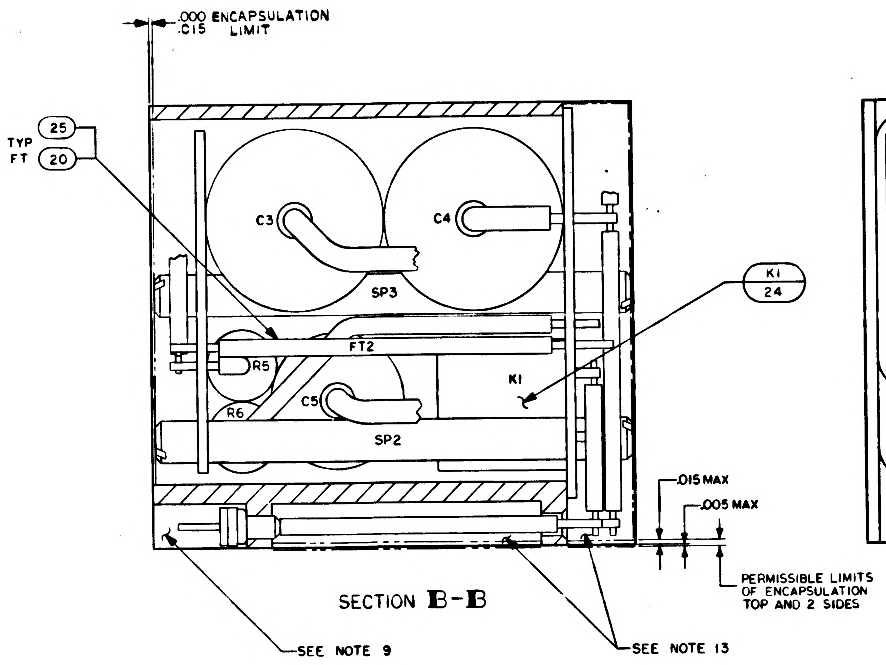

R4
R2
R1
R3
SP3
SP1
FT3
R6
FT1
R5
FT2
R8
SP2
26
~~SEE NOTE 17~~
27

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ± ± ± DO NOT SCALE THIS DRAWING
		MATERIAL
		HEAT TREATMENT
NEXT ASSY	USED ON	FINAL FINISH
APPLICATION		



.000 ENCAPSULATION
.015 LIMIT
TYP FT
25
20
K1
24
C3
C4
SP3
R5
FT2
K1
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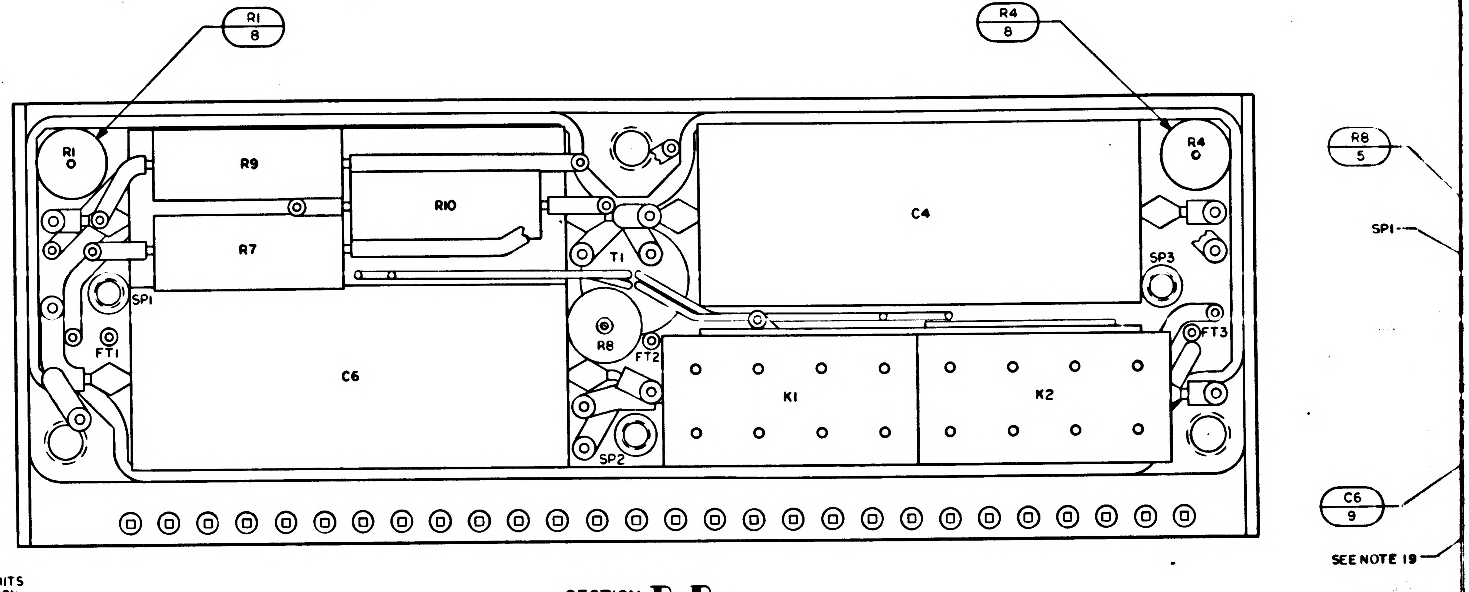
SP2
.015 MAX
.005 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND 2 SIDES
SEE NOTE 9
SEE NOTE 13

SECTION B-B



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R8
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SP1
C6
9
SEE NOTE 19
R1
R9
R10
R7
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SP1
FT1
C6
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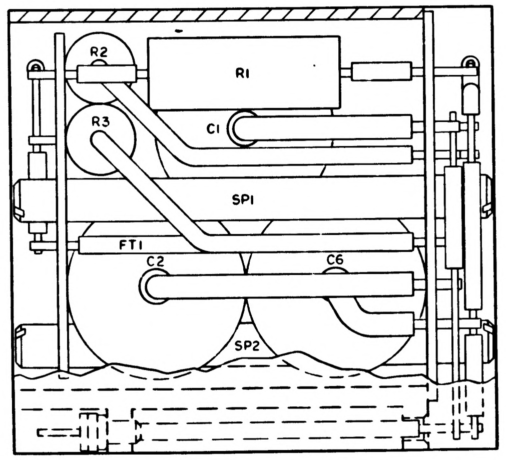
FT3
K1
K2
SP2

SECTION D-D



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R3
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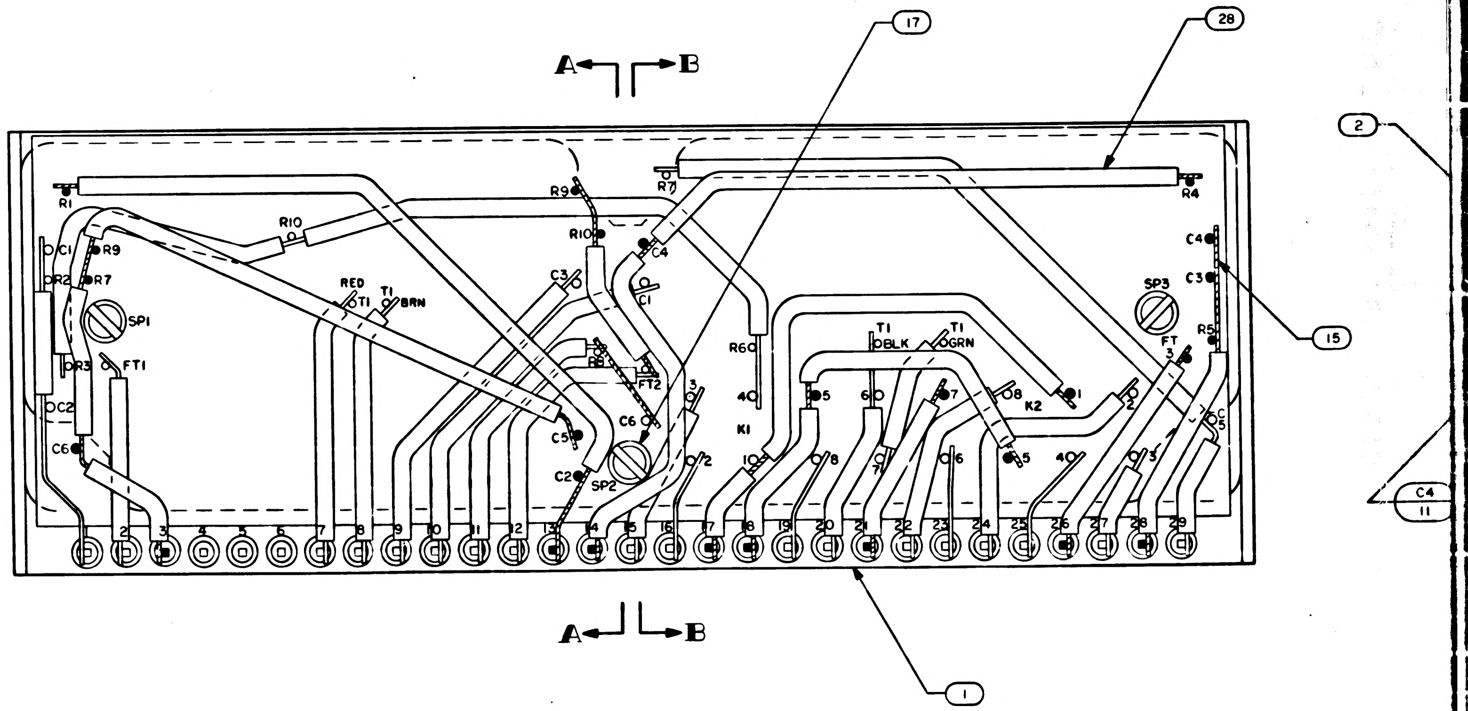
SP1
FT1
C2
C6
SP2



A
B
17
28
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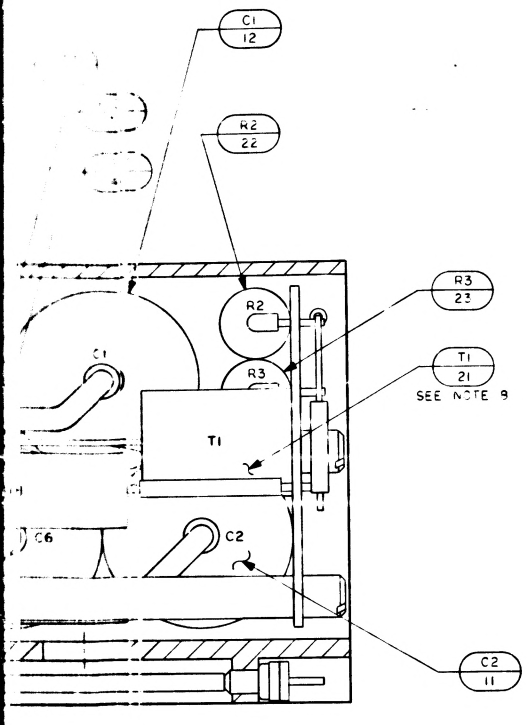
C4
11
R1
R9
R10
R7
R4
C4
C3
R2
R7
SP1
RED T1
T1 BRN
C3
R10
C4
C1
R8
FT2
R6
T1 BLK
T1 GRN
SP3
R5
FT 3
DR3
FT1
C2
C6
C5
C6
C2
SP2
K1
K2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TYPICAL INSULATION FOR ALL RESISTORS
3. TYPICAL INSULATION FOR ALL CAPACITORS
4. WORKMANSHIP REQUIREMENT PER ND 1002069
5. ASSEMBLE FIND NO.13 AND 14 PER ND 1002136
6. SP DENOTES SPACER
7. BOND RESISTORS RELAYS AND CAPACITORS TO FIND NO. 2 AND TO EACH OTHER AS SHOWN. PER ND 1002004, TYPE I
8. BOND FIND NO. 21 TO FIND NO. 3 PER ND 1002004, TYPE I
9. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
10. MARK .100 / .060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
11. MARK .140 / .100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
12. AR DENOTES AS REQUIRED
13. ENCAPSULATE PER ND 1002002 BLACK POLYURETHANE FOAM, REMOVE ALL FLASHING
14. FT DENOTES FEED THRU
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
16. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
~~17. BOND FIND NO. 26 AND FIND NO. 27 TO FIND NO. 14 PER ND 1002237~~
18. WELD PER ND 1002005
19. BOND FIND NO.2 TO FIND NO.1 PER ND 1002004, TYPE I
20 PROCURE PER PS 1007510
~~21 BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTON INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
22. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
23. *CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.*
24. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

1007510	REV. LTR.	SH.
	J	1

SYM	DESCRIPTION	DATE	APPROVAL
REVISIONS 13094			
A	REVISED PER TDRR 15420	[illegible]	
B	REVISED PER TDRR 16626	26 FEB 65	
C	REVISED PER TDRR 17304	2-MAR 65	
D	REVISED PER TDRR 18520	23 APR 65	
E	REVISED PER TDRR 18542	27 APR 65	
F	REVISED PER TDRR 19409	1 JUN 65	
G	REVISED PER TDRR 9483	2-JUN-65	
H	REVISED PER TDRR 20143	[illegible]	
J	REVISED PER TDRR 2295-	[illegible] 65	
K	REVISED PER TDRR 23888	6 NOV 65	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SEE NOTE 9
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R2
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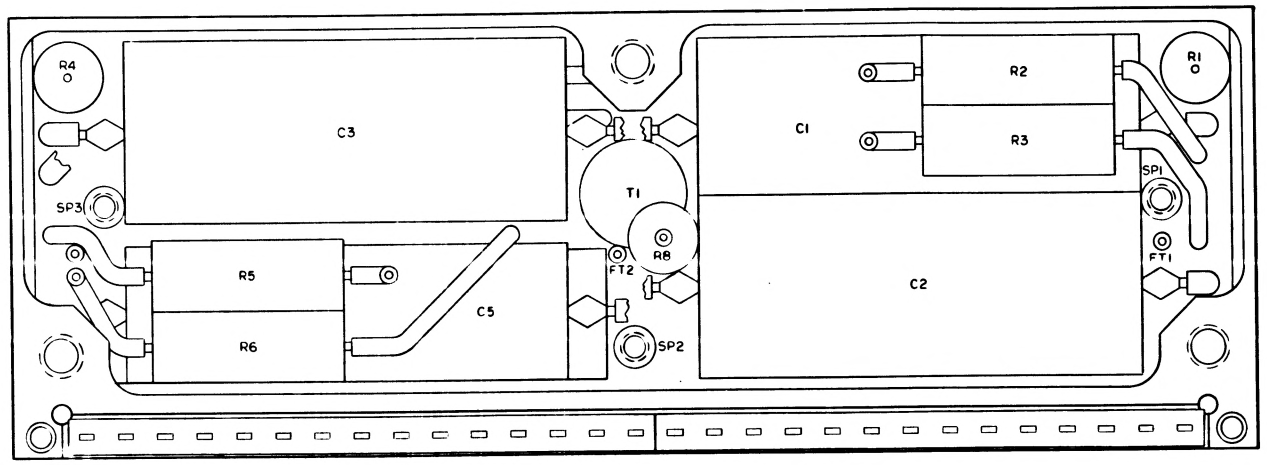
C6
C2
C2
11

SECTION A-A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R2
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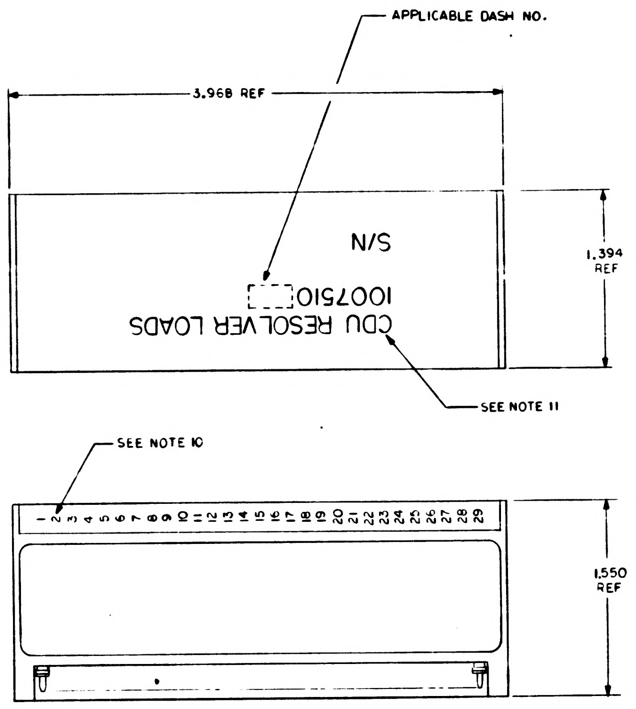
R1
SP1
FT1
C2

SECTION C-C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3.968 REF
S/N
1007510
CDU RESOLVER LOADS
1.394 REF
SEE NOTE 11
SEE NOTE 10
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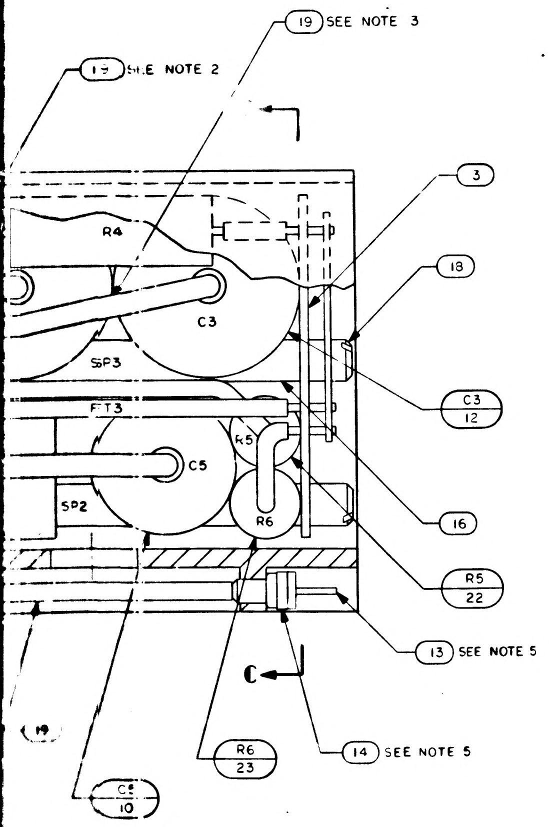
1.550 REF

MARKING DRAWING

SCALE 2/1


19 SEE NOTE 3
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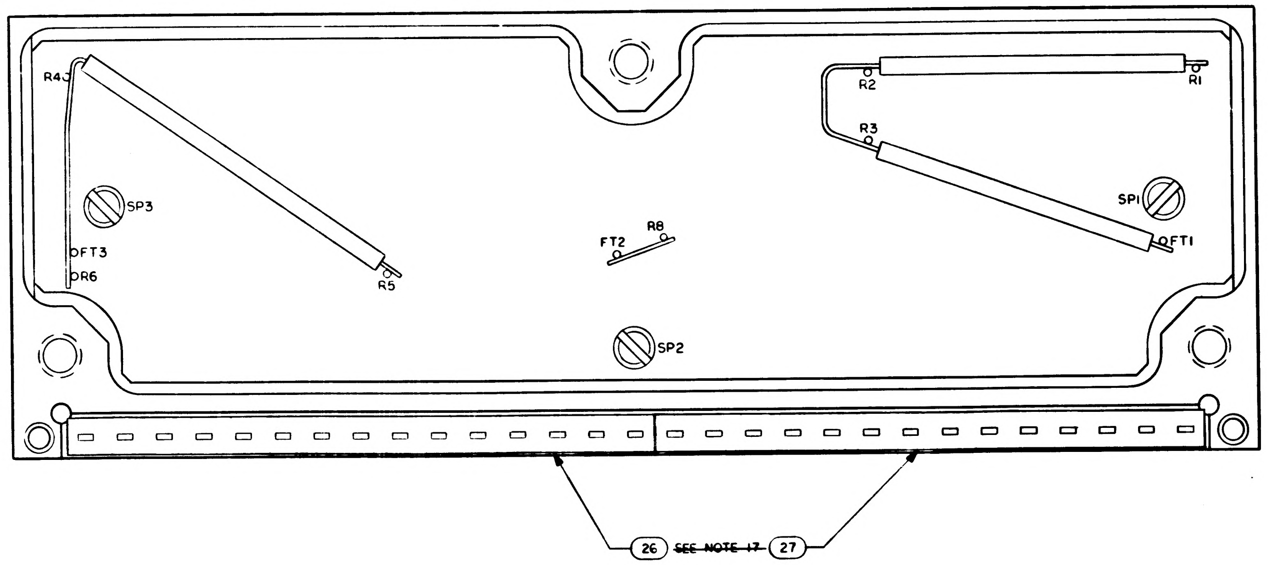
13 SEE NOTE 5
C
R6
23
14 SEE NOTE 5
C5
10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R3
SP3
SP1
FT3
FT1
R6
FT2
R8
R5
SP2
26
~~SEE NOTE 17~~
27

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1010848-2	WIRE, ELECTRICAL-NICKEL	29
☒	1003501	SCHEMATIC	REF
AR	1006776-21	INSULATION SLEEVING ELECTRICAL	28
1	1008540 14	GASKET	27
1	1008540-15	GASKET	26
~~AR~~	~~1006757-8~~	~~.020 DIA WIRE ELECTRICAL~~	25
2	1010790-3	RELAY	24
2	1010363-215	RESISTOR	23
2	1010363-247	RESISTOR	22
1	1010467	TRANSFORMER	21
~~AR~~	~~1006776-22~~	~~INSULATION SLEEVING ELECTRICAL~~	20
AR	1006776-20	INSULATION SLEEVING ELECTRICAL	19
3	1008161-1	SCREW, CAP SLOTTED HEAD	18
3	1008161-2	SCREW, CAP SLOTTED HEAD	17
3	1015135-021	SPACER, NYLON	16
AR	1006757-1	.010 X .020 WIRE ELECTRICAL	15
29	1006775	INSULATOR, WRAPOST MALE MIN	14
29	1006782-5	CONTACT, WRAPOST MALE MIN	13
2	1010316-89	CAPACITOR	12
2	1010316-79	CAPACITOR	11
1	1010316-92	CAPACITOR	10
1	1010316-81	CAPACITOR	9
2	1010363-421	RESISTOR	8
1	1010363-221	RESISTOR	7
1	1010363-265	RESISTOR	6
1	1010363-431	RESISTOR	5
1	1010363-443	RESISTOR	4
1	1008503	WIRING BOARD, BOTTOM	3
1	1008501	WIRING BOARD, TOP	2
1	1006504	FRAME	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN DATE 8-7-64
CHECKED
APPROVAL 22 Sep 64
APPROVAL 9/22/64
NASA APPROVAL 9-28-64
MIT APPROVAL 9-28-64

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

CDU RESOLVER LOADS
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007510
SCALE 5/1
WT
SHEET 1 OF 1

K

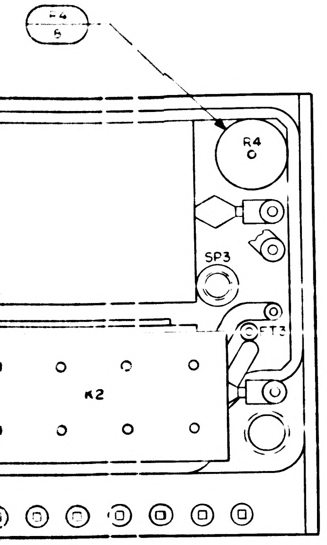
1007510

(3H)

1007510

1007510 REV LTR K SH 1

3/1007510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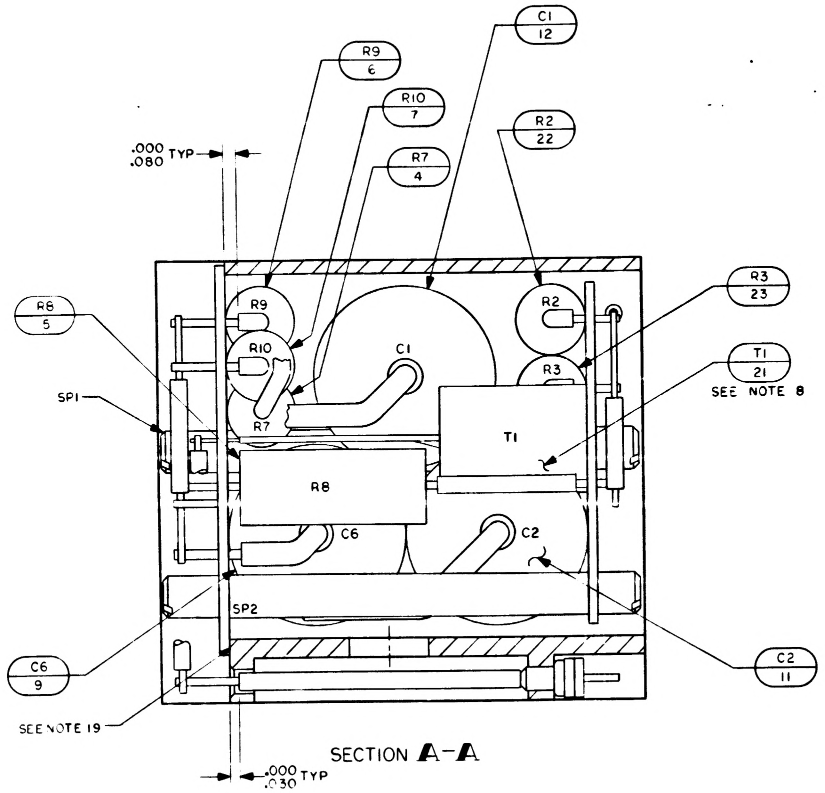
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SEE NOTE 19
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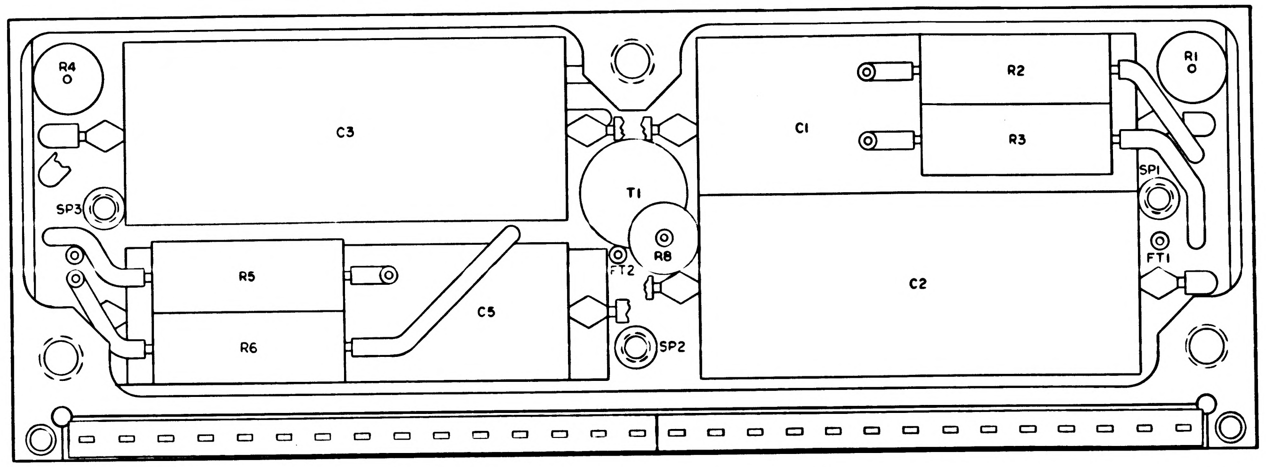
.030 TYP

SECTION **A-A**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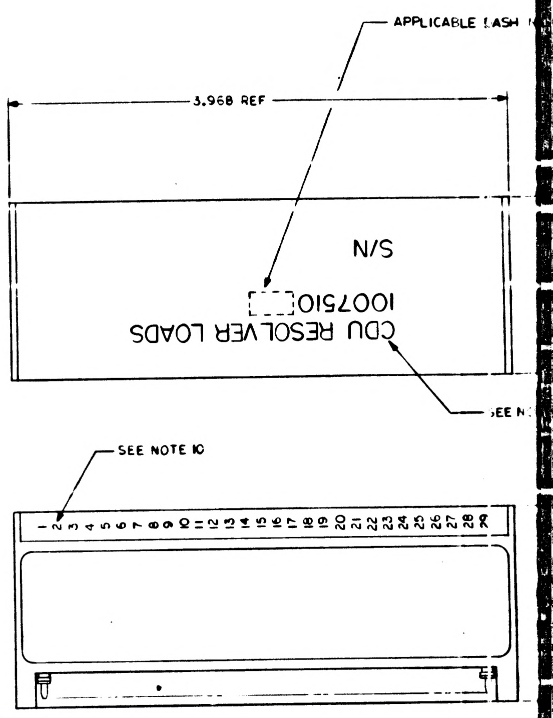
R8
FT2
C5
C2
FT1
R6
SP2

SECTION **C-C**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S/N
1007510
CDU RESOLVER LOADS
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SEE NOTE 10
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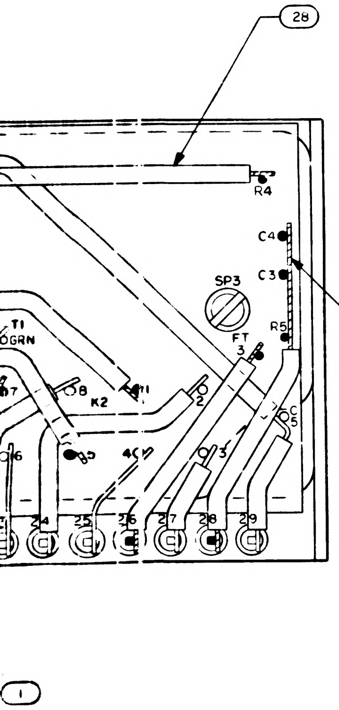
MARKING DRAWING

SCALE 2/1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C3
SP3
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ORGN
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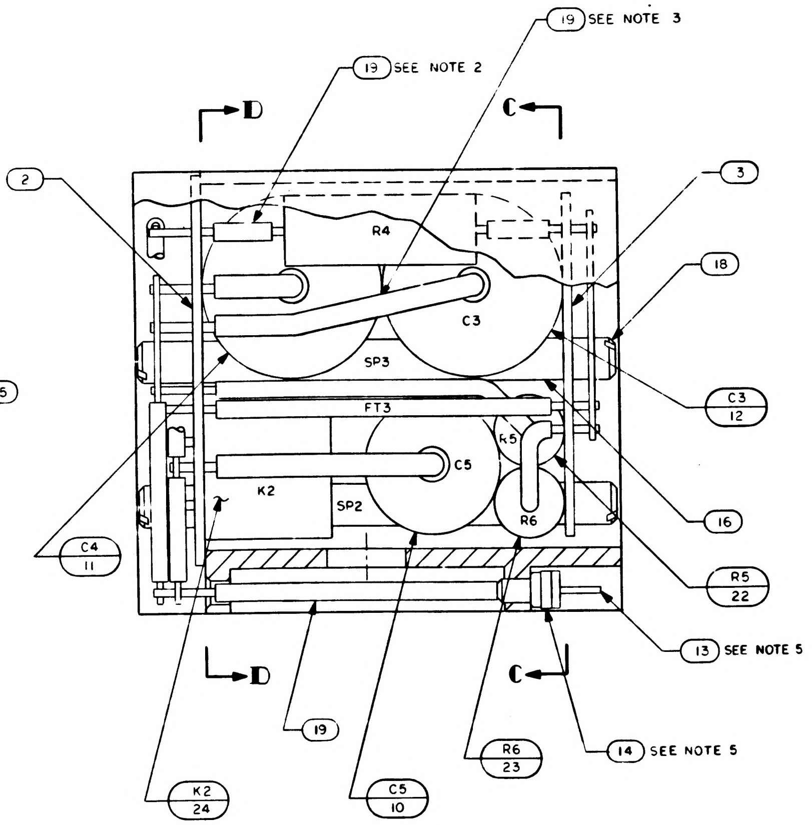
19 SEE NOTE 3
19 SEE NOTE 2
D
C
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3
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C5
K2
SP2
R6
15
C3
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13 SEE NOTE 5
D
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R6
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C5
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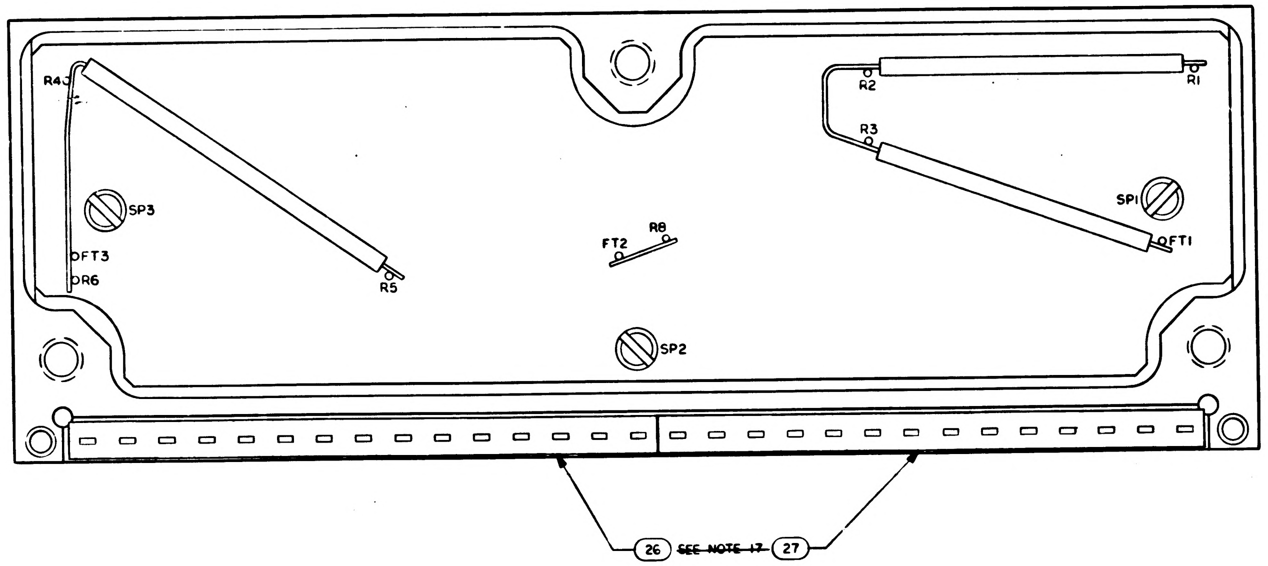
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R2
R1
R3
SP3
SP1
FT2
R8
FT3
R6
R5
FT1
SP2
26
SEE NOTE 17
27

AR	101084
	1009501
AR	100677
1	1008540
1	1008540
~~AR~~	~~100675~~
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2	101036
2	101036
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~~AR~~	~~100677~~
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1	10085
1	100850
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QTY RECO	
011	

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± ___ DECIMALS ± ___ ANGLES ± ___
DO NOT SCALE THIS DRAWING

MATERIAL ___

HEAT TREATMENT ___

FINAL FINISH ___

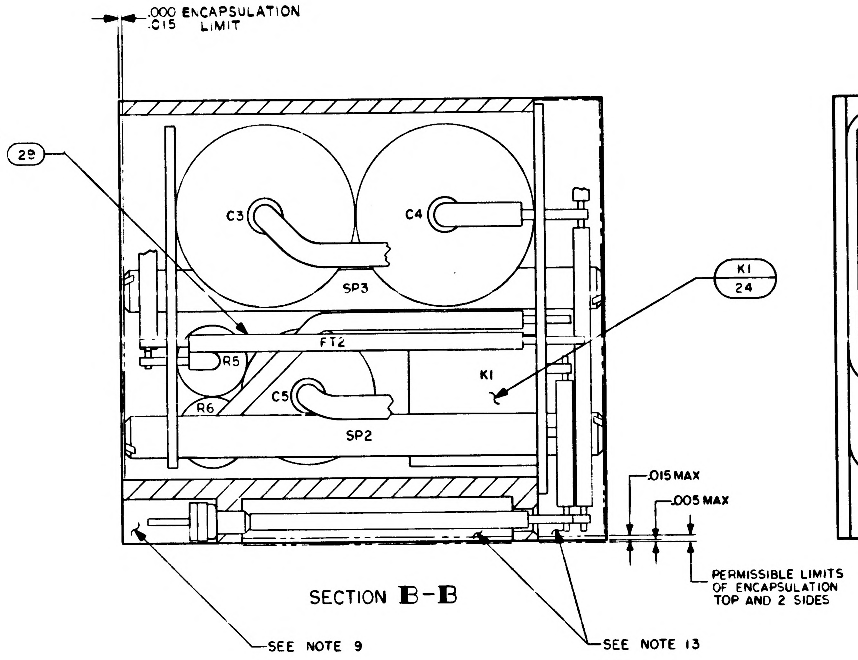
M I T
INSTRUMENT
CAMBRIDGE

DWG. NO.

DRAWN Wang
CHECKED
APPROVA
APPROVA
NASA APPROVAL
MIT APPROVAL

1007510	REV LTR K	SH 1

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO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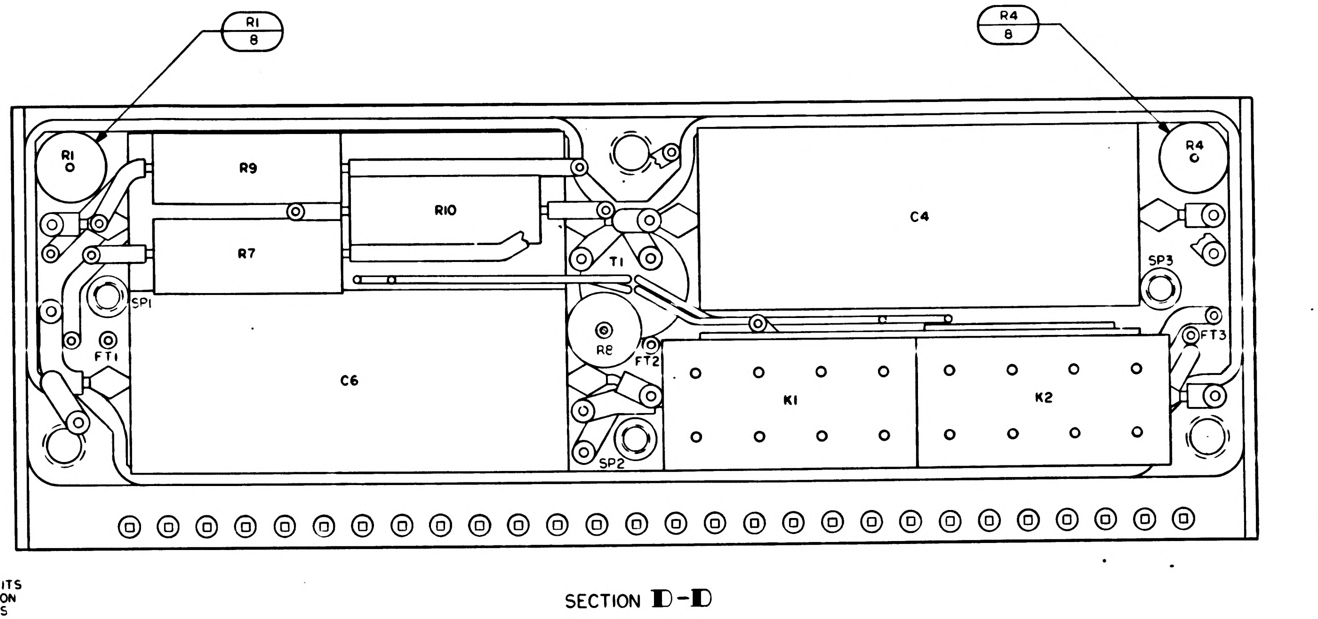
.015 LIMIT
TYP FT
29
C3
C4
SP3
K1
24
R5
FT2
C5
K1
R6
SP2
.015 MAX
.005 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND 2 SIDES
SEE NOTE 9
SEE NOTE 13

SECTION B-B


R1
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R4
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R1
R9
R10
C4
R4
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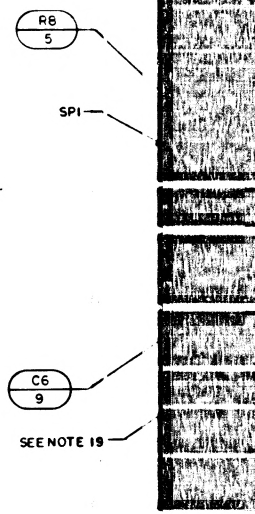
T1
SP3
SP1
FT1
C6
R8
FT2
K1
K2
FT3
SP2

SECTION D-D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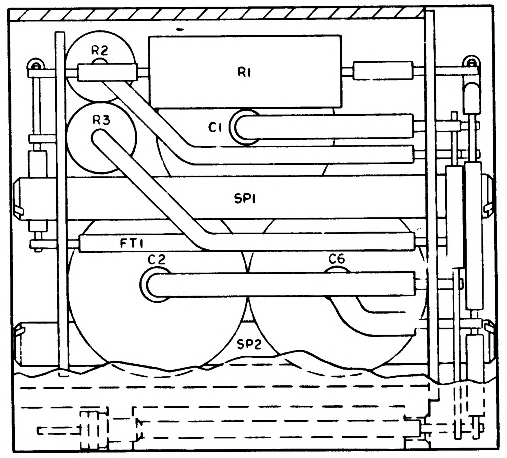
SP1
C6
9
SEE NOTE 19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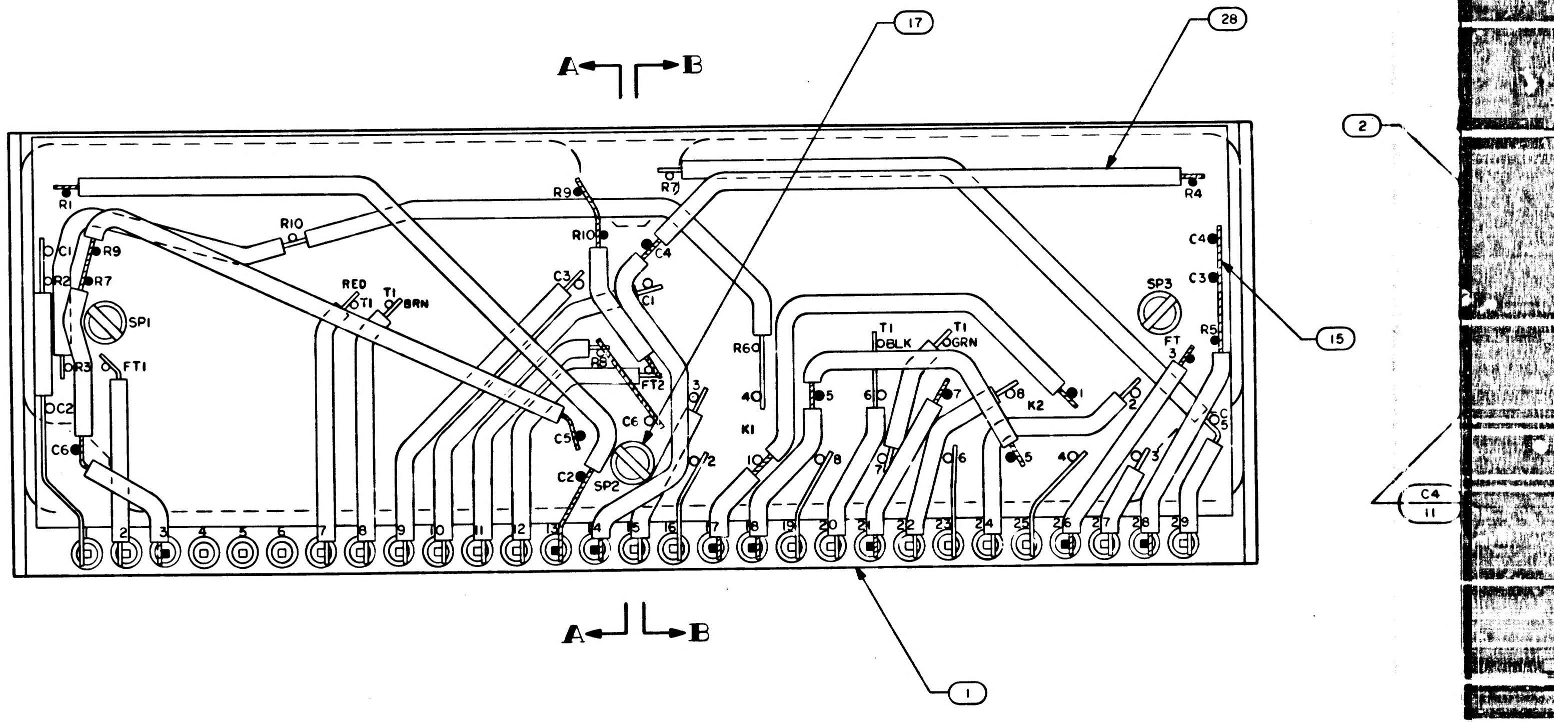
SP2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R1
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C1
R9
C3
C4
C3
DR2
R7
RED
T1
T1
BRN
SP3
SP1
R3
FT1
R6
R8
FT2
T1
BLK
T1
GRN
R5
FT 3
C2
C6
C5
C6
SP2
C2
K1
K2
C5
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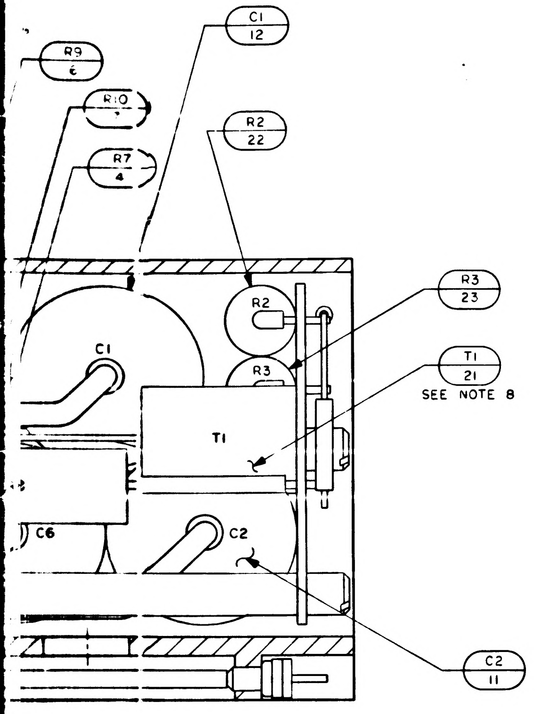
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TYPICAL INSULATION FOR ALL RESISTORS
3. TYPICAL INSULATION FOR ALL CAPACITORS
4. WORKMANSHIP REQUIREMENT PER ND 1002069
5. ASSEMBLE FIND NO.13 AND 14 PER ND 1002136
6. SP DENOTES SPACER
7. BOND RESISTORS RELAYS AND CAPACITORS TO FIND NO.2 AND TO EACH OTHER AS SHOWN, PER ND 1002004, TYPE I
8. BOND FIND NO.21 TO FIND NO. 3 PER ND 1002004, TYPE I
9. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
10. MARK .100/.060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
11. MARK .140/.100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
12. AR DENOTES AS REQUIRED
13. ENCAPSULATE PER ND 1002002 BLACK POLYURETHANE FOAM, REMOVE ALL FLASHING
14. FT DENOTES FEED THRU
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
16. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
17. ~~BOND FIND NO.26 AND FIND NO.27 TO FIND NO.14 PER ND 1002237~~
18. WELD PER ND 1002005
19. BOND FIND NO.2 TO FIND NO.1 PER ND 1002004, TYPE I
20. PROCURE PER PS 1007510
21. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I~~
22. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
23. *CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.*
24. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

	REV. LTR.	SH.
1007510	K	1

1/1007510

REVISIONS 13094			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 15420	[illegible]	
B	REVISED PER TDRR 16626	26 FEB 65	
C	REVISED PER TDRR 17304	2-MAR 65	
D	REVISED PER TDRR 18520	23 APR 65	
E	REVISED PER TDRR 18542	29 APR 65	
F	REVISED PER TDRR 19409	1 JUN 65	
G	REVISED PER TDRR 9483	2-JUN-65	
H	REVISED PER TDRR 20143	[illegible] 65	
J	REVISED PER TDRR 22954	[illegible] 65	
K	REVISED PER TDRR 23888	6 NOV 65	
L	REVISED PER TDRR 25538	31 JAN 66	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R10
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C1
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T1
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SEE NOTE 8
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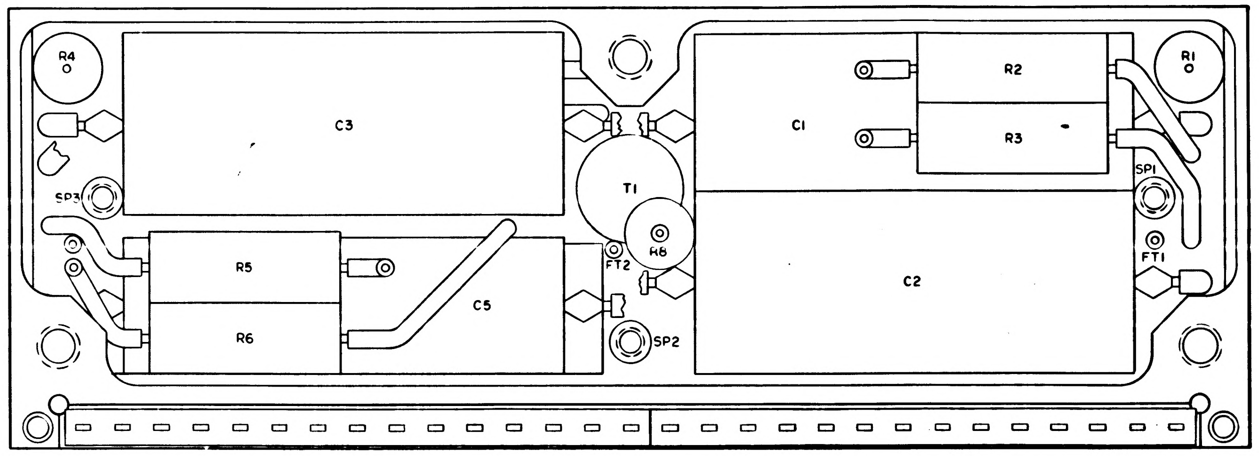
C2
C2
11

SECTION A-A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C3
C1
R2
R3
R1
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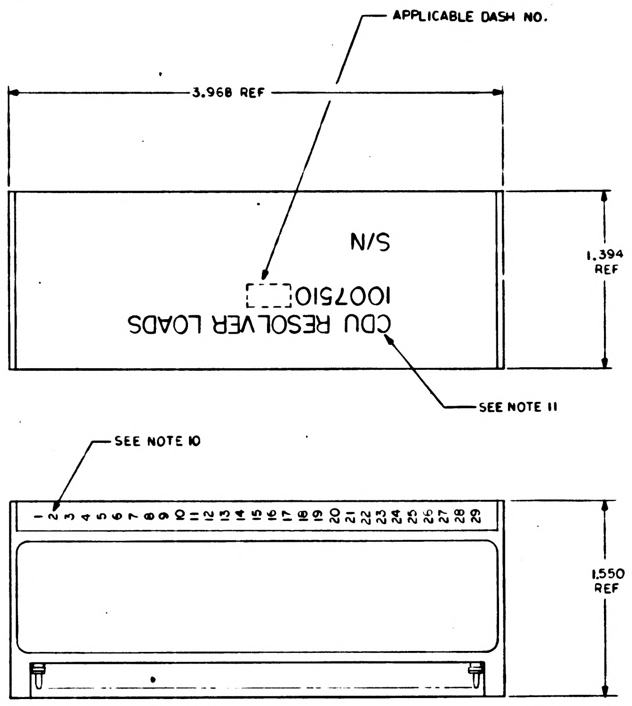
SP1
FT1
FT2
R5
R6
C5
C2
SP2

SECTION C-C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S/N
1007510
CDU RESOLVER LOADS
1.394 REF
SEE NOTE 11
SEE NOTE 10
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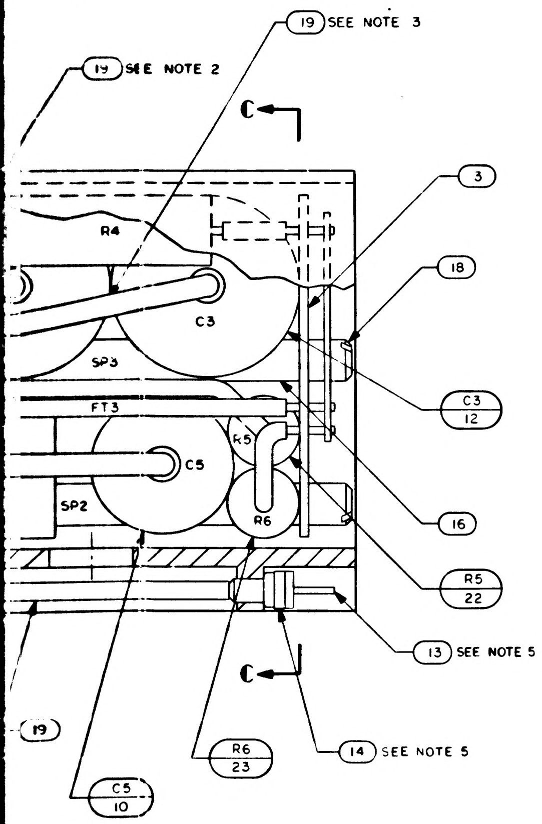
1.550 REF

MARKING DRAWING

SCALE 2/1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R4
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SP3
FT3
C5
R5
SP2
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C3
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R5
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13 SEE NOTE 5
C
14 SEE NOTE 5
19
R6
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C5
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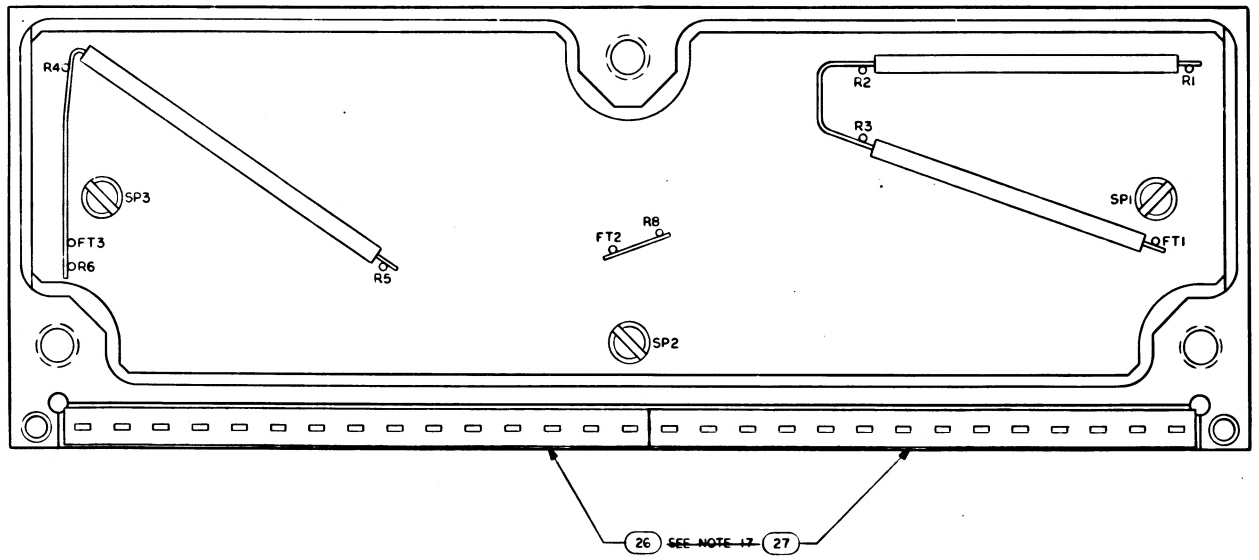
R4
R2
R1
R3
SP3
SP1
FT3
R6
FT2
R8
FT1
R5
SP2
26 SEE NOTE 17 27

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLAURE OR DESCRIPTION	FIND NO.
AR	1010848-2	WIRE, ELECTRICAL-NICKEL	29
☒	1009501	SCHEMATIC	REF
AR	1006776-21	INSULATION SLEEVING ELECTRICAL	28
1	1008540 14	GASKET	27
1	1008540-15	GASKET	26
~~AR~~	~~1006757-8~~	~~.020 DIA WIRE ELECTRICAL~~	25
2	1010790-3	RELAY	24
2	1010363-215	RESISTOR	23
2	1010363-247	RESISTOR	22
1	1010467	TRANSFORMER	21
~~AR~~	~~1006776-22~~	~~INSULATION SLEEVING ELECTRICAL~~	20
AR	1006776-20	INSULATION SLEEVING ELECTRICAL	19
3	1008161-1	SCREW,CAP SLOTTED HEAD	18
3	1008161-2	SCREW,CAP SLOTTED HEAD	17
3	1015135-021	SPACER, NYLON	16
AR	1006757-1	.010 X .020 WIRE ELECTRICAL	15
29	1006775	INSULATOR,WRAPOST MALE MIN	14
29	1006782-5	CONTACT,WRAPOST MALE MIN	13
2	1010316-89	CAPACITOR	12
2	1010316-79	CAPACITOR	11
1	1010316-92	CAPACITOR	10
1	1010316-81	CAPACITOR	9
2	1010363-421	RESISTOR	8
1	1010363-221	RESISTOR	7
1	1010363-265	RESISTOR	6
1	1010363-431	RESISTOR	5
1	1010363-443	RESISTOR	4
1	1008503	WIRING BOARD, BOTTOM	3
1	1008501	WIRING BOARD, TOP	2
1	1008504	FRAME	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 8-7-64
CHECKED
APPROVAL
APPROVAL 9/23/64
NASA APPROVAL 9-28-64
MIT APPROVAL 9/28/64

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

CDU RESOLVER LOADS ASSEMBLY

CODE IDENT NO. 80230
SIZE J
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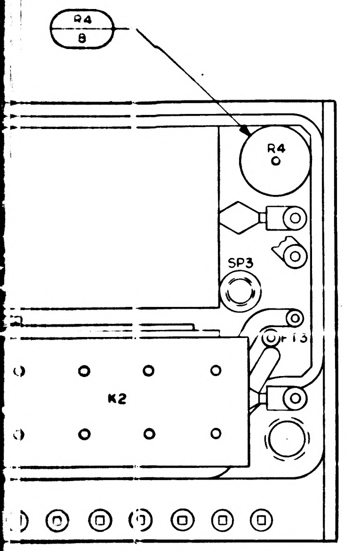
WT
SHEET 1 OF 1

1007510 REV LTR L SH 1

3/1007510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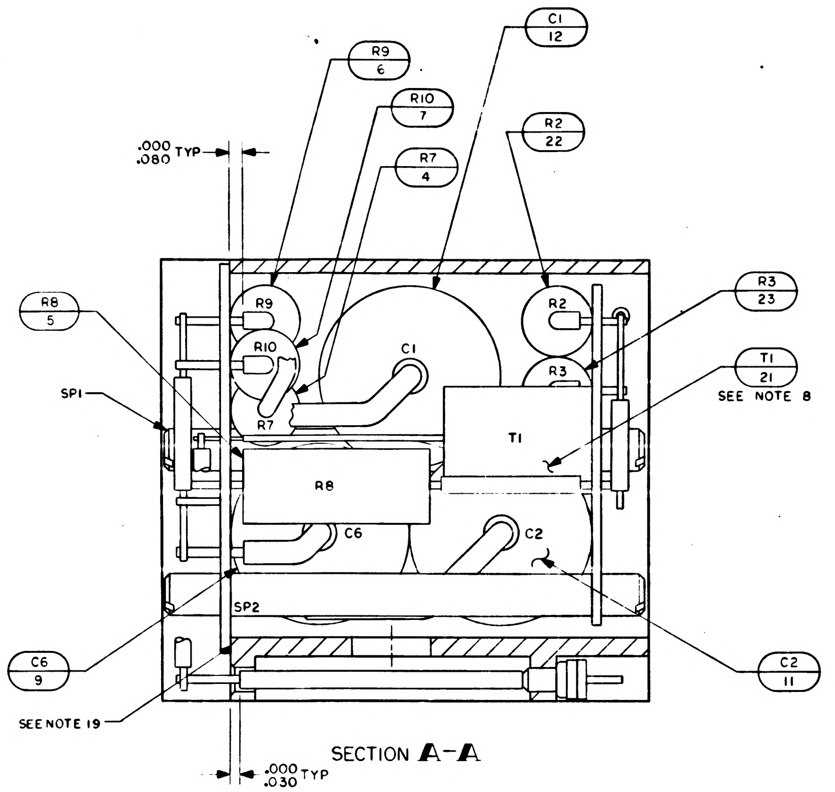
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T1
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SEE NOTE 8
R9
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C1
R2
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SEE NOTE 19
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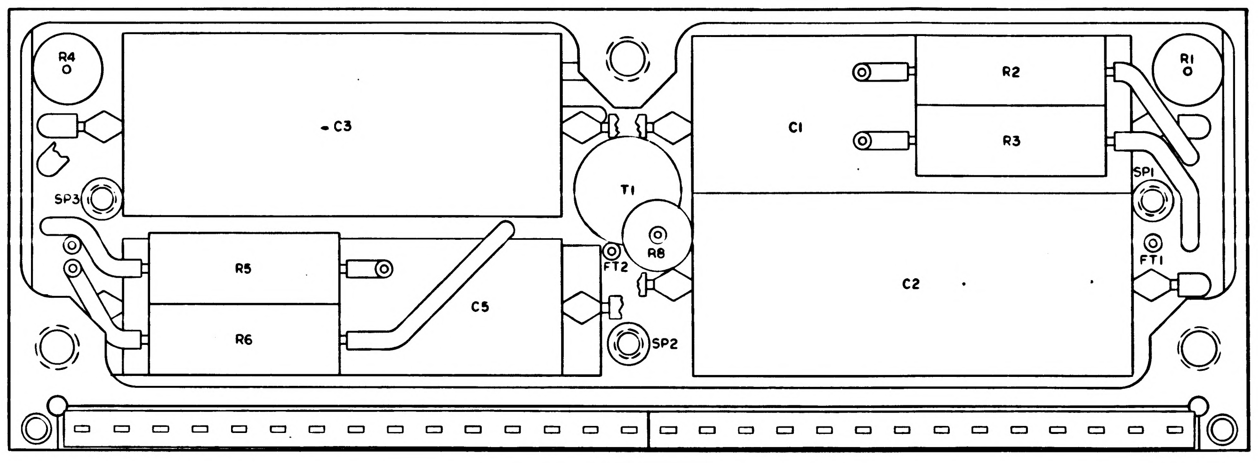
SECTION **A-A**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R6
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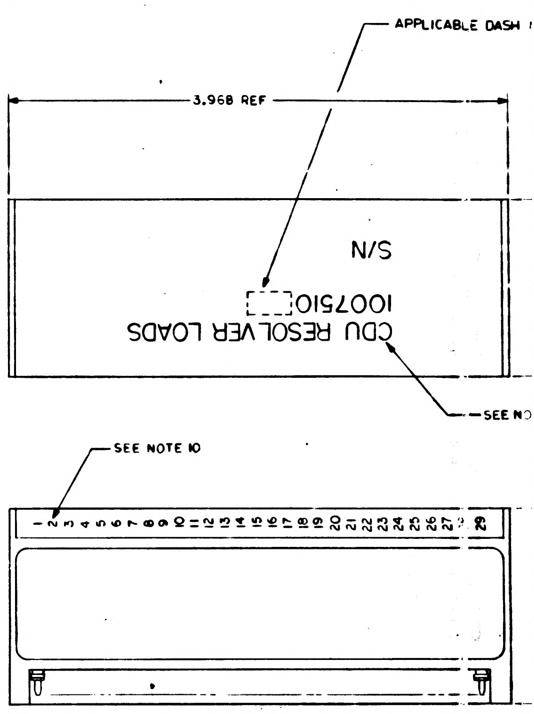
FT2
SP2
C2

SECTION **C-C**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N/S
1007510-
CDU RESOLVER LOADS
SEE NO
SEE NOTE 10
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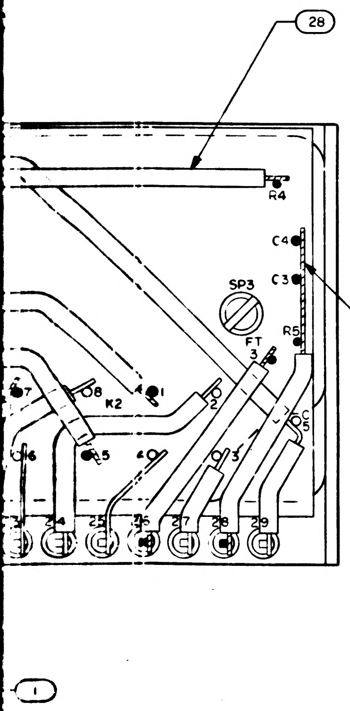
MARKING DRAWING

SCALE 2/1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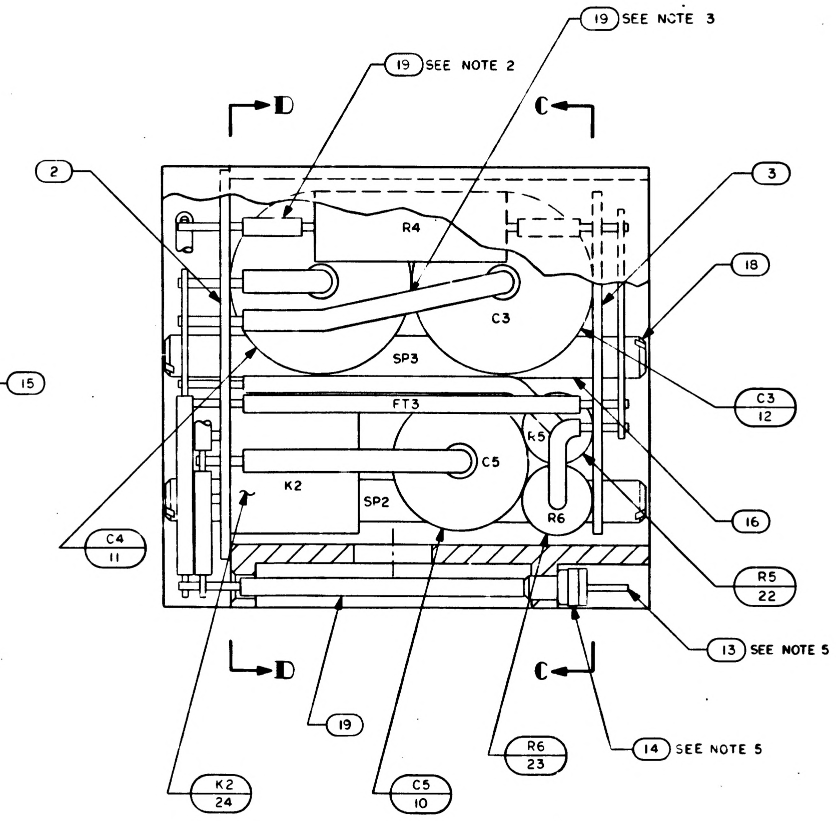
19 SEE NOTE 3
19 SEE NOTE 2
D
C
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18
C3
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K2
SP2
R6
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13 SEE NOTE 5
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14 SEE NOTE 5
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C5
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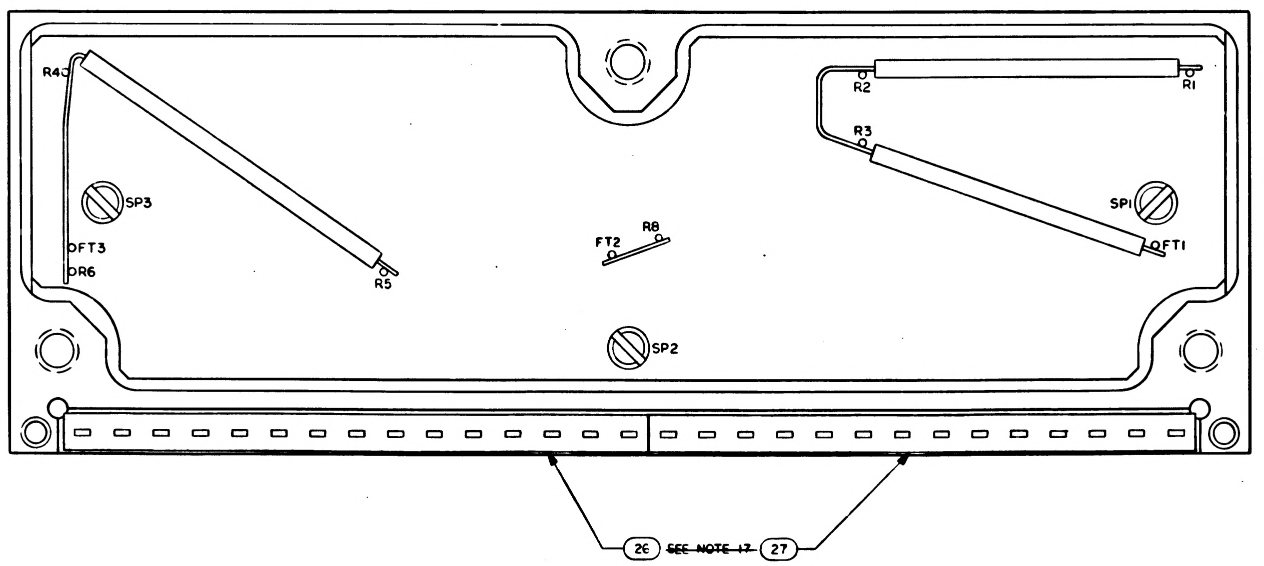
R4
R2
R1
R3
SP3
SP1
FT3
R6
FT1
FT2
R8
R5
SP2
26 SEE NOTE 17 27

AR	1010848-
☒	1009501
AR	1006776-
1	1008540
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~~AR~~	~~1006757-~~
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~~AR~~	~~1006776-~~
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1	1008501
1	1008504
QTY REQD	IDE
-011	

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ± DO NOT SCALE THIS DRAWING
		MATERIAL
		HEAT TREATMENT
NEXT ASSY	USED ON	FINAL FINISH
APPLICATION		

MIT
INSTRUMENTAT
CAMBRIDGE

DRAWN
CHECKED
APPROVED
APPROVED
NASA APPROVAL
MIT APPROVAL

1007510	REV LTR L	SH 1

27-1-0-0-7-5-1-0

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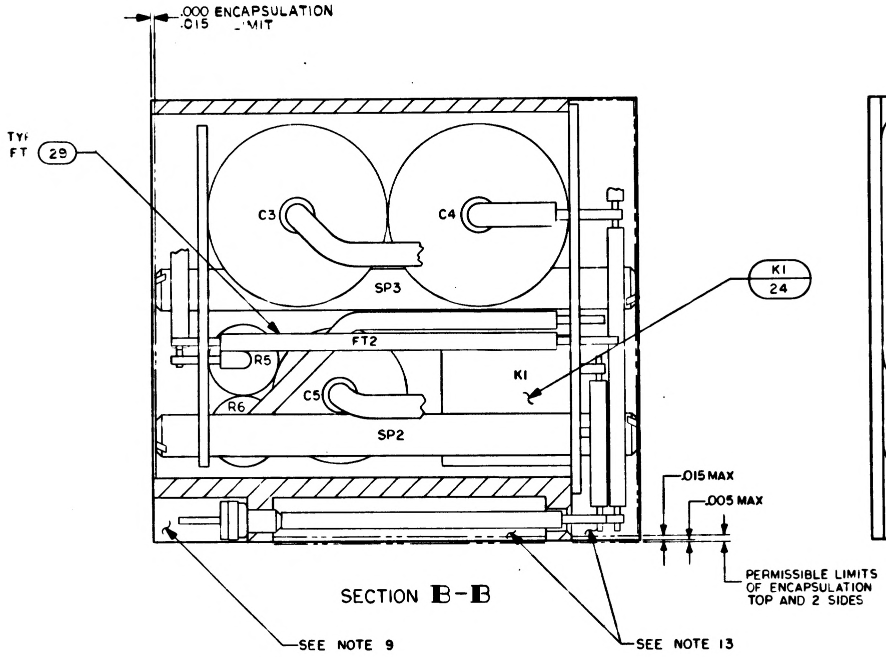
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.015 LIMIT
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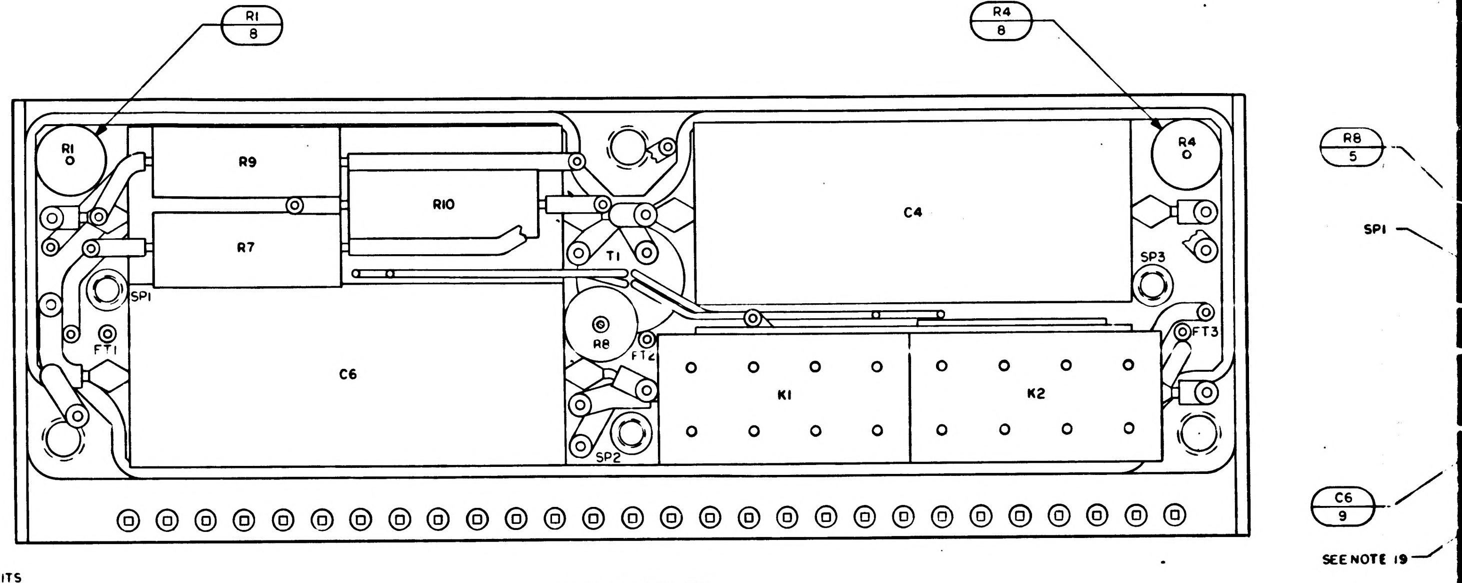
C3
C4
SP3
FT2
R5
K1
C5
R6
SP2
.015 MAX
.005 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND 2 SIDES
SEE NOTE 9
SEE NOTE 13

SECTION B-B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R4
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R8
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SP1
C6
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SEE NOTE 19
R1
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C4
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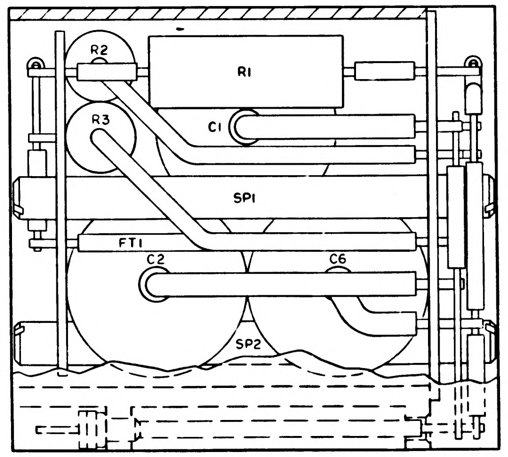
SP3
R4
SP1
FT1
C6
R8
FT4
FT3
K1
K2
SP2

SECTION D-D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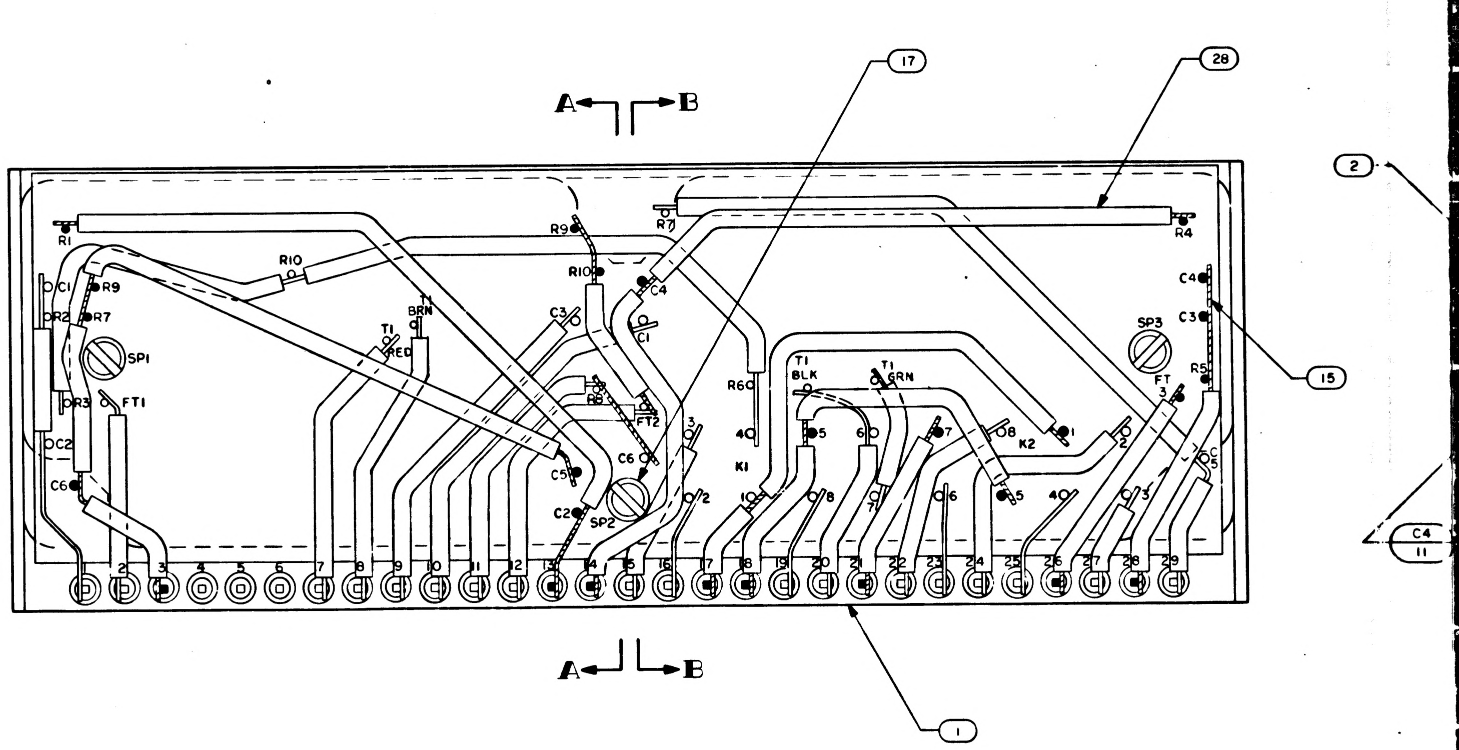
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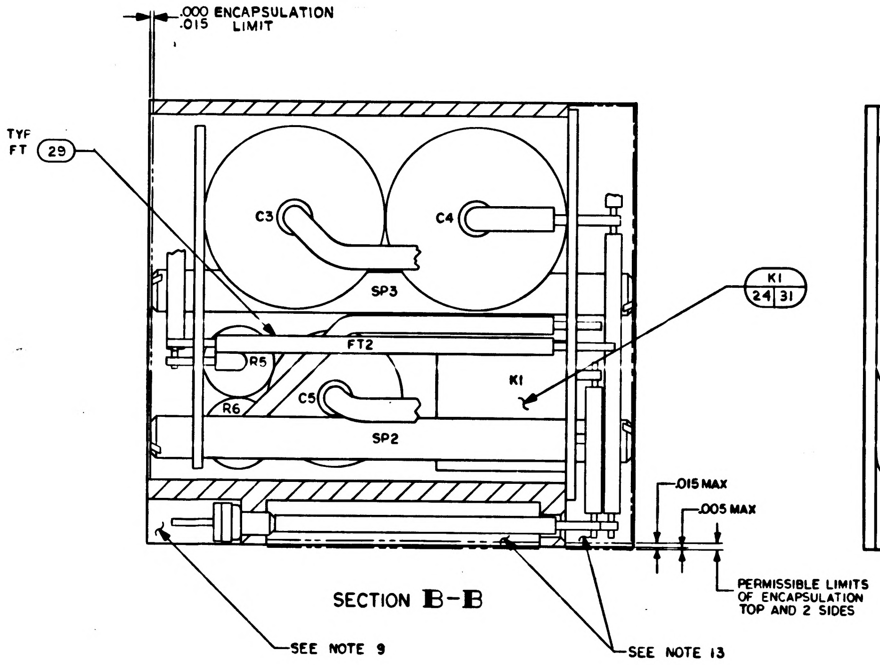
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TYPICAL INSULATION FOR ALL RESISTORS
3. TYPICAL INSULATION FOR ALL CAPACITORS
4. WORKMANSHIP REQUIREMENT PER ND 1002069
5. ASSEMBLE FIND NO.13 AND 14 PER ND 1002136
6. SP DENOTES SPACER
7. BOND RESISTORS RELAYS AND CAPACITORS TO FIND NO. 2 AND TO EACH OTHER AS SHOWN, PER ND 1002004, TYPE I
8. BOND FIND NO. 21 TO FIND NO. 3 PER ND 1002004, TYPE I
9. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
10. MARK .100/.060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
11. MARK .140/.100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
12. AR DENOTES AS REQUIRED
13. ENCAPSULATE PER ND 1002002 BLACK POLYURETHANE FOAM, REMOVE ALL FLASHING
14. FT DENOTES FEED THRU
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
16. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
~~17. BOND FIND NO. 26 AND FIND NO. 27 TO FIND NO. 14 PER ND 1002237~~
18. WELD PER ND 1002005
19. BOND FIND NO. 2 TO FIND NO. 1 PER ND 1002004, TYPE I
20. PROCURE PER PS 1007510
~~21. BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I~~
22. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
23. *CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.*
24. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

1007510	REV. LTR.	SH.
	L	1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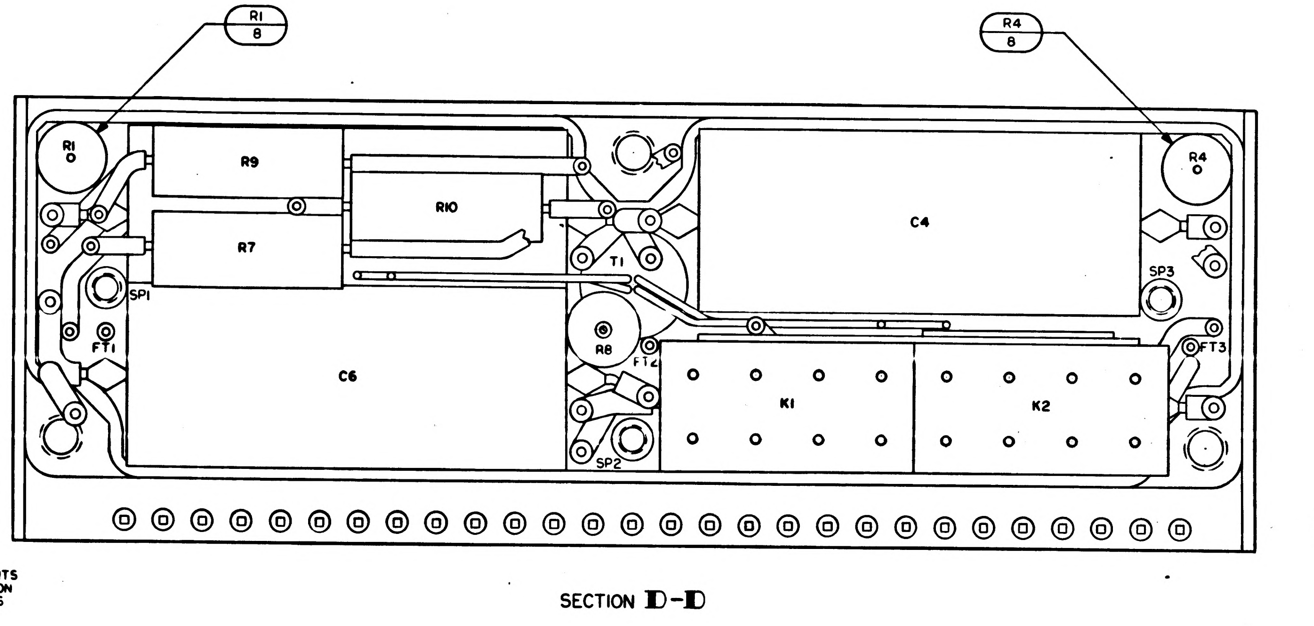
C4
SP3
FT2
K1 24 31
R5
R6
C5
K1
SP2
.015 MAX
.005 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND 2 SIDES
SEE NOTE 9
SEE NOTE 13

SECTION B-B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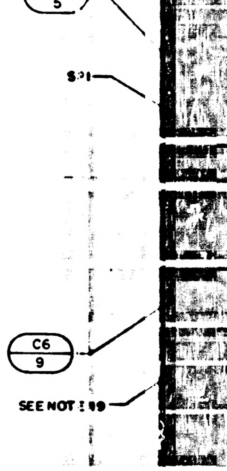
K1
K2
FT3
SP2

SECTION D-D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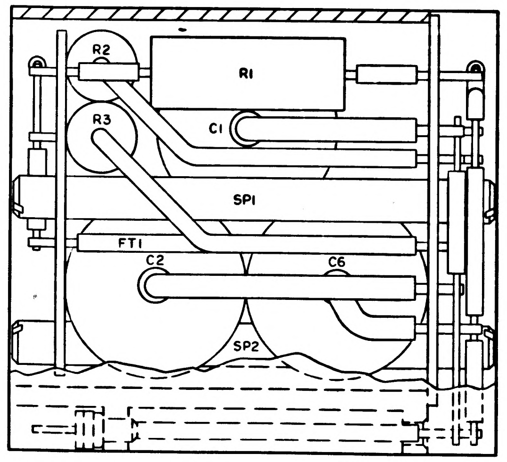
SEE NOTE 19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FT1
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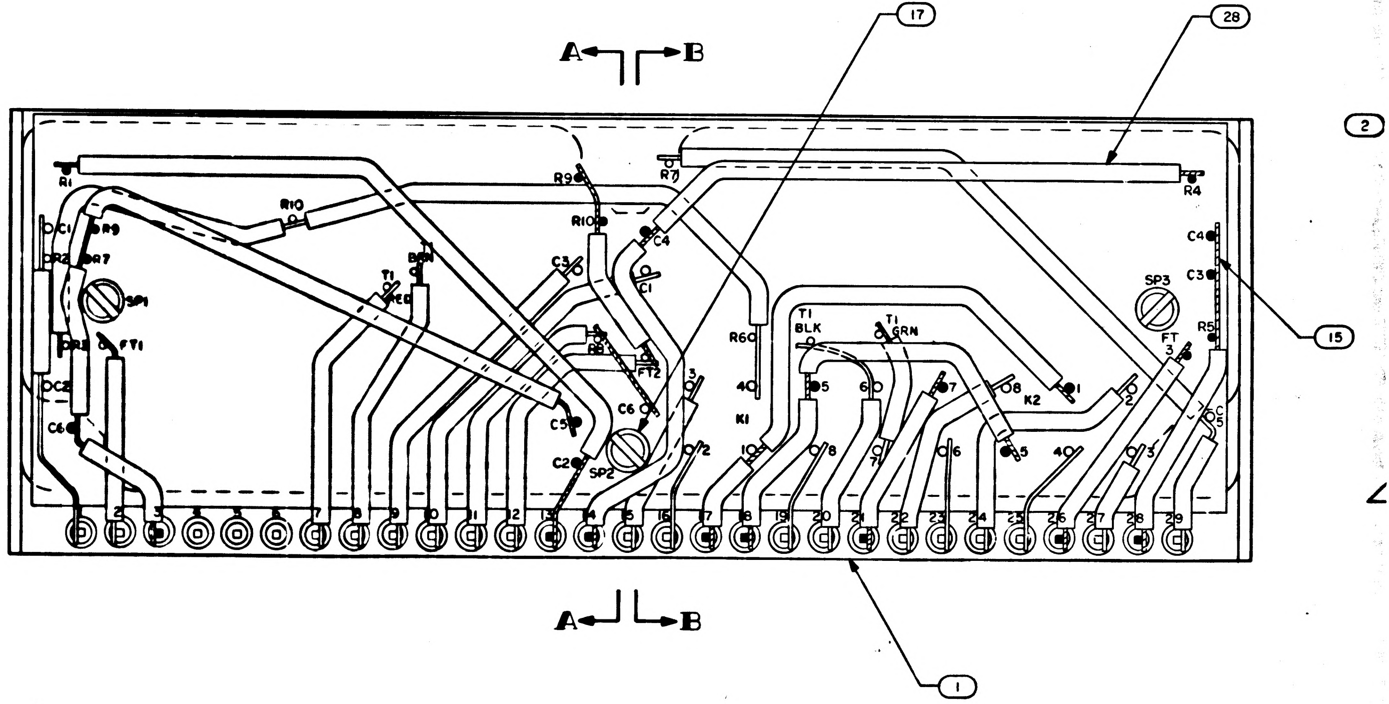
SP2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R7
R4
CR1
CR2
CR7
SP1
FT1
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C3
C4
C1
C5
C6
C2
SP2
FT2
R60
T1 BLK
T1 GRN
K1
K2
SP3
R5
C4
C3
FT3
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A
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NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TYPICAL INSULATION FOR ALL RESISTORS
3. TYPICAL INSULATION FOR ALL CAPACITORS
4. WORKMANSHIP REQUIREMENT PER ND 1002069
5. ASSEMBLE FIND NO.13 AND 14 PER ND 1002136
6. SP DENOTES SPACER
7. BOND RESISTORS RELAYS AND CAPACITORS TO FIND NO.2 AND TO EACH OTHER AS SHOWN. PER ND 1002004, TYPE I
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10. MARK .100/.060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
11. MARK .140/.100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
12. AR DENOTES AS REQUIRED
13. ENCAPSULATE PER ND 1002002 BLACK POLYURETHANE FOAM. REMOVE ALL FLASHING
14. FT DENOTES FEED THRU
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
16. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
17. ~~BOND FIND NO.26 AND FIND NO.27 TO FIND NO.14 PER ND 1002237~~
18. WELD PER ND 1002005
19. BOND FIND NO.2 TO FIND NO.1 PER ND 1002004, TYPE I
20. PROCURE PER PS 1007510
21. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
22. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
23. *CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.*
24. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
25. MOISTUREPROOF PER ND 1002292 AS REQUIRED BY FIND NO. (30) USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD 1008867 AFTER PAINTING AND STENCILLING.

1007510	REV. LTR.	SH.
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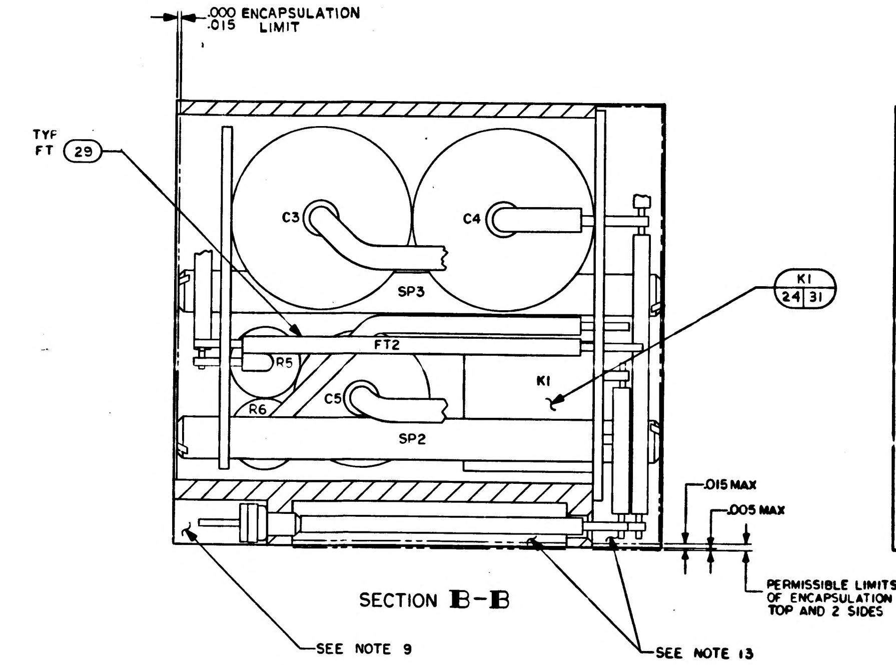
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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C4
SP3
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R5
R6
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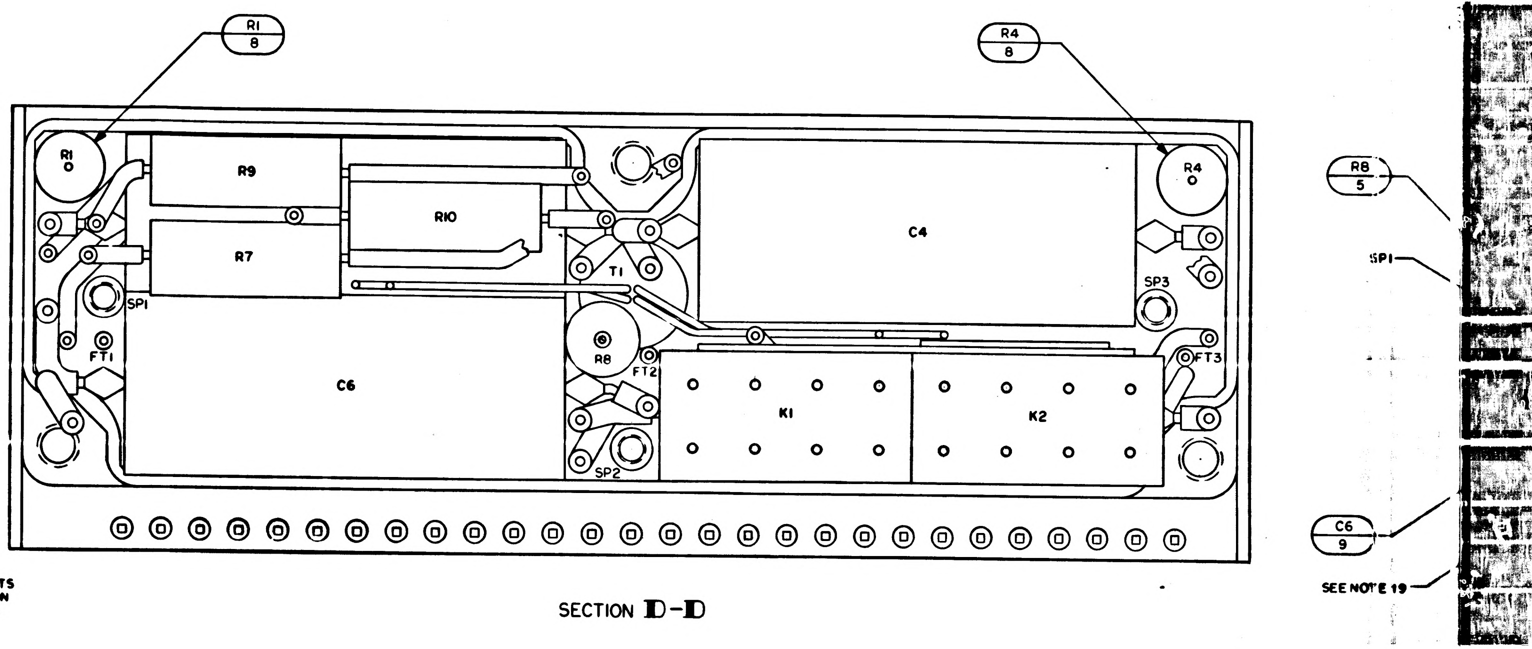
SP2
.015 MAX
.005 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND 2 SIDES
SEE NOTE 9
SEE NOTE 13

SECTION B-B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FT2
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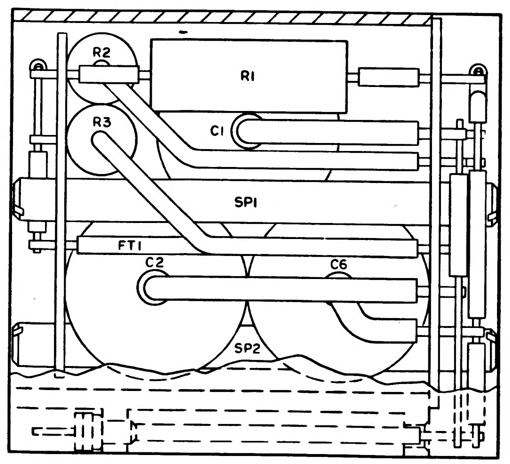
SP2
C6 9
SEE NOTE 19

SECTION D-D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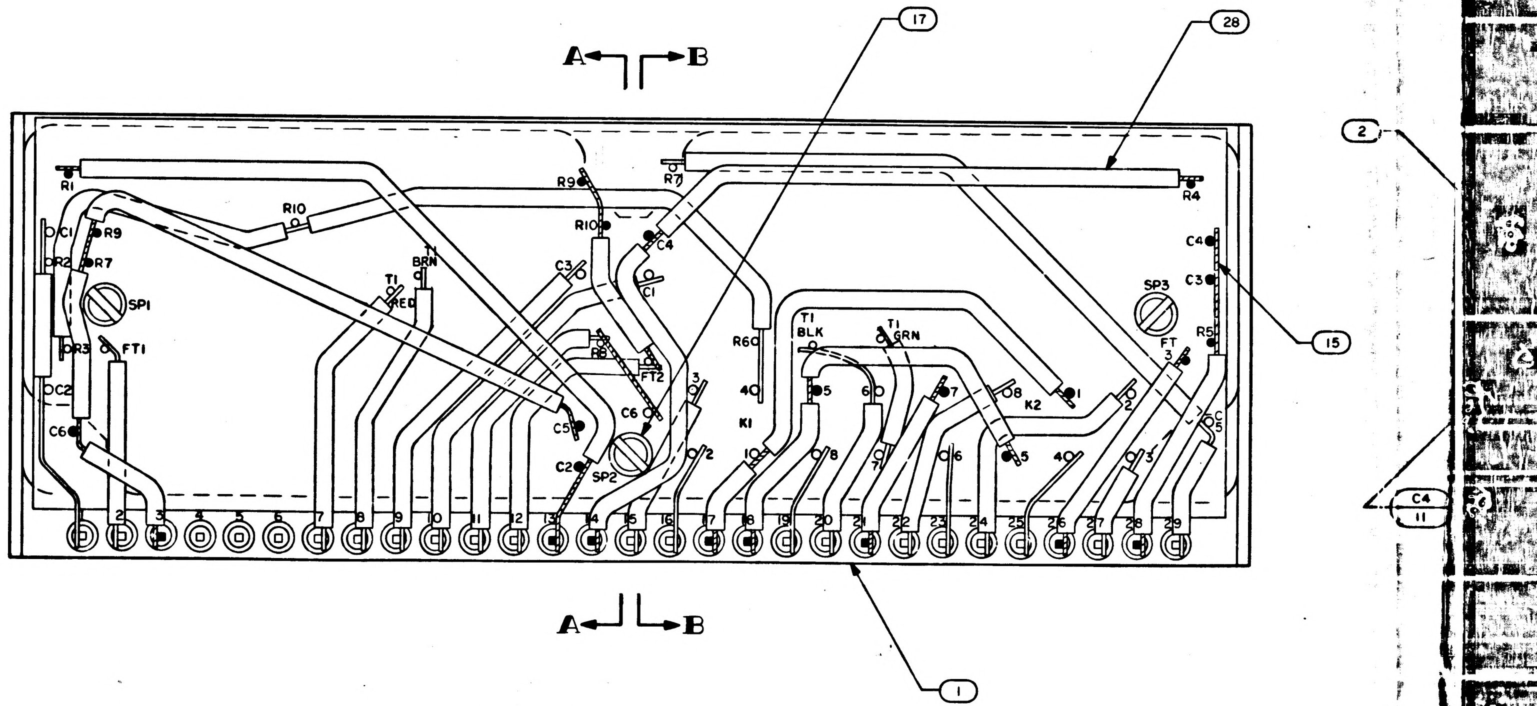
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T1 RED
T1 BLK
T1 BRN
R6
K1
K2
FT1
FT2
FT3
C5
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SP2
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C4 11
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NOTES:

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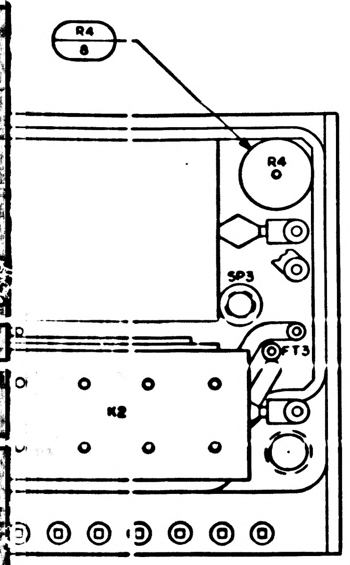
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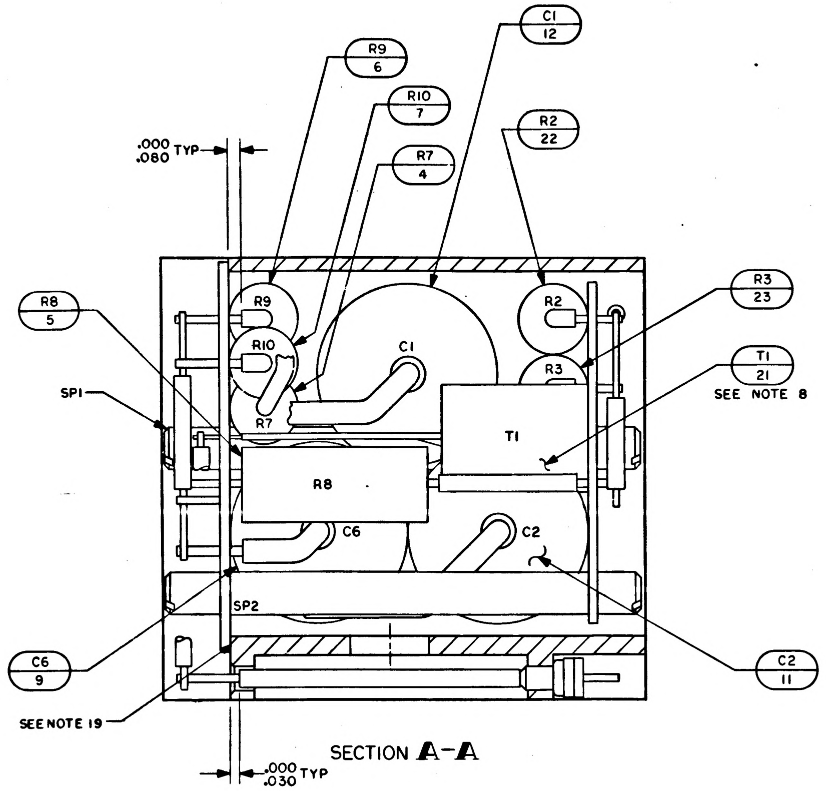
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SEE NOTE 8
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SP1
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C1
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SEE NOTE 19
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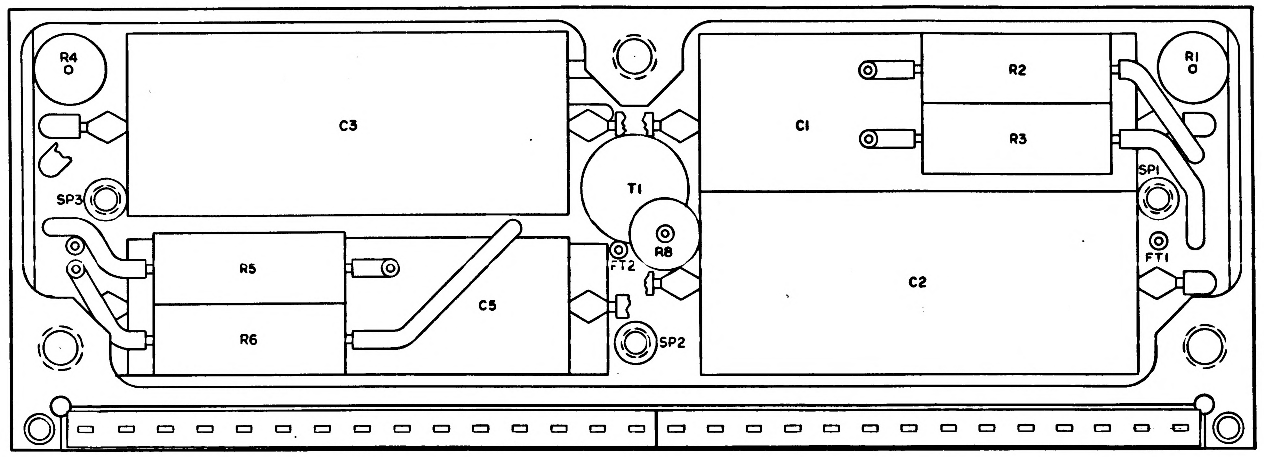
SECTION **A-A**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R2
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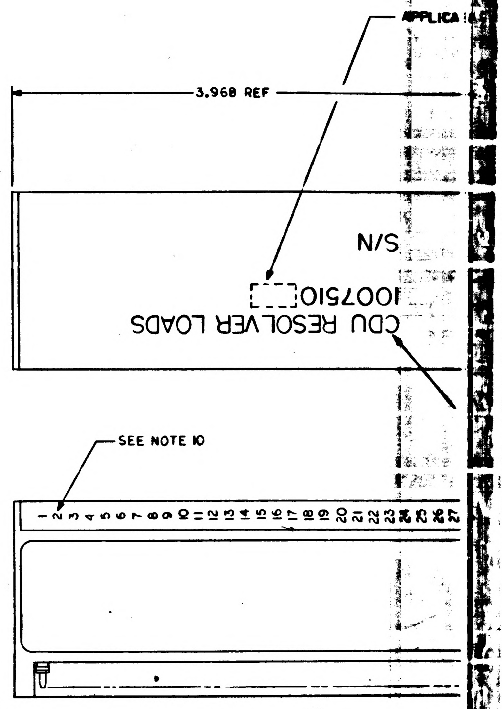
SP2
C2

SECTION **C-C**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S/N
1007510
CDU RESOLVER LOADS
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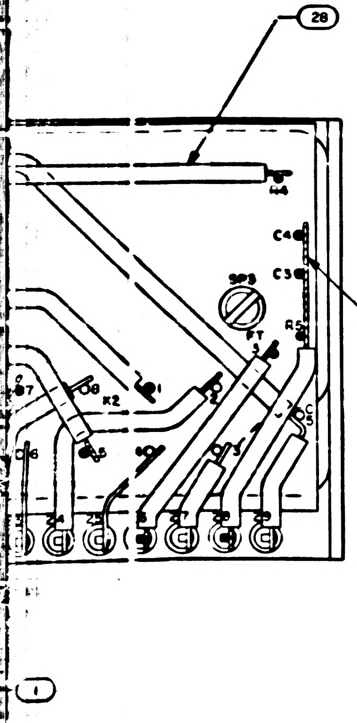
MARKING DRAWING

SCALE 2/1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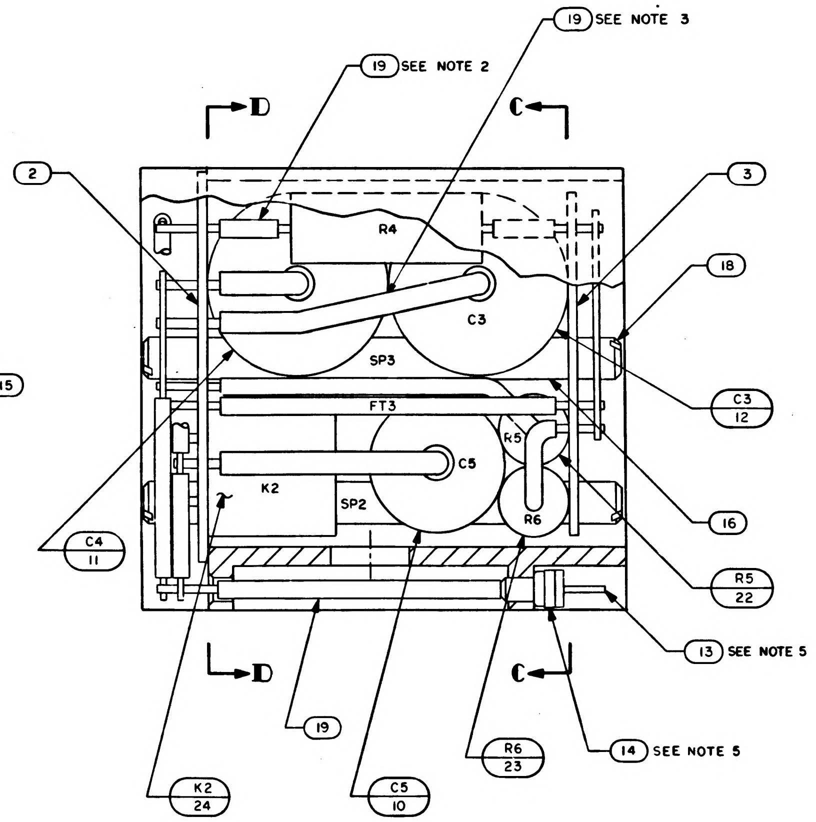
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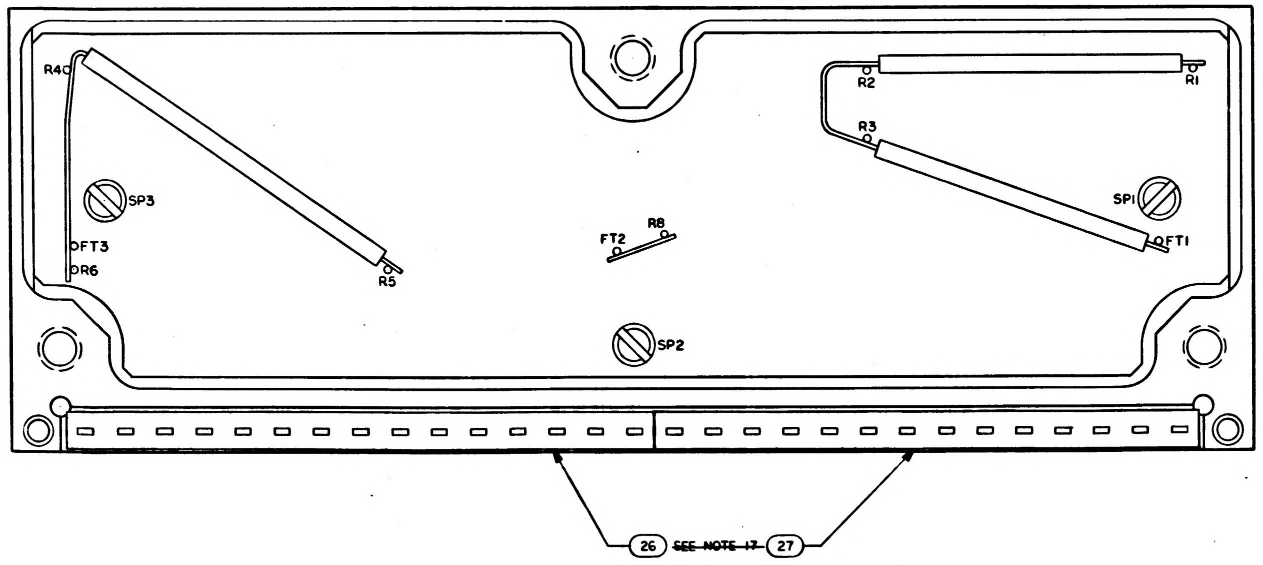
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26 SEE NOTE 17 27

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NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
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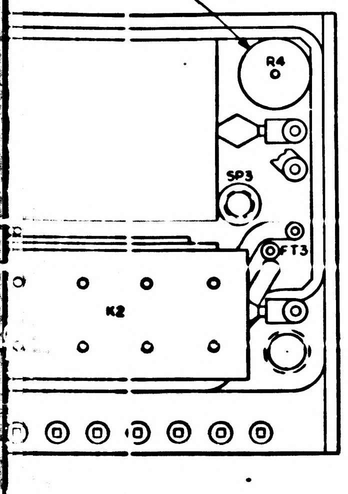
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH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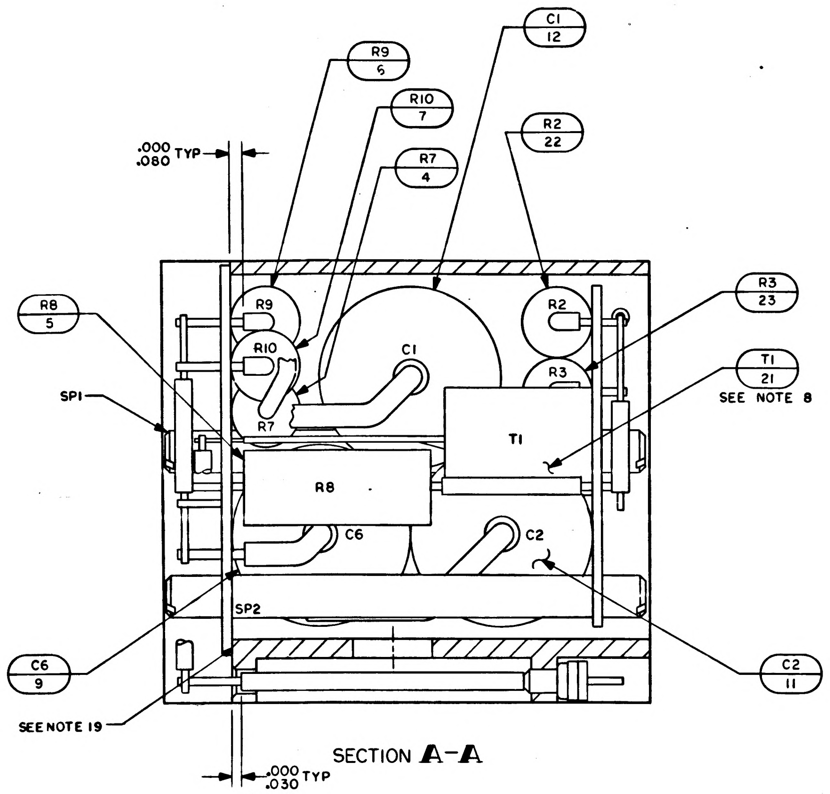
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SEE NOTE 19
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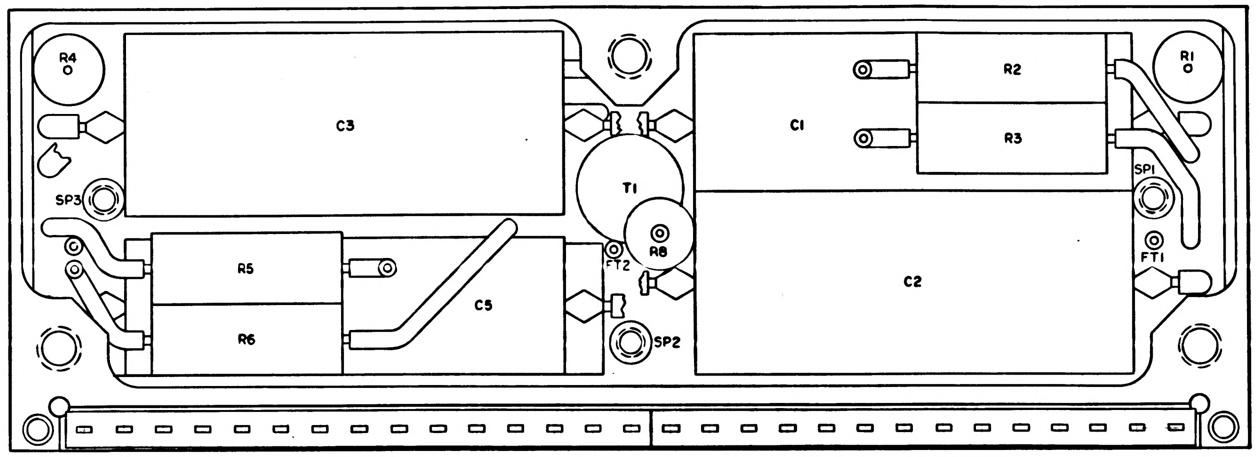
SECTION A-A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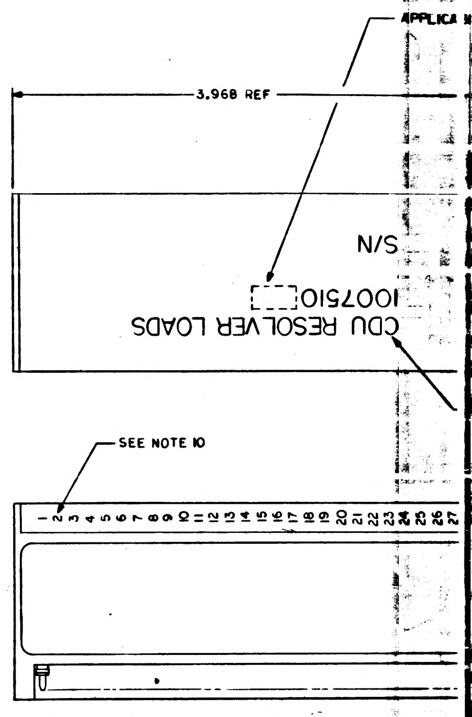
SECTION C-C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1007510[ ]
CDU RESOLVER LOADS
SEE NOTE 10
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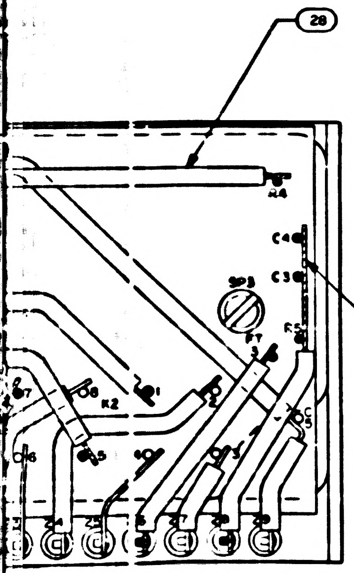
MARKING DRAWING
SCALE 2/1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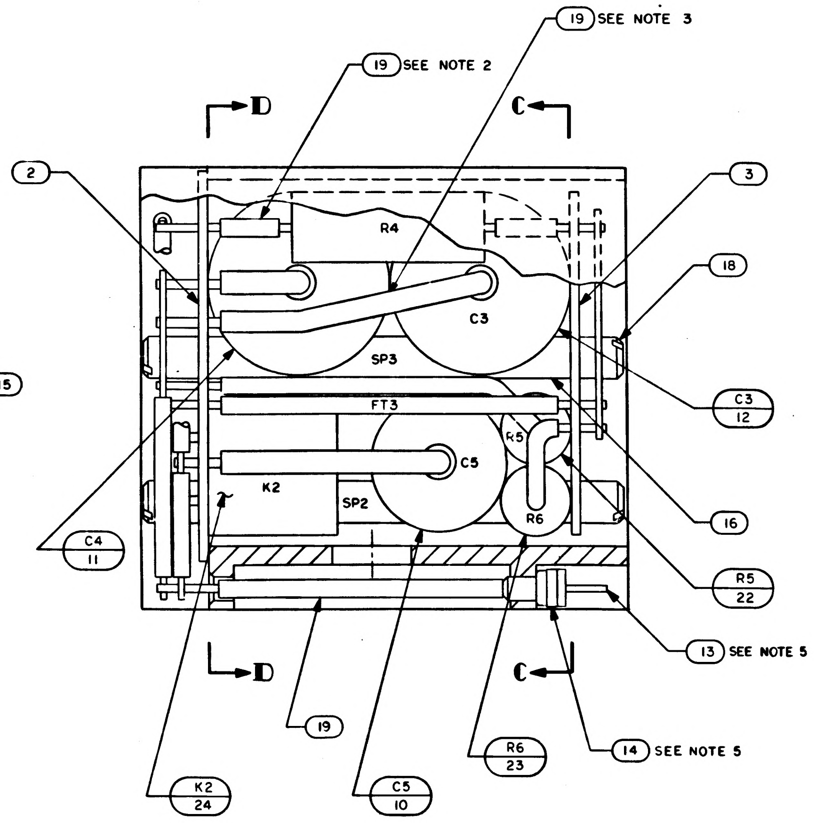
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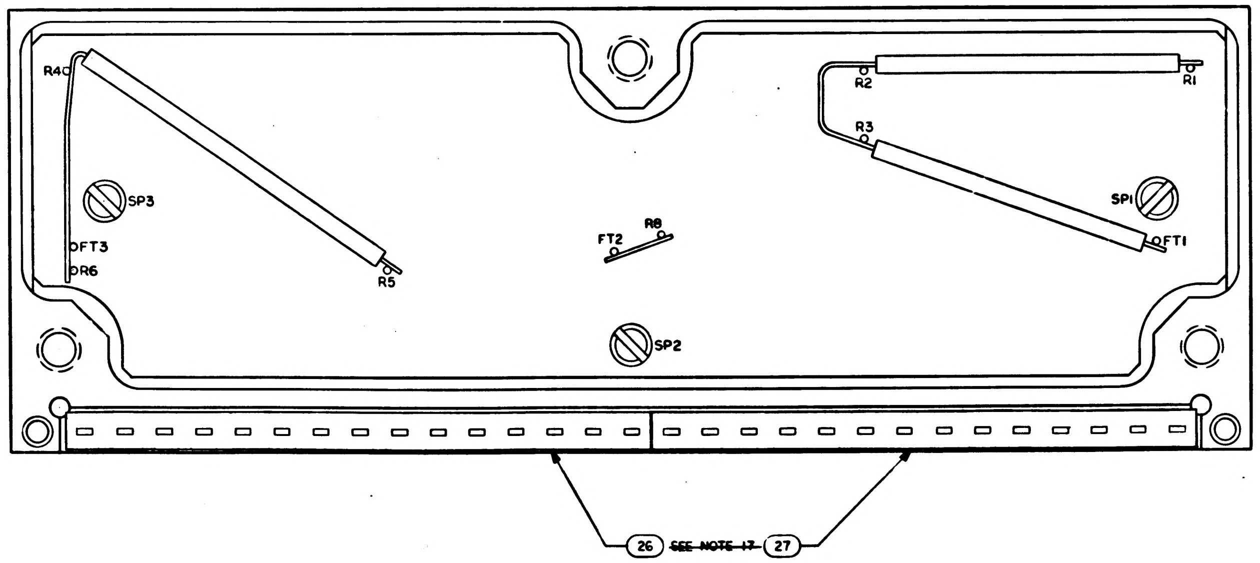
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SEE NOTE 17
27

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NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

1007510	REV LTR N	SH 1

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B	REVISED PER TDRR 16626	26 FEB 65	AN CW
C	REVISED PER TDRR 17304	12-MAR 65	M.G. EF
D	REVISED PER TDRR 18520	23 APR 65	J.W.P.
E	REVISED PER TDRR 18542	27 APR 65	A.N.
F	REVISED PER TDRR 19409	1 JUN 65	MEM
G	REVISED PER TDRR 19483	2-JUN-65	H.F.W.
H	REVISED PER TDRR 20143	19 JUN 65	
J	REVISED PER TDRR 22954	12 OCT 65	JJJ EF
K	REVISED PER TDRR 23888	16 NOV 65	JJJ
L	REVISED PER TDRR 25538	31 JAN 66	
M	REVISED PER TDRR 26397	28 FEB 66	PP
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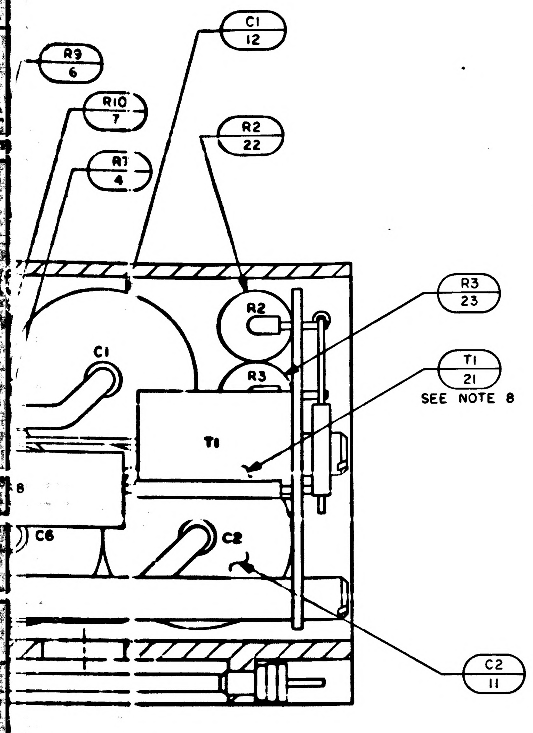
REVISIONS 13094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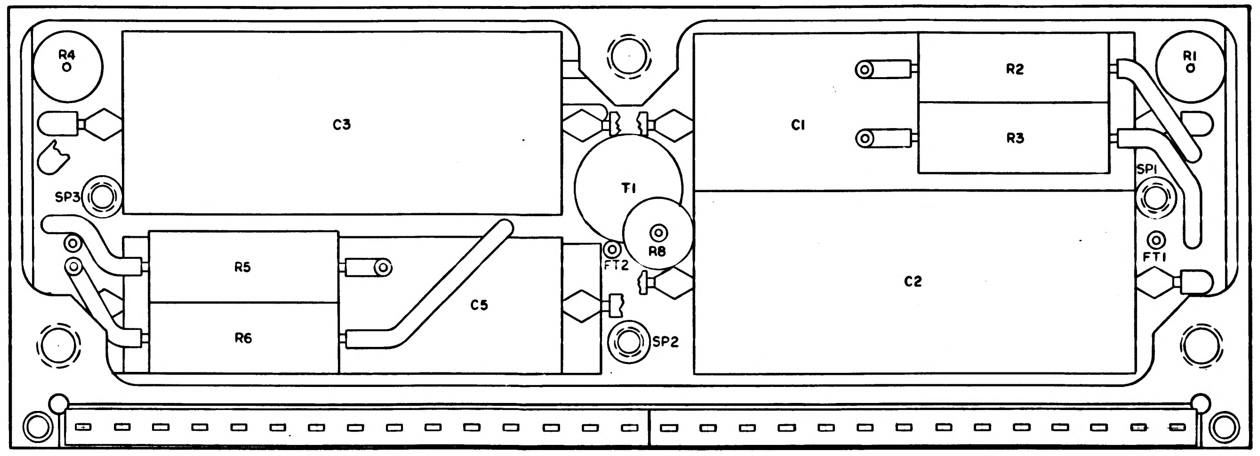
SECTION A-A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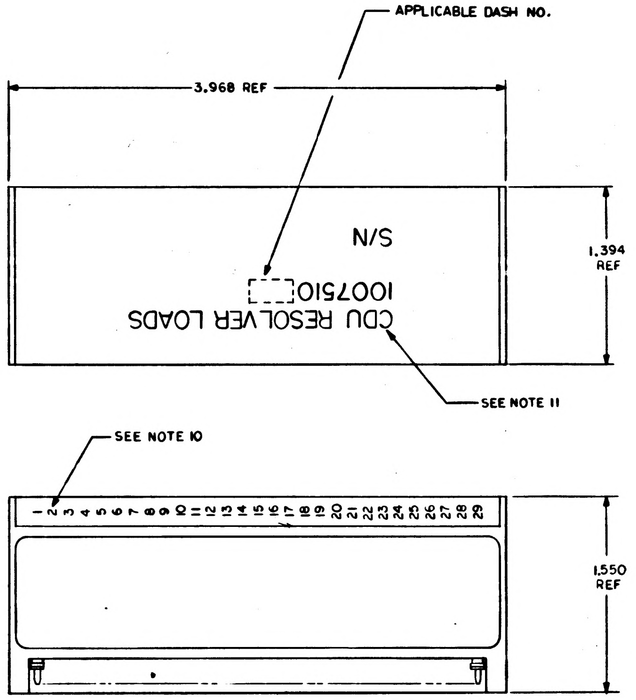
FT1
C2

SECTION C-C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N/S
CDU RESOLVER LOADS
1007510
1.394 REF
SEE NOTE 11
SEE NOTE 10
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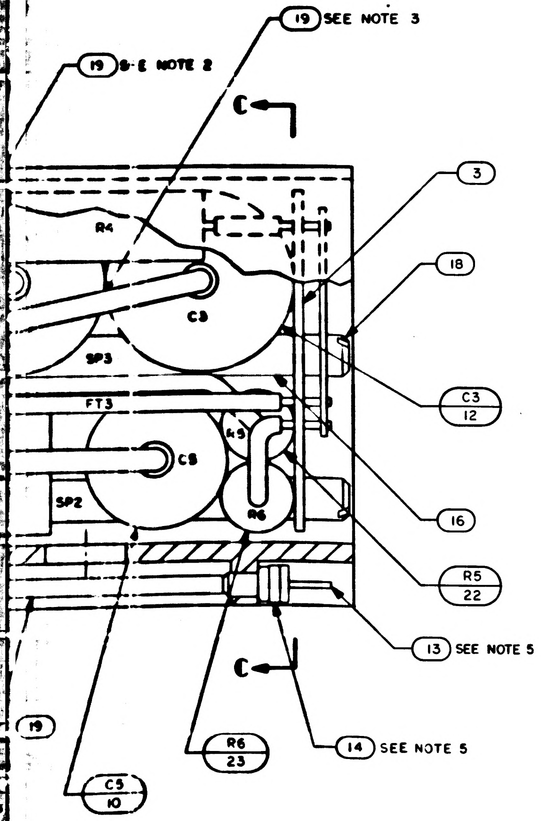
MARKING DRAWING
SCALE 2/1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R6
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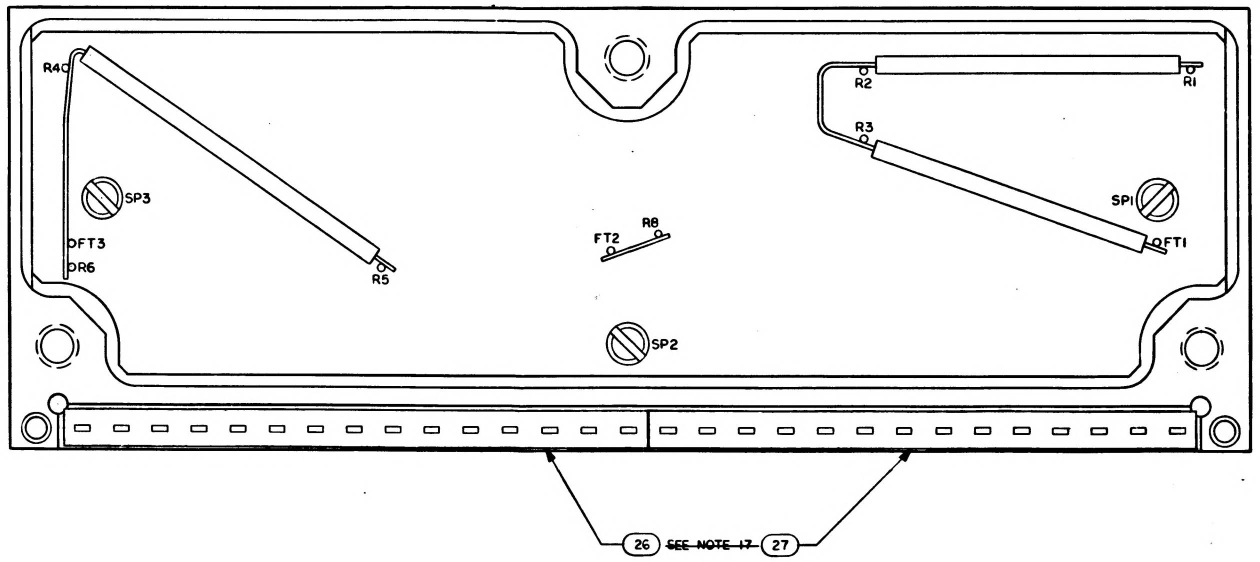
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SP2
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SEE NOTE 17
27

031	021	011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒			1009601	SCHEMATIC	32
2			1005003-2	RELAY	31
AR	AR	—	SEE NOTE 25	MOISTUREPROOFING	30
AR	AR	AR	1010848-2	WIRE, ELECTRICAL-NICKEL	29
	☒	☒	1009501	SCHEMATIC	REF
AR	AR	AR	1006776-21	INSULATION SLEEVING ELECTRICAL	28
1	1	1	1008540 14	GASKET	27
1	1	1	1008540-15	GASKET	26
		~~AR~~	~~1006757-8~~	~~.020 DIA WIRE ELECTRICAL~~	25
	2	2	1010790-3	RELAY	24
2	2	2	1010363-215	RESISTOR	23
2	2	2	1010363-247	RESISTOR	22
1	1	1	1010467	TRANSFORMER	21
		~~AR~~	~~1006776-22~~	~~INSULATION SLEEVING ELECTRICAL~~	20
AR	AR	AR	1006776-20	INSULATION SLEEVING ELECTRICAL	19
3	3	3	1008161-1	SCREW, CAP SLOTTED HEAD	18
3	3	3	1008161-2	SCREW, CAP SLOTTED HEAD	17
3	3	3	1015135-021	SPACER, NYLON	16
AR	AR	AR	1006757-1	.010 X .020 WIRE ELECTRICAL	15
29	29	29	1006775	INSULATOR, WRAPOST MALE MIN	14
29	29	29	1006782-5	CONTACT, WRAPOST MALE MIN	13
2	2	2	1010316-89	CAPACITOR	12
2	2	2	1010316-79	CAPACITOR	11
1	1	1	1010316-92	CAPACITOR	10
1	1	1	1010316-81	CAPACITOR	9
2	2	2	1010363-421	RESISTOR	8
1	1	1	1010363-221	RESISTOR	7
1	1	1	1010363-265	RESISTOR	6
1	1	1	1010363-431	RESISTOR	5
1	1	1	1010363-443	RESISTOR	4
1	1	1	1008503	WIRING BOARD, BOTTOM	3
1	1	1	1008501	WIRING BOARD, TOP	2
1	1	1	1008504	FRAME	1
QTY			LIST OF MATERIALS		

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

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INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN Mahoney WFH DATE 8-7-64
CHECKED
APPROVAL 22 Sept 64
APPROVAL 9/22/64
NASA APPROVAL 9-28-64
MIT APPROVAL 9/29/64

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

CDU RESOLVER LOADS
ASSEMBLY

CODE IDENT NO. 80230 | SIZE J | NASA DRAWING NO. 1007510
SCALE 5/1 | WT | SHEET 1 OF 1

1007510 | REV LTR N | SH 1

3H

3/ 1007510

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 15420	1/13/65	WK
B	REVISED PER TDRR 16626	26 FEB 65	AN CEW
C	REVISED PER TDRR17304	12- 65	M.G.
D	REVISED PER TDRR 18520	23 APR 65	J.W.P.
E	REVISED PER TDRR 18542	27 APR 65	A.N.
F	REVISED PER TDRR 19409	1 JUN 65	
G	REVISED PER TDRR 19483	2-JUN-65	
H	REVISED PER TDRR 20143	19 JUN 65	
J	REVISED PER TDRR 22954	12 OCT 65	JJJ
K	REVISED PER TDRR 23888	16 NOV 65	JJJ
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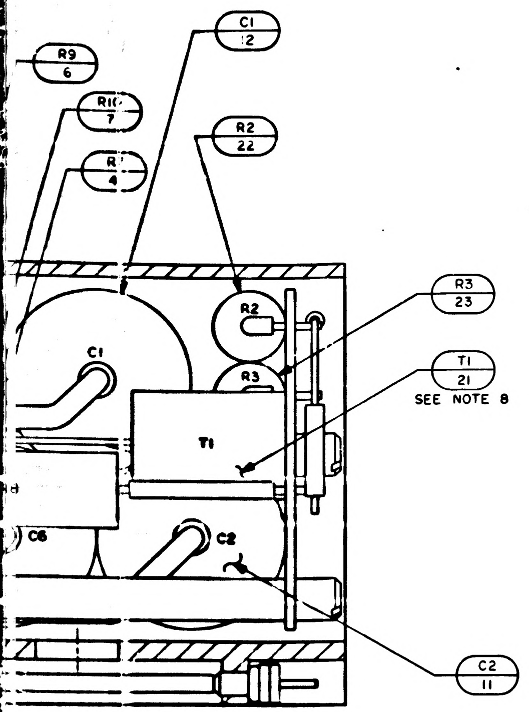
M	REVISED PER TDRR 26397	28 FEB 66	
N	REVISED PER TDRR 32243	10 DEC 66	CP

REVISIONS 13094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C2
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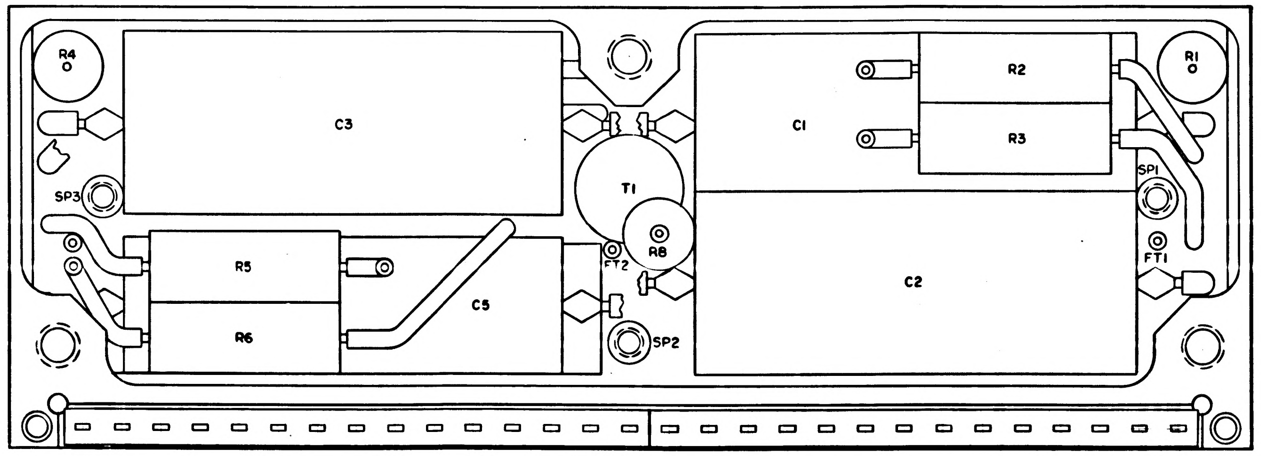
11

SECTION A-A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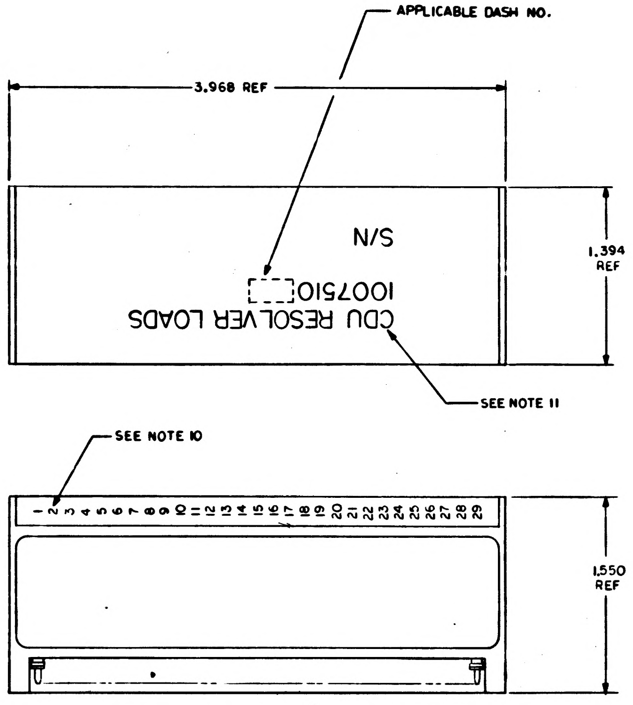
C2
SP2

SECTION C-C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1.394 REF
N/S
1007510
CDU RESOLVER LOADS
SEE NOTE 11
SEE NOTE 10
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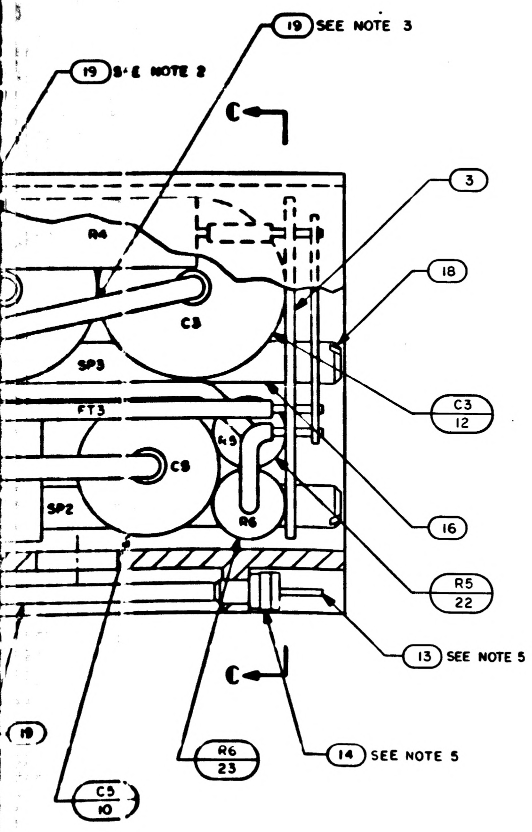
1.550 REF

MARKING DRAWING

SCALE 2/1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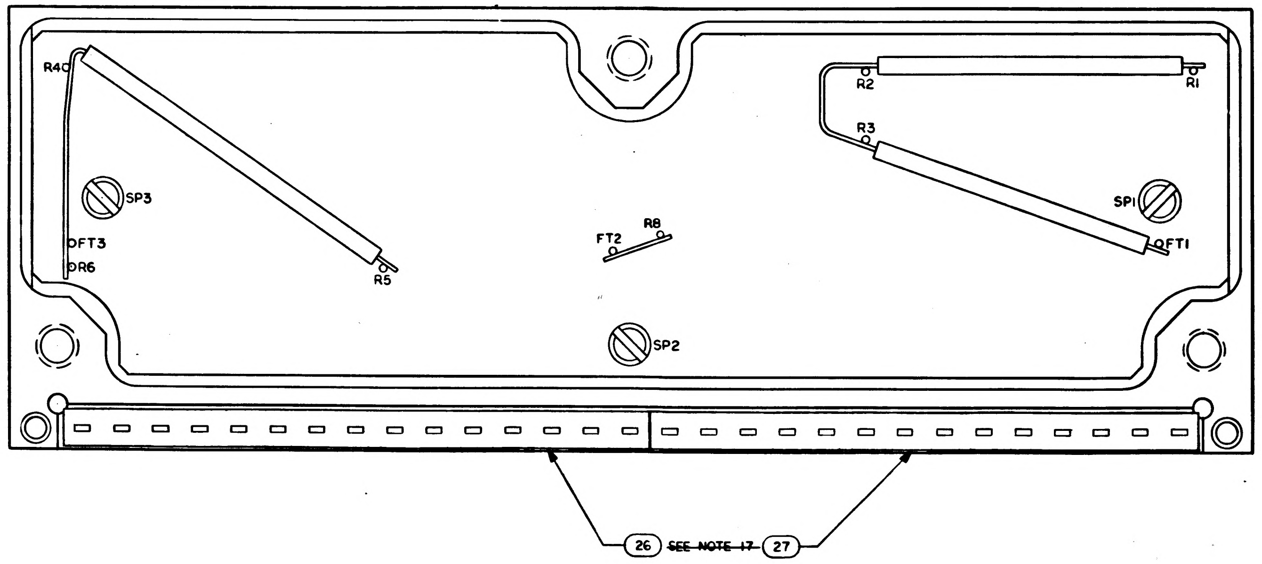
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R6
R5
FT2
R8
FT1
SP2
26
SEE NOTE 17
27

☒			1009601	SCHEMATIC	32
2			1005003-2	RELAY	31
AR	AR	—	SEE NOTE 25	MOISTUREPROOFING	30
AR	AR	AR	1010848-2	WIRE, ELECTRICAL-NICKEL	29
	☒	☒	1009501	SCHEMATIC	REF
AR	AR	AR	1006776-21	INSULATION SLEEVING ELECTRICAL	28
1	1	1	1008540 14	GASKET	27
1	1	1	1008540-15	GASKET	26
		~~AR~~	~~1006757-8~~	~~.020 DIA WIRE ELECTRICAL~~	25
	2	2	1010790- 3	RELAY	24
2	2	2	1010363-215	RESISTOR	23
2	2	2	1010363-247	RESISTOR	22
1	1	1	1010467	TRANSFORMER	21
		~~AR~~	~~1006776-22~~	~~INSULATION SLEEVING ELECTRICAL~~	20
AR	AR	AR	1006776-20	INSULATION SLEEVING ELECTRICAL	19
3	3	3	1008161-1	SCREW,CAP SLOTTED HEAD	18
3	3	3	1008161-2	SCREW,CAP SLOTTED HEAD	17
3	3	3	1015135-021	SPACER, NYLON	16
AR	AR	AR	1006757-1	.010 X .020 WIRE ELECTRICAL	15
29	29	29	1006775	INSULATOR,WRAPOST MALE MIN	14
29	29	29	1006782-5	CONTACT,WRAPOST MALE MIN	13
2	2	2	1010316-89	CAPACITOR	12
2	2	2	1010316-79	CAPACITOR	11
1	1	1	1010316-92	CAPACITOR	10
1	1	1	1010316-81	CAPACITOR	9
2	2	2	1010363-421	RESISTOR	8
1	1	1	1010363-221	RESISTOR	7
1	1	1	1010363-265	RESISTOR	6
1	1	1	1010363-431	RESISTOR	5
1	1	1	1010363-443	RESISTOR	4
1	1	1	1008503	WIRING BOARD, BOTTOM	3
1	1	1	1008501	WIRING BOARD, TOP	2
1	1	1	1008504	FRAME	1
031	021	011	PART OR IDENTIFYING NO.	NOMENCLAURE OR DESCRIPTION	FIND NO.
QTY			LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
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DWG. NO. CONTRACT
DRAWN WFH DATE 8-7-64
CHECKED
APPROVAL 22 Sept 64
APPROVAL 9/22/64
NASA APPROVAL W. G. 9-28-64
MIT APPROVAL 9/29/64

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

CDU RESOLVER LOADS
ASSEMBLY

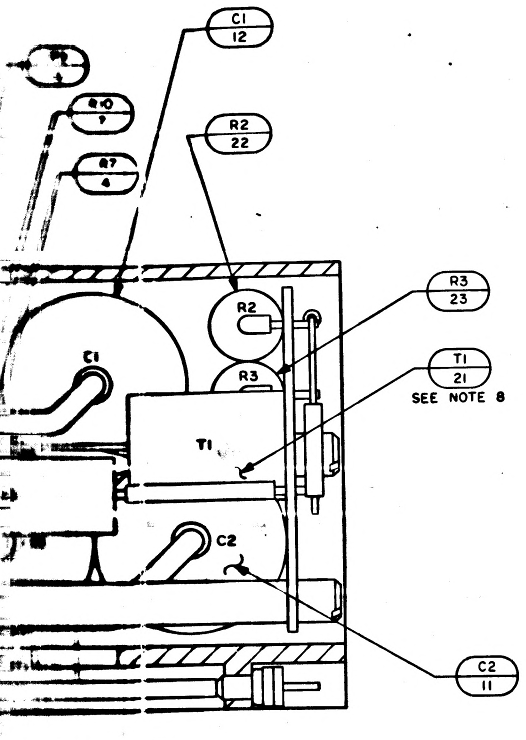
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007510
SCALE 5/1
WT
SHEET 1 OF 1

1007510	REV LTR N	SH 1

3/1007510

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL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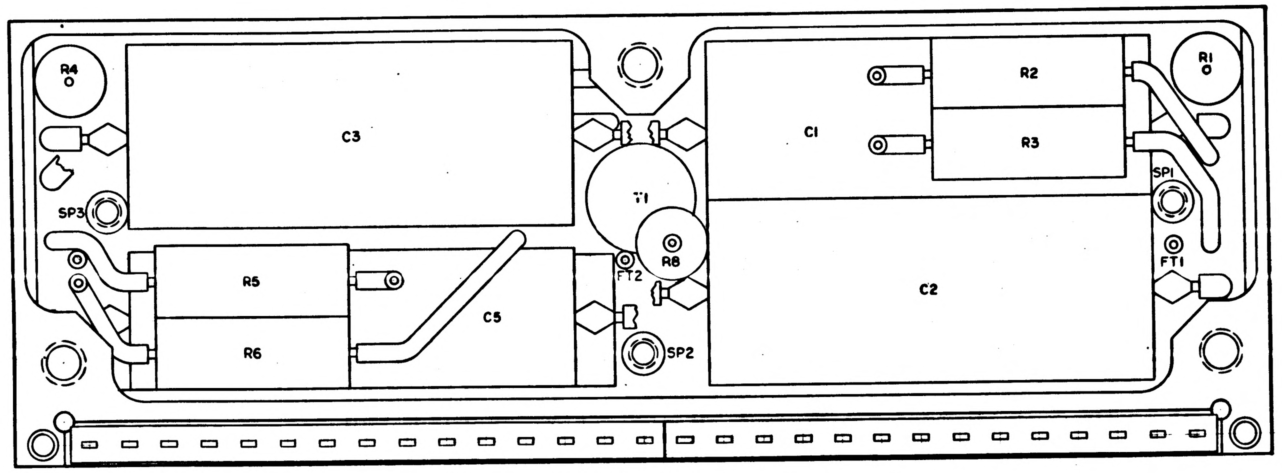
SECTION A-A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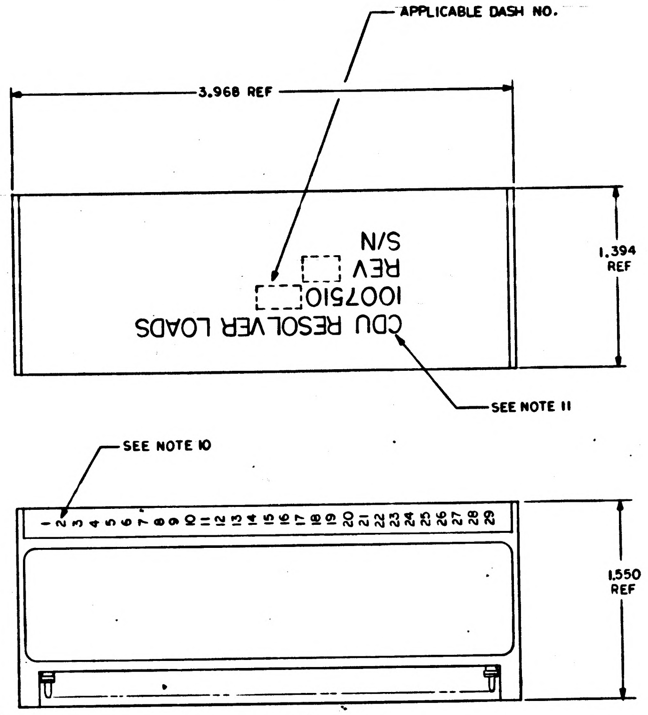
C2

SECTION C-C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REV
S/N
SEE NOTE 11
1.394 REF
SEE NOTE 10
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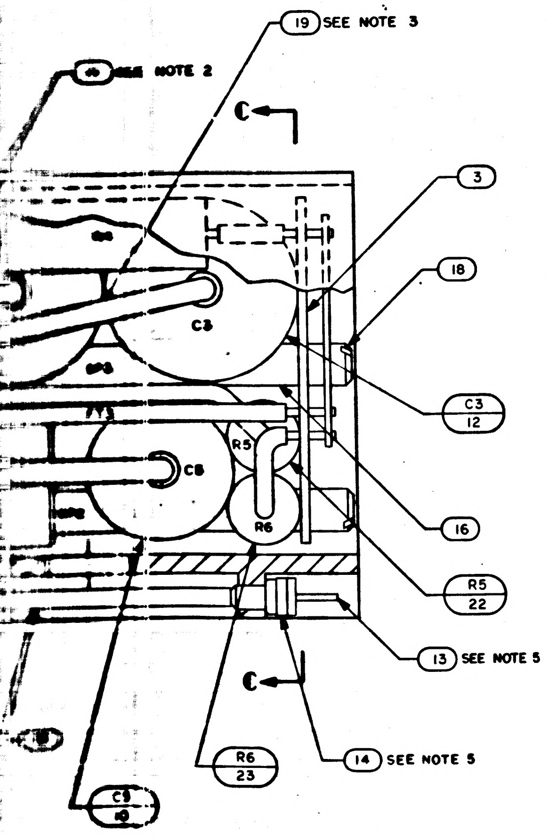
1.550 REF

MARKING DRAWING
SCALE 2/1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SEE NOTE 2
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13 SEE NOTE 5
C
14 SEE NOTE 5
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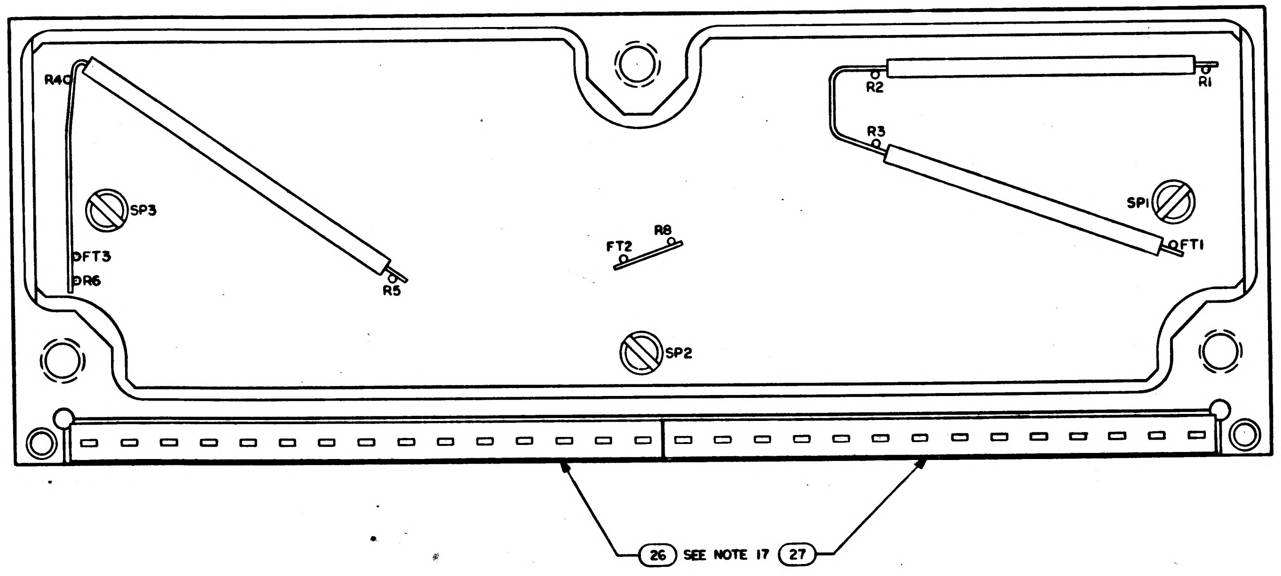
C5 10


R4
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FT2
R8
SP2
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R1
R3
SP1
FT1
26 SEE NOTE 17 27

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1009501	SCHEMATIC	REF
AR	1006776-21	INSULATION SLEEVING ELECTRICAL	28
1	1008540 14	GASKET	27
1	1008540-15	GASKET	26
AR	106757 - 8	.020 DIA WIRE ELECTRICAL	25
2	1010790	RELAY	24
2	1010363-215	RESISTOR	23
2	1010363-247	RESISTOR	22
1	1010467	TRANSFORMER	21
AR	1006776-22	INSULATION SLEEVING ELECTRICAL	20
AR	1006776-20	INSULATION SLEEVING ELECTRICAL	19
3	1008161-1	SCREW, CAP SLOTTED HEAD	18
3	1008161-2	SCREW, CAP SLOTTED HEAD	17
3	1015135-021	SPACER, NYLON	16
AR	1006757-1	.010 X .020 WIRE ELECTRICAL	15
29	1006775	INSULATOR, WRAPOST MALE MIN	14
29	1006782-5	CONTACT, WRAPOST MALE MIN	13
2	1010316-89	CAPACITOR	12
2	1010316-79	CAPACITOR	11
1	1010316-92	CAPACITOR	10
1	1010316-81	CAPACITOR	9
2	1010363-421	RESISTOR	8
1	1010363-221	RESISTOR	7
1	1010363-265	RESISTOR	6
1	1010363-431	RESISTOR	5
1	1010363-443	RESISTOR	4
1	1008503	WIRING BOARD, BOTTOM	3
1	1008501	WIRING BOARD, TOP	2
1	1008504	FRAME	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

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INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO.
CONTRACT
DRAWN Mahoney WFN DATE 8-7-64
CHECKED
APPROVAL 22 Sept 64
APPROVAL A. R. Trost 9/22/64
NASA APPROVAL W. J. 4-24-64
MIT APPROVAL 29 Sep 64

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CDU RESOLVER LOADS
ASSEMBLY

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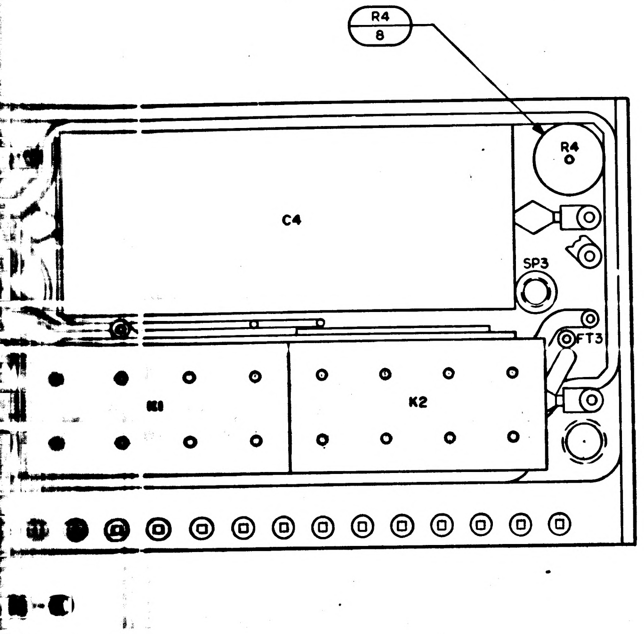
SIZE J
NASA DRAWING NO. 1007510
SCALE 5/1
WT
SHEET 1 OF 1

1007510

1007510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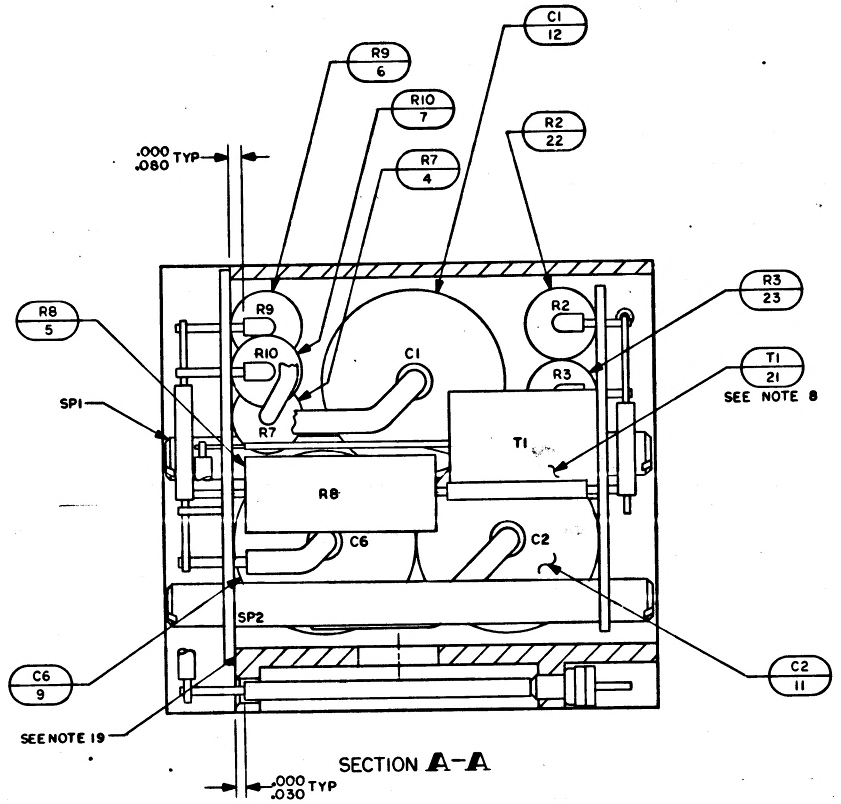
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T1
21
SEE NOTE 8
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R9
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R7
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R2
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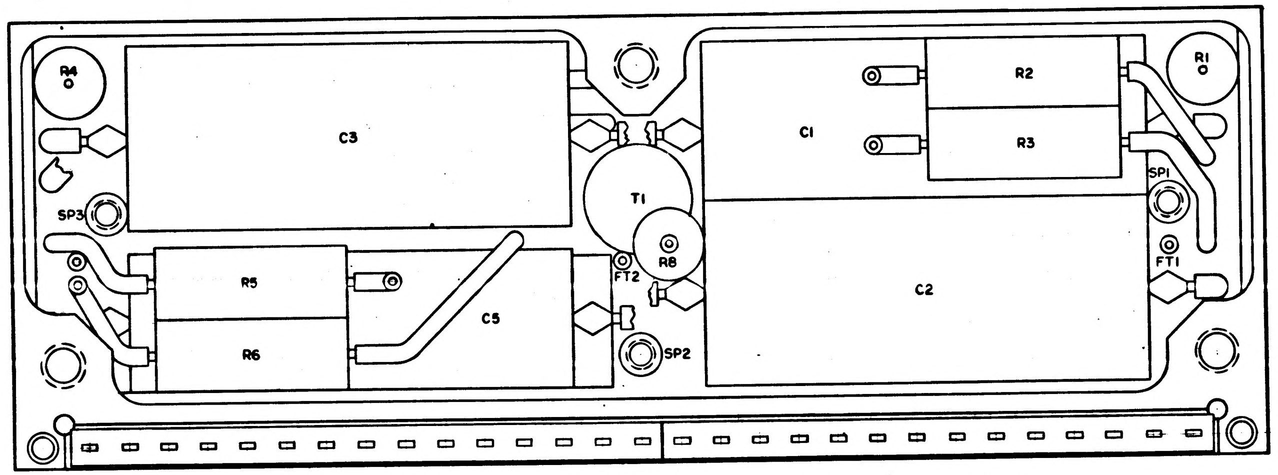
SECTION A-A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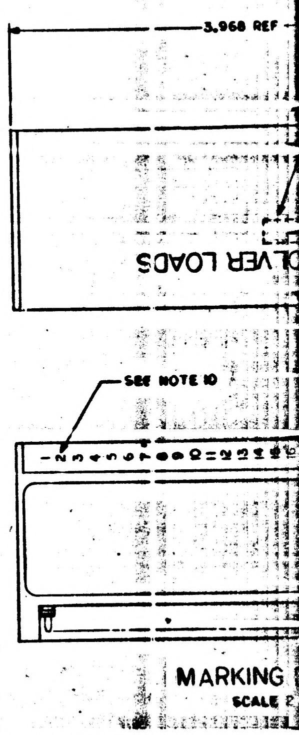
C2

SECTION C-C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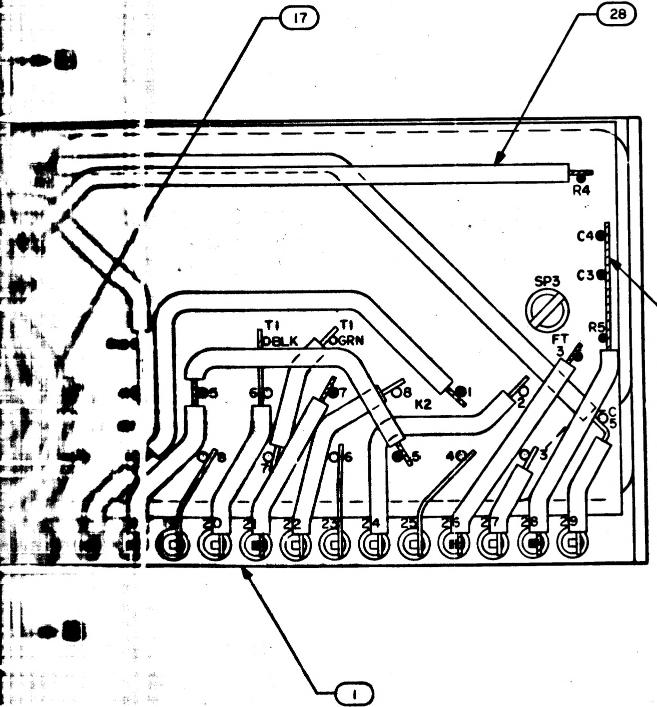
SEE NOTE 10

MARKING

SCALE 2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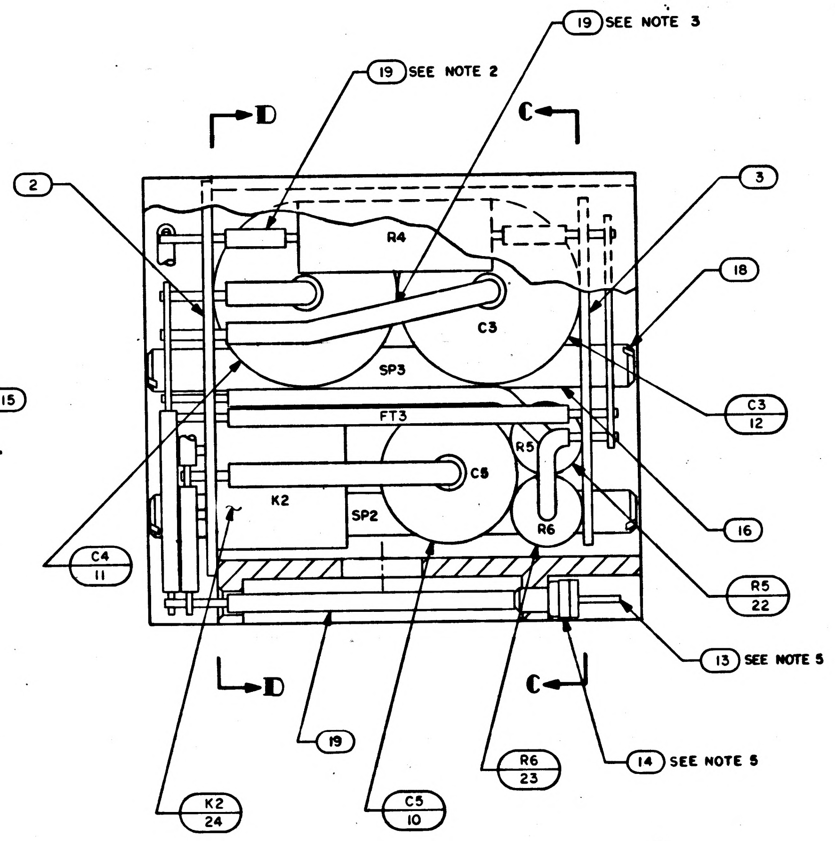
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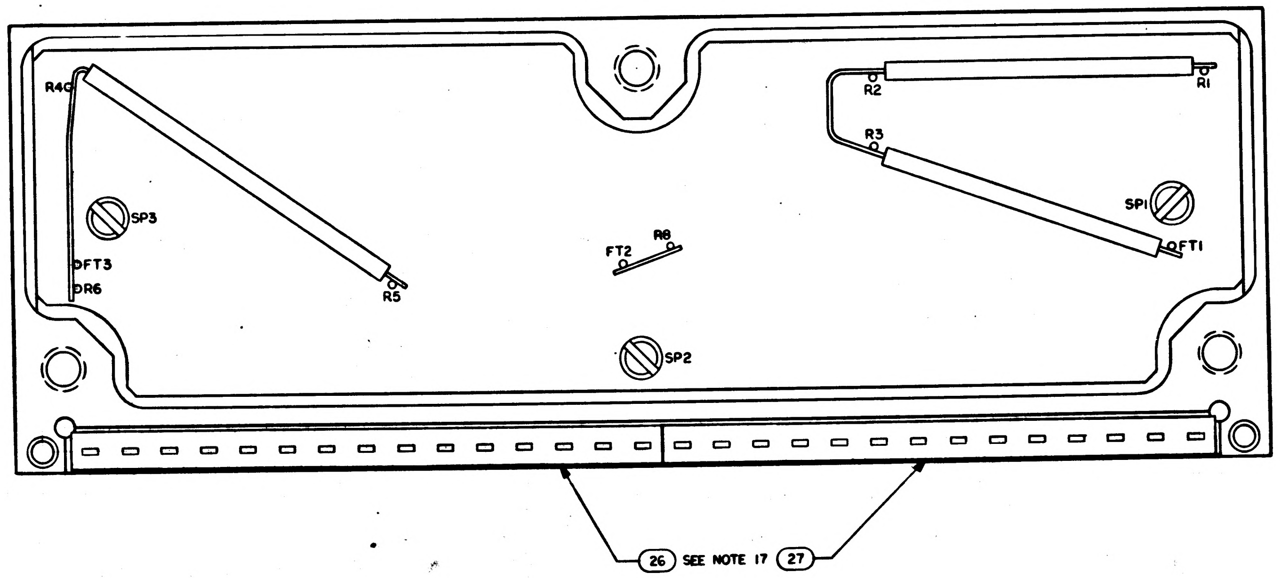
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SP2
26 SEE NOTE 17
27

1007510

MASTER

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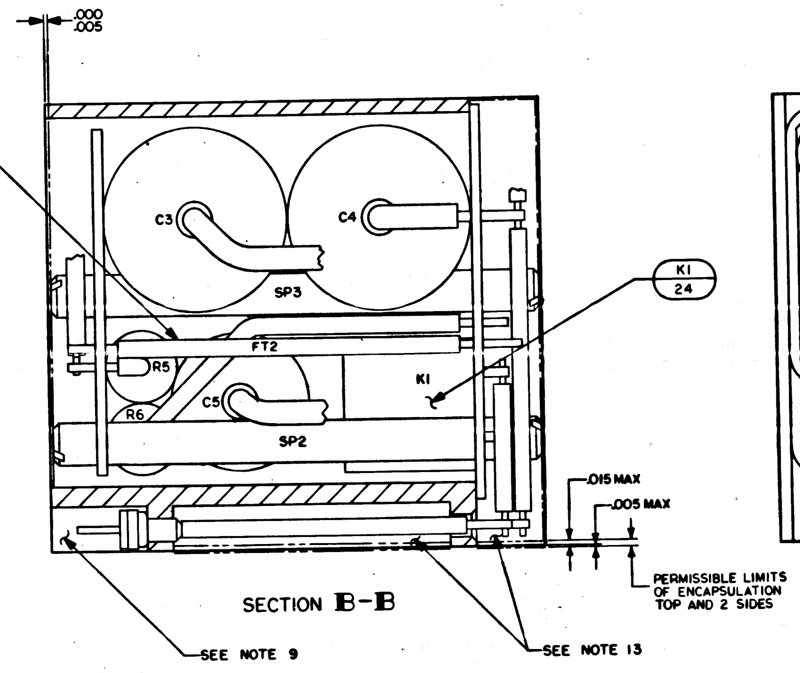
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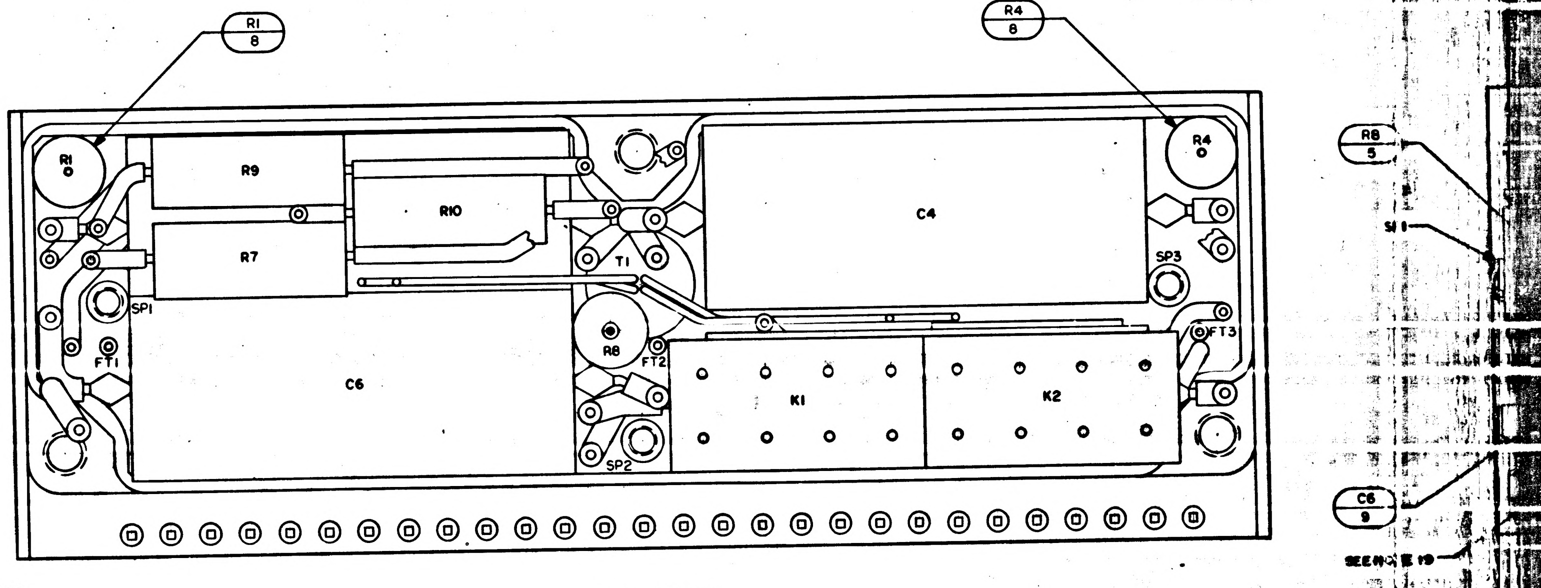
SEE NOTE 9
SEE NOTE 13

SECTION B-B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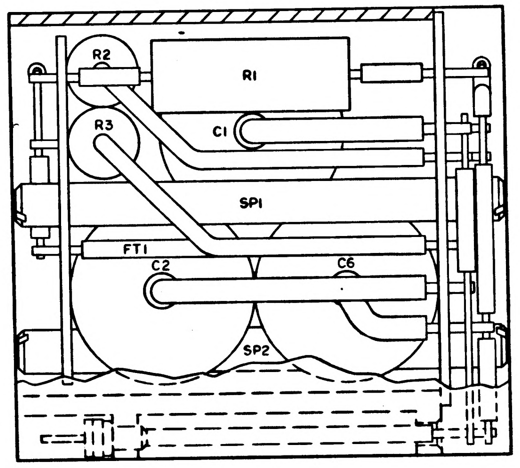
SECTION D-D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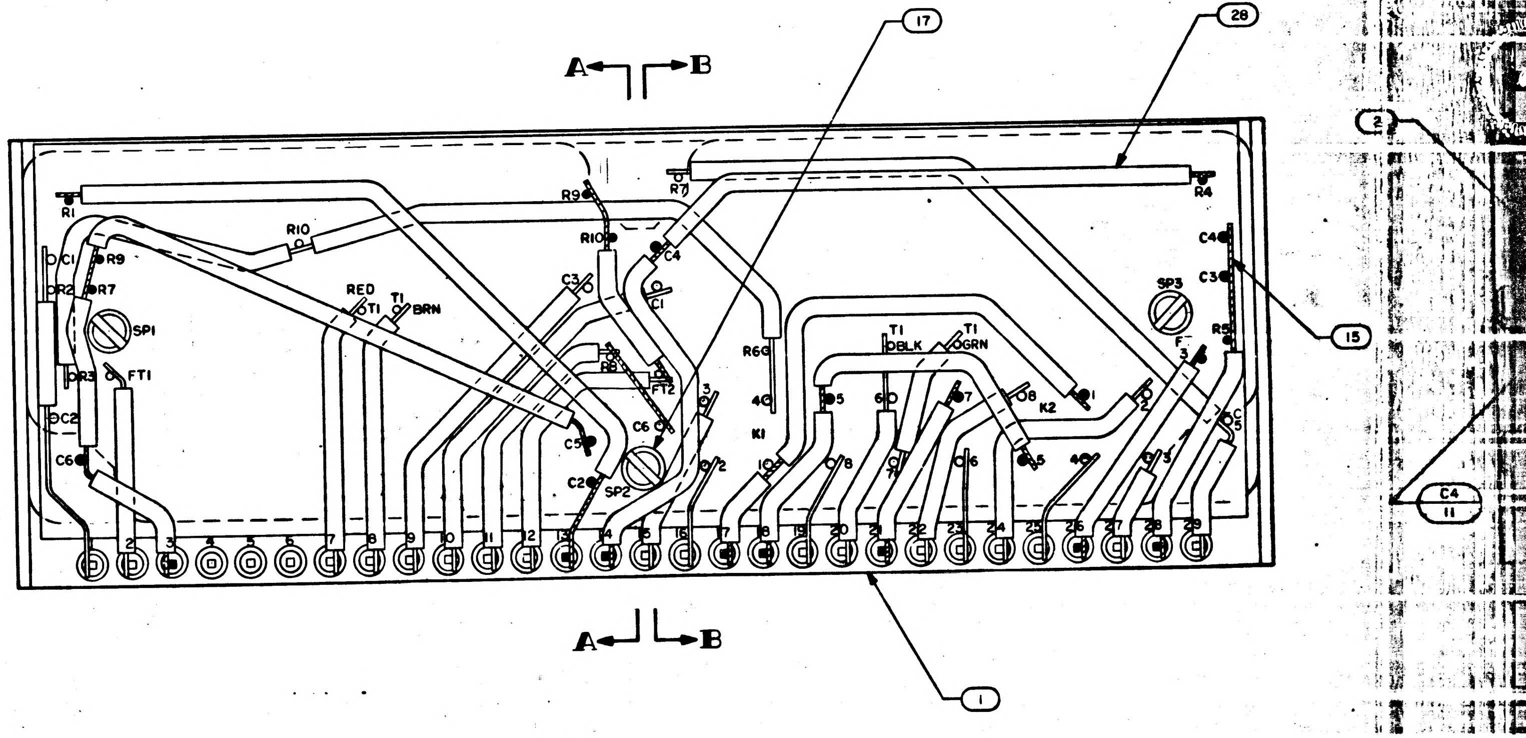
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R7
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R3
FT1
C2
C6
RED
T1
T1
BRN
C3
R10
C4
C1
R6
K1
FT2
C5
C6
C2
SP2
SP3
T1
T1
BLK
GRN
K2
R5
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NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TYPICAL INSULATION FOR ALL RESISTORS
3. TYPICAL INSULATION FOR ALL CAPACITORS
4. WORKMANSHIP REQUIREMENT PER ND 1002069
5. ASSEMBLE FIND NO.13 AND 14 PER ND 1002136
6. SP DENOTES SPACER
7. BOND RESISTORS RELAYS AND CAPACITORS TO FIND NO. 2 AND TO EACH OTHER AS SHOWN, PER ND 1002004, TYPE I
8. BOND FIND NO. 21 TO FIND NO. 3 PER ND 1002004, TYPE I
9. INDICATED AREAS TO BE FREE OF ENCAPSULATION COMPOUND
10. MARK .100 / .060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
11. MARK .140 / .100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN
12. AR DENOTES AS REQUIRED
13. ENCAPSULATE PER ND 1002002 BLACK POLYURETHANE FOAM, REMOVE ALL FLASHING
14. FT DENOTES FEED THRU
15. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
16. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
17. BOND FIND NO. 26 AND FIND NO. 27 TO FIND NO. 14 PER ND 1002237
18. WELD PER ND 1002005
19. BOND FIND NO. 2 TO FIND NO. 1 PER ND 1002004, TYPE I
20. PROCURE PER PS 1007510

APOLLO G&N Specification
PS1007510
Original Issue Date: 17Feb65
Release Authority: TDRR 16518
Class A Release

PROCUREMENT SPECIFICATION

FOR

CDU RESOLVER LOADS MODULE ASSEMBLY

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page 1 to 5 inclusive.

APPROVALS	2/17/65 NASA/MSC	17Feb65 MIT/IL	R. J. Thurston STAFF Member Proj. Engr. Eng Spec writer ACSP

PROCUREMENT SPECIFICATION

FOR

CDU RESOLVER LOADS MODULE ASSEMBLY

1. SCOPE

1.1 PURPOSE. This specification establishes the requirements for the procurement of the CDU Resolver Loads Module, Drawing 1007510, hereafter called the assembly.

1.2 CLASSIFICATION. The requirements for Part Number 1007510-011 covered by this specification shall be designated as Type I.

2. APPLICABLE DOCUMENTS

2.1 EFFECTIVE ISSUES. The following documents of the issue in effect on the date of invitation for bids form a part of this specification to the extent specified herein.

SPECIFICATIONS

APOLLO G&N

ND 1002210	General Specification for Procurement of APOLLO Guidance and Navigation Assemblies and Subassemblies
FTM 1007510	Final Test Method for CDU Resolver Loads Module Assembly

STANDARDS

Military

MIL-STD-202	Test Methods for Electronic and Electrical Component Parts

DRAWINGS

APOLLO G&N

1007510	CDU Resolver Loads Module Assembly
1009501	Schematic, Resolver Loads (For Reference Only)

TABLE II

CAPACITANCE

TERMINAL POINTS		CAPACITANCE
From	To	(µf±2%)
10	1	0.118
13	1	0.096
9	28	0.118
14	28	0.096
29	3	0.035
11	3	0.102

3.3.4 Transformation Ratio. With 28V rms ± 1 percent, 800 cps, 0° applied to pins 7 (Hi) and 8 (Lo), and 27.5 ± 2.5 vdc applied to pins 17 (Hi) and 18 (Lo), the voltage at pins 2 (Hi) and 20 (Lo) shall be 2.24 ± 0.24V rms, 800 cps, 180° ±8°.

3.4 PERFORMANCE AND PRODUCT CHARACTERISTICS

3.4.1 Service Life

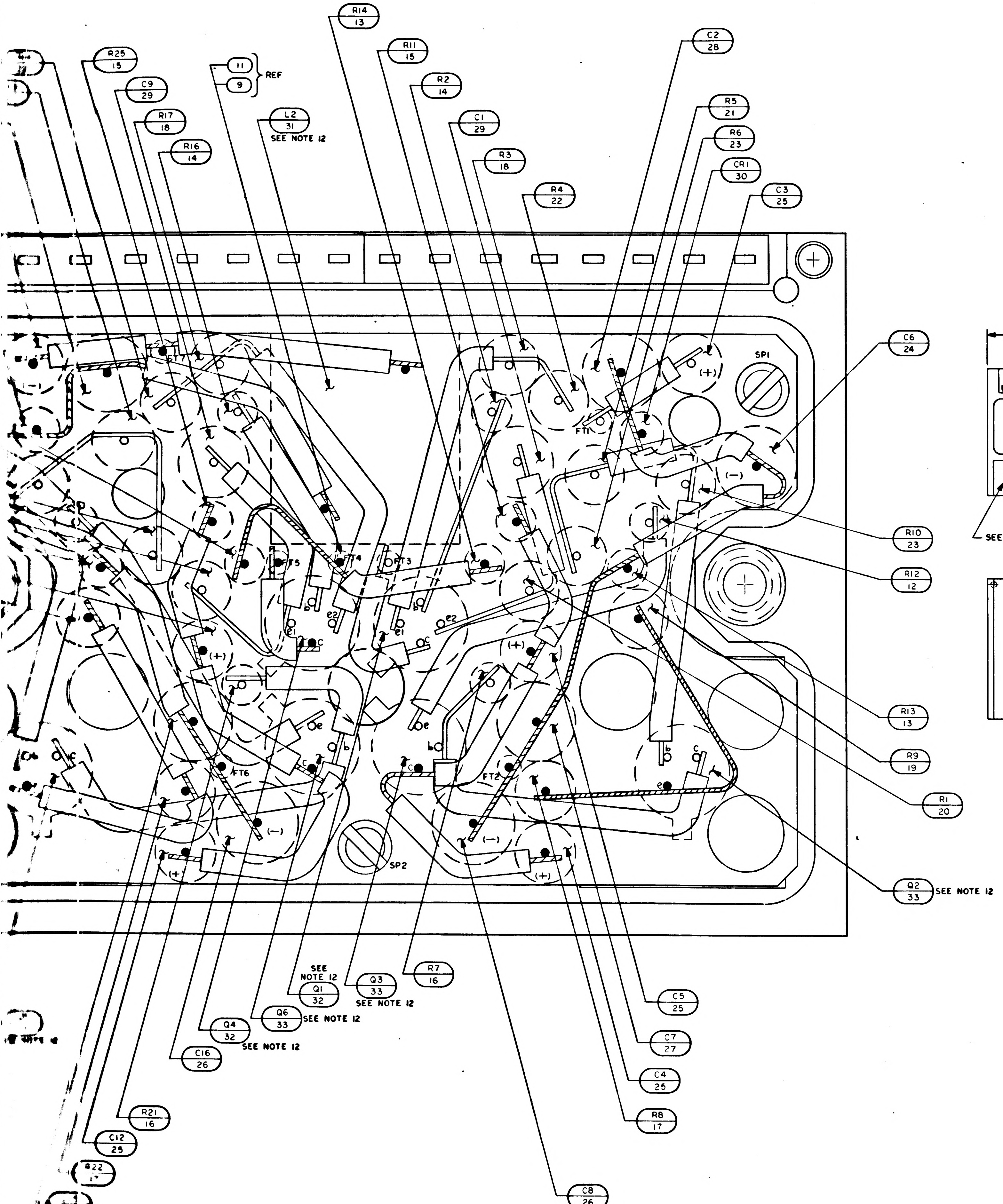
3.4.1.1 Operating Life. The assembly shall meet performance specifications for at least 2,000 hours of operation, excluding the supplier's test time of the completed unit.

3.4.1.2 Shelf Life. The assembly shall have a shelf life of at least 3 years, without operation, at ambient room temperature after final acceptance at the supplier's facility.

3.4.2 Reliability. Design objectives require maximum reliability of the assembly during its period of useful life. Every effort shall be made to design and produce units capable of meeting a maximum failure rate of 1.7 per million hours [illegible]

1007511	A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TORR	9 APR 65	HTO EF



R14
13
R25
15
C9
29
11
9
REF
R11
15
R17
18
R16
14
L2
31
SEE NOTE 12
R2
14
C1
29
R3
18
R4
22
C2
28
R5
21
R6
23
CR1
30
C3
25
SP1
FT1
FT2
FT3
FT4
FT5
FT6
SP2
(+)
(−)
C6
24
R10
23
R12
12
R13
13
R9
19
R1
20
Q2
33
SEE NOTE 12
R7
16
Q3
33
SEE NOTE 12
SEE NOTE 12
Q1
32
Q6
33
SEE NOTE 12
Q4
32
SEE NOTE 12
C16
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C4
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R8
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C8
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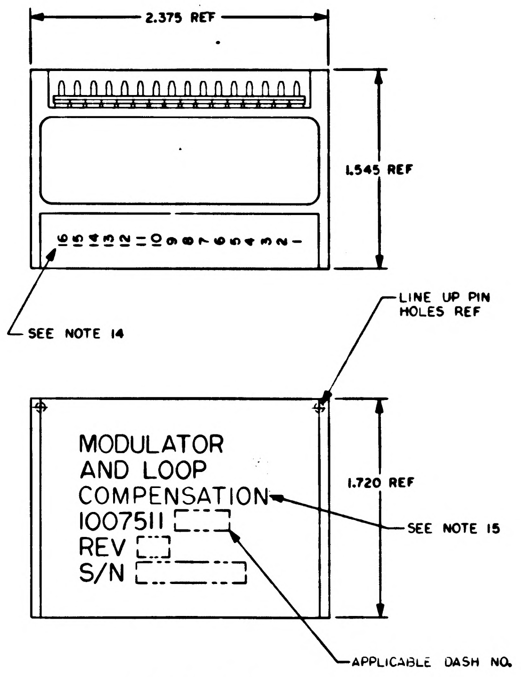


2.375 REF
1.545 REF
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 14
LINE UP PIN HOLES REF
MODULATOR
AND LOOP
COMPENSATION
1007511
REV
S/N
SEE NOTE 15
1.720 REF
APPLICABLE DASH NO.

MARKING VIEWS
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
⨯	1009521	SCHEMATIC	REF
2	1008540-8	GASKET	37
AR	1006776-21	INSULATION SLEEVING	36
1	1010753	TRANSFORMER	35
2	1010759	TRANSFORMER	34
4	1010397-1	TRANSISTOR	33
2	1010367	TRANSISTOR	32
2	1010277-6	INDUCTOR	31
2	1010830-11	DIODE	30
2	1010279-111	CAPACITOR	29
2	1010264-13	CAPACITOR	28
2	1010264-11	CAPACITOR	27
2	1006755-79	CAPACITOR	26
6	1006755-69	CAPACITOR	25
2	1006755-13	CAPACITOR	24
4	1010364-693	RESISTOR	23
2	1010364-619	RESISTOR	22
2	1010364-579	RESISTOR	21
2	1010364-501	RESISTOR	20
2	1010364-455	RESISTOR	19
2	1010364-443	RESISTOR	18
2	1010364-379	RESISTOR	17
2	1006750-77	RESISTOR	16
2	1006750-46	RESISTOR	15
2	1006750-39	RESISTOR	14
4	1006750-36	RESISTOR	13
2	1006750-17	RESISTOR	12
AR	1006776-22	INSULATION SLEEVING	11
AR	1006776-20	INSULATION SLEEVING	10
AR	1006757-8	WIRE, ELECTRICAL	9
AR	1006757-1	WIRE, ELECTRICAL	8
8	1008161-3	SCREW, CAP SLOTTED HD SPECIAL	7
3	1015135-020	SPACER	6
16	1006782-5	CONTACT, WRAPOST-MALE, MIN	5
16	1006775	INSULATOR, WRAPOST-MALE, MIN	4
1	1008508	WIRING BOARD, BOTTOM	3
1	1008506	WIRING BOARD, TOP	2
1	1008509	FRAME	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
1007580	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .02 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN Mahoney DATE
CHECKED
APPROVAL 5 M. 64
APPROVAL 11-9-64
NASA APPROVAL 11-12-64
MIT APPROVAL 12 Nov 64

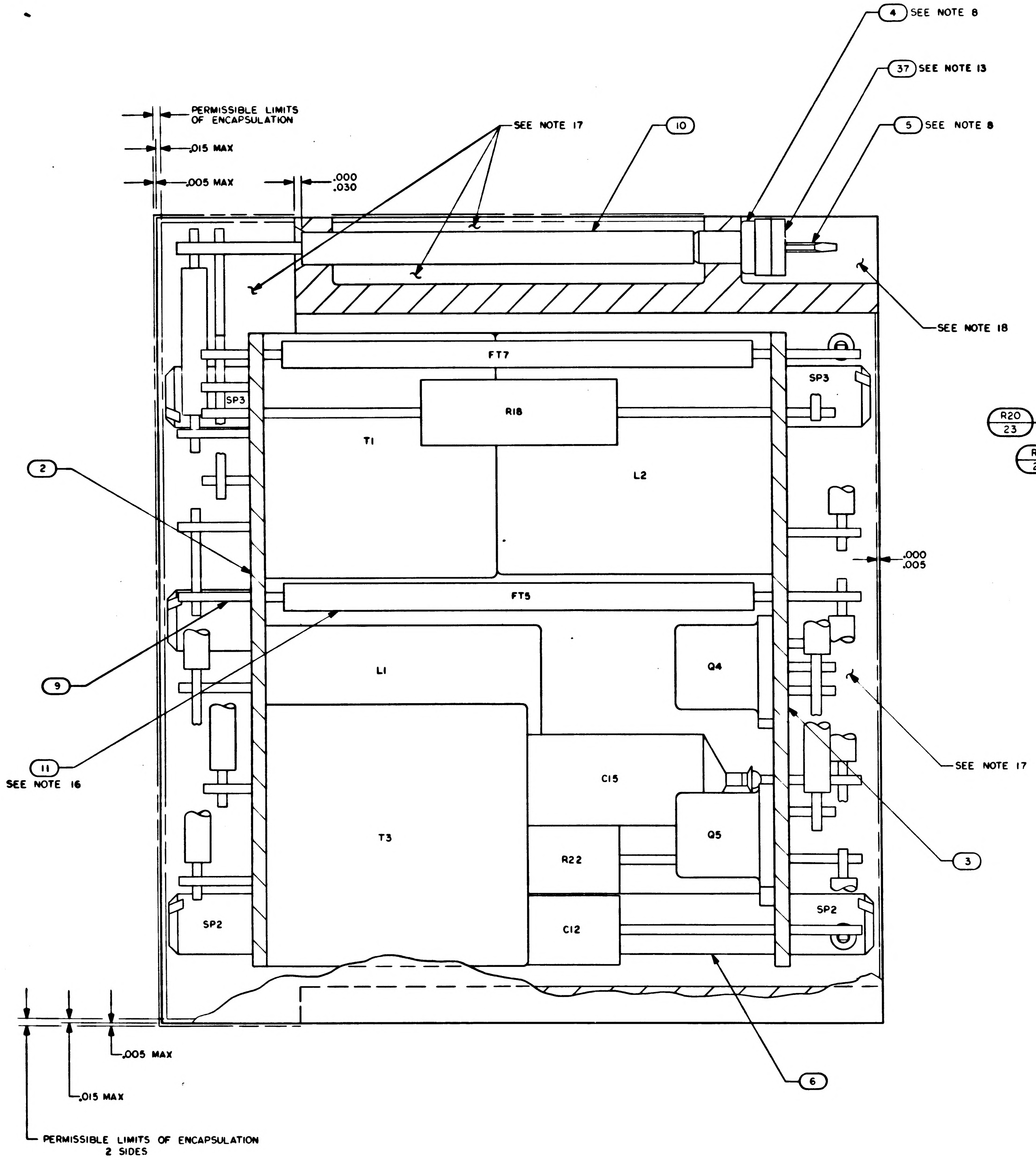
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MODULATOR AND
LOOP COMPENSATION
ASSEMBLY

CODE IDENT NO. — SIZE J NASA DRAWING NO. 1007511
SCALE 10/1 WT — SHEET 1 OF 1

1007511	REV LTR A	SH 1

3/1007511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.005 MAX
.000
.030
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10
4 SEE NOTE 8
37 SEE NOTE 13
5 SEE NOTE 8
SEE NOTE 18
FT7
SP3
SP3
R18
T1
L2
2
.000
.005
FT5
9
L1
Q4
SEE NOTE 17
11
SEE NOTE 16
C15
T3
Q5
R22
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SP2
C12
SP2
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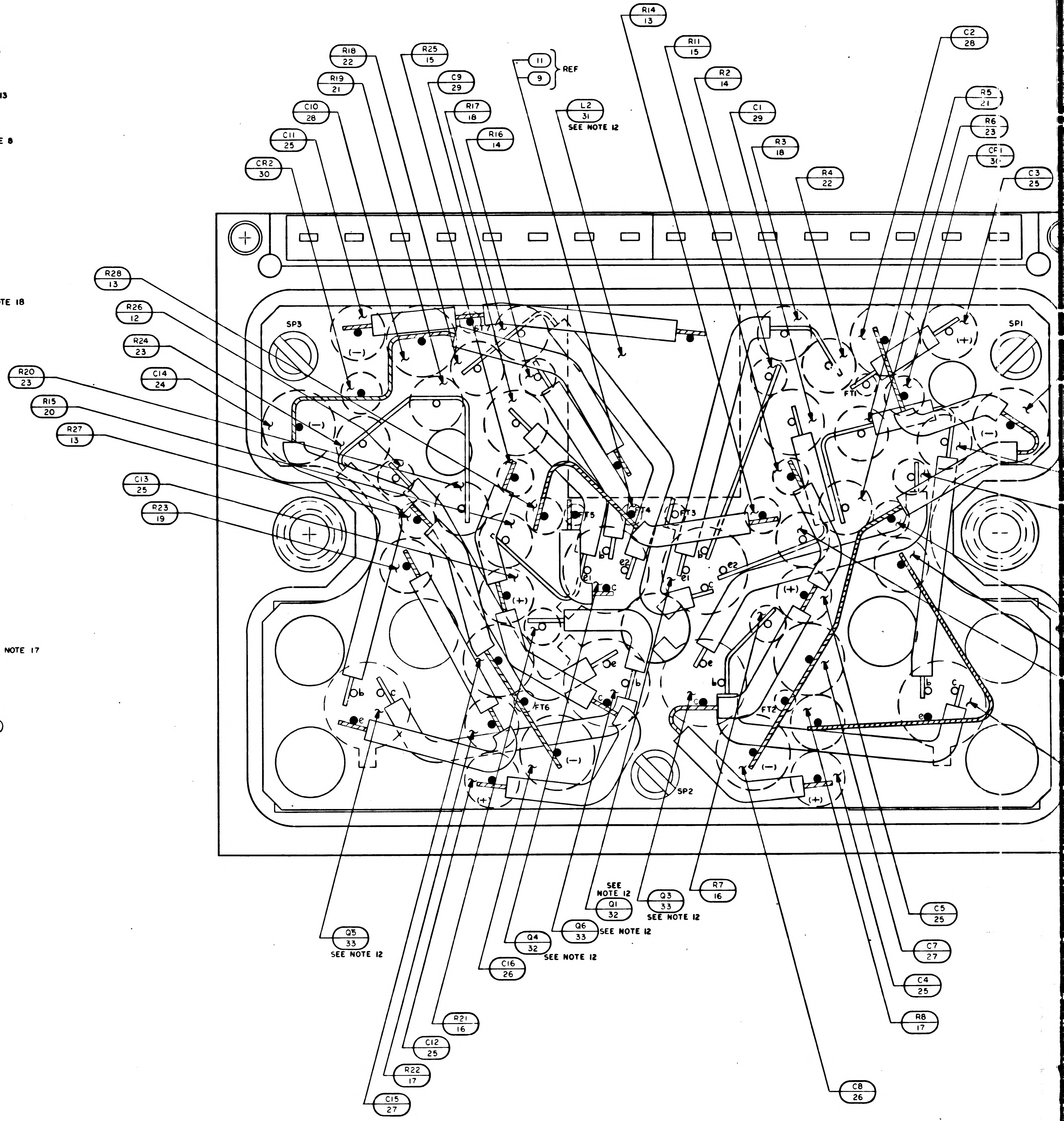
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION
2 SIDES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R25 15
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R2 14
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R17 18
L2 31
SEE NOTE 12
C1 29
R5 21
R16 14
R6 23
C11 25
R3 18
CR1 30
CR2 30
R4 22
C3 25
R28 13
SP3
SP1
R26 12
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C14 24
R20 23
R15 20
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C13 25
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FT1
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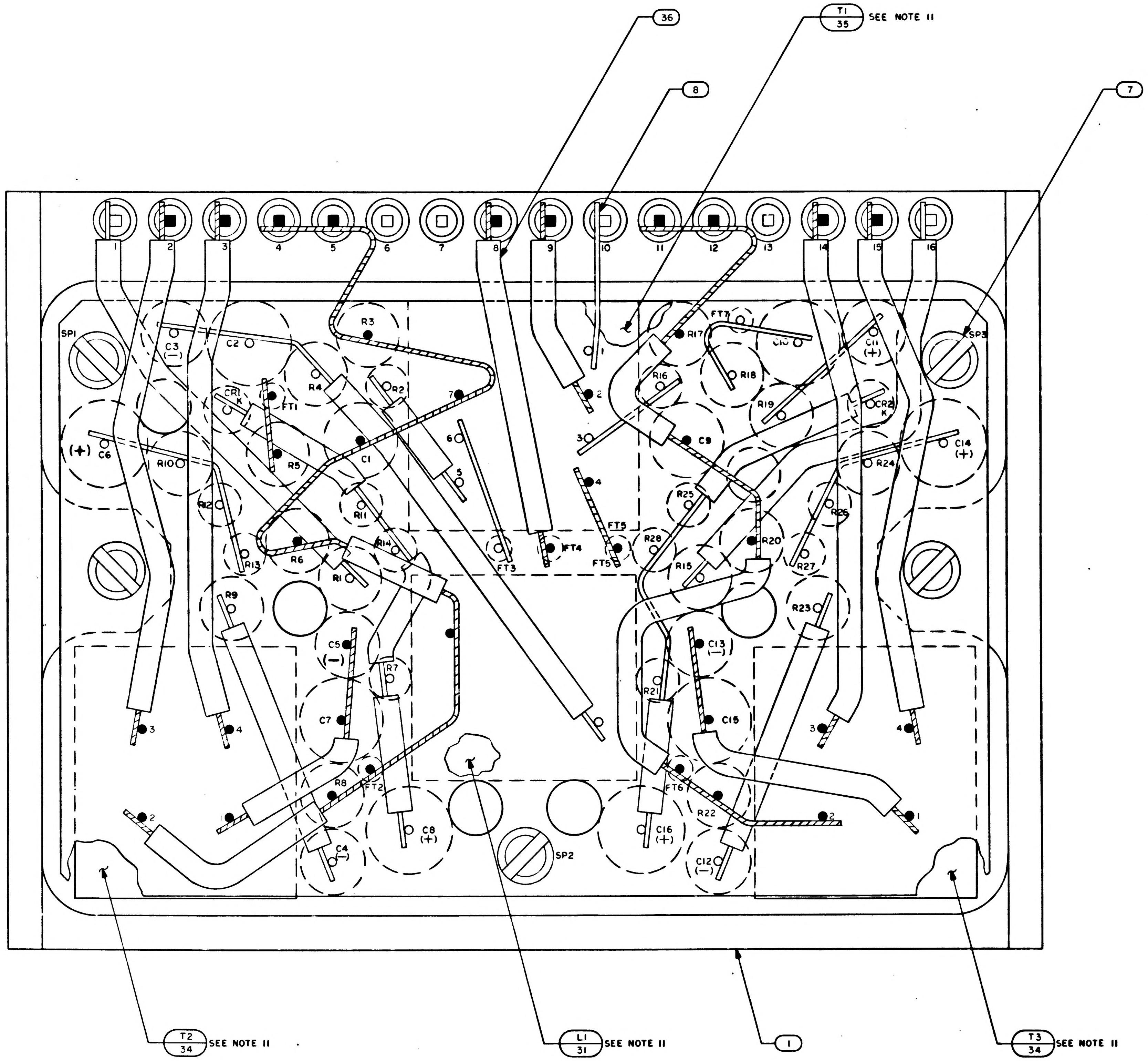
SEE NOTE 12
Q1 32
Q3 33
SEE NOTE 12
R7 16
Q6 33
SEE NOTE 12
Q5 33
SEE NOTE 12
Q4 32
SEE NOTE 12
C16 26
C5 25
C7 27
C4 25
R8 17
R21 16
C12 25
R22 17
C8 26
C15 27

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


36
T1
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SEE NOTE 11
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16
SP1
SP3
SP2
C1
C2
C3 (−)
C5 (−)
C6 (+)
C7
C8 (+)
C4 (−)
C9
C10
C11 (+)
C12 (−)
C13 (−)
C14 (+)
C15
C16 (+)
CR1 K
CR2 K
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R22
R23
R24
R25
R26
R27
R28
FT1
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FT7
T2
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SEE NOTE 11
L1
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SEE NOTE 11
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T3
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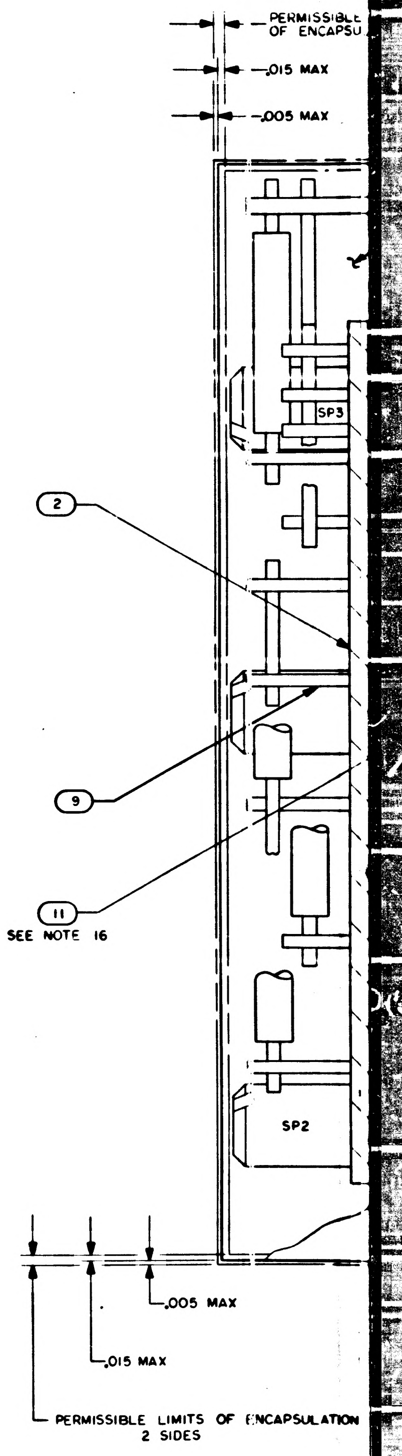
SEE NOTE 11


PERMISSIBLE LIMITS OF ENCAPSU
.015 MAX
.005 MAX
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SEE NOTE 16
SP2
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION 2 SIDES

NOTES:

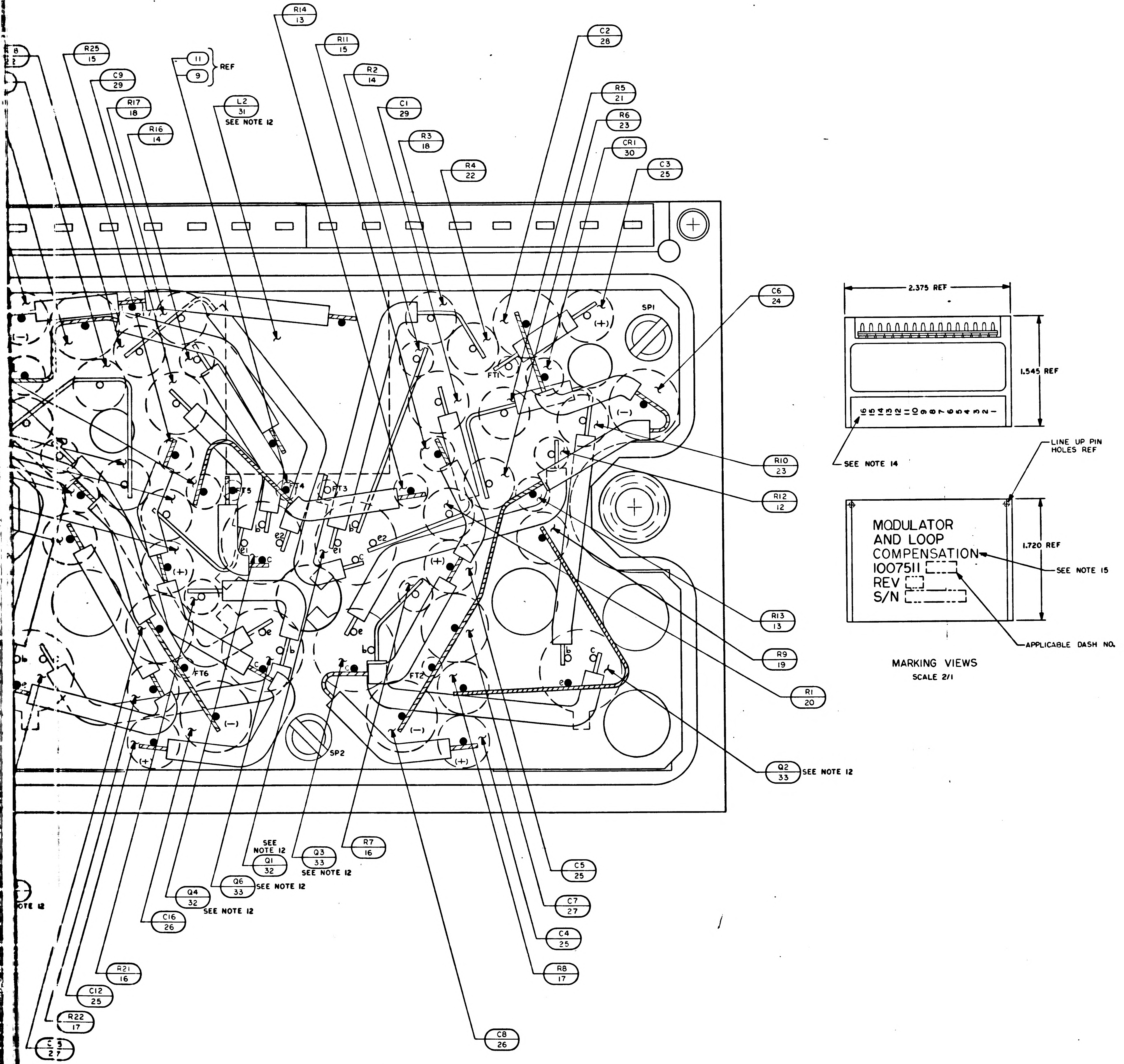
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. K DENOTES CATHODE SIDE OF DIODE
5. SP DENOTES SPACER
6. + INDICATES POSITIVE SIDE OF CAPACITOR
7. WELD PER ND1002005
8. ASSEMBLE FIND NO.4 AND FIND NO.5 PER ND1002136
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. BOND T1,T2,T3 AND L1 TO FIND NO.2 PER ND1002004, TYPE I
12. BOND Q1 THRU Q6 AND L2 TO FIND NO.3 PER ND1002004, TYPE I
13. BOND FIND NO.37 TO FIND NO 4 PER ND1002237
14. MARK .100/.060 HIGH WHITE CHARACTERS PER ND1002019. CENTRALIZE AS SHOWN
15. MARK .140/.100 HIGH WHITE CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
16. TYPICAL SLEEVING ALL FEED THRUS
17. ENCAPSULATE MODULE PER ND1002002 BLACK POLYURETHANE FOAM REMOVE ALL FLASHING
18. INDICATED AREA TO BE FREE OF ENCAPSULATION
19. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
20. PROCURE PER PS1007511

	REV LTR	SH
1007511	A	1

B	1007511		

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TORC 5108	9 APR 65	HTO EF
B	REVISED PER TDRR 18957	14 MAY 65	JJ EF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L2
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SEE NOTE 12
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R5
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R6
23
R16
14
R3
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CR1
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R4
22
C3
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C6
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SP1
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FT3
FT5
FT6
SP2
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R9
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R1
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Q2
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SEE NOTE 12
R7
16
SEE NOTE 12
Q1
32
Q3
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SEE NOTE 12
Q6
33
SEE NOTE 12
Q4
32
SEE NOTE 12
OTE 12
C16
26
C5
25
C7
27
C4
25
R8
17
R21
16
C12
25
R22
17
5
27
C8
26
2.375 REF
1.545 REF
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 14
LINE UP PIN HOLES REF
1.720 REF
MODULATOR AND LOOP COMPENSATION 1007511
REV
S/N
SEE NOTE 15
APPLICABLE DASH NO.

MARKING VIEWS
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	1009521	SCHEMATIC	REF
2	1008540-8	GASKET	37
AR	1006776-21	INSULATION SLEEVING	36
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2	1010277-6	INDUCTOR	31
2	1010830-11	DIODE	30
2	1010279-111	CAPACITOR	29
2	1010264-13	CAPACITOR	28
2	1010264-11	CAPACITOR	27
2	1006755-79	CAPACITOR	26
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2	1006755-13	CAPACITOR	24
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2	1010364-579	RESISTOR	21
2	1010364-501	RESISTOR	20
2	1010364-543	RESISTOR	19
2	1010364-443	RESISTOR	18
2	1010364-379	RESISTOR	17
2	1006750-77	RESISTOR	16
2	1006750-46	RESISTOR	15
2	1006750-39	RESISTOR	14
4	1006750-36	RESISTOR	13
2	1006750-17	RESISTOR	12
AR	1006776-22	INSULATION SLEEVING	11
AR	1006776-20	INSULATION SLEEVING	10
AR	1006757-8	WIRE, ELECTRICAL	9
AR	1006757-1	WIRE, ELECTRICAL	8
8	1008161-3	SCREW, CAP SLOTTED HD SPECIAL	7
3	1015135-020	SPACER	6
16	1006782-5	CONTACT, WRAPOST-MALE, MIN	5
16	1006775	INSULATOR, WRAPOST-MALE, MIN	4
1	1008508	WIRING BOARD, BOTTOM	3
1	1008506	WIRING BOARD, TOP	2
1	1008509	FRAME	1
-011	LIST OF MATERIALS		

1007580	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ±— DECIMALS .XXX ± .005 .XX ± .02 ANGLES ±—
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT
DRAWN DATE
CHECKED
APPROVAL 5 Nov 64
APPROVAL 11-9-64
NASA APPROVAL W J Rhine 11-12-64
MIT APPROVAL 12 Nov

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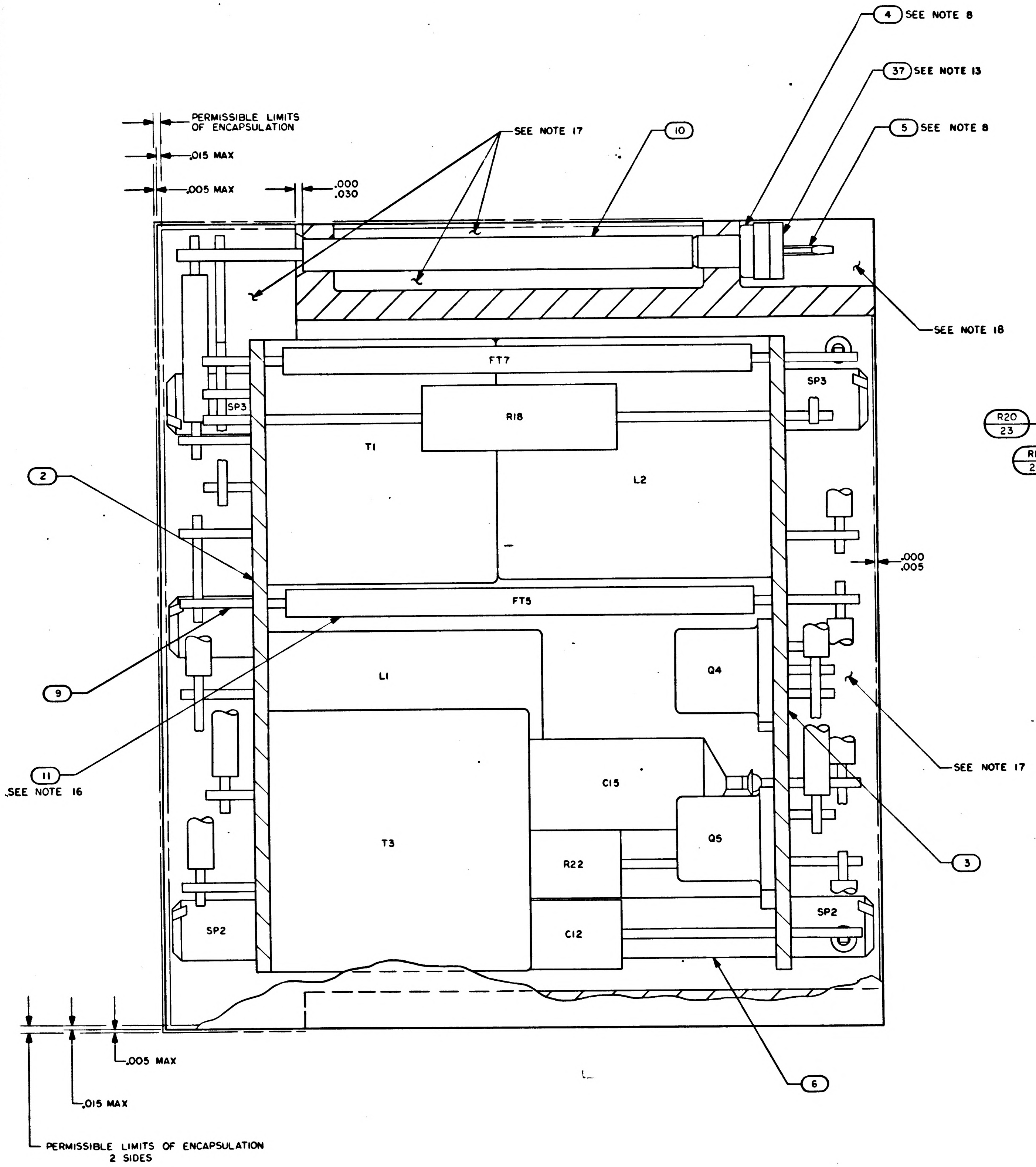
HOUSTON, TEXAS

MODULATOR AND LOOP COMPENSATION ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007511
SCALE 10/1
WT —
SHEET OF 1

1007511	REV LTR B	SH 1

3/-1007511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37 SEE NOTE 13
5 SEE NOTE 8
SEE NOTE 17
10
PERMISSIBLE LIMITS OF ENCAPSULATION
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.005 MAX
.000 .030
SEE NOTE 18
FT7
SP3
R18
T1
L2
2
.000 .005
FT5
9
L1
Q4
SEE NOTE 17
11 SEE NOTE 16
C15
T3
Q5
3
R22
C12
SP2
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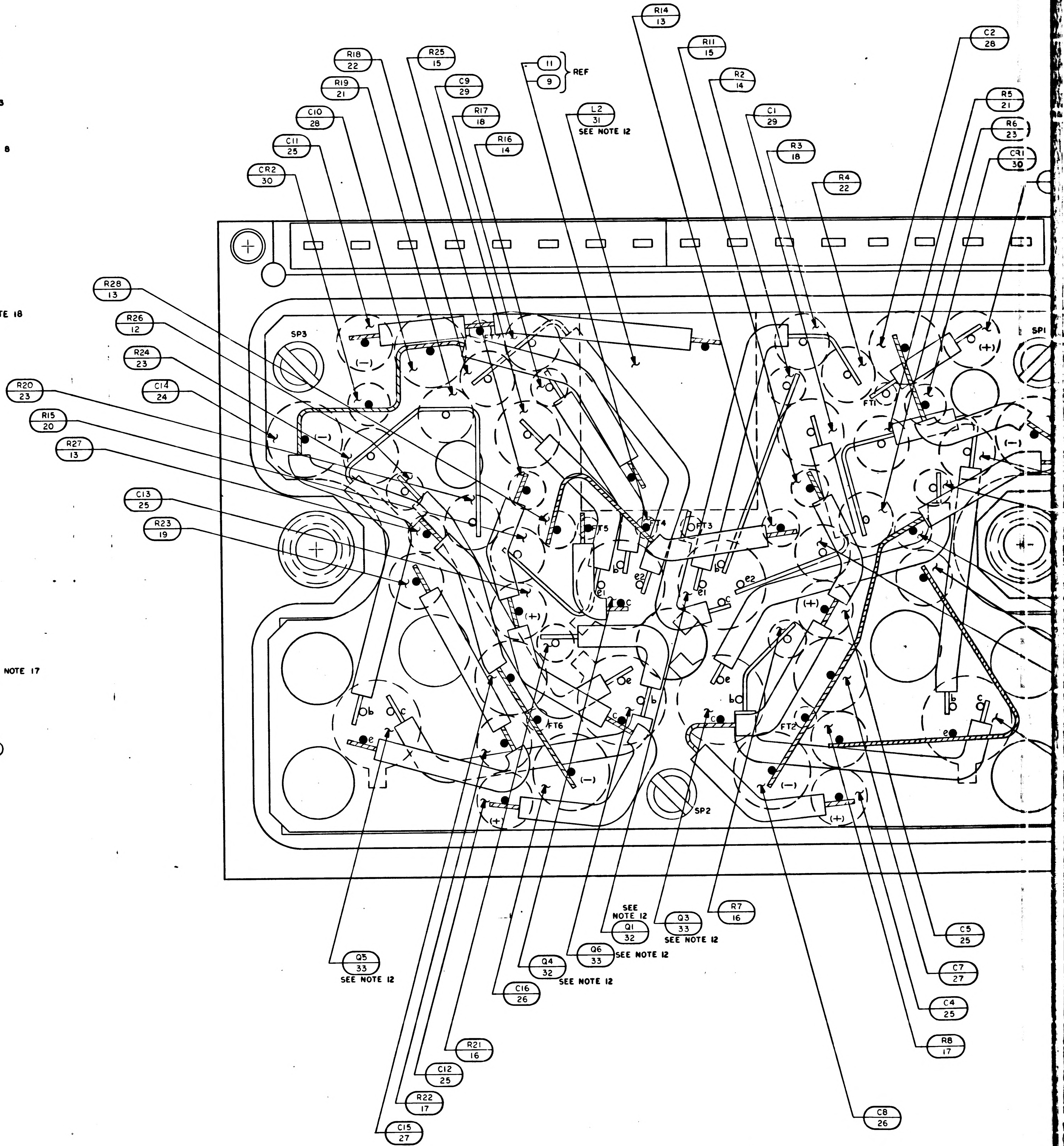
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION 2 SIDES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R25 15
11 9 REF
C9 29
R2 14
R19 21
R17 18
L2 31 SEE NOTE 12
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R5 21
C10 28
R16 14
R6 23
C11 25
R3 18
CR1 30
CR2 30
R4 22
R28 13
R26 12
R24 23
C14 24
R20 23
R15 20
R27 13
C13 25
R23 19
SP3
SP1
SP2
FT1
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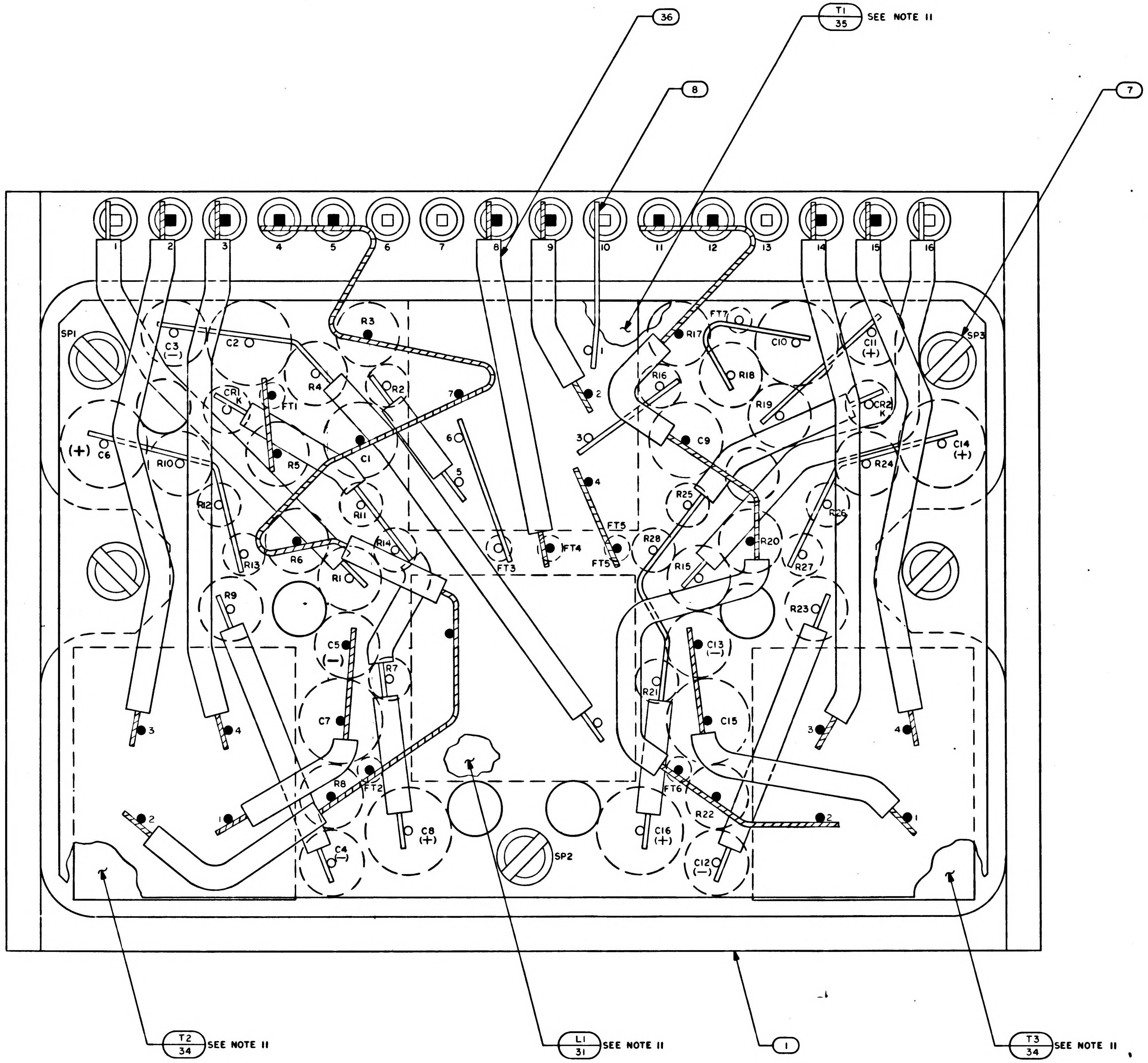
b c e e1 e2
Q5 33 SEE NOTE 12
C16 26
Q4 32 SEE NOTE 12
Q6 33 SEE NOTE 12
SEE NOTE 12 Q1 32
Q3 33 SEE NOTE 12
R7 16
C5 25
C7 27
C4 25
R8 17
C8 26
R21 16
C12 25
R22 17
C15 27

1007511	REV LTR B	SH 1

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO


36
T1 / 35 SEE NOTE 11
8
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
SP1
SP2
SP3
C1 C2 C3 (−) C4 (−) C5 (−) C6 (+) C7 C8 (+) C9 C10 C11 (+) C12 (−) C13 (−) C14 (+) C15 C16 (+)
R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14 R15 R16 R17 R18 R19 R20 R21 R22 R23 R24 R25 R26 R27 R28
CR1 K
CR2 K
FT1 FT2 FT3 FT4 FT5 FT6 FT7
T2 / 34 SEE NOTE 11
L1 / 31 SEE NOTE 11
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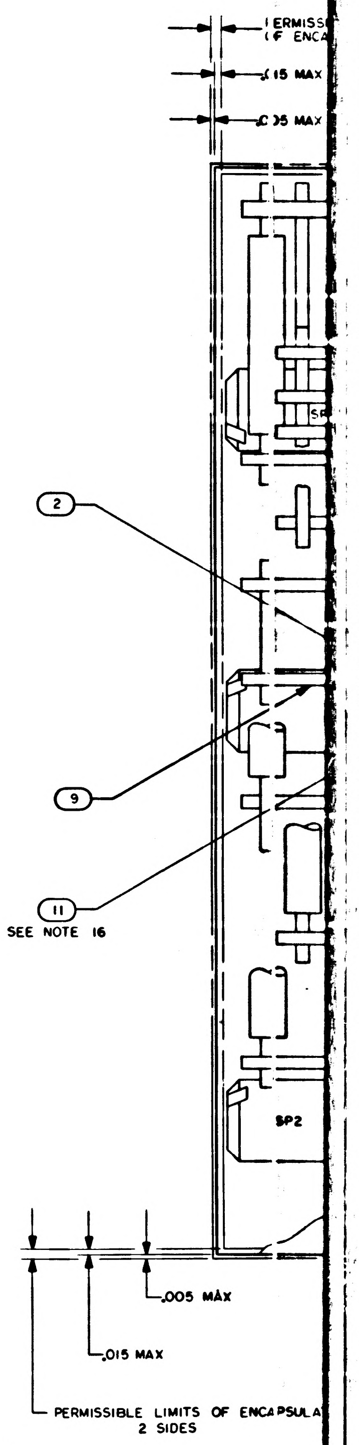
T3 / 34 SEE NOTE 11


ERMISS
(F ENCA
.015 MAX
.005 MAX
SP
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11
SEE NOTE 16
SP2
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULA
2 SIDES

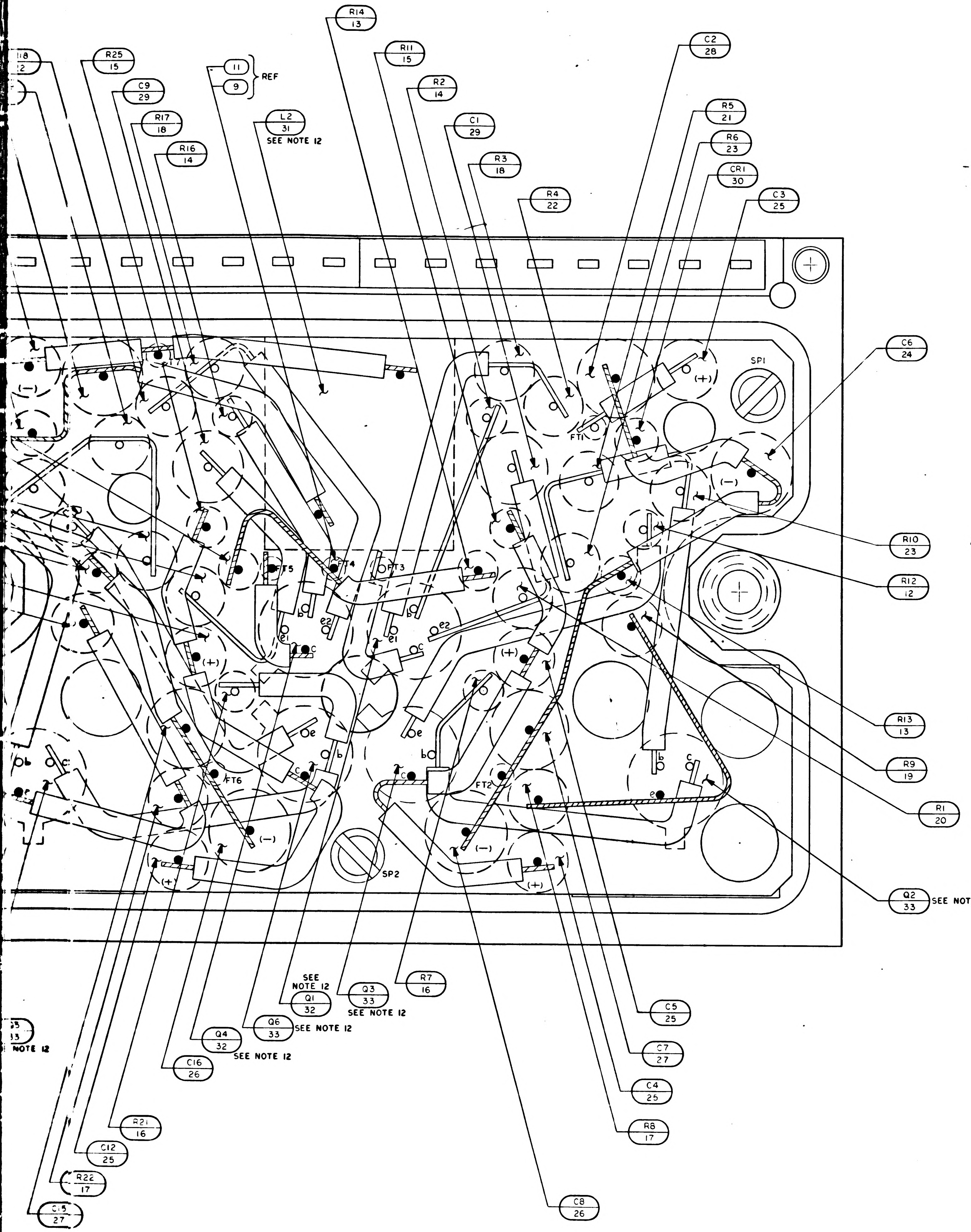
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. K DENOTES CATHODE SIDE OF DIODE
5. SP DENOTES SPACER
6. + INDICATES POSITIVE SIDE OF CAPACITOR
7. WELD PER ND1002005
8. ASSEMBLE FIND NO.4 AND FIND NO.5 PER ND1002136
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. BOND T1, T2, T3 AND L1 TO FIND NO.2 PER ND1002004, TYPE I
12. BOND Q1 THRU Q6 AND L2 TO FIND NO.3 PER ND1002004, TYPE I
13. BOND FIND NO.37 TO FIND NO 4 PER ND1002237
14. MARK .100/.060 HIGH WHITE CHARACTERS PER ND1002019. CENTRALIZE AS SHOWN
15. MARK .140/.100 HIGH WHITE CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
16. TYPICAL SLEEVING ALL FEED THRUS
17. ENCAPSULATE MODULE PER ND1002002 BLACK POLYURETHANE FOAM REMOVE ALL FLASHING
18. INDICATED AREA TO BE FREE OF ENCAPSULATION
19. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
20. PROCURE PER PS1007511

	REV LTR	SH
1007511	B	1

1007511 C

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18108	9 APR 65	NP EF
B	REVISED PER TDRR 18957	14 MAY 65	JJJ EF
C	REVISED PER TDRR 19432	1 JUN 65	WP



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R25 15
C9 29
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R16 14
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9
REF
L2 31
SEE NOTE 12
R14 13
R11 15
R2 14
C1 29
R3 18
R4 22
C2 28
R5 21
R6 23
CR1 30
C3 25
SP1
FT1
FT3
FT5
FT4
FT6
FT2
SP2
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C6 24
R10 23
R12 12
R13 13
R9 19
R1 20
Q2 33
SEE NOTE 12
R7 16
Q3 33
SEE NOTE 12
SEE NOTE 12
Q1 32
Q6 33
SEE NOTE 12
Q4 32
SEE NOTE 12
C16 26
R21 16
C12 25
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33
NOTE 12
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C4 25
R8 17
C8 26
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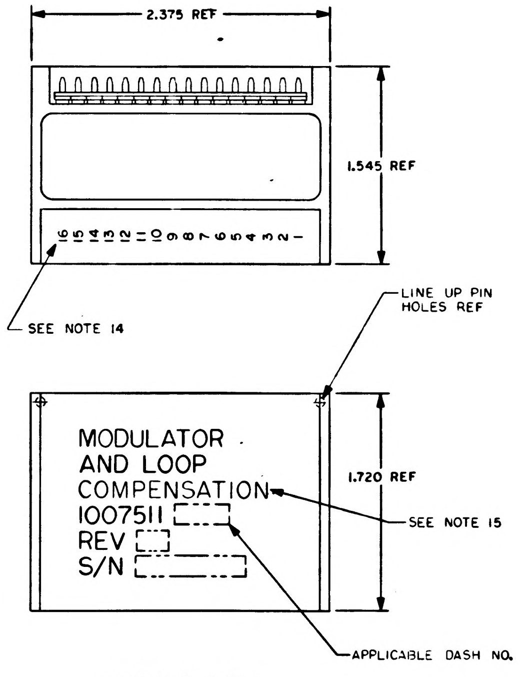


2.375 REF
1.545 REF
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 14
LINE UP PIN HOLES REF
1.720 REF
MODULATOR
AND LOOP
COMPENSATION
1007511
REV
S/N
SEE NOTE 15
APPLICABLE DASH NO.

MARKING VIEWS
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
	1009521	SCHEMATIC	REF
2	1008540-8	GASKET	37
AR	1006776-21	INSULATION SLEEVING	36
1	1010753	TRANSFORMER	35
2	1010759	TRANSFORMER	34
4	1010397-1	TRANSISTOR	33
2	1010367	TRANSISTOR	32
2	1010277-6	INDUCTOR	31
2	1010830-11	DIODE	30
2	1010279-111	CAPACITOR	29
2	1010264-13	CAPACITOR	28
2	1010264-11	CAPACITOR	27
2	1006755-79	CAPACITOR	26
6	1006755-69	CAPACITOR	25
2	1006755-13	CAPACITOR	24
4	1010364-693	RESISTOR	23
2	1010364-619	RESISTOR	22
2	1010364-579	RESISTOR	21
2	1010364-501	RESISTOR	20
2	1010364-543	RESISTOR	19
2	1010364-443	RESISTOR	18
2	1010364-379	RESISTOR	17
2	1006750-77	RESISTOR	16
2	1006750-46	RESISTOR	15
2	1006750-39	RESISTOR	14
4	1006750-36	RESISTOR	13
2	1006750-17	RESISTOR	12
AR	1006776-22	INSULATION SLEEVING	11
AR	1006776-20	INSULATION SLEEVING	10
AR	1006757-8	WIRE, ELECTRICAL	9
AR	1006757-1	WIRE, ELECTRICAL	8
8	1008161-3	SCREW, CAP SLOTTED HD SPECIAL	7
3	1015135-020	SPACER	6
16	1006782-5	CONTACT, WRAPOST-MALE, MIN	5
16	1006775	INSULATOR, WRAPOST-MALE, MIN	4
1	1008508	WIRING BOARD, BOTTOM	3
1	1008506	WIRING BOARD, TOP	2
1	1008509	FRAME	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
1007580	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .02 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN D Mahoney DATE 18 Sep 64
CHECKED
APPROVAL 5 Nov 64
APPROVAL 11-9-64
NASA APPROVAL 11-12-64
MIT APPROVAL 12 Nov 64

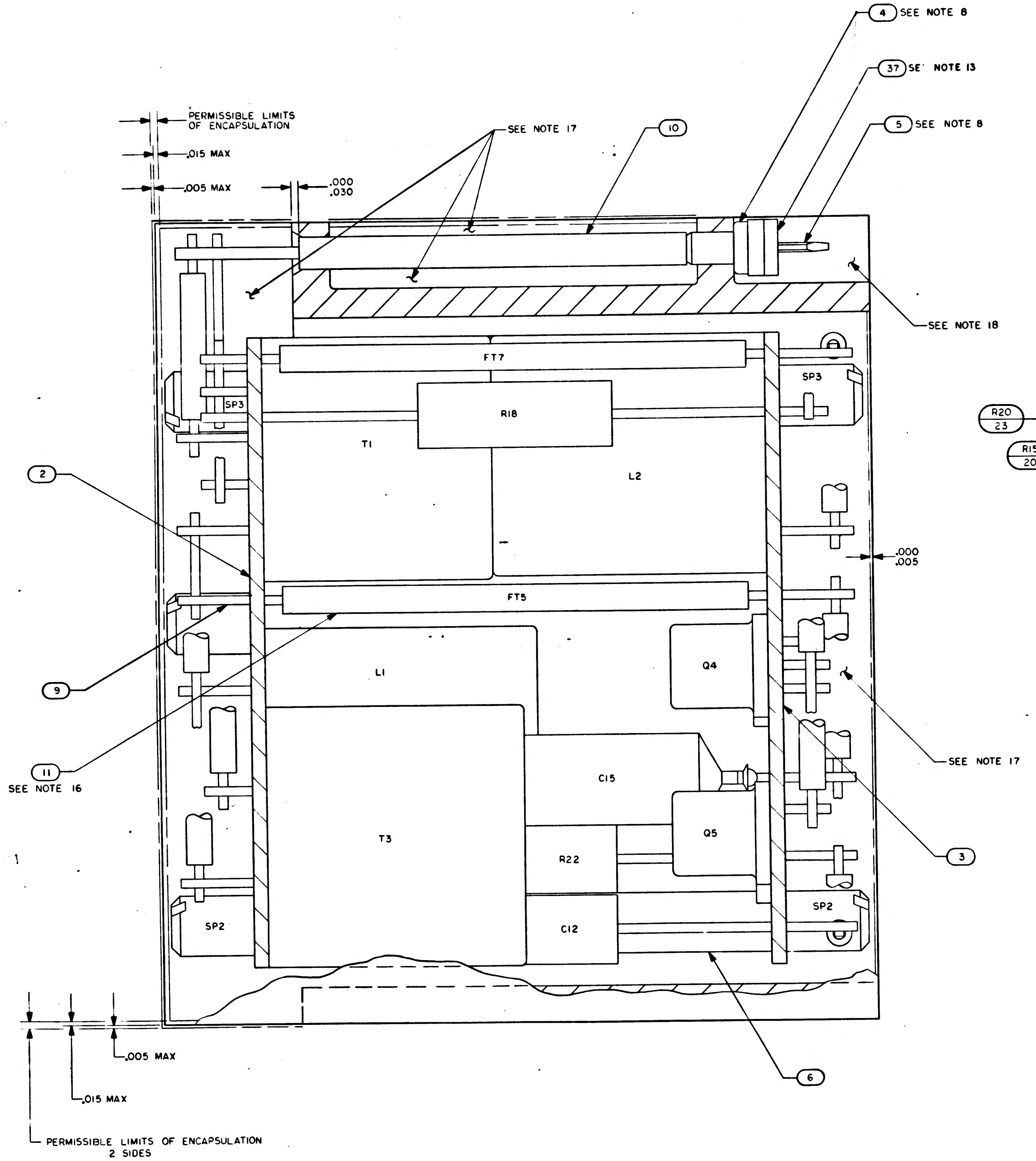
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MODULATOR AND
LOOP COMPENSATION
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO 1007511
SCALE 10/1
WT —
SHEET 1 OF 1

1007511 REV C SH 1

3/1007511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.005 MAX
.000 .030
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4 SEE NOTE 8
37 SEE NOTE 13
5 SEE NOTE 8
SEE NOTE 18
FT7
SP3
SP3
R18
T1
L2
2
.000 .005
FT5
9
L1
Q4
SEE NOTE 17
11
SEE NOTE 16
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Q5
3
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C12
SP2
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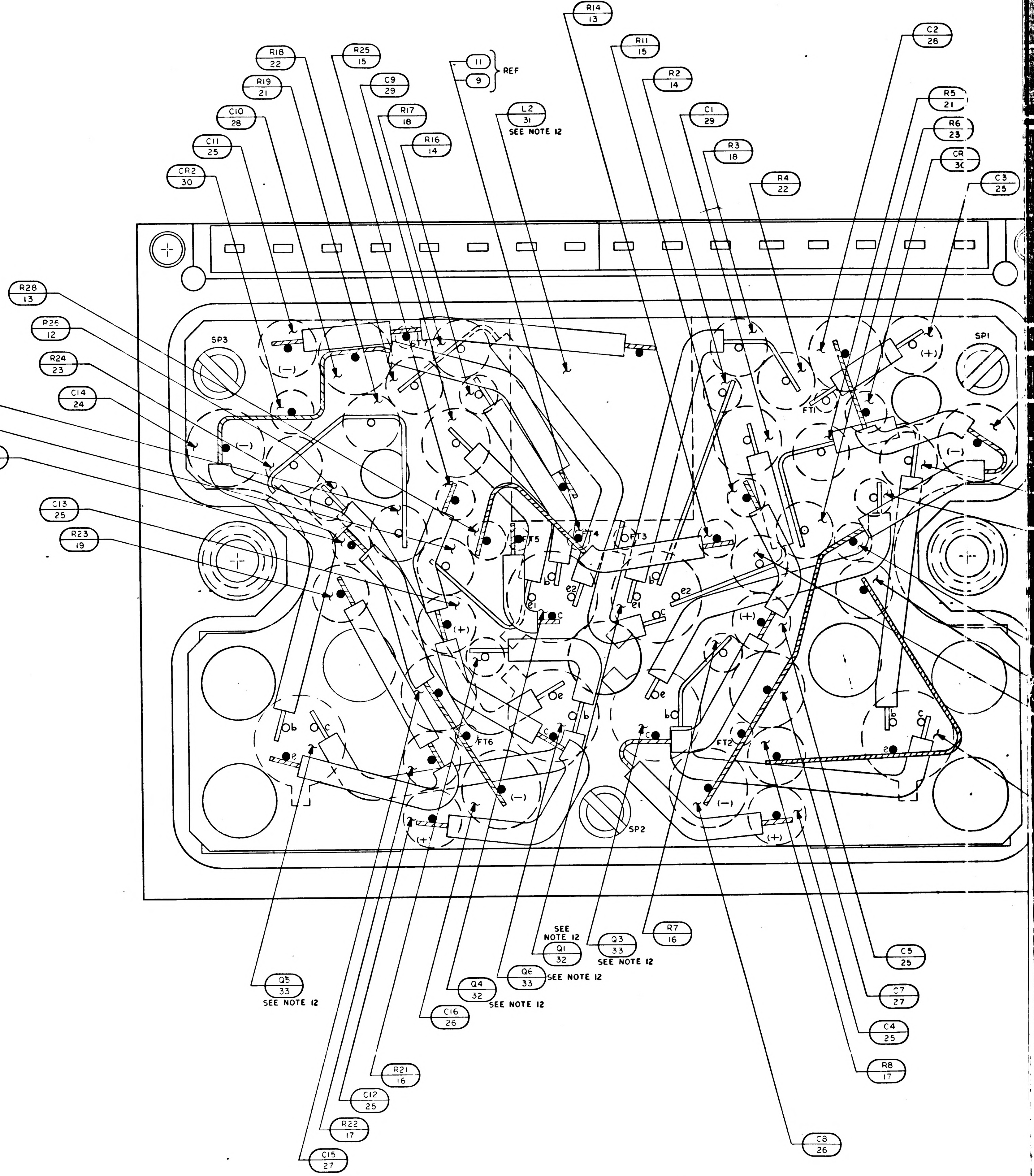
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION 2 SIDES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R2 14
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SEE NOTE 12
C1 29
R5 21
R6 23
C11 25
R16 14
R3 18
CR 30
CR2 30
R4 22
C3 25
R28 13
R26 12
R24 23
C14 24
R20 23
R15 20
R27 13
C13 25
R23 19
SP3
SP1
SP2
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FT2
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FT6
FT7
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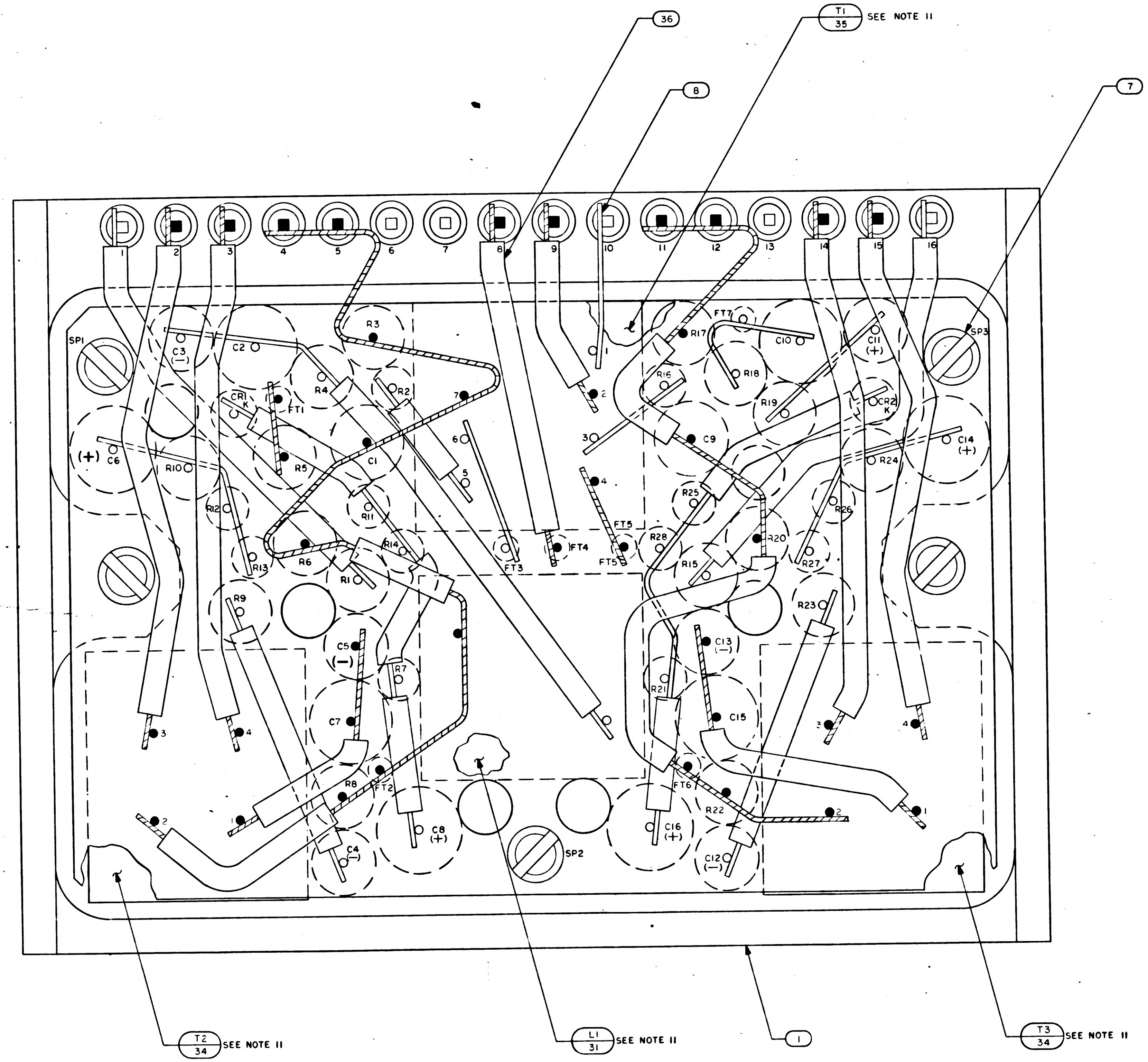
SEE NOTE 12
Q1 32
Q3 33
SEE NOTE 12
R7 16
C5 25
Q5 33
SEE NOTE 12
Q4 32
Q6 33
SEE NOTE 12
SEE NOTE 12
C7 27
C16 26
C4 25
R8 17
R21 16
C12 25
R22 17
C8 26
C15 27

1007511 REV LTR C SH 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO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SEE NOTE 11
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7
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12
13
14
15
16
SP1
SP2
SP3
C1
C2
C3 (−)
C4 (−)
C5 (−)
C6 (+)
C7
C8 (+)
C9
C10
C11 (+)
C12 (−)
C13 (−)
C14 (+)
C15
C16 (+)
CR1 K
CR2 K
FT1
FT2
FT3
FT4
FT5
FT6
FT7
R1
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R4
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R15
R16
R17
R18
R19
R20
R21
R22
R23
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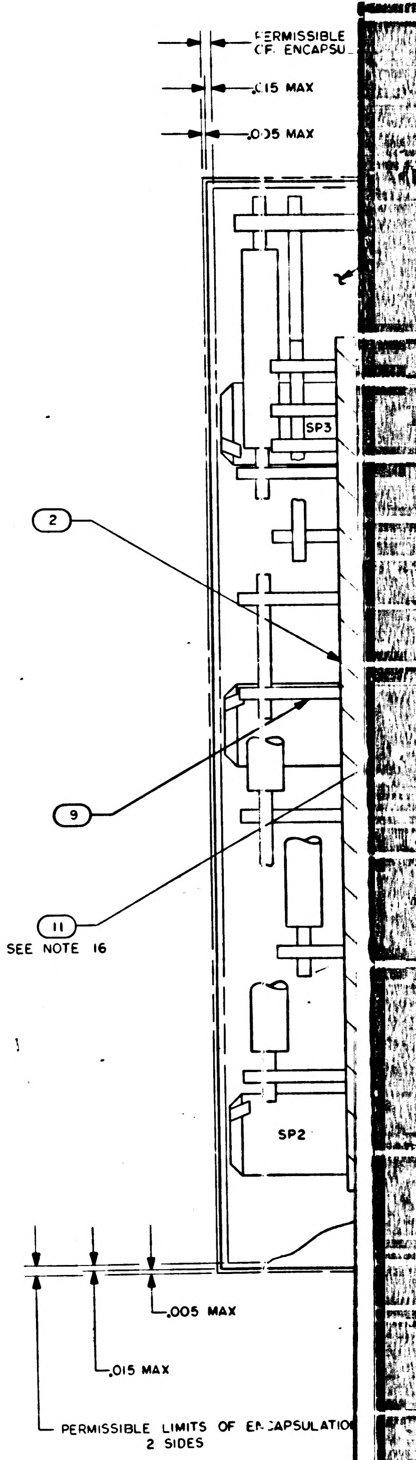
R25
R26
R27
R28
T2
34
SEE NOTE 11
L1
31
SEE NOTE 11
1
T3
34
SEE NOTE 11

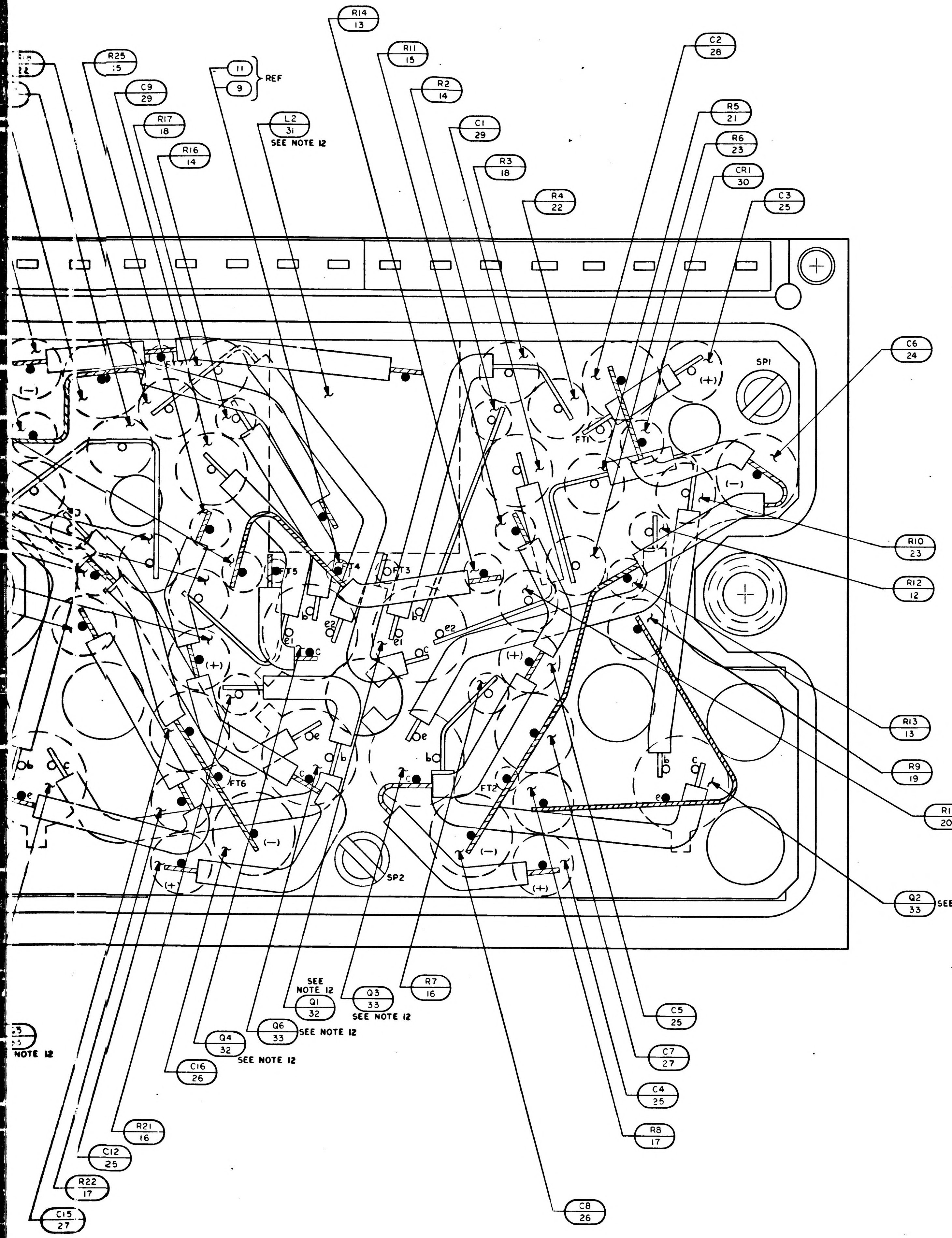

PERMISSIBLE LIMITS OF ENCAPSU
.015 MAX
.005 MAX
SP3
2
9
11
SEE NOTE 16
SP2
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATIO
2 SIDES

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. K DENOTES CATHODE SIDE OF DIODE
5. SP DENOTES SPACER
6. + INDICATES POSITIVE SIDE OF CAPACITOR
7. WELD PER ND1002005
8. ASSEMBLE FIND NO.4 AND FIND NO.5 PER ND1002136
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. BOND T1,T2,T3 AND L1 TO FIND NO.2 PER ND1002004, TYPE I
12. BOND Q1 THRU Q6 AND L2 TO FIND NO.3 PER ND1002004, TYPE I
13. BOND FIND NO.37 TO FIND NO 4 PER ND1002237
14. MARK .100/.060 HIGH WHITE CHARACTERS PER ND1002019. CENTRALIZE AS SHOWN
15. MARK .140/.100 HIGH WHITE CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
16. TYPICAL SLEEVING ALL FEED THRUS
17. ENCAPSULATE MODULE PER ND1002002 BLACK POLYURETHANE FOAM REMOVE ALL FLASHING
18. INDICATED AREA TO BE FREE OF ENCAPSULATION
19. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
20. PROCURE PER PS1007511
21. *CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND 1002187 TYPE II.*

1007511	D

REVISIONS 14' 51			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER IURR 18108	9 APR 65	℞ EF
B	REVISED PER IURR 18957	14 MAY 65	JJ EF
C	REVISED PER IURR 19432	JUN 65	[illegible]
D	REVISED PER IURR 19454	10 JUN 65	[illegible]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R11 15
R2 14
C1 29
R3 18
R4 22
C2 28
R5 21
R6 23
CR1 30
C3 25
R25 15
C9 29
R17 18
R16 14
11
9
REF
L2 31
SEE NOTE 12
SP1
FT1
FT2
FT3
FT4
FT5
FT6
SP2
C6 24
R10 23
R12 12
R13 13
R9 19
R1 20
Q2 33
SEE NOTE 12
R7 16
Q3 33
SEE NOTE 12
SEE NOTE 12
Q1 32
Q6 33
SEE NOTE 12
Q4 32
SEE NOTE 12
C16 26
R21 16
C12 25
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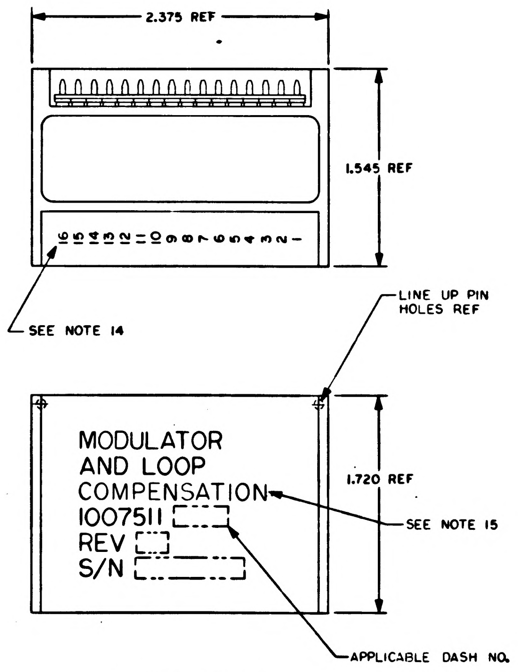
C7 27
C4 25
R8 17
C8 26


2.375 REF
1.545 REF
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 14
LINE UP PIN HOLES REF
MODULATOR
AND LOOP
COMPENSATION
1007511
REV
S/N
1.720 REF
SEE NOTE 15
APPLICABLE DASH NO.

MARKING VIEWS
SCALE 2/1

	1009521	SCHEMATIC	REF
2	1008540-8	GASKET	37
AR	1006776-21	INSULATION SLEEVING	36
1	1010753	TRANSFORMER	35
2	1010759	TRANSFORMER	34
4	1010397-1	TRANSISTOR	33
2	1010367	TRANSISTOR	32
2	1010277-6	INDUCTOR	31
2	1010830-11	DIODE	30
2	1010279-111	CAPACITOR	29
2	1010264-13	CAPACITOR	28
2	1010264-11	CAPACITOR	27
2	1006755-79	CAPACITOR	26
6	1006755-69	CAPACITOR	25
2	1006755-13	CAPACITOR	24
4	1010364-693	RESISTOR	23
2	1010364-619	RESISTOR	22
2	1010364-579	RESISTOR	21
2	1010364-501	RESISTOR	20
2	1010364-543	RESISTOR	19
2	1010364-443	RESISTOR	18
2	1010364-379	RESISTOR	17
2	1006750-77	RESISTOR	16
2	1006750-46	RESISTOR	15
2	1006750-39	RESISTOR	14
4	1006750-36	RESISTOR	13
2	1006750-17	RESISTOR	12
AR	1006776-22	INSULATION SLEEVING	11
AR	1006776-20	INSULATION SLEEVING	10
AR	1006757-8	WIRE, ELECTRICAL	9
AR	1006757-1	WIRE, ELECTRICAL	8
8	1008161-3	SCREW, CAP SLOTTED HD SPECIAL	7
3	1015135-020	SPACER	6
16	1006782-5	CONTACT, WRAPOST-MALE, MIN	5
16	1006775	INSULATOR, WRAPOST-MALE, MIN	4
1	1008508	WIRING BOARD, BOTTOM	3
1	1008506	WIRING BOARD, TOP	2
1	1008509	FRAME	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
-011	LIST OF MATERIALS		

1007580	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .02 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN DATE
CHECKED
APPROVAL 13 Nov 64
APPROVAL 11-9-64
NASA APPROVAL 11-12-64
MIT APPROVAL 12 Nov 64

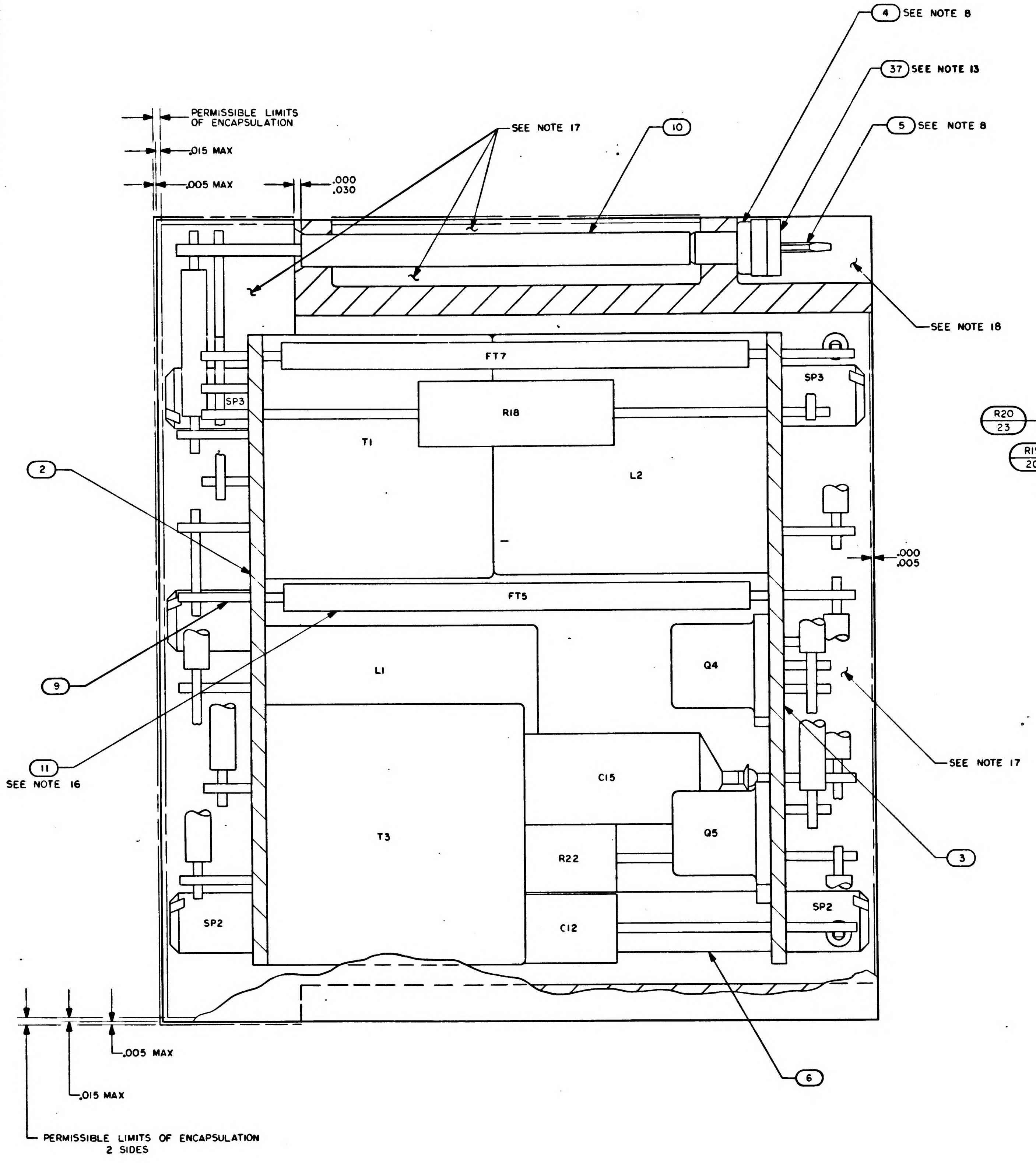
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MODULATOR AND LOOP COMPENSATION ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007511
SCALE 10/1
WT —
SHEET 1 OF 1

1007511	REV LTR D	SH 1

3/1007511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.005 MAX
.000
.030
SEE NOTE 17
10
4 SEE NOTE 8
37 SEE NOTE 13
5 SEE NOTE 8
SEE NOTE 18
FT7
SP3
R18
SP3
T1
L2
2
.000
.005
FT5
L1
Q4
9
SEE NOTE 17
C15
11
SEE NOTE 16
T3
R22
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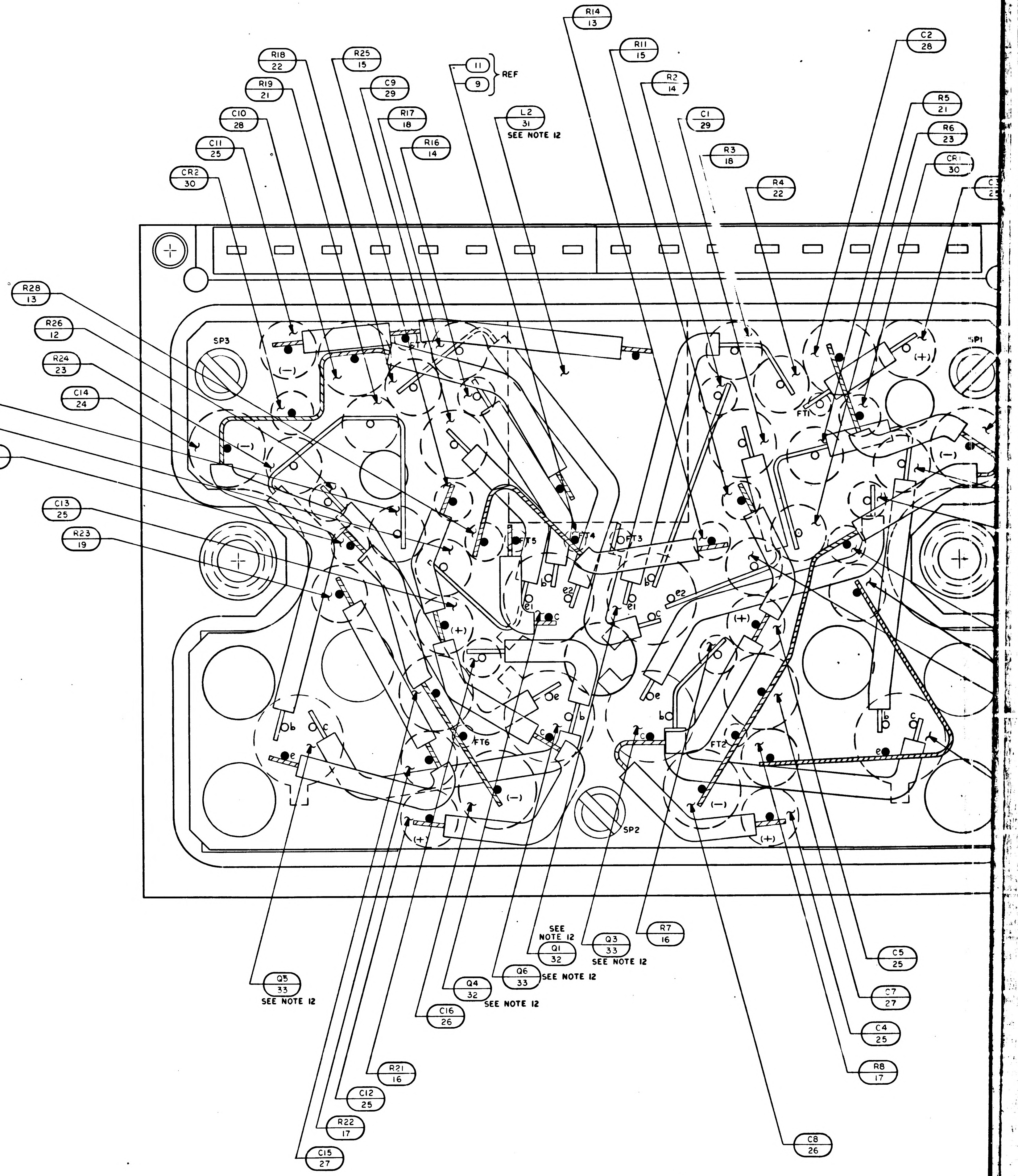
SP2
C12
SP2
6
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION
2 SIDES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R11 15
C2 28
R2 14
C10 28
R17 18
L2 31 SEE NOTE 12
C1 29
R5 21
C11 25
R16 14
R6 23
R3 18
CR1 30
CR2 30
R4 22
C3 25
R28 13
R26 12
R24 23
C14 24
R20 23
R15 20
R27 13
C13 25
R23 19
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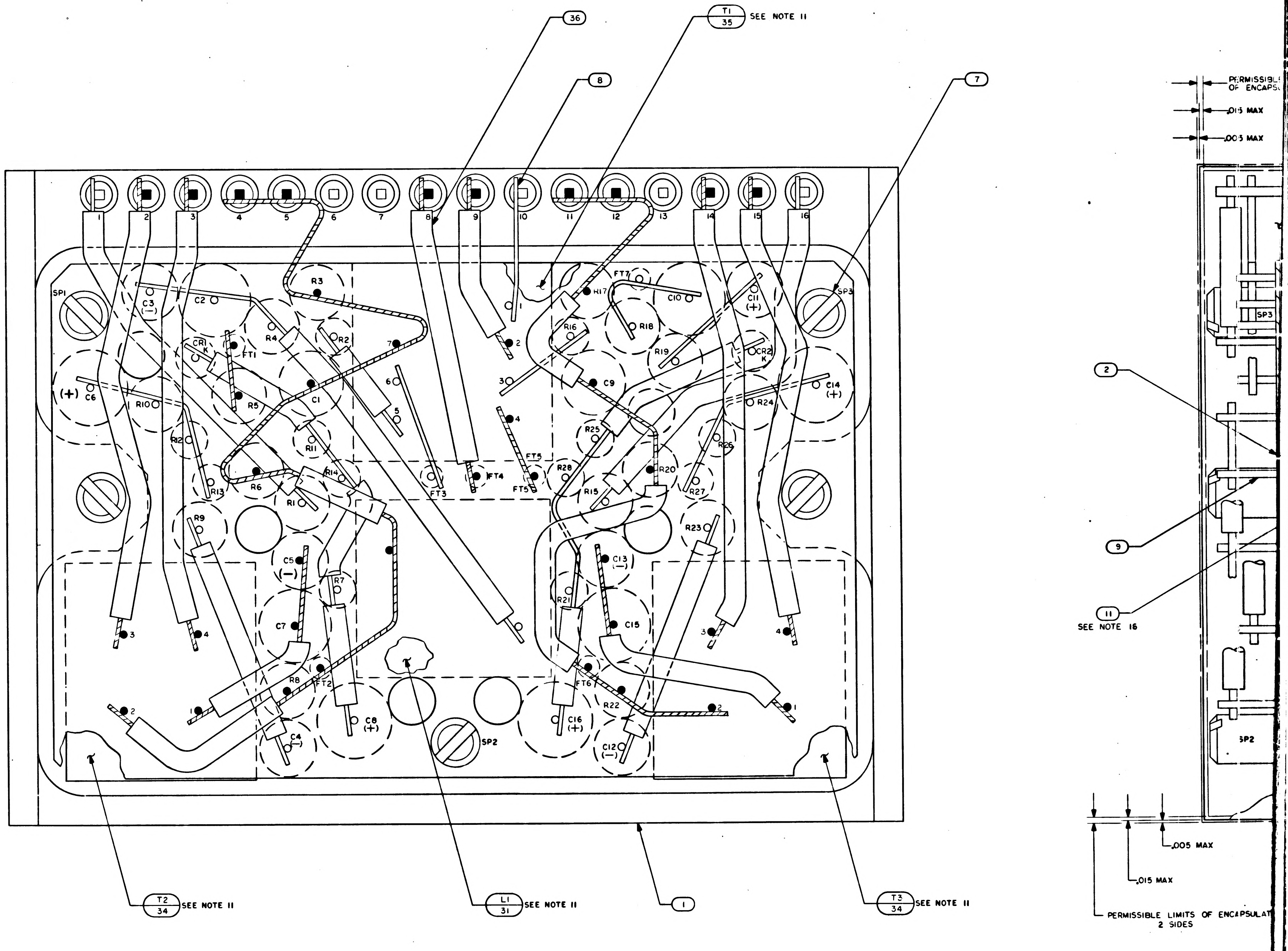
Q1 32
Q3 33 SEE NOTE 12
R7 16
Q6 33 SEE NOTE 12
C5 25
Q5 33 SEE NOTE 12
Q4 32 SEE NOTE 12
C16 26
C7 27
C4 25
R8 17
R21 16
C12 25
R22 17
C15 27
C8 26

1007511 REV LTR D SH 1

2/1007511

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO


36
T1
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SEE NOTE 11
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PERMISSIBLE LIMITS OF ENCAPSULATION
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.005 MAX
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R21
C15
FT6
R22
C16
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(−)
2
9
11
SEE NOTE 16
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION
2 SIDES
T2
34
SEE NOTE 11
L1
31
SEE NOTE 11
1
T3
34
SEE NOTE 11

NOTES:

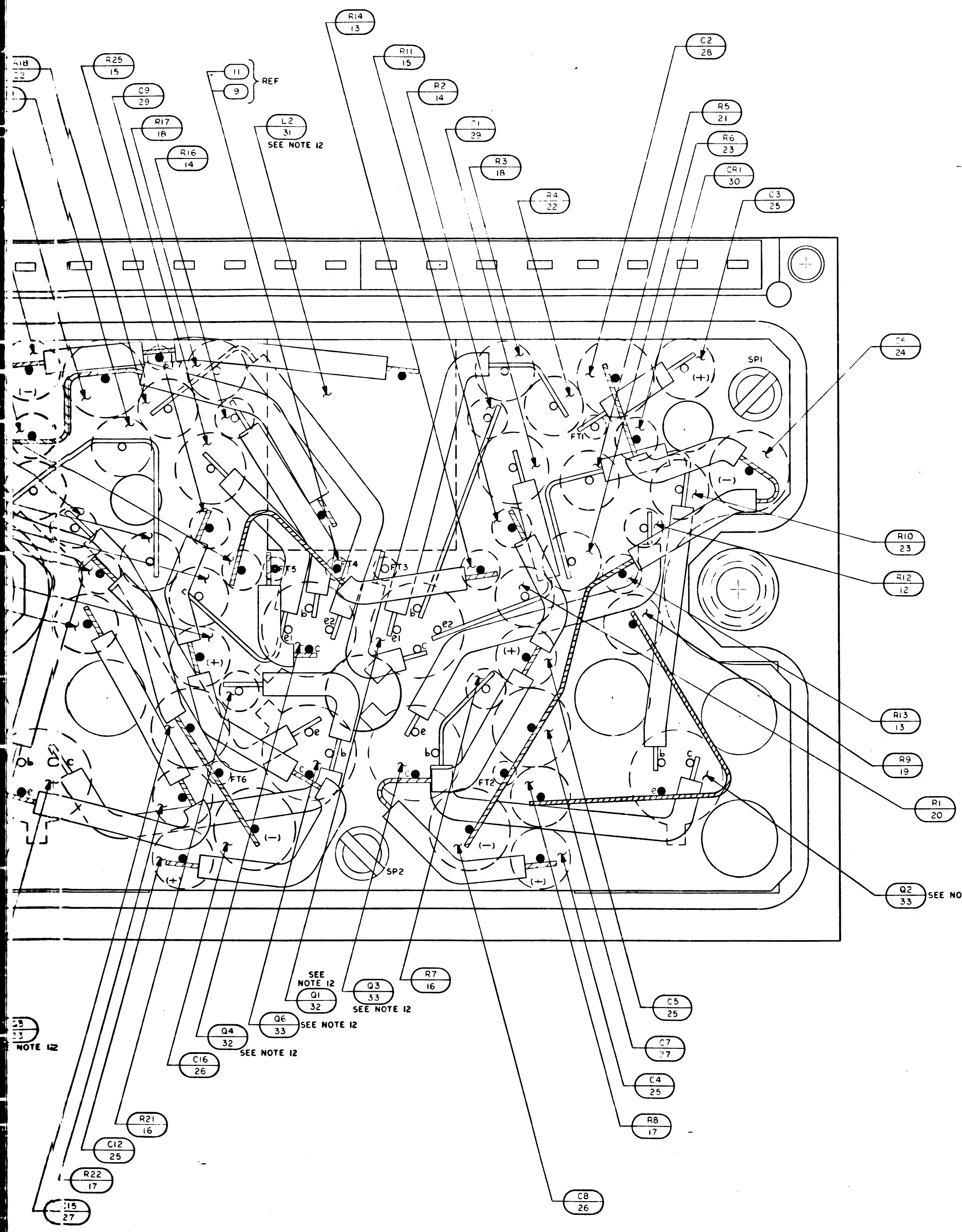
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. K DENOTES CATHODE SIDE OF DIODE
5. SP DENOTES SPACER
6. + INDICATES POSITIVE SIDE OF CAPACITOR
7. WELD PER ND1002005
8. ASSEMBLE FIND NO.4 AND FIND NO.5 PER ND1002136
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. BOND T1, T2, T3 AND L1 TO FIND NO.2 PER ND1002004, TYPE I
12. BOND Q1 THRU Q6 AND L2 TO FIND NO.3 PER ND1002004, TYPE I
13. BOND FIND NO.37 TO FIND NO 4 PER ND1002237
14. MARK .100/.060 HIGH WHITE CHARACTERS PER ND1002019. CENTRALIZE AS SHOWN
15. MARK .140/.100 HIGH WHITE CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
16. TYPICAL SLEEVING ALL FEED THRUS
17. ENCAPSULATE MODULE PER ND1002002 BLACK POLYURETHANE FOAM REMOVE ALL FLASHING
18. INDICATED AREA TO BE FREE OF ENCAPSULATION
19. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
20. PROCURE PER PS1007511
21. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .02 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
22. CLEAN MODULE WHERE POSSIBLE BY DEGASSING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
23. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

1007511	REV LTR D	SH 1

1007511	E

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TORR 18108	9 APR 65	HTD EF
B	REVISED PER TDRR 18957	14 MAY 65	JJJ EF
C	REVISED PER TDRR 19432	1 JUN 65	
D	REVISED PER TDRR 19484	10 JUN 65	
E	REVISED PER TDRR 20126	JUN 65	R.W.T.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R25
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R16
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L2
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SEE NOTE 12
R14
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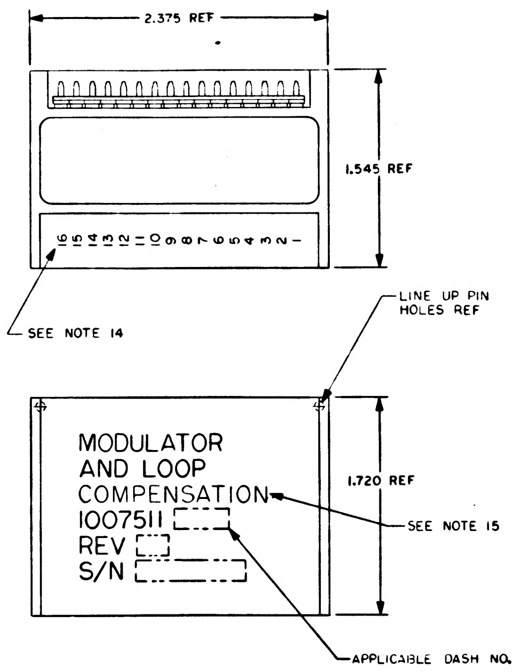
R11
15
R2
14
C1
29
R3
18
R4
22
C2
28
R5
21
R6
23
CR1
30
C3
25
C6
24
SP1
FT1
FT2
FT3
FT4
FT5
FT6
SP2
R10
23
R12
12
R13
13
R9
19
R1
20
Q2
33
SEE NOTE 12
C5
25
C7
27
C4
25
R8
17
C8
26
R7
16
Q3
33
SEE NOTE 12
SEE NOTE 12
Q1
32
Q6
33
SEE NOTE 12
Q4
32
SEE NOTE 12
C16
26
R21
16
C12
25
R22
17
C15
27
33
NOTE 12


2.375 REF
1.545 REF
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 14
LINE UP PIN HOLES REF
1.720 REF
MODULATOR
AND LOOP
COMPENSATION
1007511
REV
S/N
SEE NOTE 15
APPLICABLE DASH NO.

MARKING VIEWS
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1009521	SCHEMATIC	REF
2	1008540-8	GASKET	37
AR	1006776-21	INSULATION SLEEVING	36
1	1010753	TRANSFORMER	35
2	1010759	TRANSFORMER	34
4	1010397-1	TRANSISTOR	33
2	1010367	TRANSISTOR	32
2	1010277-6	INDUCTOR	31
2	1010830-11	DIODE	30
2	1010279-111	CAPACITOR	29
2	1010264-13	CAPACITOR	28
2	1010264-11	CAPACITOR	27
2	1006755-79	CAPACITOR	26
6	1006755-69	CAPACITOR	25
2	1006755-13	CAPACITOR	24
4	1010364-693	RESISTOR	23
2	1010364-619	RESISTOR	22
2	1010364-579	RESISTOR	21
2	1010364-501	RESISTOR	20
2	1010364-325	RESISTOR	19
2	1010364-443	RESISTOR	18
2	1010364-379	RESISTOR	17
2	1006750-77	RESISTOR	16
2	1006750-46	RESISTOR	15
2	1006750-39	RESISTOR	14
4	1006750-36	RESISTOR	13
2	1006750-17	RESISTOR	12
AR	1006776-22	INSULATION SLEEVING	11
AR	1006776-20	INSULATION SLEEVING	10
AR	1006757-8	WIRE, ELECTRICAL	9
AR	1006757-1	WIRE, ELECTRICAL	8
8	1008161-3	SCREW, CAP SLOTTED HD SPECIAL	7
3	1015135-020	SPACER	6
16	1006782-5	CONTACT, WRAPOST-MALE, MIN	5
16	1006775	INSULATOR, WRAPOST-MALE, MIN	4
1	1008508	WIRING BOARD, BOTTOM	3
~~1~~	1008506	~~WIRING BOARD, TOP~~	2
1	1008509	FRAME	1
-011	LIST OF MATERIALS		

1007580		
NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .02 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN Mahoney DATE
CHECKED
APPROVAL 5 Nov 64
APPROVAL
NASA APPROVAL 11-12-64
MIT APPROVAL 12 Nov 64

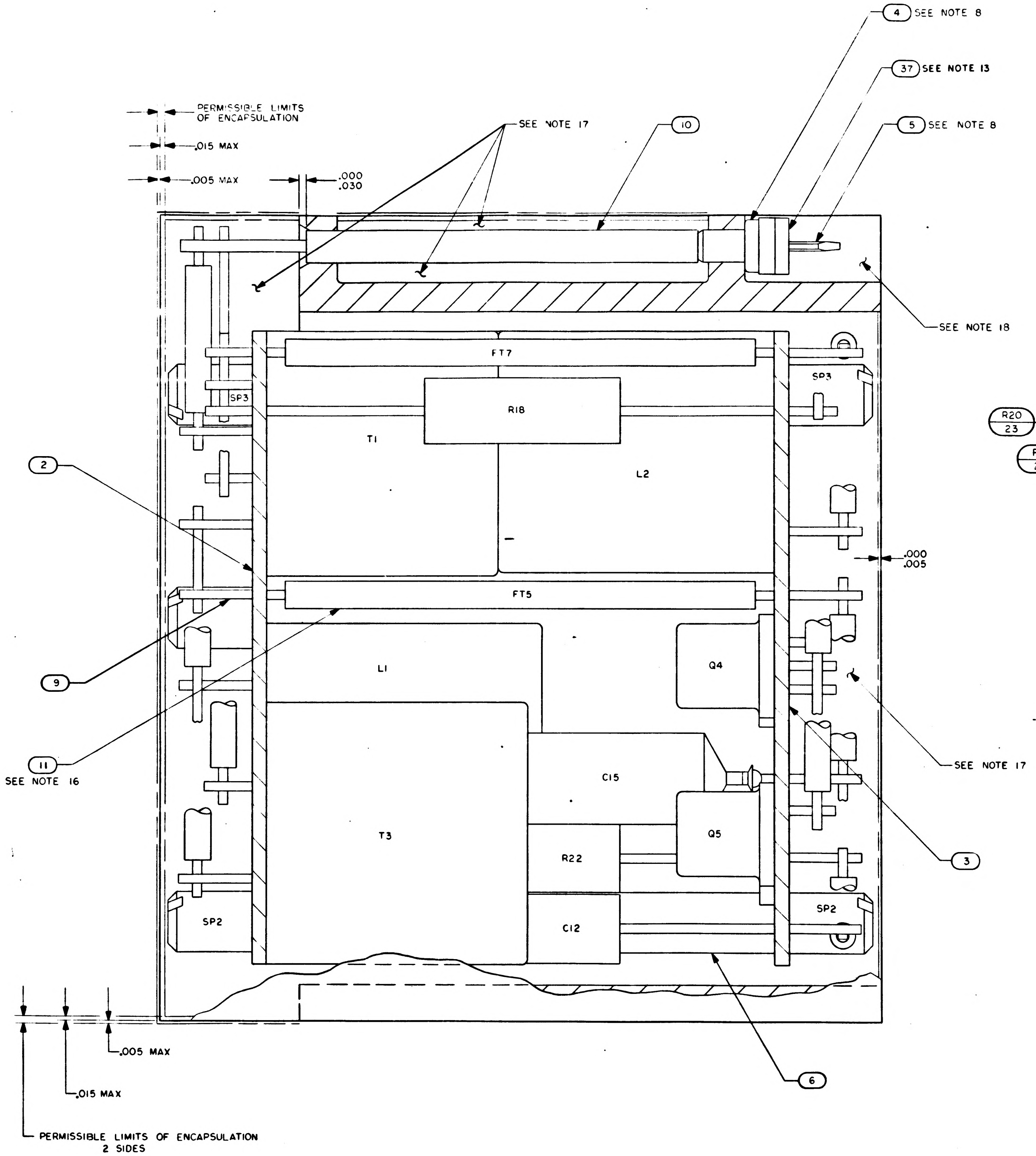
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

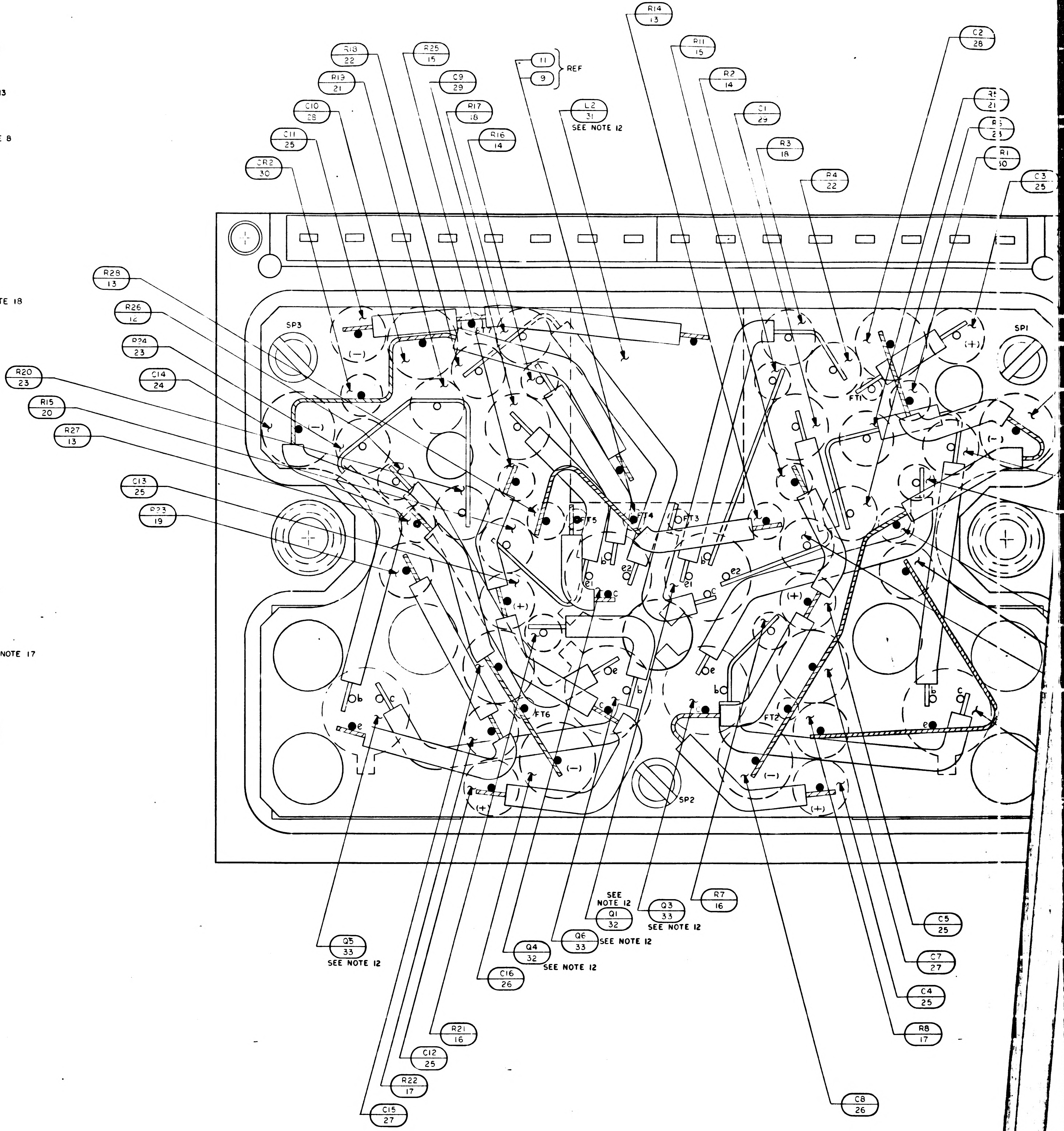
MODULATOR AND
LOOP COMPENSATION
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007511
SCALE 10/1
WT —
SHEET — OF 1

1007511	REV LTR E	SH 1

3/1007511

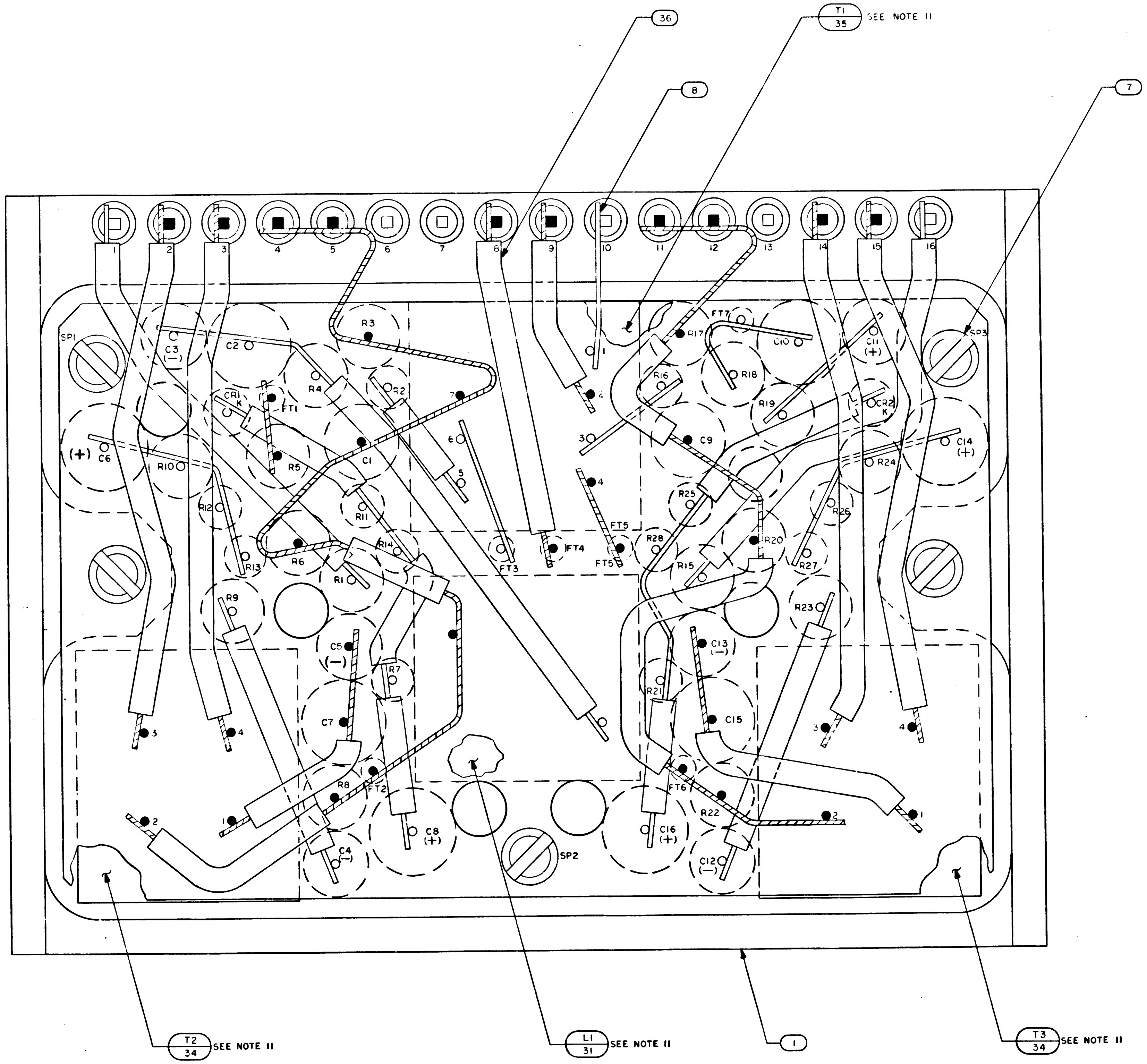

4 SEE NOTE 8
37 SEE NOTE 13
5 SEE NOTE 8
10
SEE NOTE 17
PERMISSIBLE LIMITS OF ENCAPSULATION
.015 MAX
.005 MAX
.000
.030
SEE NOTE 18
FT7
SP3
R18
T1
L2
2
.000
.005
FT5
9
L1
Q4
SEE NOTE 17
11
SEE NOTE 16
C15
T3
Q5
3
R22
SP2
C12
6
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION 2 SIDES


R14 13
R18 22
R25 15
R11 15
C2 28
11
9
REF
R13 21
C9 29
R2 14
C10 28
R17 18
L2 31
SEE NOTE 12
C1 29
R5 21
C11 25
R16 14
R6 23
CR2 30
R3 18
R1 30
R4 22
C3 25
R28 13
SP3
SP1
R26 12
R24 23
C14 24
R20 23
R15 20
R27 13
C13 25
R23 19
FT1
FT5
FT4
FT3
FT6
FT2
SP2
SEE NOTE 12
Q1 32
Q3 33
SEE NOTE 12
R7 16
C5 25
Q5 33
SEE NOTE 12
Q6 33
SEE NOTE 12
Q4 32
SEE NOTE 12
C7 27
C16 26
C4 25
R8 17
R21 16
C12 25
R22 17
C15 27
C8 26

1007511 REV LTR E SH 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

1007511


36
T1
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SEE NOTE 11
8
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1
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4
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7
8
9
10
11
12
13
14
15
16
SP1
SP3
SP2
C1
C2
C3
(−)
C4
(−)
C5
(−)
C6
(+)
C7
C8
(+)
C9
C10
C11
(+)
C12
(−)
C13
(−)
C14
(+)
C15
C16
(+)
CR1
K
CR2
K
FT1
FT2
FT3
FT4
FT5
FT6
FT7
R1
R2
R3
R4
R5
R6
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R8
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R10
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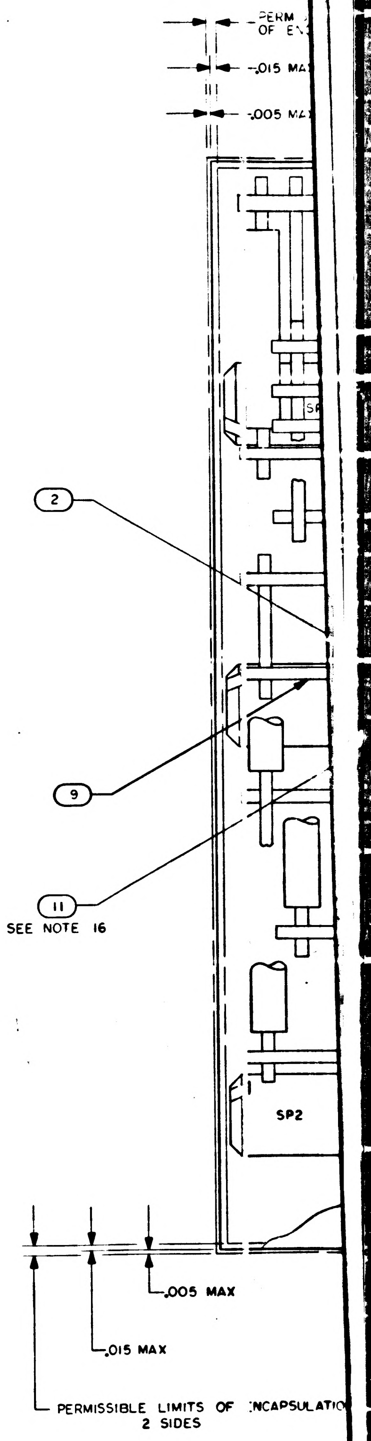
R12
R13
R14
R15
R16
R17
R18
R19
R20
R21
R22
R23
R24
R25
R26
R27
R28
T2
34
SEE NOTE 11
L1
31
SEE NOTE 11
1
T3
34
SEE NOTE 11


PERM
OF EN
.015 MAX
.005 MAX
2
9
11
SEE NOTE 16
SP
SP2
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION
2 SIDES

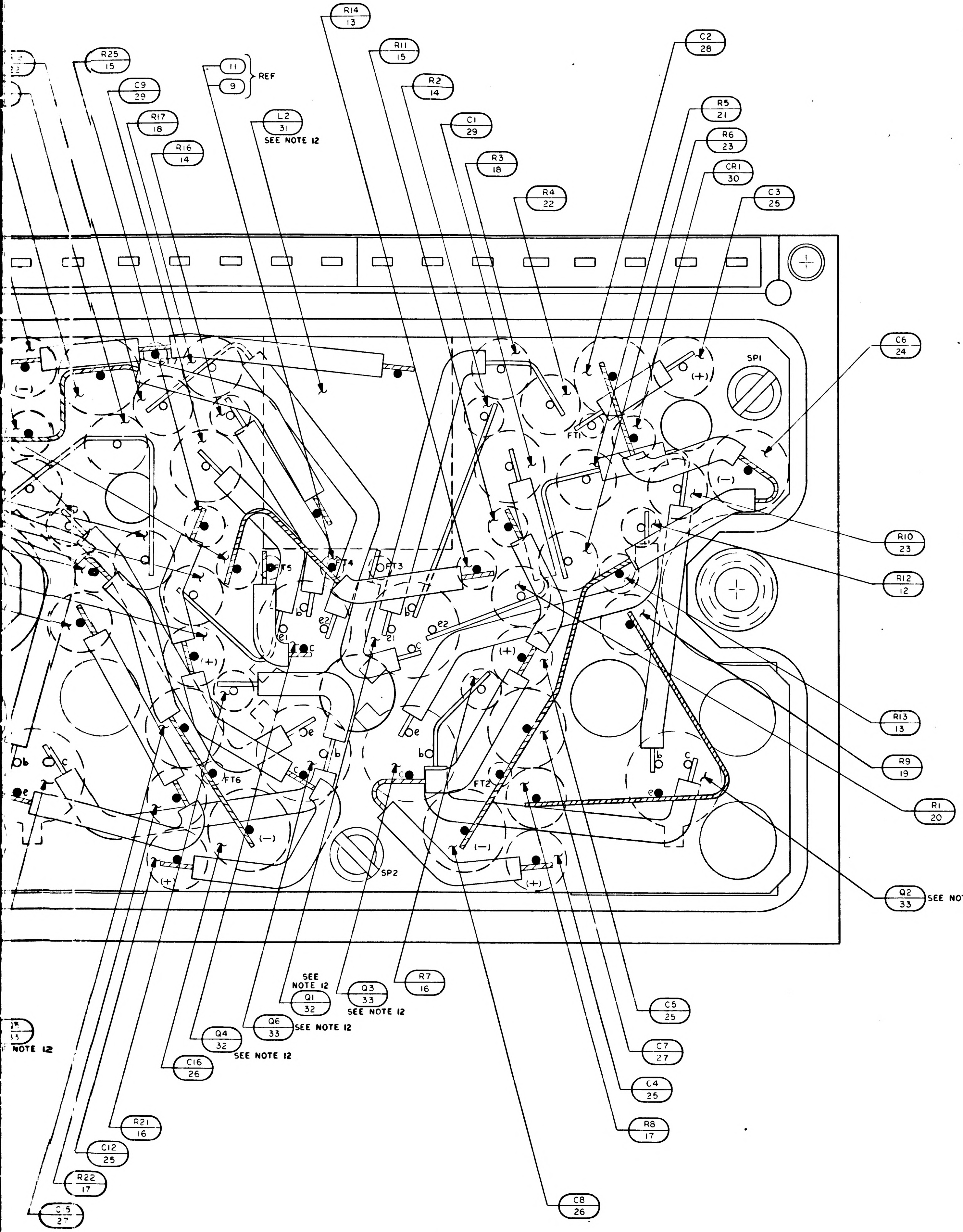
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. K DENOTES CATHODE SIDE OF DIODE
5. SP DENOTES SPACER
6. + INDICATES POSITIVE SIDE OF CAPACITOR
7. WELD PER ND1002005
8. ASSEMBLE FIND NO.4 AND FIND NO.5 PER ND1002136
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. BOND T1, T2, T3 AND L1 TO FIND NO.2 PER ND1002004, TYPE I
12. BOND Q1 THRU Q6 AND L2 TO FIND NO.3 PER ND1002004, TYPE I
13. BOND FIND NO.37 TO FIND NO 4 PER ND1002237
14. MARK .100/.060 HIGH WHITE CHARACTERS PER ND1002019. CENTRALIZE AS SHOWN
15. MARK .140/.100 HIGH WHITE CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
16. TYPICAL SLEEVING ALL FEED THRUS
17. ENCAPSULATE MODULE PER ND1002002 BLACK POLYURETHANE FOAM REMOVE ALL FLASHING
18. INDICATED AREA TO BE FREE OF ENCAPSULATION
19. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
20. PROCURE PER PS1007511
21. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND 1002187 TYPE II.~~
22. CLEAN MODULE WHERE POSSIBLE BY DEGASSING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
23. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

1007511	REV LTR E	SH 1

1007511 F

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18 08	9 APR 65	HTO EF
B	REVISED PER DRR18957	14 MAY 65	JJ EF
C	REVISED PER DRR 219-32	JUN 65	[illegible]
D	REVISED PER DRR 19454	10 JUN 65	[illegible]
E	REVISED PER DRR 20106	[illegible]	[illegible]
F	REVISED PER DRR 20143	22 JUN 65	[illegible]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R25 15
C9 29
R17 18
R16 14
11
9
REF
L2 31
SEE NOTE 12
R11 15
R2 14
C1 29
R3 18
R4 22
C2 28
R5 21
R6 23
CR1 30
C3 25
SP1
FT1
FT2
FT3
FT4
FT5
FT6
FT7
SP2
C6 24
R10 23
R12 12
R13 13
R9 19
R1 20
Q2 33
SEE NOTE 12
C5 25
C7 27
C4 25
R8 17
C8 26
R7 16
Q3 33
SEE NOTE 12
SEE NOTE 12
Q1 32
Q6 33
SEE NOTE 12
Q4 32
SEE NOTE 12
C16 26
R21 16
C12 25
R22 17
C15 27
Q5 33
NOTE 12
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(-)
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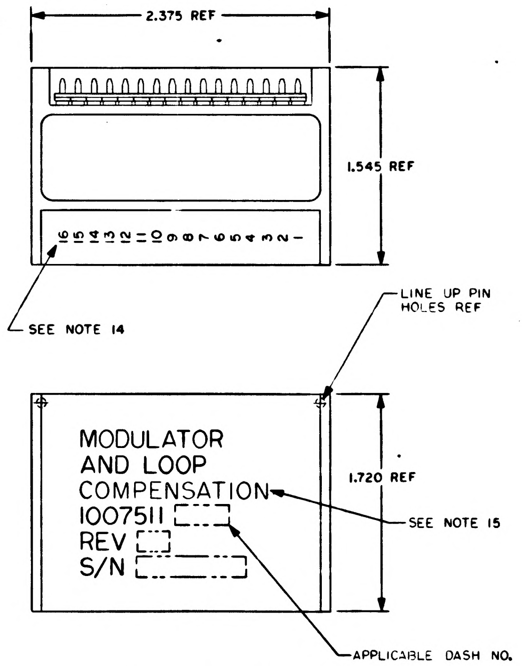

2.375 REF
1.545 REF
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 14
LINE UP PIN HOLES REF
MODULATOR
AND LOOP
COMPENSATION
1007511
REV
S/N
1.720 REF
SEE NOTE 15
APPLICABLE DASH NO.

MARKING VIEWS
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
╳	1009521	SCHEMATIC	REF
2	1008540-8	GASKET	37
AR	1006776-21	INSULATION SLEEVING	36
1	1010753	TRANSFORMER	35
2	1010759	TRANSFORMER	34
4	1010397-1	TRANSISTOR	33
2	1010367	TRANSISTOR	32
2	1010277-6	INDUCTOR	31
2	1010830-11	DIODE	30
2	1010279-111	CAPACITOR	29
2	1010264-13	CAPACITOR	28
2	1010264-11	CAPACITOR	27
2	1006755-79	CAPACITOR	26
6	1006755-69	CAPACITOR	25
2	1006755-13	CAPACITOR	24
4	1010364-693	RESISTOR	23
2	1010364-619	RESISTOR	22
2	1010364-579	RESISTOR	21
2	1010364-501	RESISTOR	20
2	1010364-325	RESISTOR	19
2	1010364-443	RESISTOR	18
2	1010364-379	RESISTOR	17
2	1006750-77	RESISTOR	16
2	1006750-46	RESISTOR	15
2	1006750-39	RESISTOR	14
4	1006750-36	RESISTOR	13
2	1006750-17	RESISTOR	12
AR	1006776-22	INSULATION SLEEVING	11
AR	1006776-20	INSULATION SLEEVING	10
AR	1006757-8	WIRE, ELECTRICAL	9
AR	1006757-1	WIRE, ELECTRICAL	8
8	1008161-3	SCREW, CAP SLOTTED HD SPECIAL	7
3	1015135-020	SPACER	6
16	1006782-5	CONTACT, WRAPOST-MALE, MIN	5
16	1006775	INSULATOR, WRAPOST-MALE, MIN	4
1	1008508	WIRING BOARD, BOTTOM	3
1	1008506	WIRING BOARD, TOP	2
1	1008509	FRAME	1
-011	LIST OF MATERIALS		

1007580	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XXX ± .005 XX .02 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT
DRAWN D. Mahoney DATE 18 Sep 64
CHECKED
APPROVAL
APPROVAL 11-9-64
NASA APPROVAL 11-12-64
MIT APPROVAL 12 Nov 64

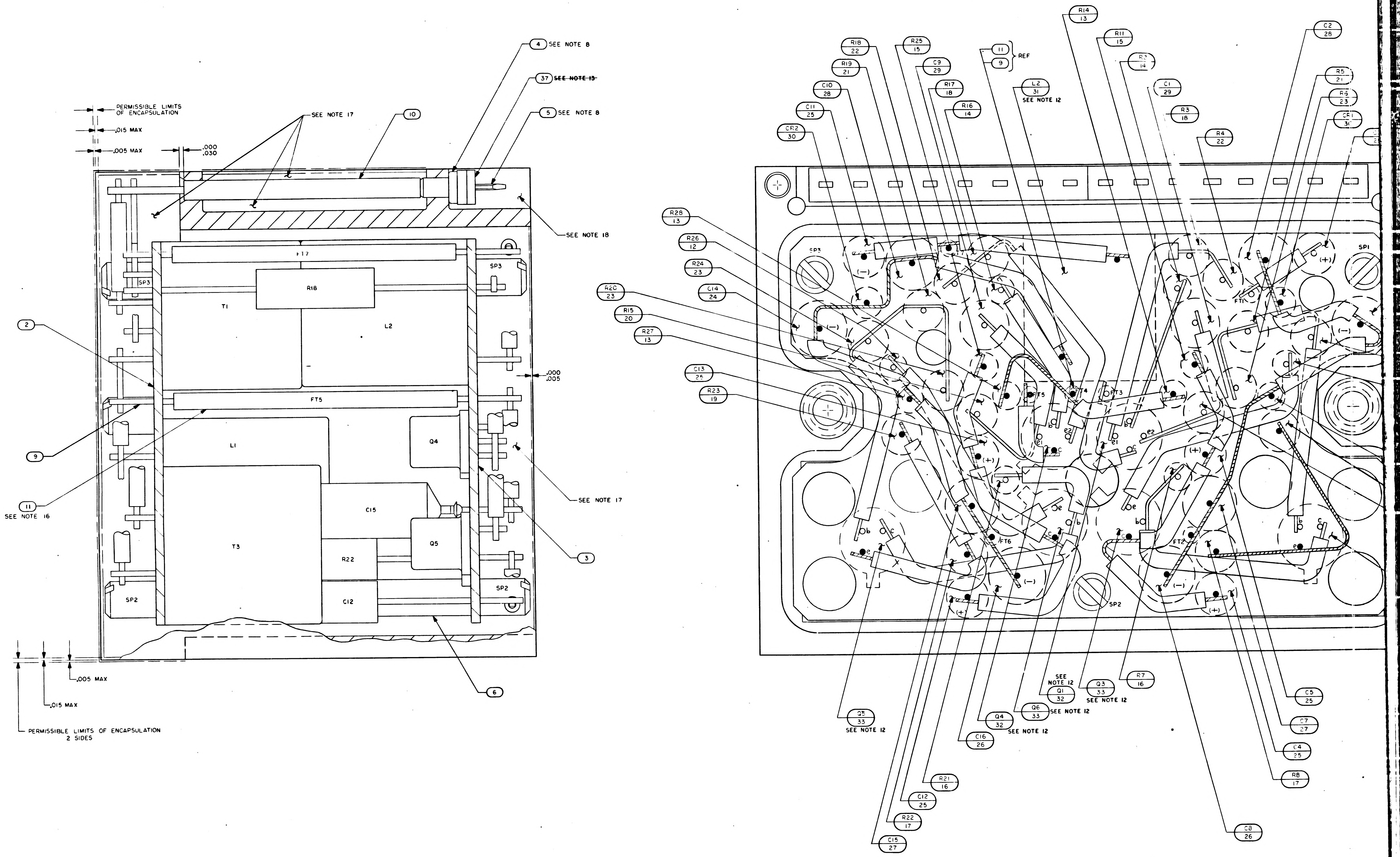
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MODULATOR AND
LOOP COMPENSATION
ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	1007511
SCALE 10/1	WT —	SHEET 1 OF 1

1007511 REV LTR F SH 1

3/1007511


4 SEE NOTE 8
37 ~~SEE NOTE 13~~
5 SEE NOTE 8
SEE NOTE 17
10
PERMISSIBLE LIMITS OF ENCAPSULATION
.015 MAX
.005 MAX
.000 .030
SEE NOTE 18
FT7
SP3
R18
T1
L2
2
.000 .005
FT5
L1
Q4
9
C15
11
SEE NOTE 16
SEE NOTE 17
T3
R22
Q5
3
SP2
C12
SP2
6
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION 2 SIDES
R14 13
R18 22
R25 15
11
9
REF
R11 15
C2 28
R19 21
C9 29
R2 14
C10 28
R17 18
L2 31
SEE NOTE 12
C1 29
R5 21
C11 25
R16 14
R3 18
R6 23
CR1 30
CR2 30
R4 22
R28 13
R26 12
R24 23
R2C 23
C14 24
R15 20
R27 13
C13 25
R23 19
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FT2
FT3
FT4
FT5
FT6
FT7
SP2
b
c
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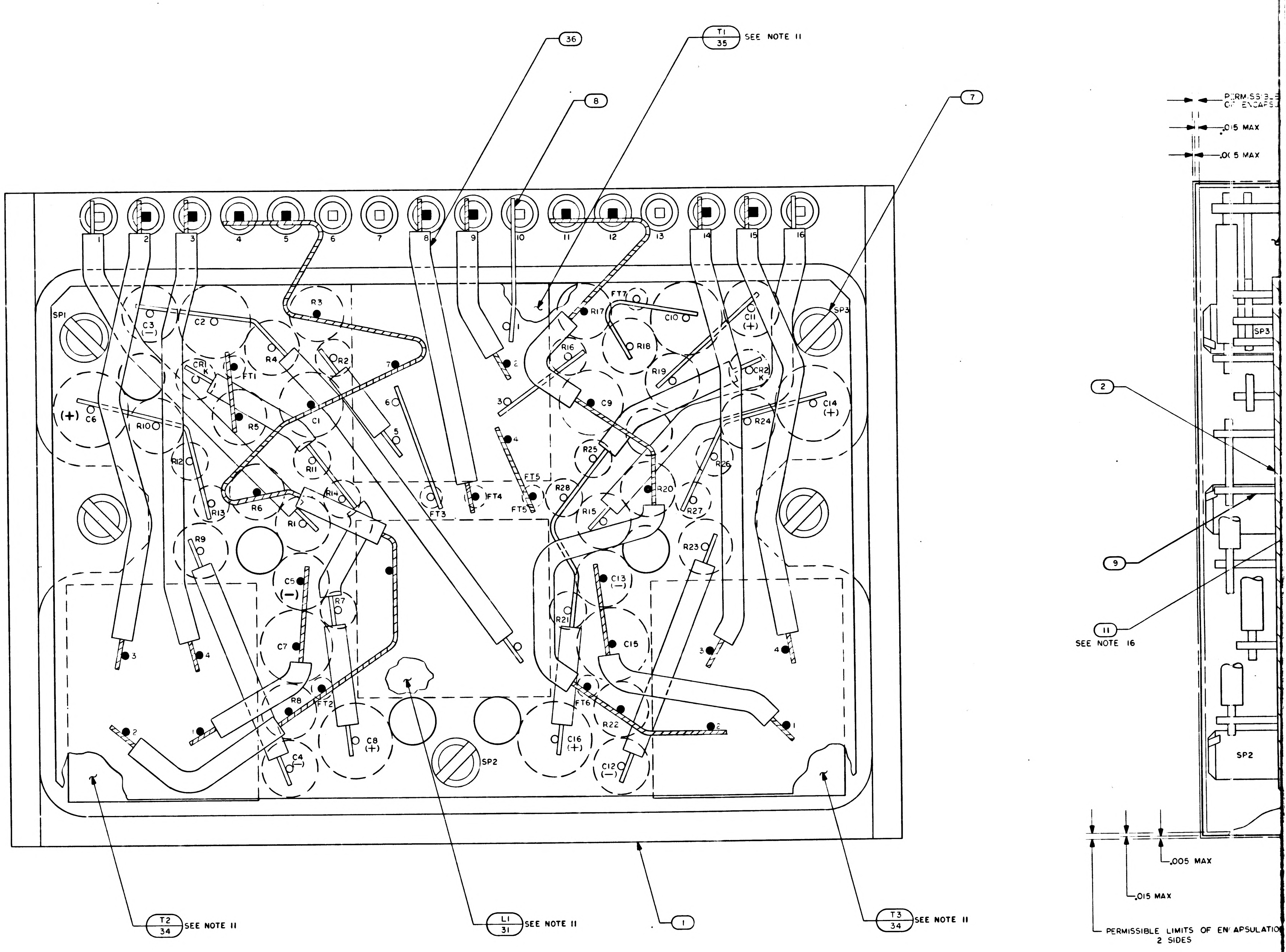
e1
e2
SEE NOTE 12
Q1 32
Q3 33
SEE NOTE 12
R7 16
C5 25
Q5 33
SEE NOTE 12
Q6 33
SEE NOTE 12
Q4 32
SEE NOTE 12
C7 27
C16 26
C4 25
R8 17
R21 16
C12 25
R22 17
C8 26
C15 27

1007511	REV LTR F	SH 1

2/1007511

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO



36
T1
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SEE NOTE 11
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SP1
SP2
SP3
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C12
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C14
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C16
CR1
CR2
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R1
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R21
R22
R23
R24
R25
R26
R27
R28
FT1
FT2
FT3
FT4
FT5
FT6
FT7
T2
34
SEE NOTE 11
L1
31
SEE NOTE 11
1
T3
34
SEE NOTE 11
PERMISSIBLE LIMITS OF ENCAPSULATION
.015 MAX
.005 MAX
2
9
11
SEE NOTE 16
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION
2 SIDES

NOTES:

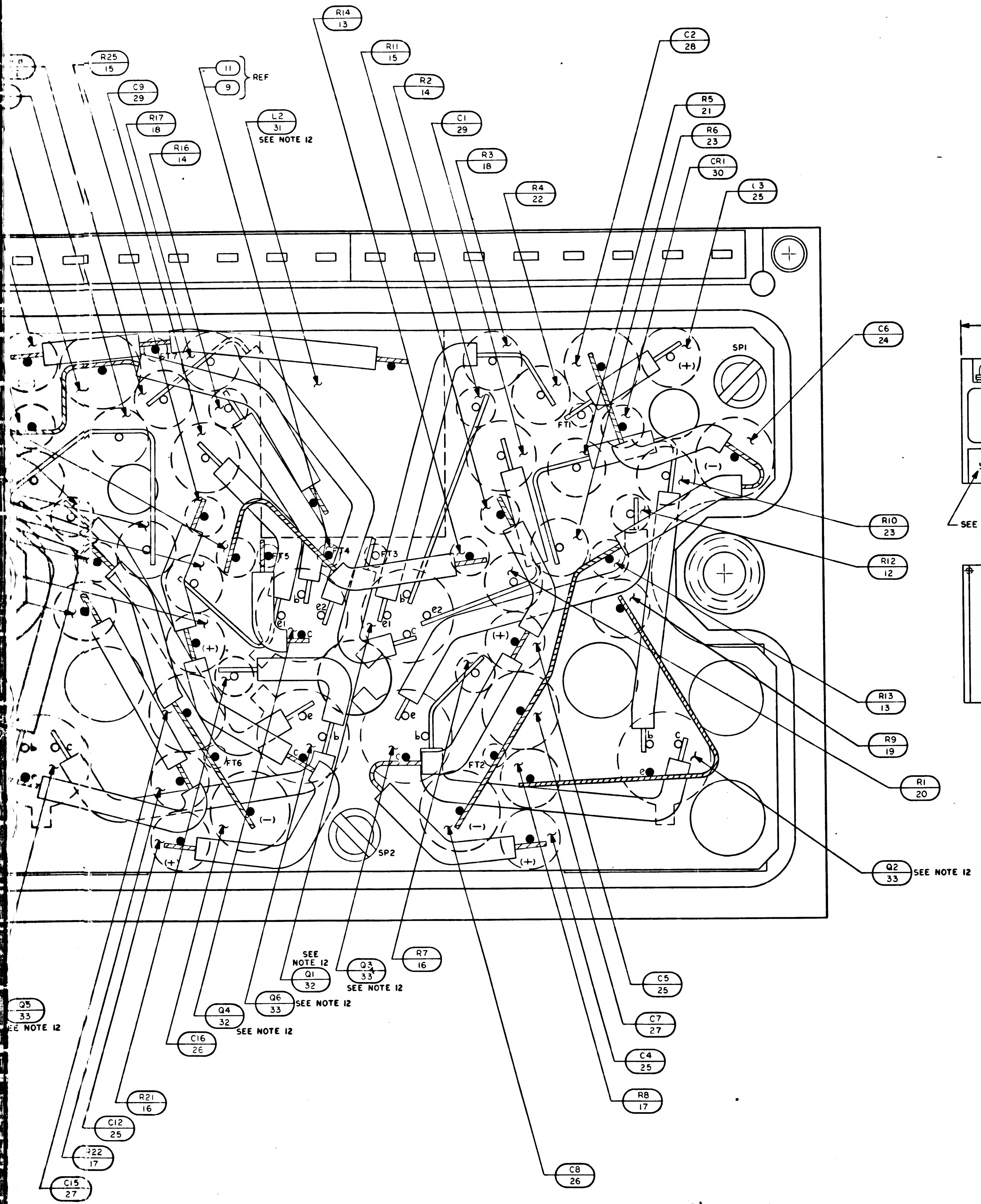
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. K DENOTES CATHODE SIDE OF DIODE
5. SP DENOTES SPACER
6. + INDICATES POSITIVE SIDE OF CAPACITOR
7. WELD PER ND1002005
8. ASSEMBLE FIND NO.4 AND FIND NO.5 PER ND1002136
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. BOND T1, T2, T3 AND L1 TO FIND NO.2 PER ND1002004, TYPE I
12. BOND Q1 THRU Q6 AND L2 TO FIND NO.3 PER ND1002004, TYPE I
13. ~~BOND FIND NO.37 TO FIND NO 4 PER ND1002237~~
14. MARK .100/.060 HIGH WHITE CHARACTERS PER ND1002019. CENTRALIZE AS SHOWN
15. MARK .140/.100 HIGH WHITE CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
16. TYPICAL SLEEVING ALL FEED THRUS
17. ENCAPSULATE MODULE PER ND1002002 BLACK POLYURETHANE FOAM REMOVE ALL FLASHING
18. INDICATED AREA TO BE FREE OF ENCAPSULATION
19. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
20. PROCURE PER PS1007511
21. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .02 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
22. CLEAN MODULE WHERE POSSIBLE BY DEGASSING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
23. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

1007511	REV LTR F	SH 1

	1007511	G

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED ... TO 32 18 08	9 APR 65	EF
B	REVISED ... R18957	14 MAY 65	JJ EF
C	REVISED ... 219-32	JUN 65	
D	REVISED ... 19484	10 JUN 65	
E	REVISED F... 20106	JUN 65	
F	REVISED P... 20143	22 JUN 65	
G	REVISED FE... 947	12 OCT 65	



R14 13
R11 15
R25 15
C9 29
11
9
REF
R2 14
C2 28
L2 31
SEE NOTE 12
R17 18
R16 14
C1 29
R5 21
R6 23
R3 18
CR1 30
L3 25
R4 22
C6 24
SP1
FT1
FT3
FT5
FT6
FT2
SP2
e1
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(−)
R10 23
R12 12
R13 13
R9 19
R1 20
Q2 33 SEE NOTE 12
R7 16
SEE NOTE 12
Q1 32
Q3 33
SEE NOTE 12
C5 25
Q6 33
SEE NOTE 12
Q5 33
SEE NOTE 12
Q4 32
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R8 17
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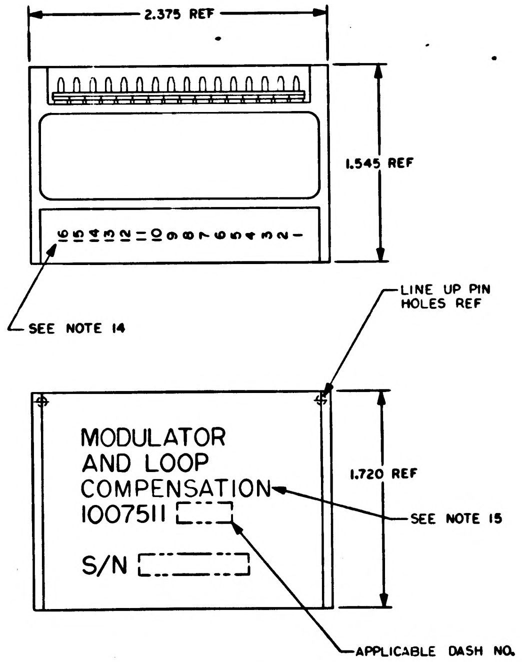
C12 25
R22 17
C15 27
C8 26



2.375 REF
1.545 REF
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 14
LINE UP PIN HOLES REF
MODULATOR
AND LOOP
COMPENSATION
1007511
S/N
1.720 REF
SEE NOTE 15
APPLICABLE DASH NO.

MARKING VIEWS
SCALE 2/1

LIST OF MATERIALS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	1009521	SCHEMATIC	REF
2	1008540-8	GASKET	37
AR	1006776-21	INSULATION SLEEVING	36
1	1010753	TRANSFORMER	35
2	1010759	TRANSFORMER	34
4	1010397-1	TRANSISTOR	33
2	1010367	TRANSISTOR	32
2	1010277-6	INDUCTOR	31
2	1010830-11	DIODE	30
2	1010279-111	CAPACITOR	29
2	1010264-13	CAPACITOR	28
2	1010264-11	CAPACITOR	27
2	1006755-79	CAPACITOR	26
6	1006755-69	CAPACITOR	25
2	1006755-13	CAPACITOR	24
4	1010364-693	RESISTOR	23
2	1010364-619	RESISTOR	22
2	1010364-579	RESISTOR	21
2	1010364-501	RESISTOR	20
2	1010364-325	RESISTOR	19
2	1010364-443	RESISTOR	18
2	1010364-379	RESISTOR	17
2	1006750-77	RESISTOR	16
2	1006750-46	RESISTOR	15
2	1006750-39	RESISTOR	14
4	1006750-36	RESISTOR	13
2	1006750-17	RESISTOR	12
AR	1006776-22	INSULATION SLEEVING	11
AR	1006776-20	INSULATION SLEEVING	10
AR	1006757-8	WIRE, ELECTRICAL	9
AR	1006757-1	WIRE, ELECTRICAL	8
8	1008161-3	SCREW, CAP SLOTTED HD SPECIAL	7
3	1015135-020	SPACER	6
16	1006782-5	CONTACT, WRAPOST-MALE, MIN	5
16	1006775	INSULATOR, WRAPOST-MALE, MIN	4
1	1008508	WIRING BOARD, BOTTOM	3
1	1008506	WIRING BOARD, TOP	2
1	1008509	FRAME	1

-011

1007580		
NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS .XXX ± .005 .XX ± .02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN D. Mahoney DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL 11-12-64
MIT APPROVAL

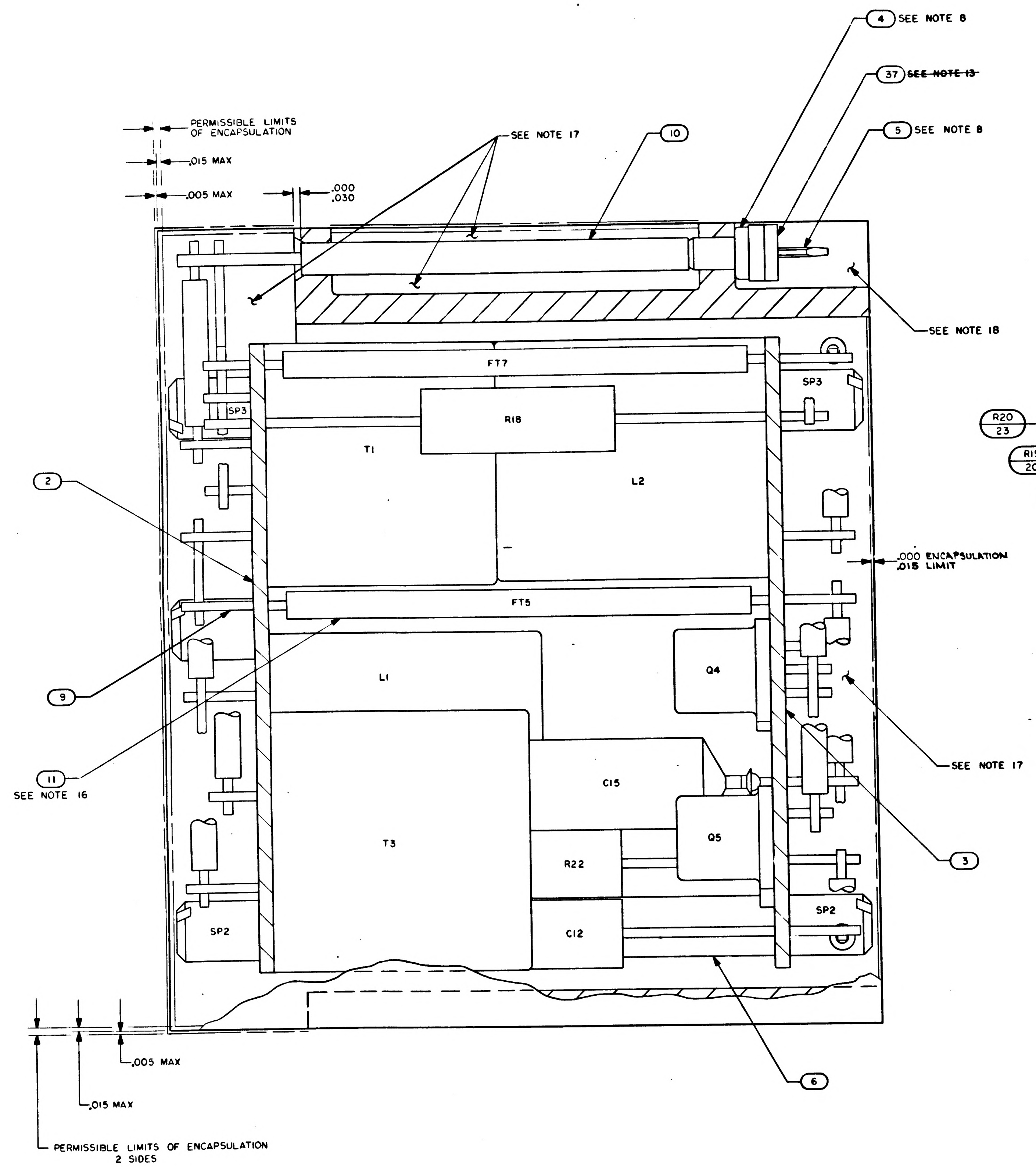
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

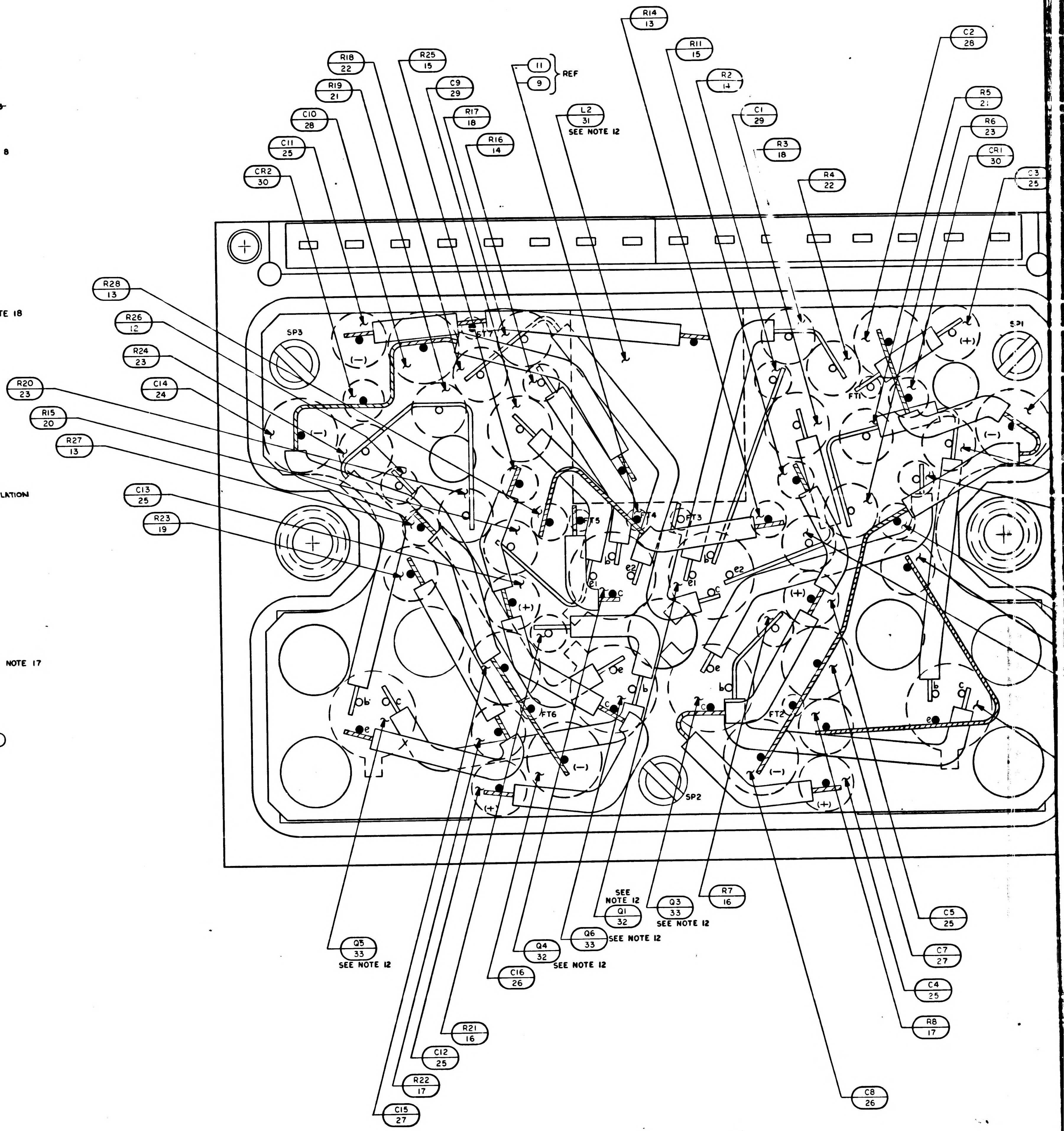
MODULATOR AND
LOOP COMPENSATION
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007511
SCALE 10/1
WT
SHEET 1 OF 1

1007511	REV LTR G	SH 1

3/1007511


4 SEE NOTE 8
37 ~~SEE NOTE 13~~
5 SEE NOTE 8
10
SEE NOTE 17
PERMISSIBLE LIMITS OF ENCAPSULATION
.015 MAX
.005 MAX
.000
.030
SEE NOTE 18
FT7
SP3
R18
T1
L2
.000 ENCAPSULATION
.015 LIMIT
FT5
L1
Q4
SEE NOTE 17
C15
T3
R22
Q5
C12
SP2
2
9
11
SEE NOTE 16
3
6
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION
2 SIDES

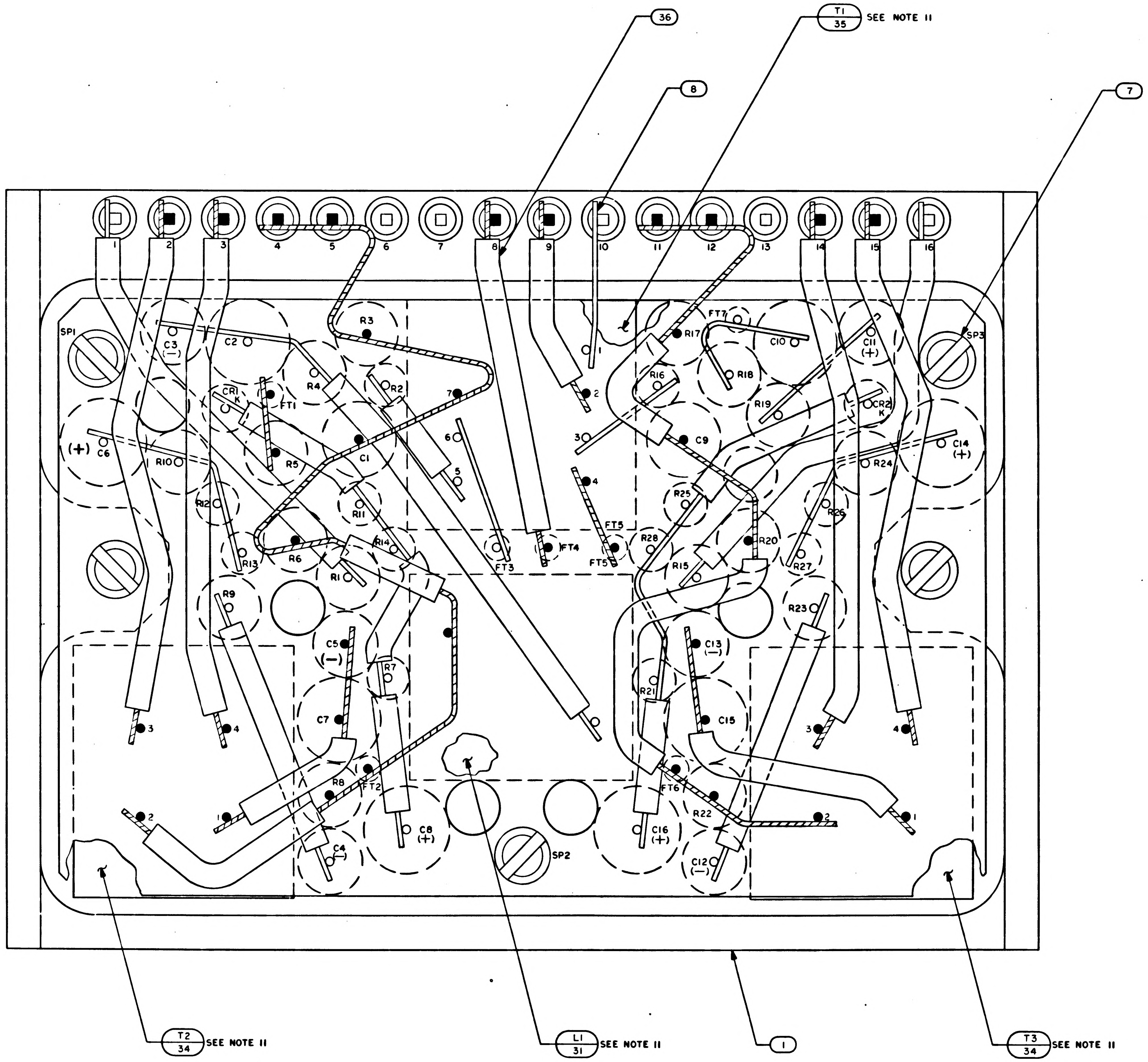

R14 13
R11 15
C2 28
R18 22
R25 15
11
9
REF
C9 29
R2 14
R19 21
L2 31
SEE NOTE 12
R17 18
C1 29
R5 21
C10 28
R6 23
R16 14
R3 18
C11 25
CR1 30
CR2 30
R4 22
C3 25
R28 13
R26 12
R24 23
C14 24
R20 23
R15 20
R27 13
C13 25
R23 19
SP3
SP1
FT1
FT3
FT4
FT5
FT6
FT2
FT7
SP2
(+)
(−)
b
c
e
e1
e2
SEE NOTE 12
Q1 32
Q3 33
SEE NOTE 12
R7 16
C5 25
Q6 33
SEE NOTE 12
Q5 33
SEE NOTE 12
Q4 32
SEE NOTE 12
C7 27
C16 26
C4 25
R8 17
R21 16
C12 25
R22 17
C8 26
C15 27

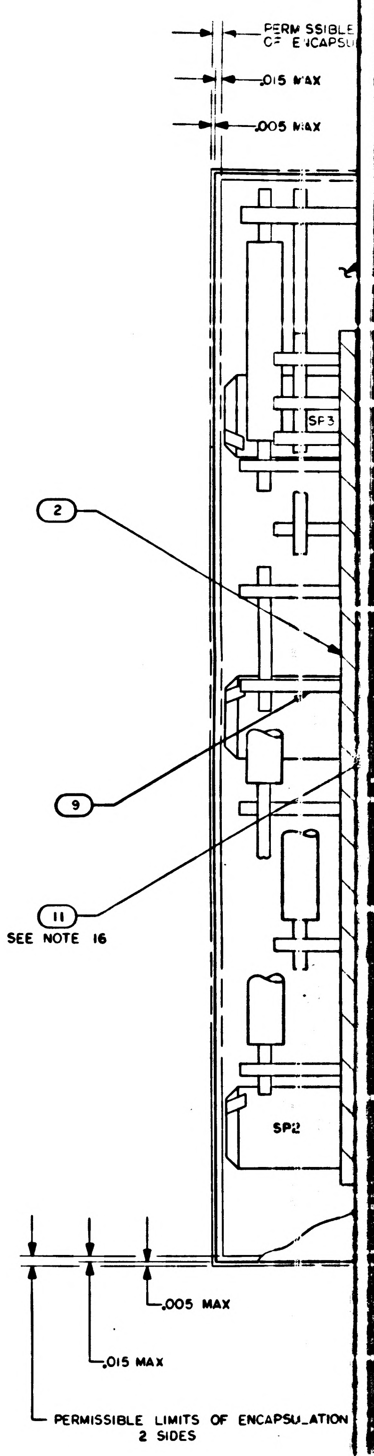
1007511	REV LTR G	SH 1

2/1007514

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

1007511


36
T1
35
SEE NOTE 11
8
7
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
SP1
SP3
SP2
C2
C3
(—)
R3
R2
R4
CR1
K
FT1
R5
R10
R12
(+)
C6
C1
R11
R13
R6
R14
R1
R9
C5
(—)
R7
C7
R8
FT2
C4
(—)
C8
(+)
FT3
FT4
FT5
FT7
R17
C10
C11
(+)
R16
R18
R19
CR2
K
C9
C14
(+)
R24
R25
R26
R28
R15
R20
R27
R23
C13
(—)
R21
C15
FT6
R22
C16
(+)
C12
(—)
T2
34
SEE NOTE 11
L1
31
SEE NOTE 11
1
T3
34
SEE NOTE 11


PERM SSIBLE
OF ENCAPSU
.015 MAX
.005 MAX
SP3
2
9
11
SEE NOTE 16
SP2
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION
2 SIDES

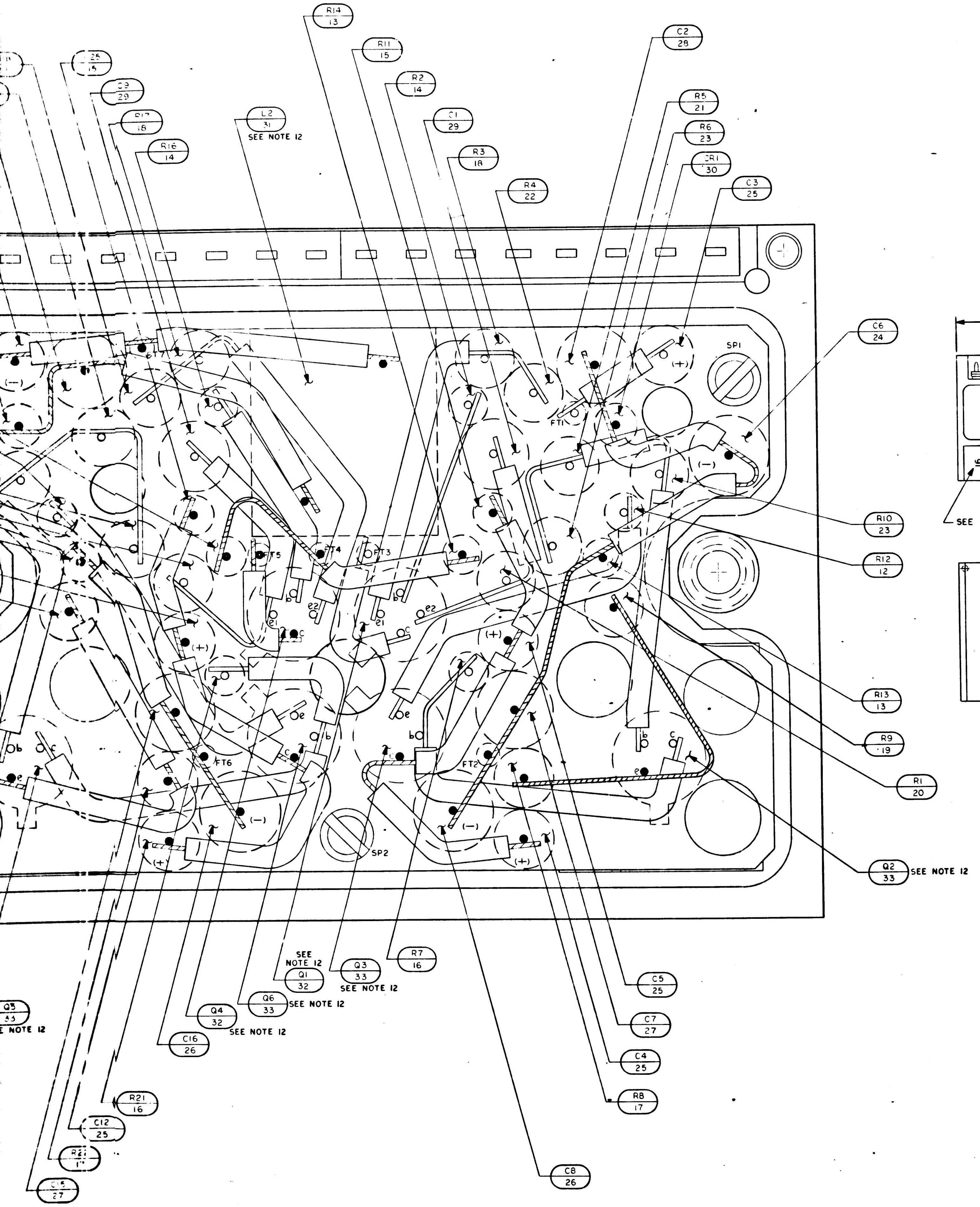
NOTES:

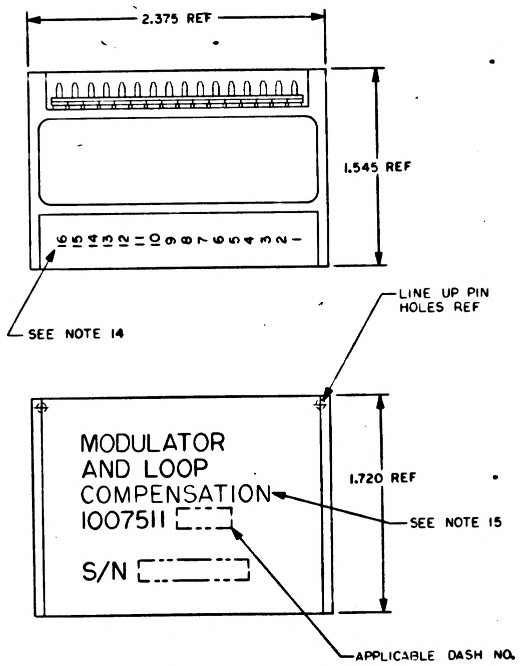
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. K DENOTES CATHODE SIDE OF DIODE
5. SP DENOTES SPACER
6. + INDICATES POSITIVE SIDE OF CAPACITOR
7. WELD PER ND1002005
8. ASSEMBLE FIND NO.4 AND FIND NO.5 PER ND1002136
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. BOND T1,T2,T3 AND L1 TO FIND NO.2 PER ND1002004, TYPE I
12. BOND Q1 THRU Q6 AND L2 TO FIND NO.3 PER ND1002004, TYPE I
13. ~~BOND FIND NO.37 TO FIND NO 4 PER ND1002237~~
14. MARK .100/.060 HIGH WHITE CHARACTERS PER ND1002019. CENTRALIZE AS SHOWN
15. MARK .140/.100 HIGH WHITE CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
16. TYPICAL SLEEVING ALL FEED THRUS
17. ENCAPSULATE MODULE PER ND1002002 BLACK POLYURETHANE FOAM REMOVE ALL FLASHING
18. INDICATED AREA TO BE FREE OF ENCAPSULATION
19. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
20. PROCURE PER PS1007511
21. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
22. CLEAN MODULE WHERE POSSIBLE BY DEGASSING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
23. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

1007511	REV LTR G	SH 1

H	1007511

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18108	9 APR 65	EF
B	REVISED PER TDRR 18957	14 MAY 65	JJJ EF
C	REVISED PER TDRR 19432	1 JUN 65	
D	REVISED PER TDRR 19484	10 JUN 65	
E	REVISED PER TDRR 20126	JUN 65	R.W.T.
F	REVISED PER TDRR 20143	22 JUN 65	B
G	REVISED PER TDRR 22947	12 OCT 65	EF
H	REVISED PER TDRR 23888	16 NOV 65	


R14 13
R11 15
R2 14
C1 29
R3 18
R4 22
C2 28
R5 21
R6 23
CR1 30
C3 25
15
C9 29
R17 18
R16 14
L2 31
SEE NOTE 12
C6 24
SP1
FT1
FT2
FT3
FT4
FT5
FT6
SP2
R10 23
R12 12
R13 13
R9 19
R1 20
Q2 33 SEE NOTE 12
R7 16
Q3 33 SEE NOTE 12
SEE NOTE 12 Q1 32
Q6 33 SEE NOTE 12
Q4 32 SEE NOTE 12
C16 26
Q5 33
SEE NOTE 12
R21 16
C12 25
R22 17
C15 27
C5 25
C7 27
C4 25
R8 17
C8 26
(+)
(−)
e
b
c
e1
e2


2.375 REF
1.545 REF
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 14
LINE UP PIN HOLES REF
MODULATOR
AND LOOP
COMPENSATION
1007511
S/N
1.720 REF
SEE NOTE 15
APPLICABLE DASH NO.

MARKING VIEWS
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	1009521	SCHEMATIC	REF
AR	1010848-2	WIRE, ELECTRICAL - NICKEL	38
2	1008540-8	GASKET	37
AR	1006776-21	INSULATION SLEEVING	36
1	1010753	TRANSFORMER	35
2	1010759	TRANSFORMER	34
4	1010397-1	TRANSISTOR	33
2	1010367	TRANSISTOR	32
2	1010277-6	INDUCTOR	31
2	1010830-11	DIODE	30
2	1010279-111	CAPACITOR	29
2	1010264-13	CAPACITOR	28
2	1010264-11	CAPACITOR	27
2	1006755-79	CAPACITOR	26
6	1006755-69	CAPACITOR	25
2	1006755-13	CAPACITOR	24
4	1010364-693	RESISTOR	23
2	1010364-619	RESISTOR	22
2	1010364-579	RESISTOR	21
2	1010364-501	RESISTOR	20
2	1010364-325	RESISTOR	19
2	1010364-443	RESISTOR	18
2	1010364-379	RESISTOR	17
2	1006750-77	RESISTOR	16
2	1006750-46	RESISTOR	15
2	1006750-39	RESISTOR	14
4	1006750-36	RESISTOR	13
2	1006750-17	RESISTOR	12
~~AR~~	~~1006776-22~~	~~INSULATION SLEEVING~~	11
AR	1006776-20	INSULATION SLEEVING	10
~~AR~~	~~1006757-8~~	~~WIRE, ELECTRICAL~~	9
AR	1006757-1	WIRE, ELECTRICAL	8
8	1008161-3	SCREW, CAP SLOTTED HD SPECIAL	7
3	1015135-020	SPACER	6
16	1006782-5	CONTACT, WRAPOST-MALE, MIN	5
16	1006775	INSULATOR, WRAPOST-MALE, MIN	4
1	1008508	WIRING BOARD, BOTTOM	3
1	1008506	WIRING BOARD, TOP	2
1	1008509	FRAME	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
1007580	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± .XXX ± .005 ±
.XX ± .02
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

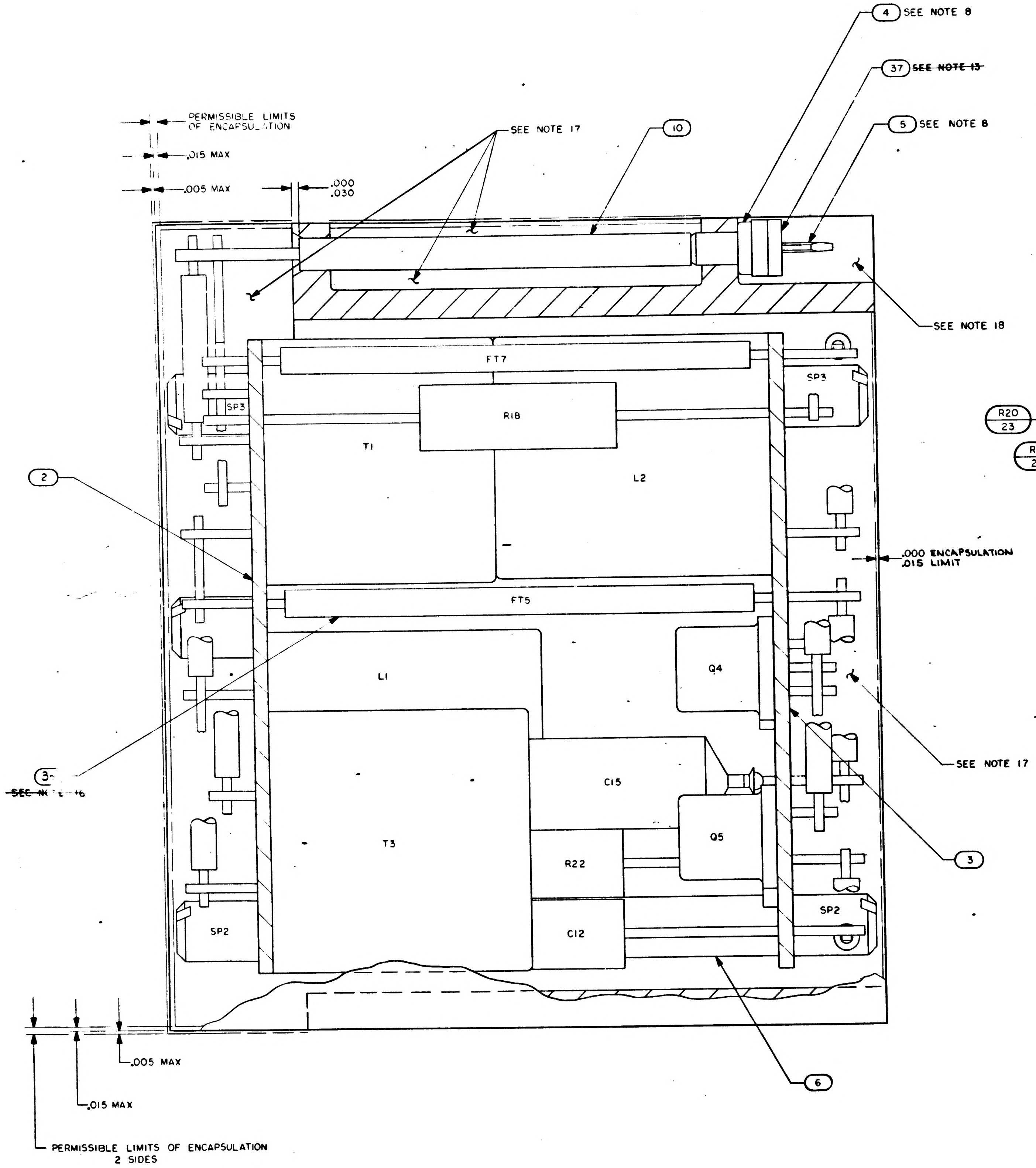
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

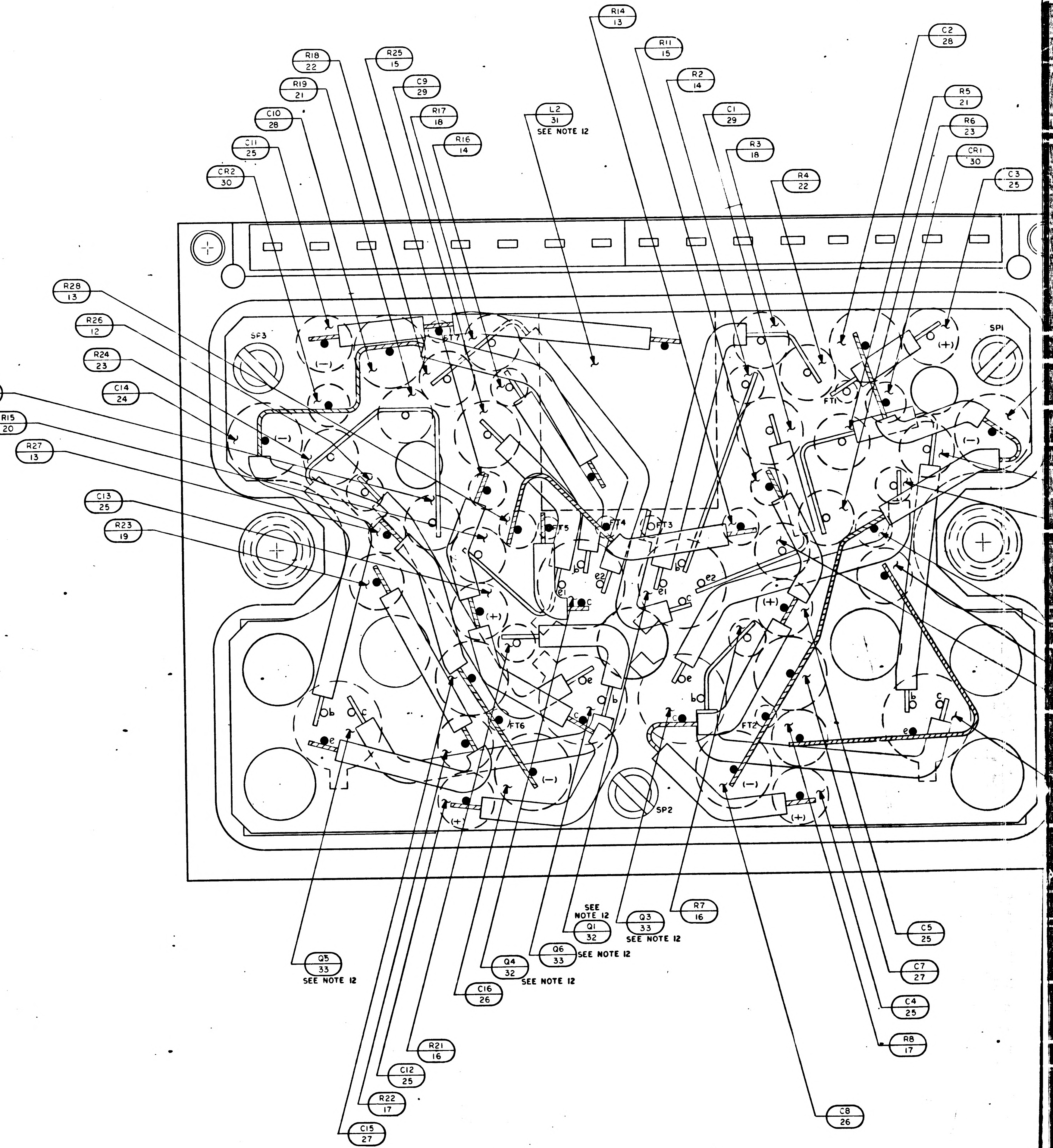
MODULATOR AND
LOOP COMPENSATION
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007511
SCALE 10/1
WT
SHEET OF 1

1007511	REV LTR H	SH 1

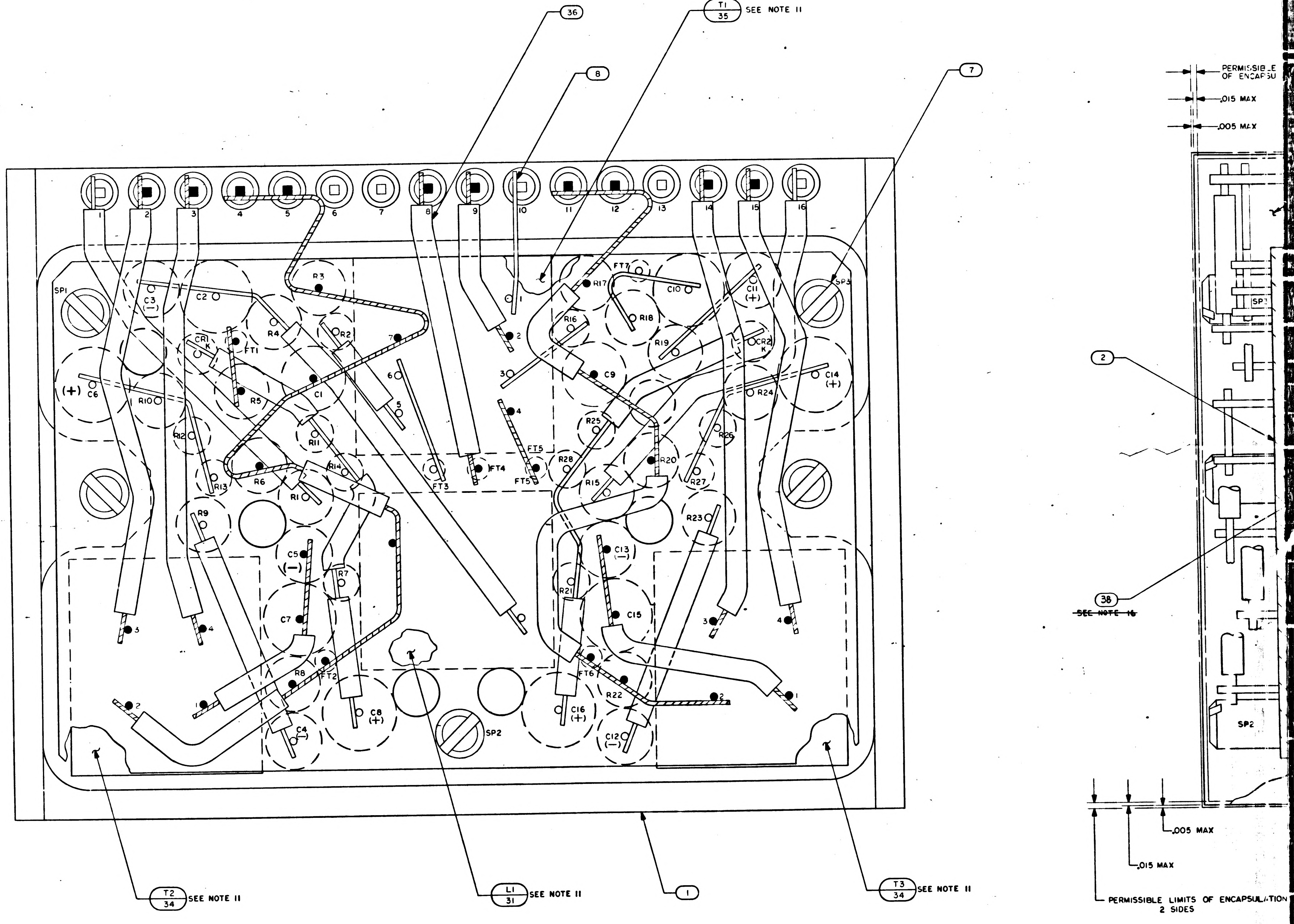
37 1007511


4 SEE NOTE 8
37 ~~SEE NOTE 13~~
5 SEE NOTE 8
10
SEE NOTE 17
PERMISSIBLE LIMITS OF ENCAPSULATION
.015 MAX
.005 MAX
.000 .030
SEE NOTE 18
FT7
SP3
R18
T1
L2
.000 ENCAPSULATION .015 LIMIT
2
FT5
L1
Q4
SEE NOTE 17
C15
Q5
T3
R22
3
C12
SP2
~~SEE NOTE 16~~
6
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION 2 SIDES


R14 13
R11 15
R18 22
R25 15
C9 29
R19 21
R2 14
C2 28
C10 28
R17 18
C1 29
R5 21
L2 31 SEE NOTE 12
R16 14
R6 23
C11 25
R3 18
CR1 30
CR2 30
R4 22
C3 25
R28 13
R26 12
R24 23
C14 24
R20 23
R15 20
R27 13
C13 25
R23 19
SP3
SP1
SP2
FT1
FT2
FT3
FT4
FT5
FT6
FT7
(+)
(−)
e
b
c
e1
e2
SEE NOTE 12 Q1 32
Q3 33 SEE NOTE 12
R7 16
C5 25
Q5 33 SEE NOTE 12
Q6 33 SEE NOTE 12
Q4 32 SEE NOTE 12
C7 27
C16 26
C4 25
R8 17
R21 16
C12 25
R22 17
C8 26
C15 27

1007511	REV LTR H	SH 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO


36
T1
35
SEE NOTE II
8
7
2
38
~~SEE NOTE 16~~
SP1
SP2
SP3
C1
C2
C3 (−)
C4 (−)
C5 (−)
C6 (+)
C7
C8 (+)
C9
C10
C11 (+)
C12 (−)
C13 (−)
C14 (+)
C15
C16 (+)
CR1 K
CR2 K
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
R18
R19
R20
R21
R22
R23
R24
R25
R26
R27
R28
FT1
FT2
FT3
FT4
FT5
FT6
FT7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
T2
34
SEE NOTE II
L1
31
SEE NOTE II
1
T3
34
SEE NOTE II
PERMISSIBLE LIMITS OF ENCAPSULATION
.015 MAX
.005 MAX
SP3
SP2
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION 2 SIDES

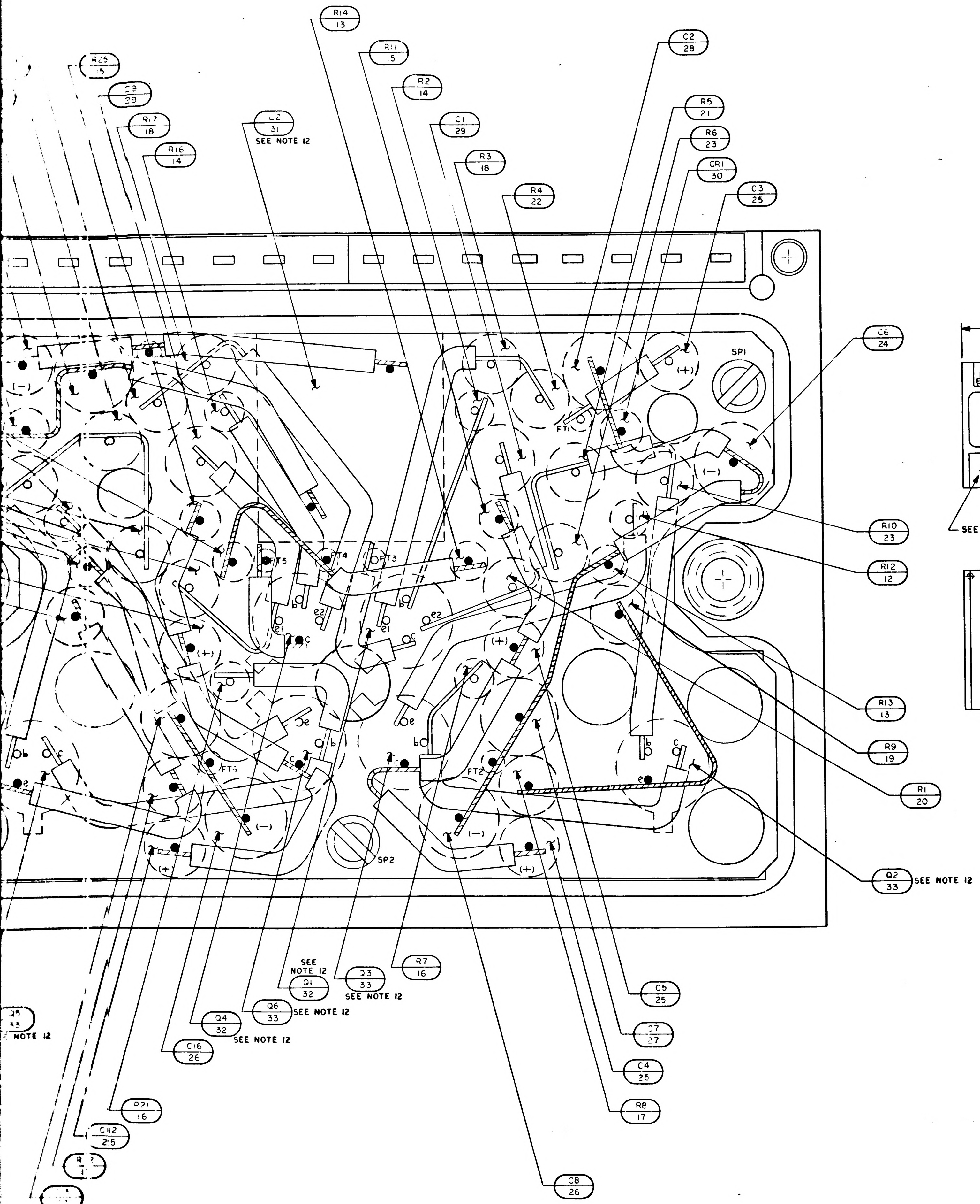
NOTES:

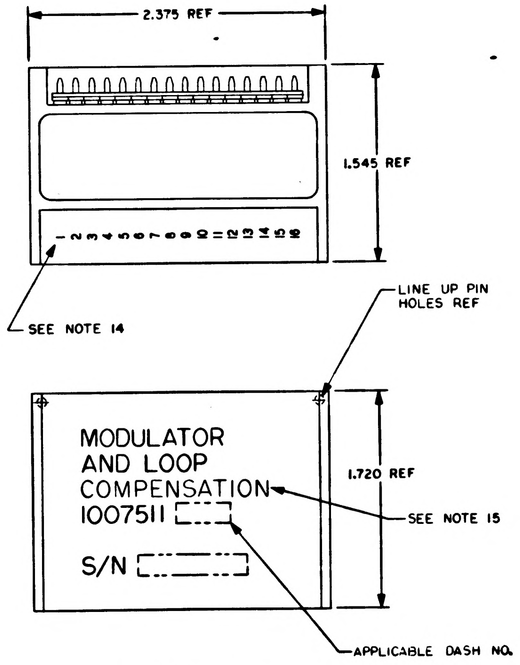
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. K DENOTES CATHODE SIDE OF DIODE
5. SP DENOTES SPACER
6. + INDICATES POSITIVE SIDE OF CAPACITOR
7. WELD PER ND1002005
8. ASSEMBLE FIND NO.4 AND FIND NO.5 PER ND1002136
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. BOND T1,T2,T3 AND L1 TO FIND NO.2 PER ND1002004, TYPE I
12. BOND Q1 THRU Q6 AND L2 TO FIND NO.3 PER ND1002004, TYPE I
13. ~~BOND FIND NO.37 TO FIND NO 4 PER ND1002237~~
14. MARK .100/.060 HIGH WHITE CHARACTERS PER ND1002019. CENTRALIZE AS SHOWN
15. MARK .140/.100 HIGH WHITE CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
16. ~~TYPICAL SLEEVING ALL FEED THRUS~~
17. ENCAPSULATE MODULE PER ND1002002 BLACK POLYURETHANE FOAM REMOVE ALL FLASHING
18. INDICATED AREA TO BE FREE OF ENCAPSULATION
19. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
20. PROCURE PER PS1007511
21. ~~CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
22. CLEAN MODULE WHERE POSSIBLE BY DEGASSING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
23. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

1007511	REV LTR H	SH 1

1007511

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18108	9 APR 65	HTO
B	REVISED PER DRR18957	14 MA 65	JJJ
C	REVISED PER DRR 19432	1 JUN 65	W.R.
D	REVISED PER DRR 19484	10 JUN 65	
E	REVISED PER DRR 20126	19 JUN 65	
F	REVISED PER DRR 20143	22 JUN 65	
G	REVISED PER DRR 22947	12 OCT 65	
H	REVISED PER DRR 23888	16 NOV 65	
J	REVISED PER DRR 23899	17 NOV 65	


R25
5
C9
29
R17
18
R16
14
R14
13
L2
31
SEE NOTE 12
R11
15
R2
14
C1
29
R3
18
R4
22
C2
28
R5
21
R6
23
CR1
30
C3
25
SP1
C6
24
R10
23
R12
12
R13
13
R9
19
R1
20
Q2
33
SEE NOTE 12
SP2
FT1
FT2
FT3
FT4
FT5
(+)
(-)
SEE NOTE 12
Q1
32
Q3
33
SEE NOTE 12
R7
16
Q6
33
SEE NOTE 12
Q4
32
SEE NOTE 12
C16
26
C5
25
C7
27
C4
25
R8
17
R21
16
C12
25
C8
26
NOTE 12


2.375 REF
1.545 REF
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
SEE NOTE 14
LINE UP PIN HOLES REF
MODULATOR
AND LOOP
COMPENSATION
1007511
S/N
1.720 REF
SEE NOTE 15
APPLICABLE DASH NO.

MARKING VIEWS
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	1009521	SCHEMATIC	REF
AR	1010848-2	WIRE, ELECTRICAL - NICKEL	38
2	1008540-8	GASKET	37
AR	1006776-21	INSULATION SLEEVING	36
1	1010753	TRANSFORMER	35
2	1010759	TRANSFORMER	34
4	1010397-1	TRANSISTOR	33
2	1010367	TRANSISTOR	32
2	1010277-6	INDUCTOR	31
2	1010830-11	DIODE	30
2	1010279-111	CAPACITOR	29
2	1010264-13	CAPACITOR	28
2	1010264-11	CAPACITOR	27
2	1006755-79	CAPACITOR	26
6	1006755-69	CAPACITOR	25
2	1006755-13	CAPACITOR	24
4	1010364-693	RESISTOR	23
2	1010364-619	RESISTOR	22
2	1010364-579	RESISTOR	21
2	1010364-501	RESISTOR	20
2	1010364-325	RESISTOR	19
2	1010364-443	RESISTOR	18
2	1010364-379	RESISTOR	17
2	1006750-77	RESISTOR	16
2	1006750-46	RESISTOR	15
2	1006750-39	RESISTOR	14
4	1006750-36	RESISTOR	13
2	1006750-17	RESISTOR	12
~~AR~~	~~1006776-22~~	~~INSULATION SLEEVING~~	11
AR	1006776-20	INSULATION SLEEVING	10
~~AR~~	~~1006757-8~~	~~WIRE, ELECTRICAL~~	9
AR	1006757-1	WIRE, ELECTRICAL	8
8	1008161-3	SCREW, CAP SLOTTED HD SPECIAL	7
3	1015135-020	SPACER	6
16	1006782-5	CONTACT, WRAPOST-MALE, MIN	5
16	1006775	INSULATOR, WRAPOST-MALE, MIN	4
1	1008508	WIRING BOARD, BOTTOM	3
1	1008506	WIRING BOARD, TOP	2
1	1008509	FRAME	1

-011 LIST OF MATERIALS

1007580	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XXX ± .005 XX ± .02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

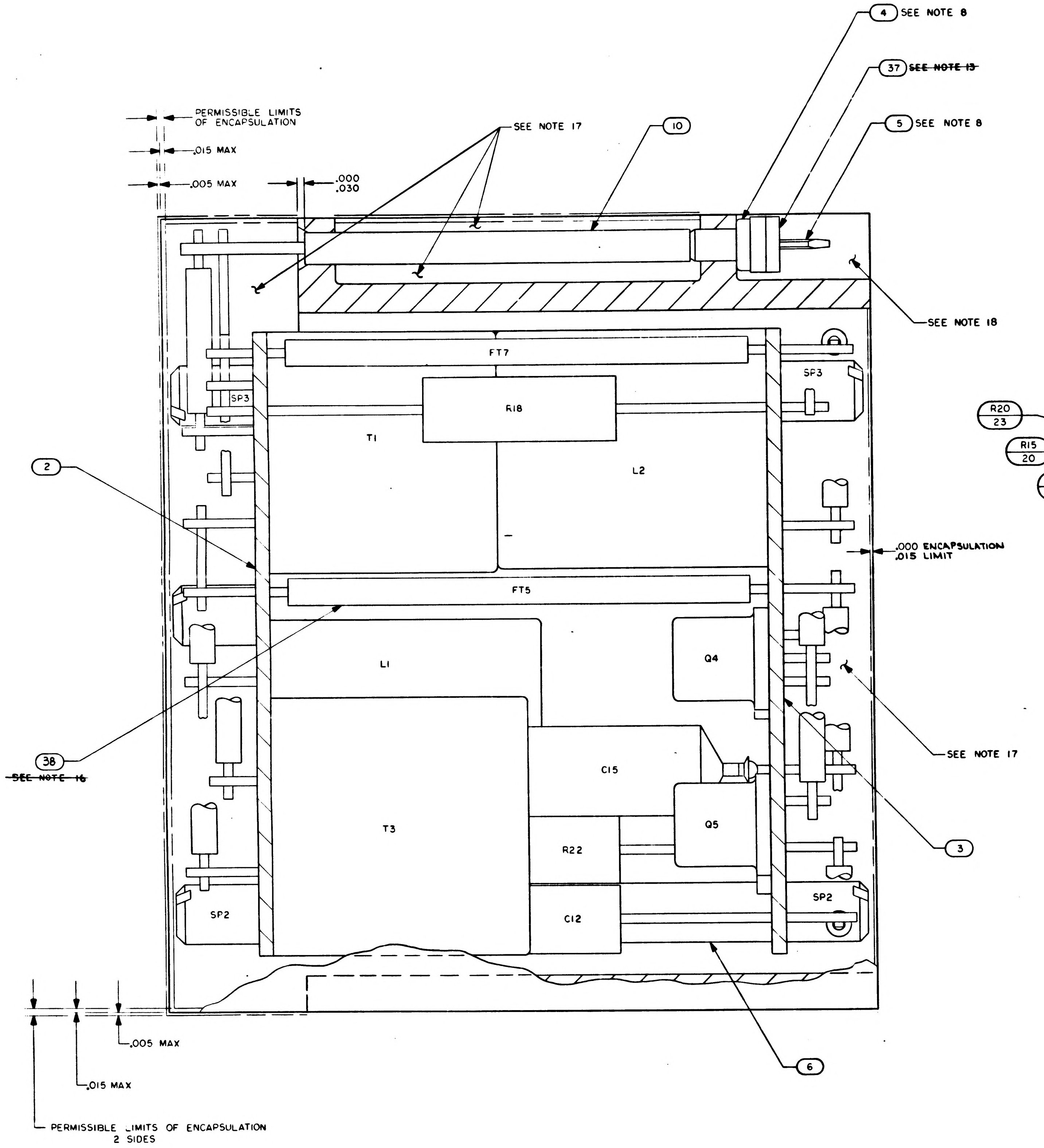
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN Mahoney DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL 11-12-64
MIT APPROVAL

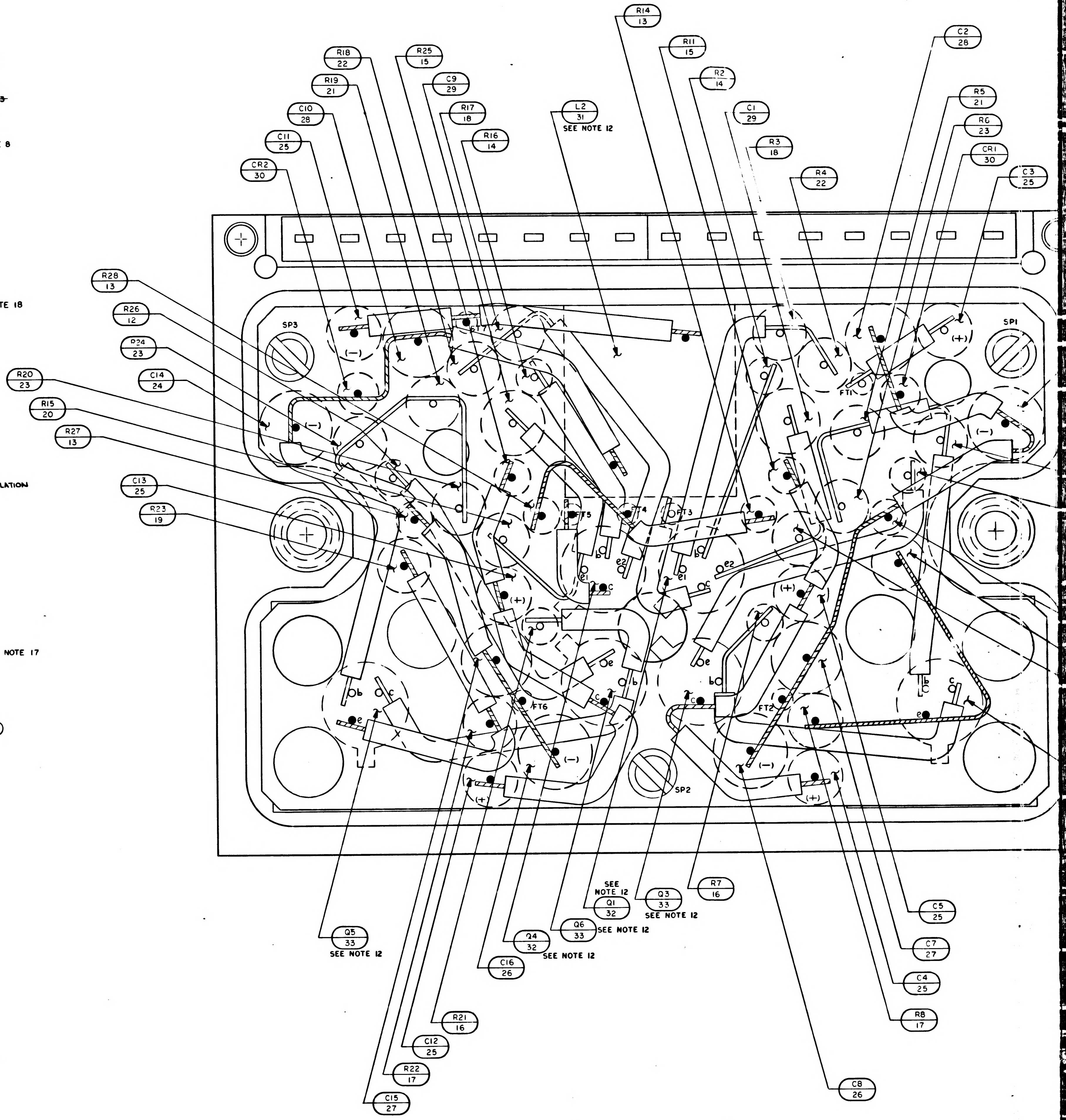
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MODULATOR AND LOOP COMPENSATION ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007511
SCALE 10/1
WT
SHEET OF 1

1007511 REV LTR J SH 1

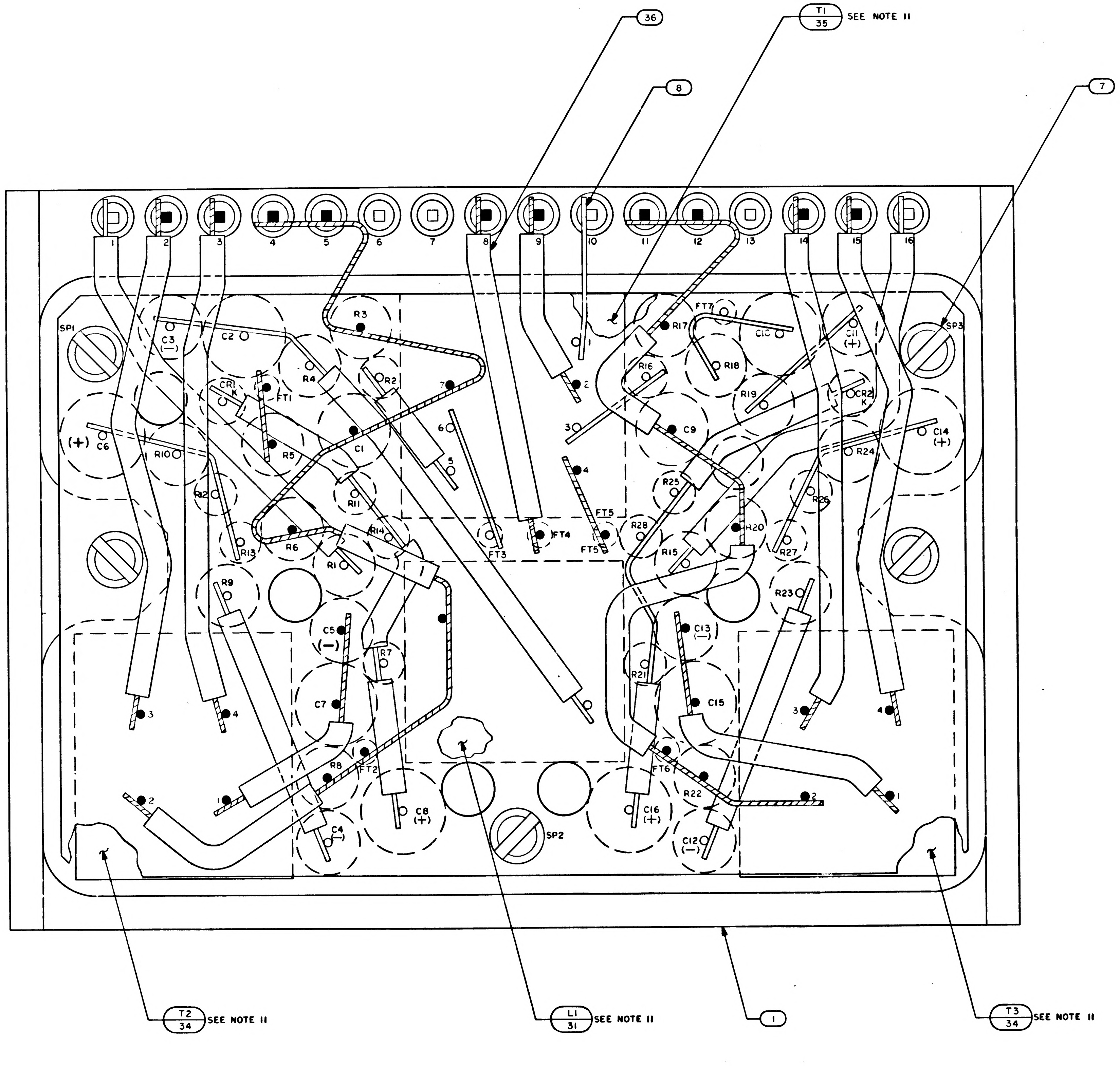

4 SEE NOTE 8
37 ~~SEE NOTE 13~~
5 SEE NOTE 8
10
PERMISSIBLE LIMITS OF ENCAPSULATION
.015 MAX
.005 MAX
SEE NOTE 17
.000
.030
SEE NOTE 18
FT7
SP3
SP3
R18
T1
L2
2
.000 ENCAPSULATION
.015 LIMIT
FT5
L1
Q4
SEE NOTE 17
38
~~SEE NOTE 16~~
C15
T3
Q5
R22
3
SP2
C12
SP2
6
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION
2 SIDES

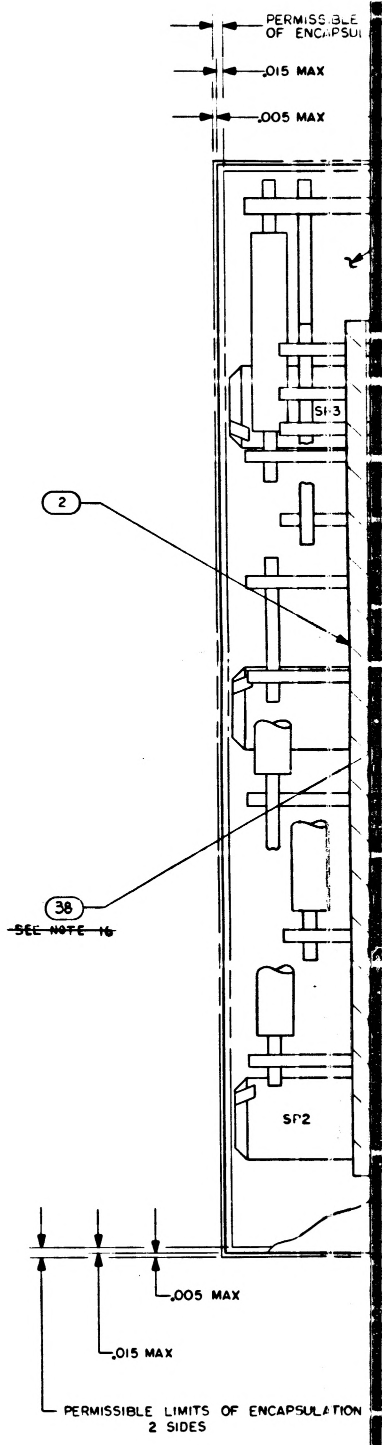

R14 13
R11 15
C2 28
R18 22
R25 15
R2 14
R19 21
C9 29
R5 21
C10 28
R17 18
L2 31
SEE NOTE 12
C1 29
R6 23
C11 25
R16 14
R3 18
CR1 30
CR2 30
R4 22
C3 25
R28 13
R26 12
R24 23
C14 24
R20 23
R15 20
R27 13
C13 25
R23 19
SP3
SP1
SP2
FT1
FT2
FT3
FT4
FT5
FT6
FT7
(+)
(−)
b
c
e
e1
e2
SEE NOTE 12
Q1 32
Q3 33
SEE NOTE 12
R7 16
Q6 33
SEE NOTE 12
Q5 33
SEE NOTE 12
Q4 32
SEE NOTE 12
C16 26
C5 25
C7 27
C4 25
R8 17
R21 16
C12 25
R22 17
C15 27
C8 26

1007511	REV LTR J	SH 1

2710007511

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO


36
T1
35
SEE NOTE 11
8
7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
SP1
SP3
SP2
C3 (−)
C2
R3
R4
R2
CR1 K
FT1
(+) C6
R10
R5
C1
R11
R12
R13
R6
R1
R14
FT3
FT4
FT5
R9
C5 (−)
R7
C7
R8
FT2
C4
C8 (+)
FT7
R17
C10
C11 (+)
R16
R18
R19
CR2 K
C9
C14 (+)
R24
R25
R26
R28
R20
R15
R27
R23
C13 (−)
R21
C15
FT6
R22
C16 (+)
C12 (−)
T2
34
SEE NOTE 11
L1
31
SEE NOTE 11
1
T3
34
SEE NOTE 11


PERMISSIBLE LIMITS OF ENCAPSU
.015 MAX
.005 MAX
S1-3
2
38
~~SEE NOTE 16~~
SP2
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION 2 SIDES

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. K DENOTES CATHODE SIDE OF DIODE
5. SP DENOTES SPACER
6. + INDICATES POSITIVE SIDE OF CAPACITOR
7. WELD PER ND1002005
8. ASSEMBLE FIND NO.4 AND FIND NO.5 PER ND1002136
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. BOND T1, T2, T3 AND L1 TO FIND NO.2 PER ND1002004, TYPE I
12. BOND Q1 THRU Q6 AND L2 TO FIND NO.3 PER ND1002004, TYPE I
~~13. BOND FIND NO.37 TO FIND NO 4 PER ND1002237~~
14. MARK .100/.060 HIGH WHITE CHARACTERS PER ND1002019. CENTRALIZE AS SHOWN
15. MARK .140/.100 HIGH WHITE CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
~~16. TYPICAL SLEEVING ALL FEED THRUS~~
17. ENCAPSULATE MODULE PER ND1002002 BLACK POLYURETHANE FOAM REMOVE ALL FLASHING
18. INDICATED AREA TO BE FREE OF ENCAPSULATION
19. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
20. PROCURE PER PS1007511
~~21. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ± .03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II.~~
22. CLEAN MODULE WHERE POSSIBLE BY DEGASSING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
23. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

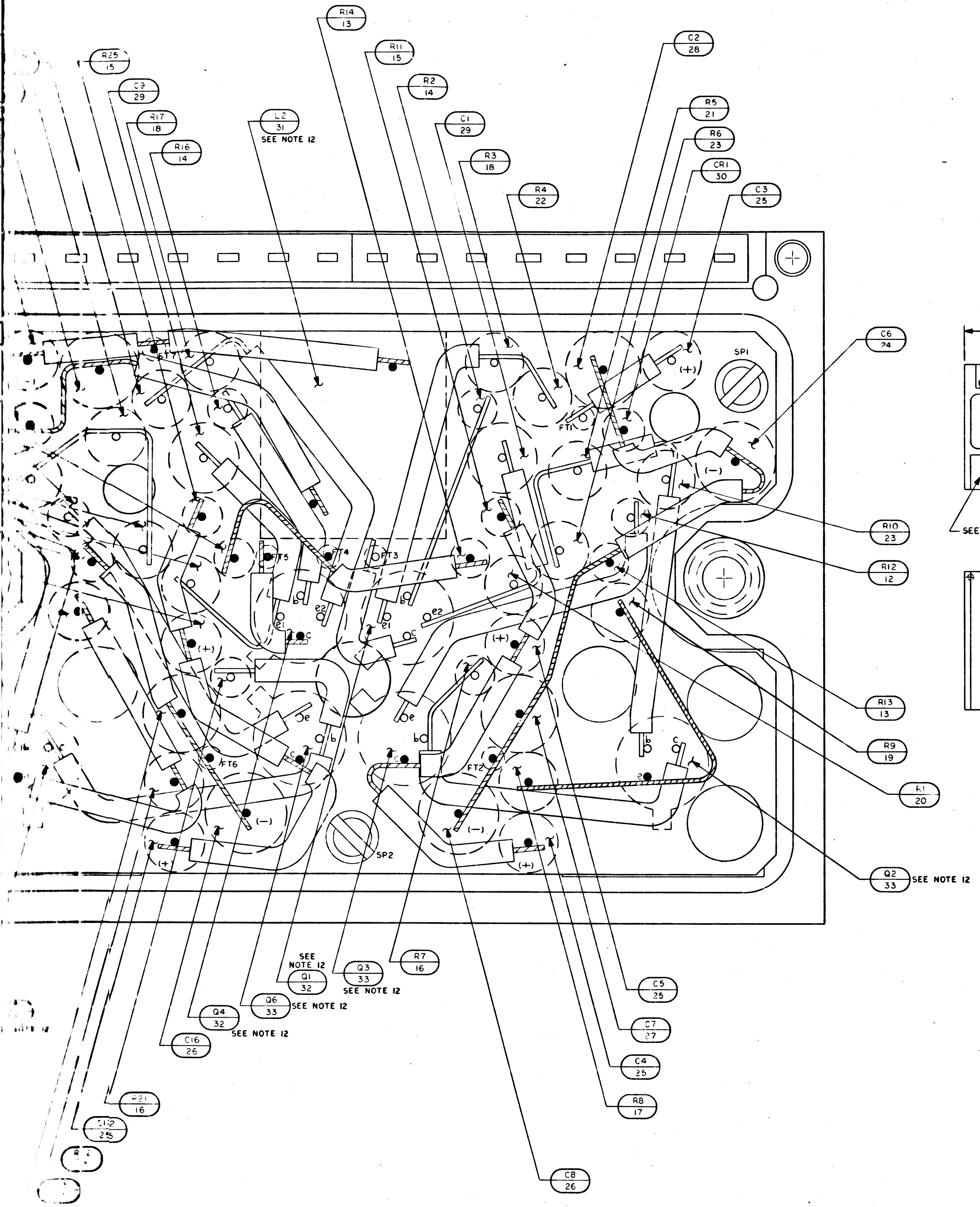
1007511	REV LTR	SH
	J	1

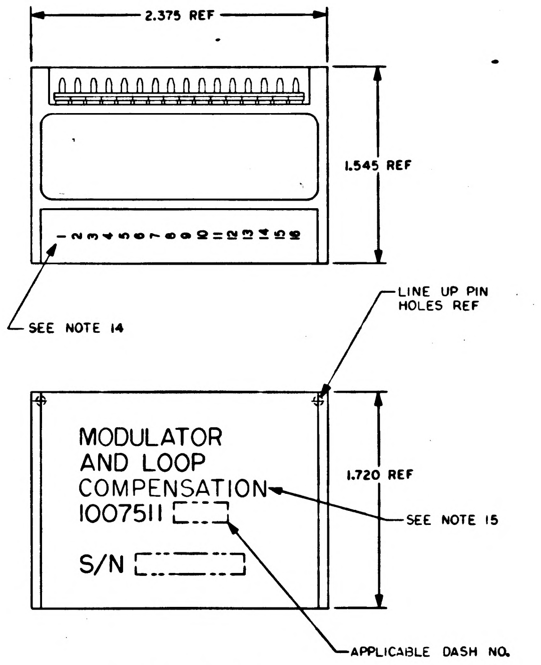
1/1007511

1007511 | K

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TORR 18108	9 APR 65	HTO EF
B	REVISED PER TDRR18957	14 MAY 65	JJ EF
C	REVISED PER TDRR 19432	1 JUN 65	[illegible]
D	REVISED PE[illegible]RR 19484	16 JUN 65	[illegible]
E	REVISED PE[illegible] TDRR 20126	[illegible]	[illegible]
F	REVISED PE[illegible]RR 20143	22 JUN 65	[illegible]
G	REVISED PE[illegible]RR 22947	12 OCT 65	[illegible] EF
H	REVISED P[illegible]RR 23988	16 NOV 65	[illegible]
J	REVISED PE[illegible]RR 23899	17 NOV 65	[illegible]
K	REVISED PE[illegible]RR 26397	28 FEB 66	[illegible]


R25
15
C9
29
R17
18
R16
14
R14
13
R11
15
L2
31
SEE NOTE 12
R2
14
C1
29
R3
18
R4
22
C2
28
R5
21
R6
23
CR1
30
C3
25
C6
24
SP1
FT1
FT5
FT3
FT6
FT2
SP2
e1
e2
b
c
e
(+)
(-)
R10
23
R12
12
R13
13
R9
19
R1
20
Q2
33
SEE NOTE 12
C5
25
C7
27
C4
25
R8
17
C8
26
R7
16
Q3
33
SEE NOTE 12
SEE NOTE 12
Q1
32
Q6
33
SEE NOTE 12
Q4
32
SEE NOTE 12
C16
26
R21
16
C12
25


2.375 REF
1.545 REF
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
SEE NOTE 14
LINE UP PIN HOLES REF
MODULATOR AND LOOP COMPENSATION 1007511
S/N
1.720 REF
SEE NOTE 15
APPLICABLE DASH NO.

MARKING VIEWS
SCALE 2/1

QTY 021	QTY 011	PART OF IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		1009521	SCHEMATIC	REF
AR	—	SEE NOTE 24	MOISTUREPROOFING	39
AR	AR	1010848-2	WIRE, ELECTRICAL - NICKEL	38
2	2	1008540-8	GASKET	37
AR	AR	1006776-21	INSULATION SLEEVING	36
1	1	1010753	TRANSFORMER	35
2	2	1010759	TRANSFORMER	34
4	4	1010397-1	TRANSISTOR	33
2	2	1010367	TRANSISTOR	32
2	2	1010277-6	INDUCTOR	31
2	2	1010830-11	DIODE	30
2	2	1010279-111	CAPACITOR	29
2	2	1010264-13	CAPACITOR	28
2	2	1010264-11	CAPACITOR	27
2	2	1006755-79	CAPACITOR	26
6	6	1006755-69	CAPACITOR	25
2	2	1006755-13	CAPACITOR	24
4	4	1010364-693	RESISTOR	23
2	2	1010364-619	RESISTOR	22
2	2	1010364-579	RESISTOR	21
2	2	1010364-501	RESISTOR	20
2	2	1010364-325	RESISTOR	19
2	2	1010364-443	RESISTOR	18
2	2	1010364-379	RESISTOR	17
2	2	1006750-77	RESISTOR	16
2	2	1006750-46	RESISTOR	15
2	2	1006750-39	RESISTOR	14
4	4	1006750-36	RESISTOR	13
2	2	1006750-17	RESISTOR	12
	~~AR~~	~~1006776-22~~	~~INSULATION SLEEVING~~	11
AR	AR	1006776-20	INSULATION SLEEVING	10
	~~AR~~	~~1006757-8~~	~~WIRE, ELECTRICAL~~	9
AR	AR	1006757-1	WIRE, ELECTRICAL	8
8	8	1008161-3	SCREW, CAP SLOTTED HD SPECIAL	7
3	3	1015135-020	SPACER	6
16	16	1006782-5	CONTACT, WRAPOST-MALE, MIN	5
16	16	1006775	INSULATOR, WRAPOST-MALE, MIN	4
1	1	1008508	WIRING BOARD, BOTTOM	3
1	1	1008506	WIRING BOARD, TOP	2
1	1	1008509	FRAME	1

LIST OF MATERIALS

NEXT ASSY	USED ON
1007580	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS .XXX ± .005 .XX ± .02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN Mahoney DATE 18 Sep 64
CHECKED
APPROVAL
APPROVAL 11-9-64
NASA APPROVAL 11-12-64
MIT APPROVAL 12 Nov 64

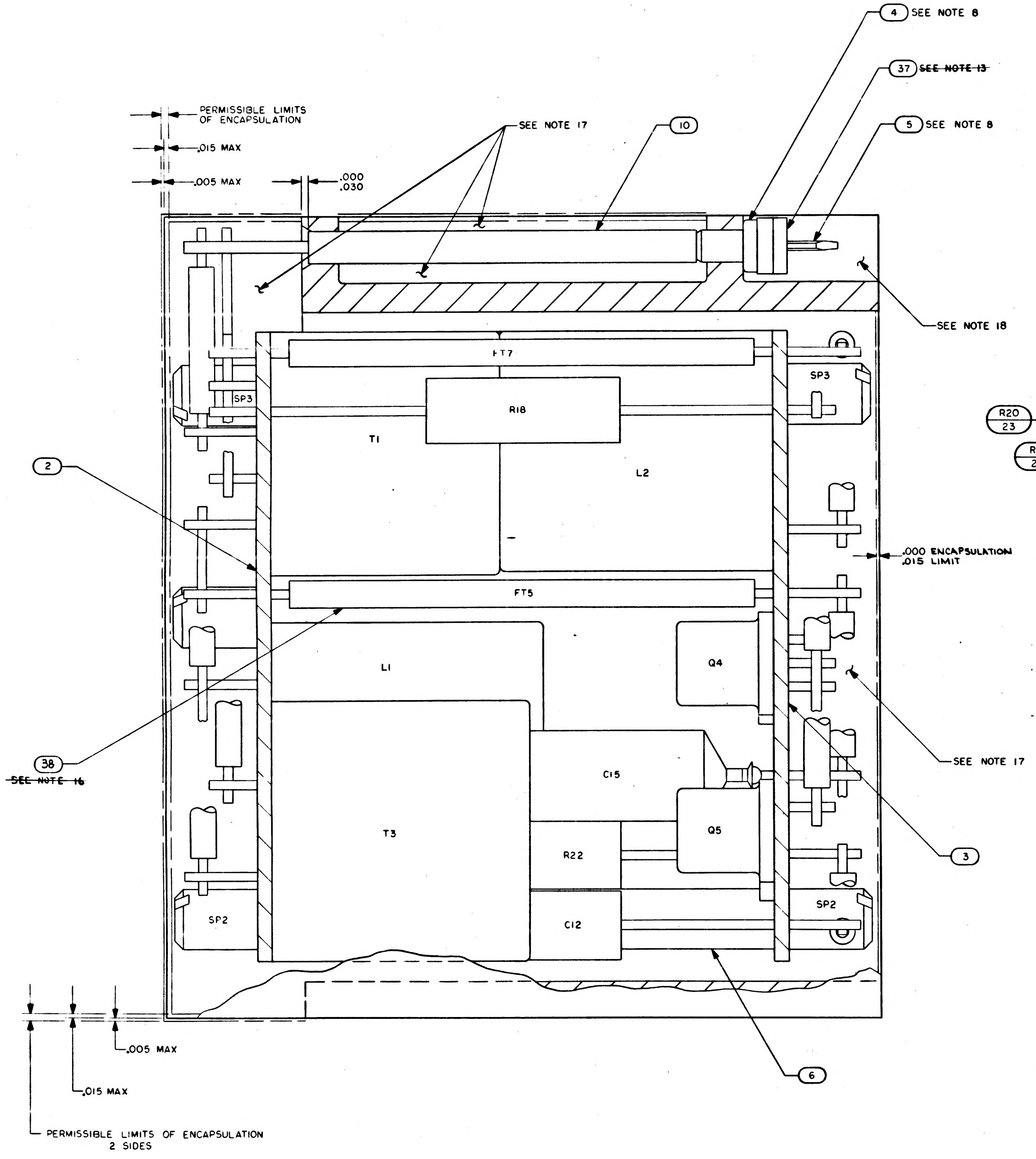
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MODULATOR AND
LOOP COMPENSATION
ASSEMBLY

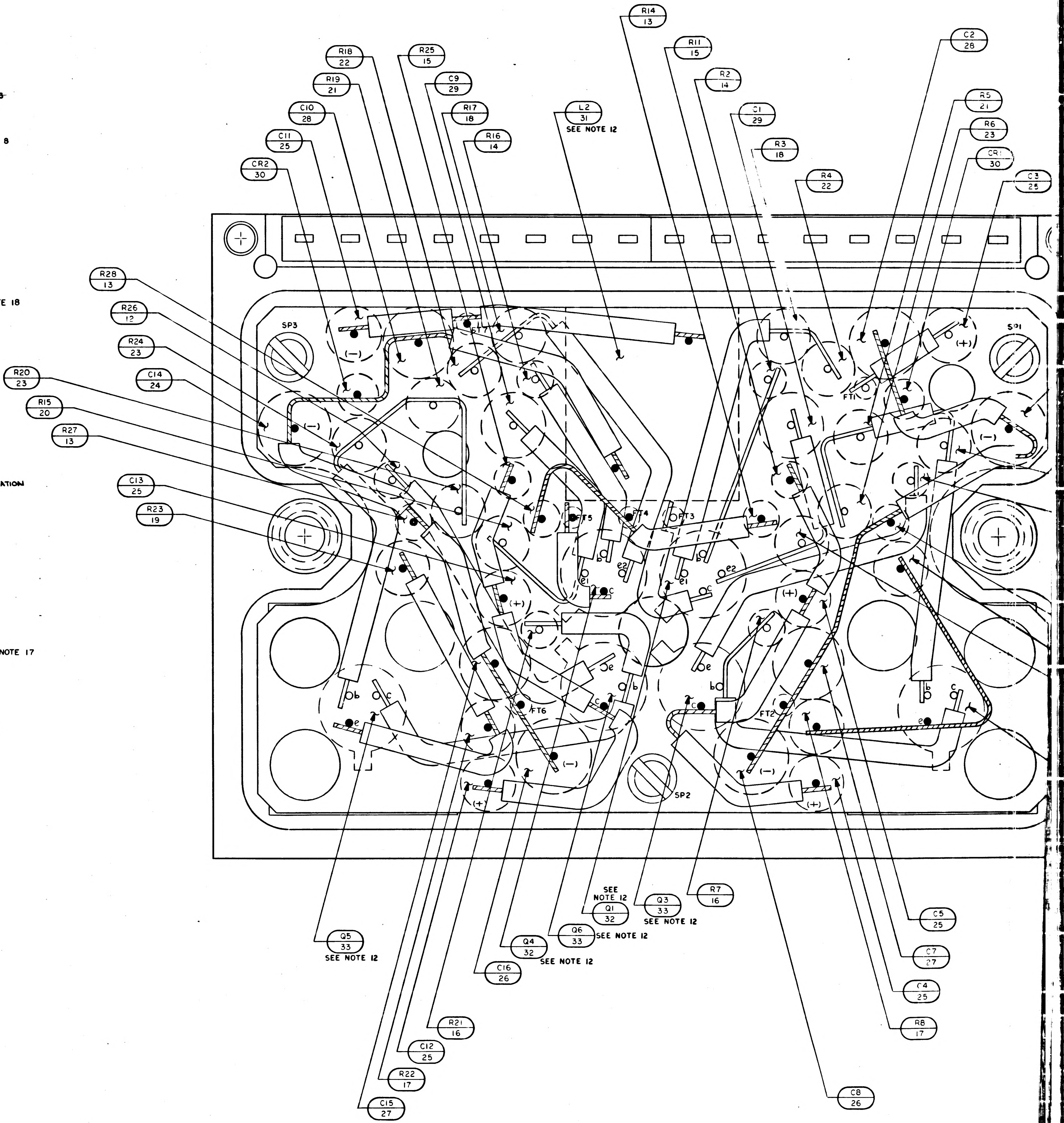
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007511
SCALE 10/1
WT
SHEET 1 OF 1

1007511 | REV K | SH 1

3/1007511



PERMISSIBLE LIMITS OF ENCAPSULATION
.015 MAX
.005 MAX
.000 .030
SEE NOTE 17
10
4 SEE NOTE 8
37 ~~SEE NOTE 13~~
5 SEE NOTE 8
SEE NOTE 18
FT7
SP3
R18
T1
L2
2
.000 ENCAPSULATION .015 LIMIT
FT5
L1
Q4
SEE NOTE 17
38
~~SEE NOTE 16~~
C15
T3
Q5
R22
3
SP2
C12
6
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION 2 SIDES



R14 13
R18 22
R25 15
R11 15
C2 26
R19 21
C9 29
R2 14
C10 28
R17 18
L2 31 SEE NOTE 12
C1 29
R5 21
R6 23
C11 25
R16 14
R3 18
CR1 30
CR2 30
R4 22
C3 25
R28 13
R26 12
R24 23
C14 24
R20 23
R15 20
R27 13
C13 25
R23 19
SP3
SP1
FT1
FT4
FT3
FT5
FT6
FT2
SP2
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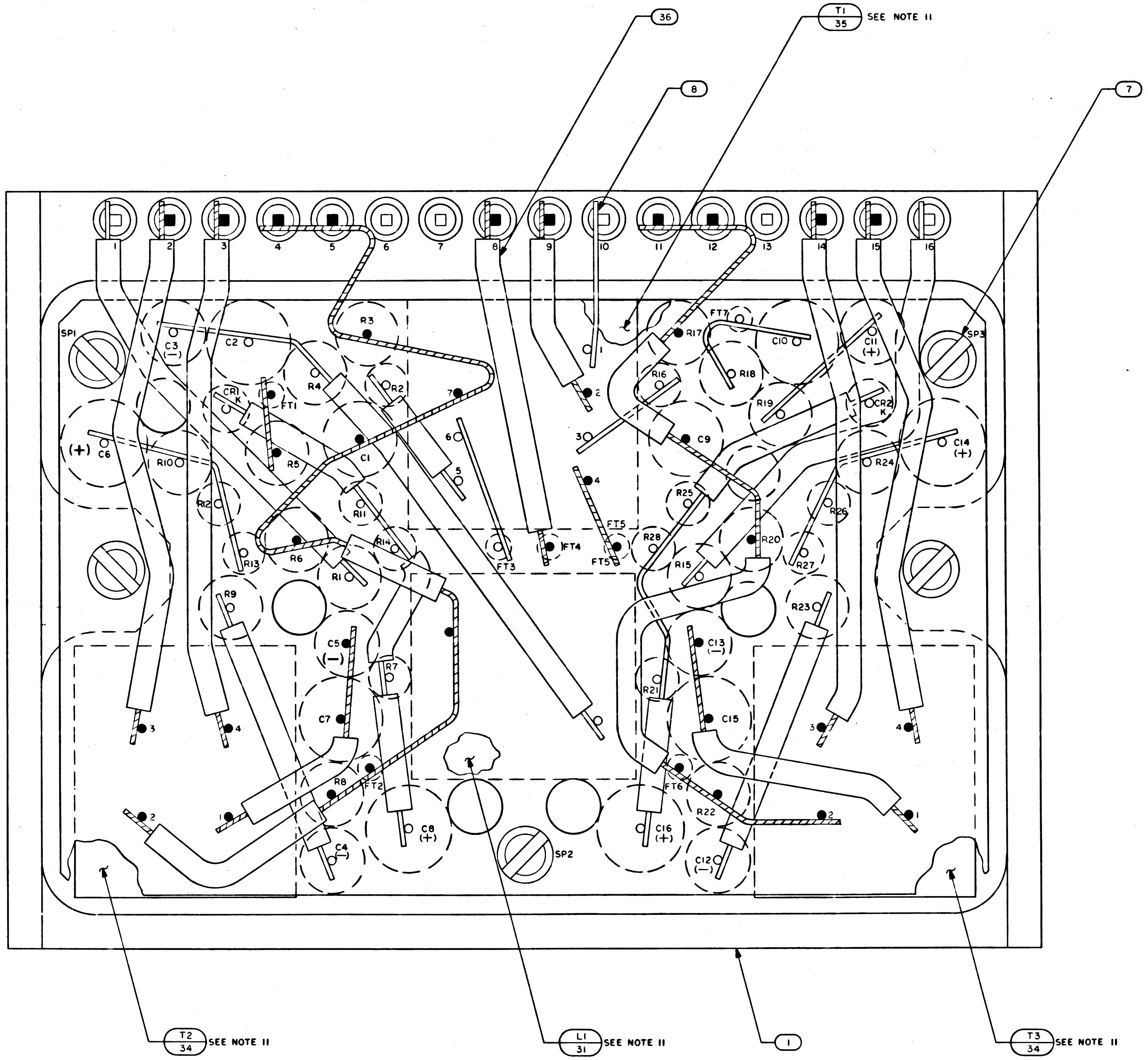
e1
e2
SEE NOTE 12 Q1 32
Q3 33 SEE NOTE 12
R7 16
Q6 33 SEE NOTE 12
Q4 32 SEE NOTE 12
Q5 33 SEE NOTE 12
C5 25
C7 27
C16 26
C4 25
R8 17
R21 16
C12 25
R22 17
C15 27
C8 26

1007511 REV LTR K SH 1

2/1007511

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO


36
T1
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SEE NOTE 11
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12
13
14
15
16
SP1
SP2
SP3
C1
C2
C3
(–)
C4
C5
(–)
C6
(+)
C7
C8
(+)
C9
C10
C11
(+)
C12
(–)
C13
(–)
C14
(+)
C15
C16
(+)
CR1
K
CR2
K
FT1
FT2
FT3
FT4
FT5
FT6
FT7
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
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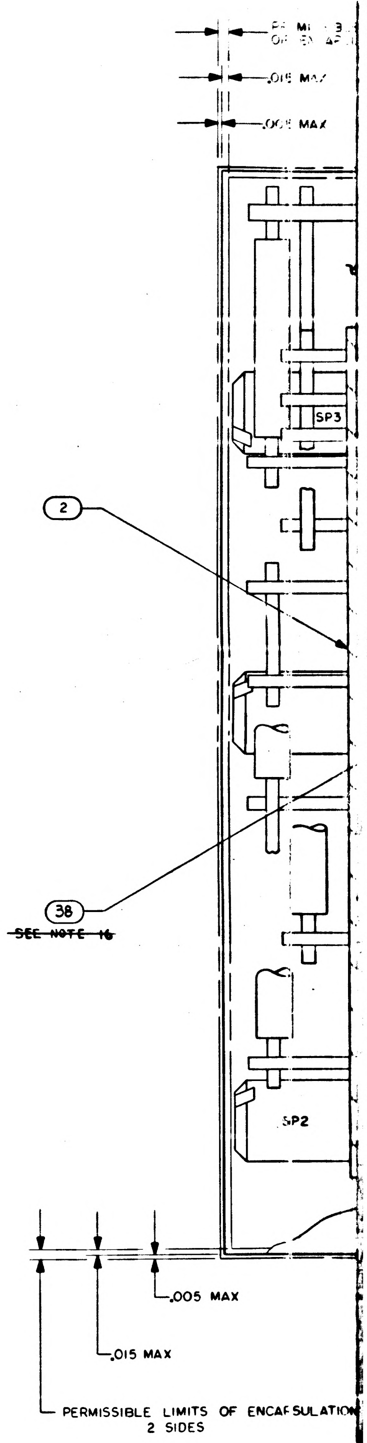
R13
R14
R15
R16
R17
R18
R19
R20
R21
R22
R23
R24
R25
R26
R27
R28
T2
34
SEE NOTE 11
L1
31
SEE NOTE 11
1
T3
34
SEE NOTE 11

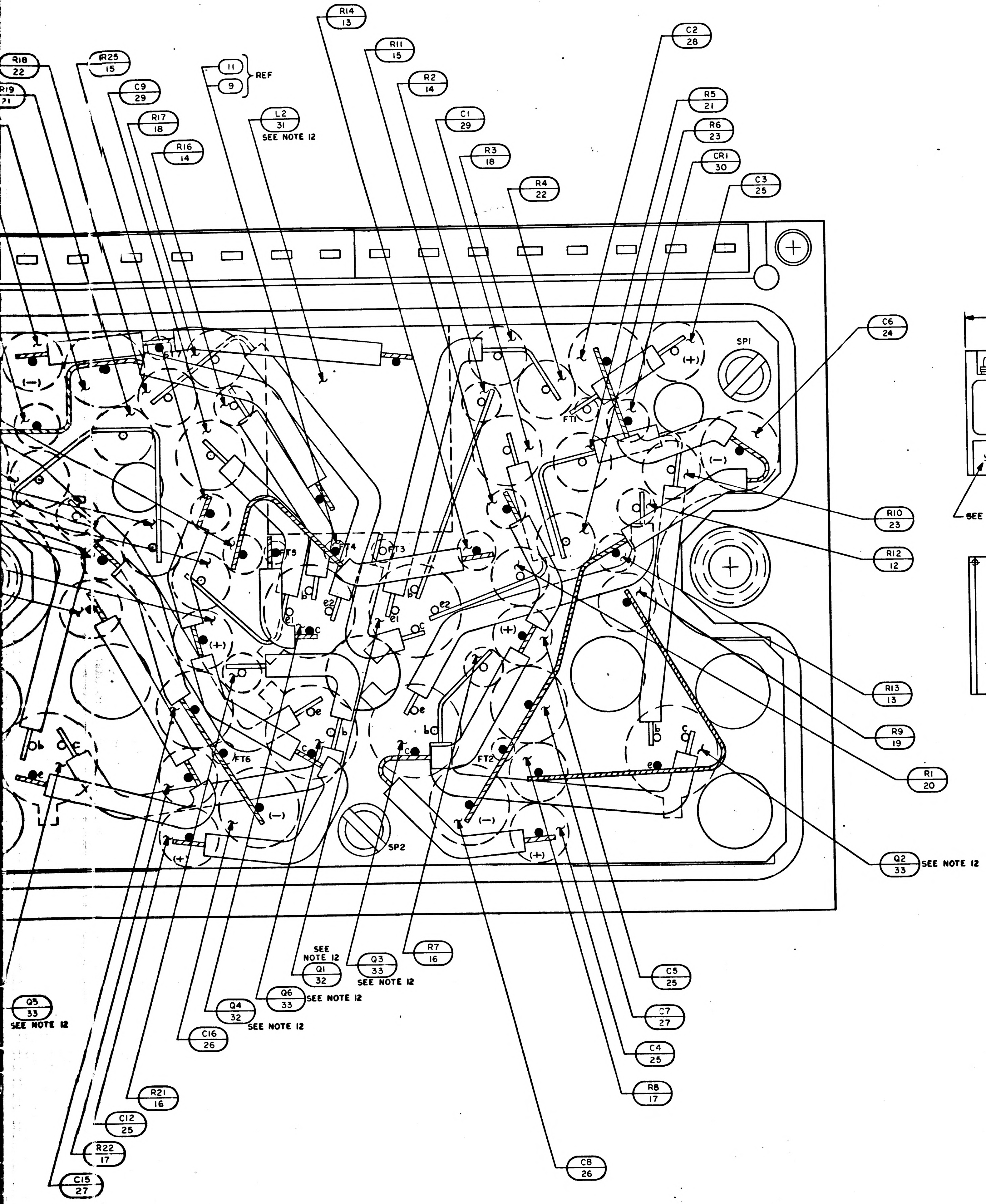

.015 MAX
.005 MAX
2
SP3
SP2
38
~~SEE NOTE 16~~
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION
2 SIDES

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. K DENOTES CATHODE SIDE OF DIODE
5. SP DENOTES SPACER
6. + INDICATES POSITIVE SIDE OF CAPACITOR
7. WELD PER ND1002005
8. ASSEMBLE FIND NO.4 AND FIND NO.5 PER ND1002136
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. BOND T1,T2,T3 AND L1 TO FIND NO.2 PER ND1002004, TYPE I
12. BOND Q1 THRU Q6 AND L2 TO FIND NO.3 PER ND1002004, TYPE I
13. ~~BOND FIND NO.37 TO FIND NO 4 PER ND1002237~~
14. MARK .100/.060 HIGH WHITE CHARACTERS PER ND1002019. CENTRALIZE AS SHOWN
15. MARK .140/.100 HIGH WHITE CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
16. ~~TYPICAL SLEEVING ALL FEED THRUS~~
17. ENCAPSULATE MODULE PER ND1002002 BLACK POLYURETHANE FOAM REMOVE ALL FLASHING
18. INDICATED AREA TO BE FREE OF ENCAPSULATION
19. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
20. PROCURE PER PS1007511
21. CLEAN MODULE WHERE POSSIBLE ~~BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. APPLY ADHESIVE TO FRAME ON ALL AVAILABLE FOAM CONTACT SURFACES TO WITHIN .03 INCH ±.03 OF EXTERNAL EDGES OF MODULE AND TO A DEPTH OF .25 MIN IN FROM EDGES. USE ADHESIVE PER ND1002187 TYPE II~~.
22. CLEAN MODULE WHERE POSSIBLE BY DEGASSING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
23. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
24. MOISTUREPROOF PER ND1002292 AS REQUIRED BY FIND NO. (39) USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD 1008867 AFTER PAINTING AND STENCILLING.

1007511	REV LTR	SH
	K	1

1/1007511


R14 13
R11 15
C2 28
R18 22
R25 15
11 9 REF
R19 21
C9 29
R2 14
R5 21
R17 18
L2 31
SEE NOTE 12
C1 29
R6 23
R16 14
R3 18
CR1 30
C3 25
R4 22
SP1
C6 24
FT1
FT5
FT4
FT3
FT2
FT6
SP2
R10 23
R12 12
R13 13
R9 19
R1 20
Q2 33 SEE NOTE 12
SEE NOTE 12 Q1 32
Q3 33 SEE NOTE 12
R7 16
C5 25
Q6 33 SEE NOTE 12
Q4 32 SEE NOTE 12
Q5 33 SEE NOTE 12
C7 27
C4 25
C16 26
R8 17
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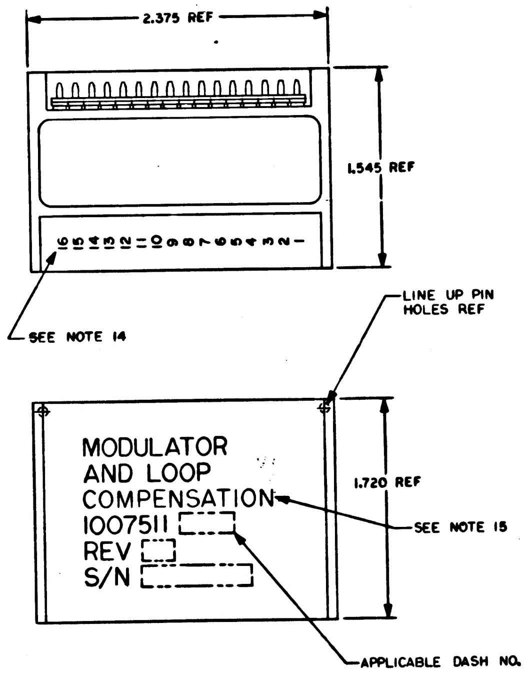
C12 25
R22 17
C8 26
C15 27


2.375 REF
1.545 REF
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 14
LINE UP PIN HOLES REF
MODULATOR
AND LOOP
COMPENSATION
1007511
REV
S/N
1.720 REF
SEE NOTE 15
APPLICABLE DASH NO.

MARKING VIEWS
SCALE 2/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1009521	SCHEMATIC	REF
2	1008540-8	GASKET	37
AR	1006776-21	INSULATION SLEEVING	36
1	1010753	TRANSFORMER	35
2	1010759	TRANSFORMER	34
4	1010397-1	TRANSISTOR	33
2	1010367	TRANSISTOR	32
2	1010277-6	INDUCTOR	31
2	1010830-11	DIODE	30
2	1010279-111	CAPACITOR	29
2	1010264-13	CAPACITOR	28
2	1010264-11	CAPACITOR	27
2	1006755-79	CAPACITOR	26
6	1006755-69	CAPACITOR	25
2	1006755-13	CAPACITOR	24
4	1010364-693	RESISTOR	23
2	1010364-619	RESISTOR	22
2	1010364-579	RESISTOR	21
2	1010364-501	RESISTOR	20
2	1010364-455	RESISTOR	19
2	1010364-443	RESISTOR	18
2	1010364-379	RESISTOR	17
2	1006750-77	RESISTOR	16
2	1006750-46	RESISTOR	15
2	1006750-39	RESISTOR	14
4	1006750-36	RESISTOR	13
2	1006750-17	RESISTOR	12
AR	1006776-22	INSULATION SLEEVING	11
AR	1006776-20	INSULATION SLEEVING	10
AR	1006757-8	WIRE, ELECTRICAL	9
AR	1006757-1	WIRE, ELECTRICAL	8
6	1008161-3	SCREW, CAP SLOTTED HD SPECIAL	7
3	1015135-020	SPACER	6
16	1006782-5	CONTACT, WRAPOST-MALE, MIN	5
16	1006775	INSULATOR, WRAPOST-MALE, MIN	4
1	1008508	WIRING BOARD, BOTTOM	3
1	1008506	WIRING BOARD, TOP	2
1	1008509	FRAME	1
-011	LIST OF MATERIALS		

1007580	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .02 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN DATE
CHECKED
APPROVAL 5 Nov 64
APPROVAL
NASA APPROVAL 11-12-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MODULATOR AND LOOP COMPENSATION ASSEMBLY

CODE IDENT NO. — SIZE J NASA DRAWING NO. 1007511
SCALE 10/1 WT — SHEET OF 1

MASTER

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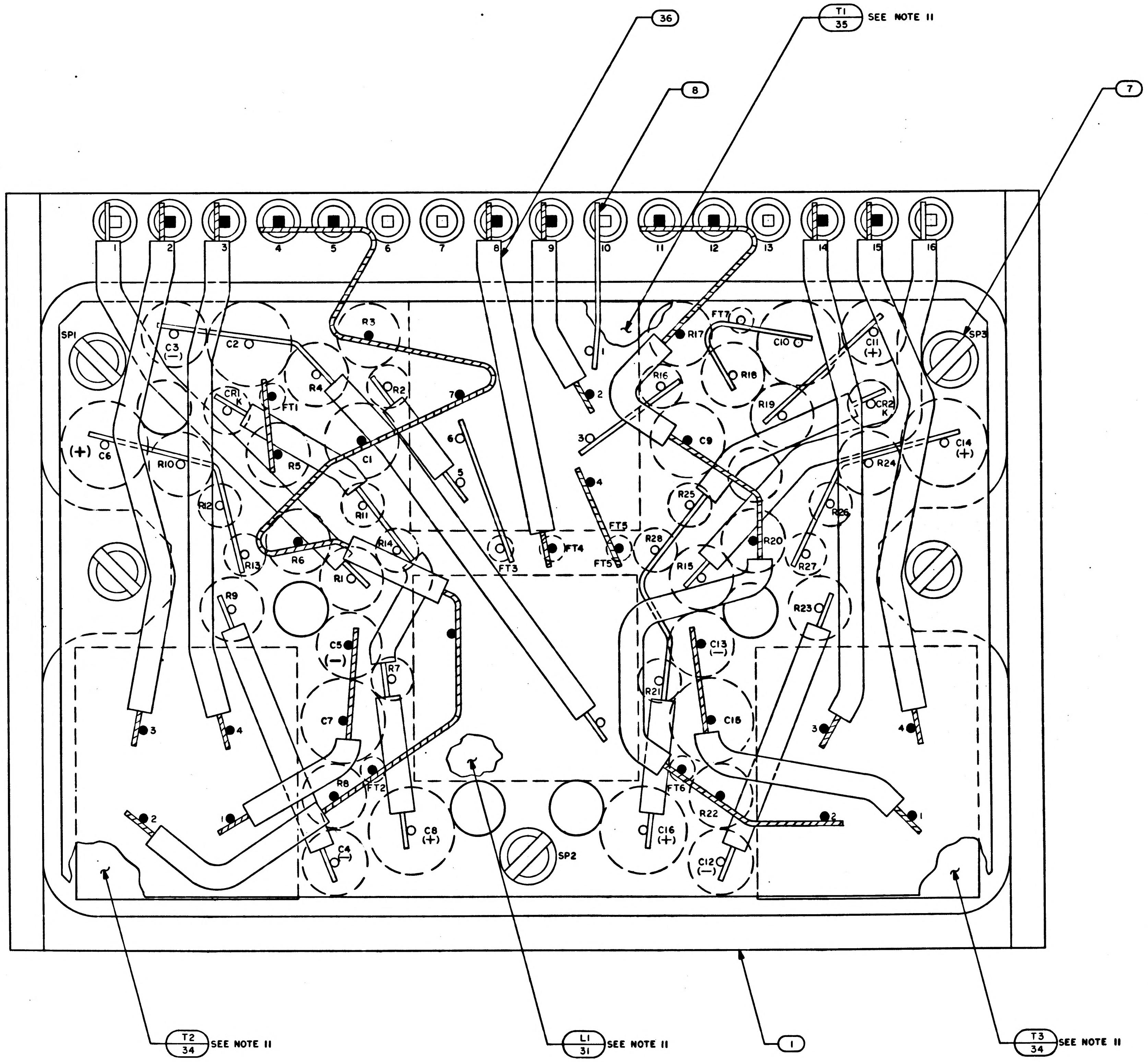
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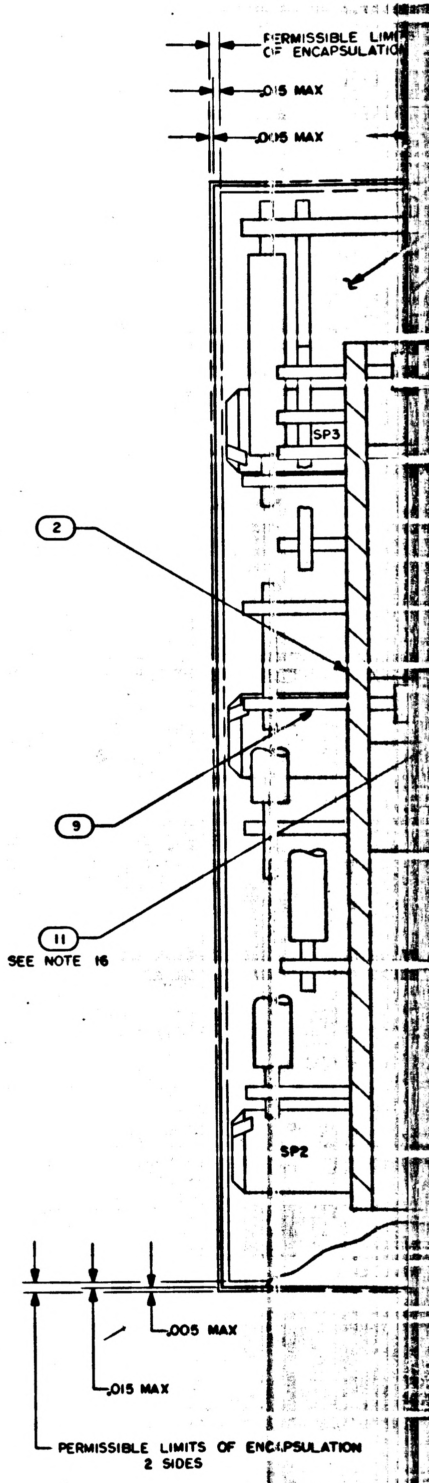
SEE NOTE 11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SEE NOTE 16
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PERMISSIBLE LIMITS OF ENCAPSULATION
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NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. K DENOTES CATHODE SIDE OF DIODE
5. SP DENOTES SPACER
6. + INDICATES POSITIVE SIDE OF CAPACITOR
7. WELD PER ND1002005
8. ASSEMBLE FIND NO.4 AND FIND NO.5 PER ND1002136
9. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
10. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
11. BOND T1, T2, T3 AND L1 TO FIND NO.2 PER ND1002004, TYPE I
12. BOND Q1 THRU Q6 AND L2 TO FIND NO.3 PER ND1002004, TYPE I
13. BOND FIND NO.37 TO FIND NO 4 PER ND1002237
14. MARK .100/.060 HIGH WHITE CHARACTERS PER ND1002019. CENTRALIZE AS SHOWN
15. MARK .140/.100 HIGH WHITE CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN
16. TYPICAL SLEEVING ALL FEED THRUS
17. ENCAPSULATE MODULE PER ND1002002 BLACK POLYURETHANE FOAM REMOVE ALL FLASHING
18. INDICATED AREA TO BE FREE OF ENCAPSULATION
19. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
20. PROCURE PER PS1007511

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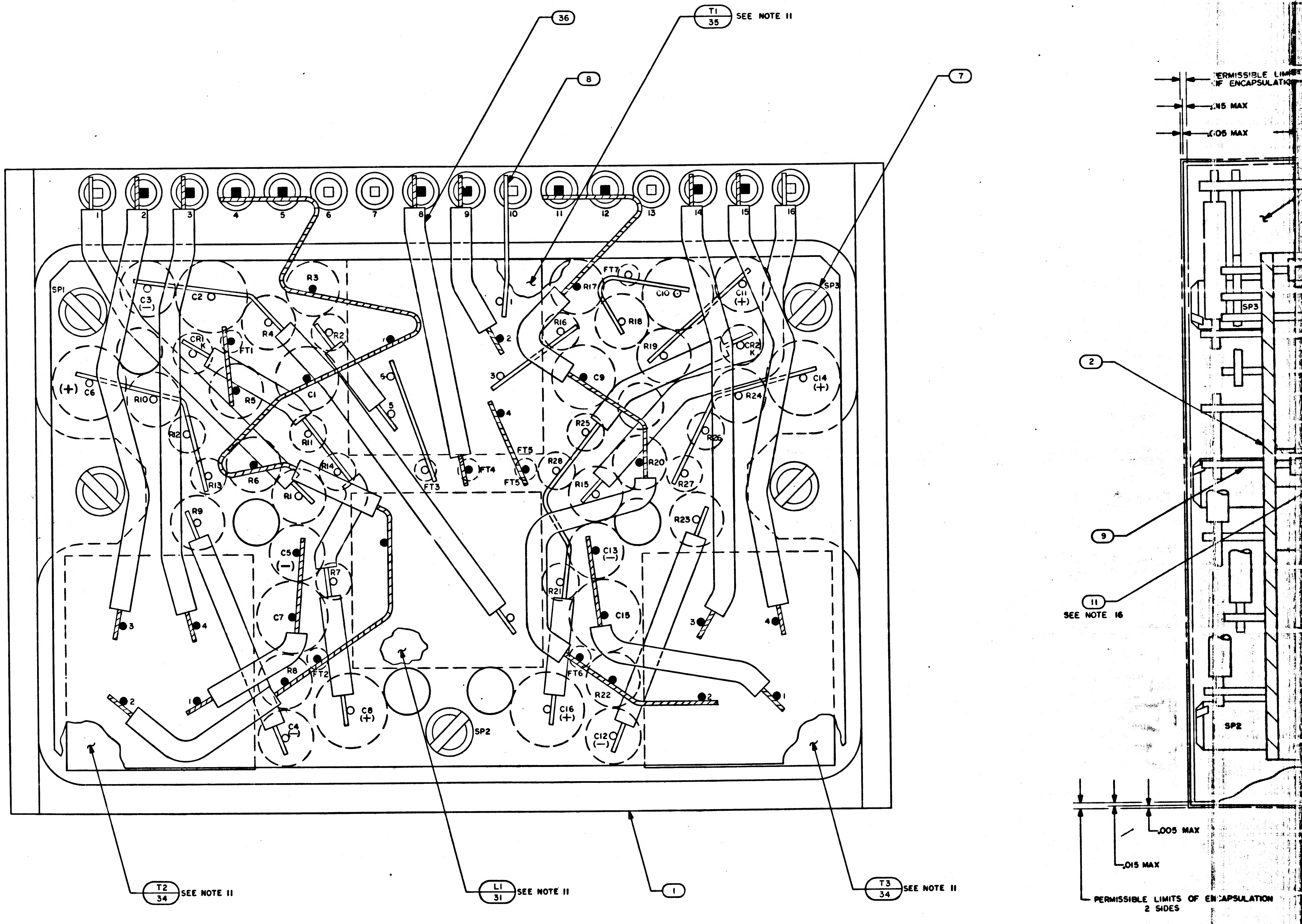
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SEE NOTE 11
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SEE NOTE 16
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PERMISSIBLE LIMITS OF ENCAPSULATION
2 SIDES

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20. PROCURE PER PS1007511

1007511

APOLLO G&N Specification
PS1007511
Original Issue Date: 13 April 1965
Release Authority: TDRR 18249
Class A Release

PROCUREMENT SPECIFICATION

FOR

MODULATOR AND LOOP COMPENSATION ASSEMBLY

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of page 1 to 6 inclusive.

APPROVALS	W J Rhine 4-13-65 NASA/MSC	W Kupfer 13 Apr 65 MIT/IL E R [illegible] 4/13/65	J. Walisiewicz R. Greenwood ACSP

3. REQUIREMENTS

3.1 GENERAL SPECIFICATION. Unless otherwise specified herein, all of the requirements of Specification ND1002210 shall apply as requirements for this specification.

3.2 DESCRIPTION. The assembly shall be used in the Power and Servo Assembly to convert the Star Tracker dc output signals to suppressed carrier ac signals and to provide servo loop frequency compensation.

3.3 FUNCTIONAL REQUIREMENTS

3.3.1 Electrical Inputs. The assembly shall perform as specified herein with the functional setup as indicated in Figure 1 and electrical inputs as follows:

- a. DC Supply Voltage: 25 to 31 vdc (nominal 28.0±0.3 vdc), 1 mv rms max noise.
- b. Reference Voltage: 28.0±0.5V rms, 800±2 cps
- c. Input Signals:
    1. Plus and minus dc voltage, variable from 0 to 15 volts.
    2. 12±0.25 cps, variable from 0 to 12V peak-to-peak.

3.3.2 Insulation Resistance. The resistance between the electrical interconnection of all assembly pins and the assembly mounting screws shall be equal to or greater than 100 megohms.

3.3.3 Current Drain. With the X and Y input Hi's connected to their respective Lo's and the reference and nominal dc voltages applied, the dc current drain shall be 18 ma max.

3.3.4 Noise. With the X and Y input Hi's connected to their respective Lo's and the reference and nominal dc voltages applied the output noise of the X and Y channels shall be as follows:

- a. The 0° or π phase 800 cps component shall be less than 2 mv rms.
- b. The 800 cps quadrature component shall be less than 200 mv rms.

3.3.5 Gain

- a. With the reference and nominal dc voltages applied, the gain from input to output (0° or π phase 800 cps component V rms/vdc) of the X and Y channels shall be 6.63±15% for positive and negative dc inputs of 3 volts.

3.3.6 Gain Linearity. With the reference voltage and 25±0.3 vdc applied, the gain from the input to output (800 cps, 0° phase component V rms/vdc) of the X and Y channels shall be as follows:

> With positive dc inputs adjusted to provide outputs of 3.5V and 0.15V the gains shall be ±10% of the gain measured with an input of 3 vdc.

3.3.7 Phase Shift. With the reference and nominal dc voltages applied, the phase shift from the reference to the output of the X and Y channels shall be 0° ±20° for a positive dc input of 3 volts and 180° ±20° for a negative dc input of 3 volts.

3.3.8 Frequency Response. With the reference and nominal dc voltages applied and 12±0.25 cps, 3 volts peak applied to the X channel and Y channel inputs, the gain of each channel shall be less than 3 db below the average of the gains measured with plus and minus 3 vdc inputs.

3.3.9 Output Impedance. The output impedance of the X and Y channels shall be less than 2000 ohms.

3.3.10 Output Isolation. The resistance between X channel output pins and the electrical interconnection of all other assembly pins and between Y channel output pins, and the electrical interconnection of all other assembly pins shall be equal to or greater than 100 megohms.

3.4 PERFORMANCE AND PRODUCT CHARACTERISTICS

3.4.1 Service Life

3.4.1.1 Operating Life. The assembly shall meet performance specification for at least 2,000 hours of operation, excluding the supplier's test time of the complete unit.

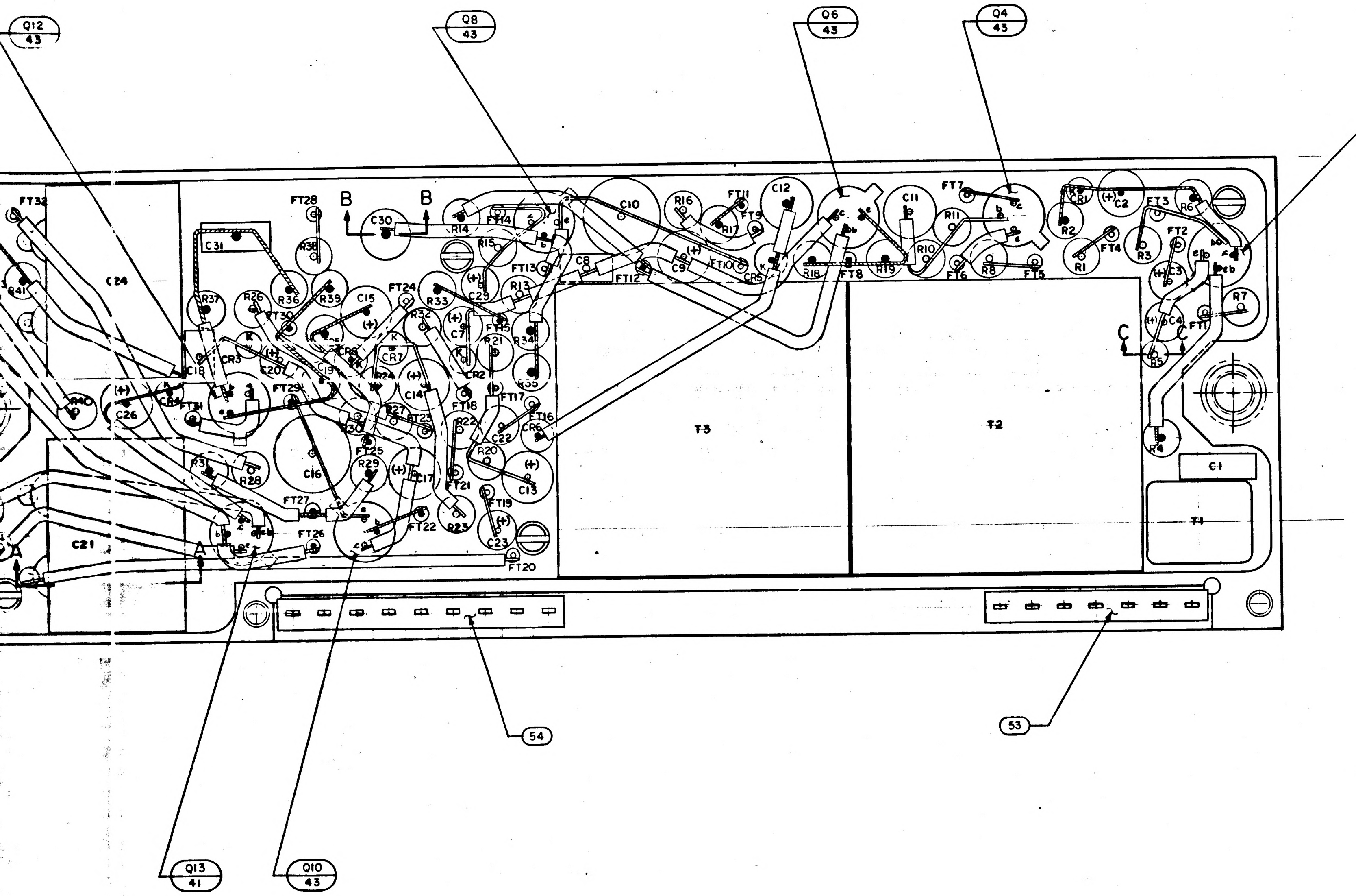
3.4.1.2 Shelf Life. The assembly shall have a shelf life of at least 5 years, without operation, at ambient room temperature after final acceptance at the supplier's facility.

3.4.2 Reliability. Design objectives require maximum reliability of the assembly during its period of useful life. Every effort shall be made to design and produce units capable of meeting a maximum failure rate of 5.2 failures per million hours.

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 15227		

REVISIONS 14586

1007512 A



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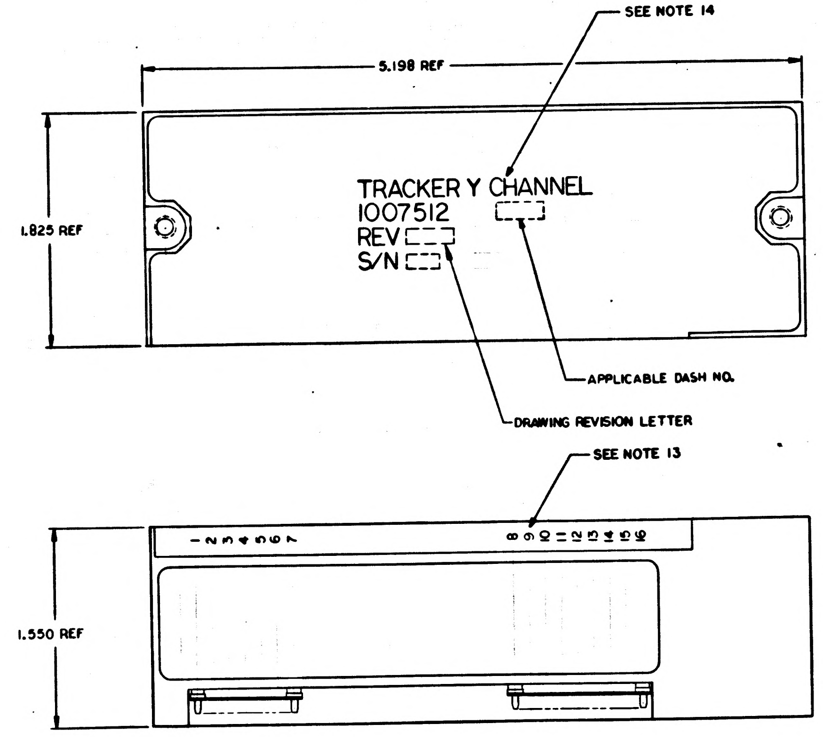

SEE NOTE 14
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1.825 REF
TRACKER Y CHANNEL
1007512
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S/N
APPLICABLE DASH NO.
DRAWING REVISION LETTER
SEE NOTE 13
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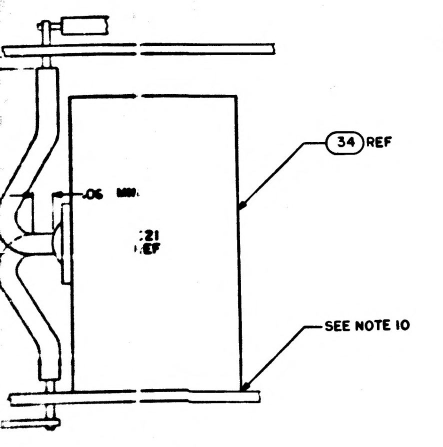
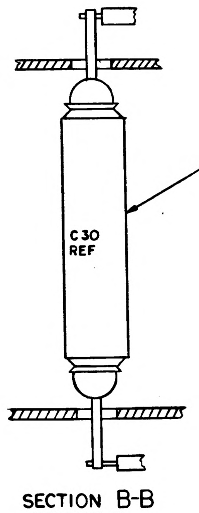
MARKING VIEW
SCALE 2/1



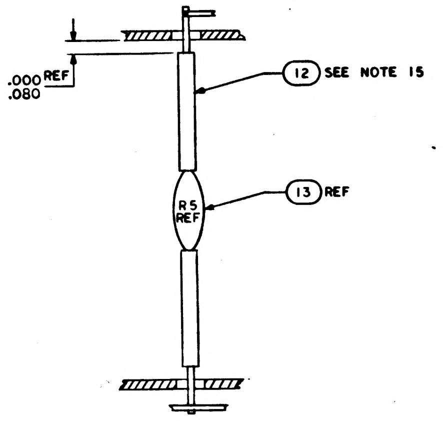
34 REF
.06 MIN
C21 REF
SEE NOTE 10

SECTION A-A



33 REF
C30 REF

SECTION B-B
SEE NOTE 21



.000 .080 REF
12 SEE NOTE 15
13 REF
R5 REF

SECTION C-C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
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1	2008093	TERMINAL THREADED	55
1	1008540-9	GASKET CONNECTOR MINIATURE	54
1	1008540-7	GASKET, CONNECTOR, MINIATURE	53
1	1006755-57	CAPACITOR	52
1	1006755-61	CAPACITOR	51
1	1010317-7	CAPACITOR	50
1	1006793-90	CAPACITOR	49
2	1010364-506	RESISTOR	48
1	1010364-492	RESISTOR	47
1	1012054	TRANSFORMER	46
1	1012053	TRANSFORMER	45
2	1010329	TRANSFORMER	44
9	1010397-1	TRANSISTOR	43
2	1010367	TRANSISTOR	42
2	1010342	TRANSISTOR	41
4	1010362-002	DIODE	40
4	1010286-12	DIODE	39
2	1010409-15	CAPACITOR	38
2	1010393-044	CAPACITOR	37
2	1010393-037	CAPACITOR	36
2	1010359-29	CAPACITOR	35
1	1010317-5	CAPACITOR	34
1	1010316-106	CAPACITOR	33
7	1006755-77	CAPACITOR	32
8	1006755-69	CAPACITOR	31
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2	1010374-1	RESISTOR	29
2	1010364-765	RESISTOR	28
1	1010364-428	RESISTOR	27
2	1010364-719	RESISTOR	26
1	1010364-683	RESISTOR	25
6	1010364-635	RESISTOR	24
1	1010364-604	RESISTOR	23
2	1010364-587	RESISTOR	22
2	1010364-580	RESISTOR	21
2	1010364-535	RESISTOR	20
2	1010364-518	RESISTOR	19
2	1010364-502	RESISTOR	18
1	1010364-443	RESISTOR	17
2	1010364-388	RESISTOR	16
6	1010364-251	RESISTOR	15
2	1010364-151	RESISTOR	14
2	1006750-51	RESISTOR	13
AR	1006776-21	INSULATION SLEEVING	12
AR	1006776-20	INSULATION SLEEVING	11
AR	1006757-1	WIRE .010 X .020	10
AR	1006776-22	INSULATION SLEEVING	9
AR	1006757-8	WIRE .020 DIA	8
4	1008161-3	SCREW, CAP SLOTTED HD	7
4	1015135-19	SPACER, NYLON	6
16	1006782-5	CONTACT, WRAPOST-MALE, MIN	5
16	1006775	INSULATOR, WRAPOST-MALE, MIN	4
1	1008513	WIRING BOARD BOTTOM	3
1	1008511	WIRING BOARD TOP	2
1	1008514	FRAME	1

011 LIST OF MATERIALS

1007585	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
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MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN K.E.Tong DATE 7/7/64
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APPROVAL 11-9-64
NASA APPROVAL 12-1-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRACKER Y CHANNEL MODULE ASSY

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007512
SCALE 5/1 WT SHEET 1 OF 1

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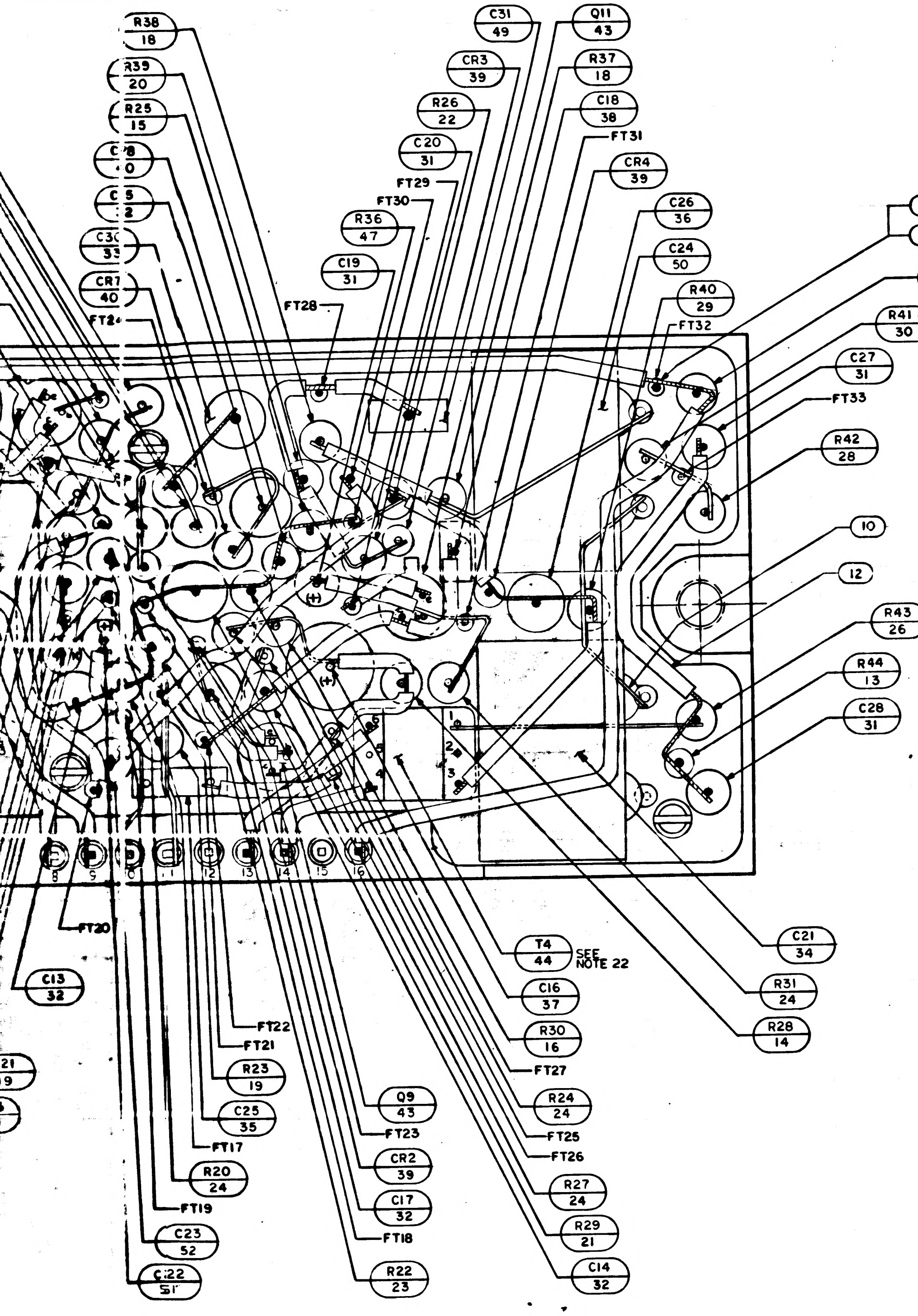
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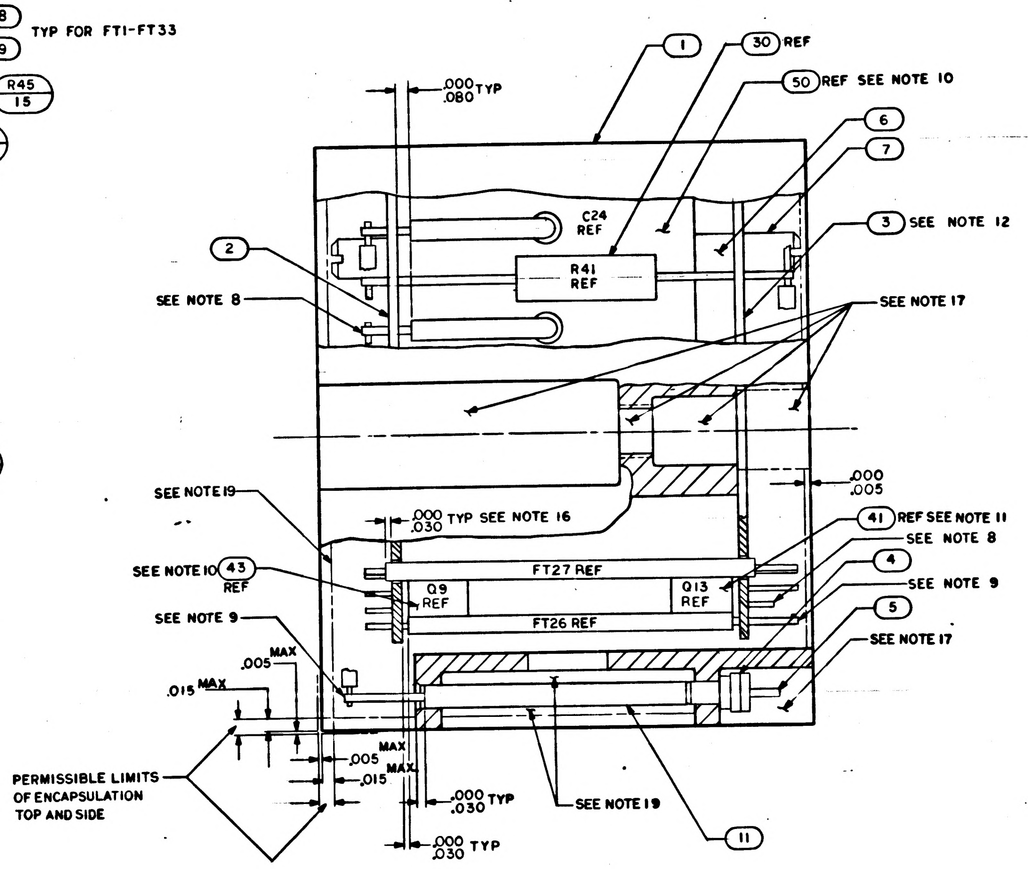
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.000 .005
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SEE NOTE 9
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SEE NOTE 17
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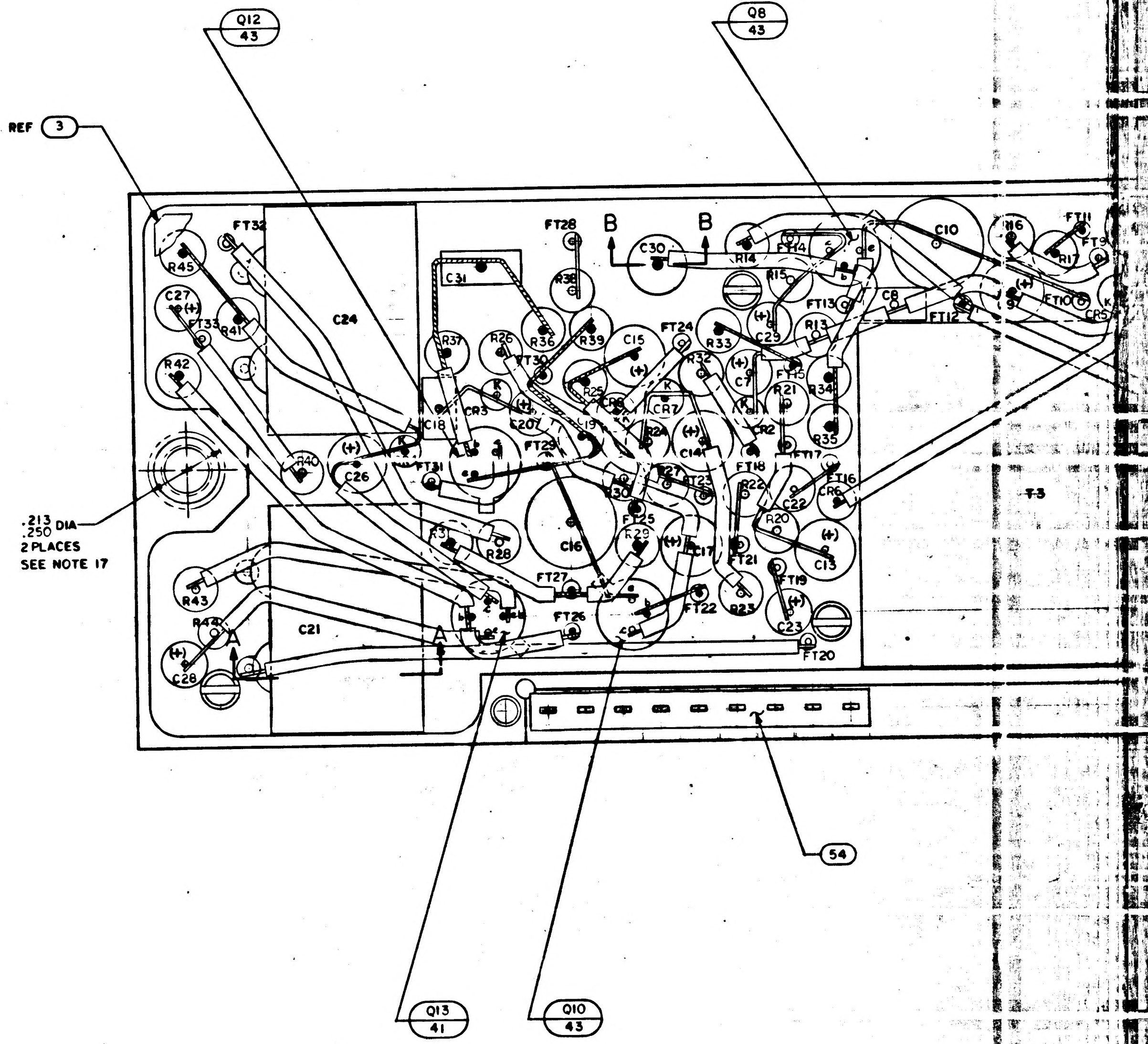
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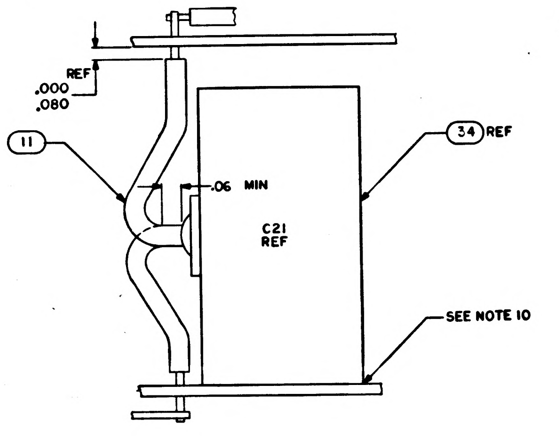
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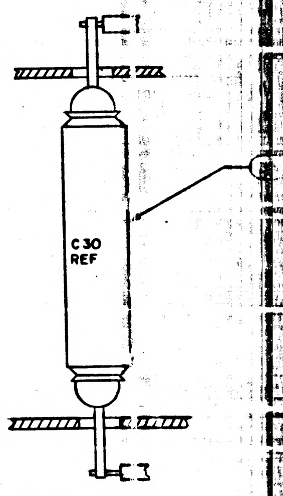
SEE NOTE 10

SECTION A-A



SECTION B-B
SEE NOTE 21

1007512 A

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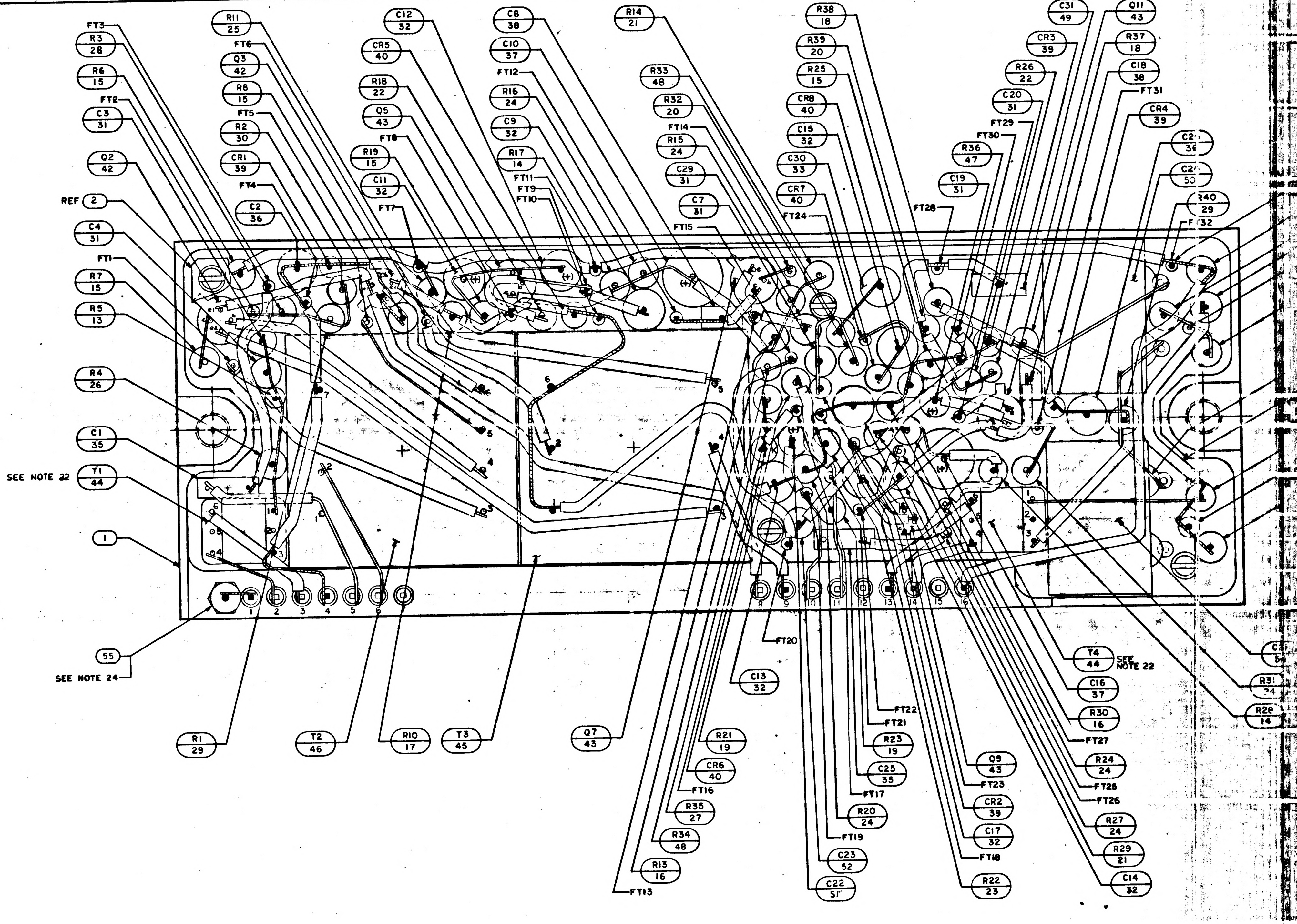
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R8 15
FT5
R2 30
CR1 39
FT4
C2 36
C12 32
CR5 40
R18 22
Q5 43
FT8
R19 15
C11 32
FT7
C8 38
C10 37
FT12
R16 24
C9 32
R17 14
FT11
FT9
FT10
R14 21
R33 48
R32 20
FT14
R15 24
C29 31
C7 31
FT15
R38 18
R39 20
R25 15
CR8 40
C15 32
C30 33
CR7 40
FT24
FT28
C31 49
CR3 39
R26 22
C20 31
FT29
FT30
R36 47
C19 31
Q11 43
R37 18
C18 38
FT31
CR4 39
C2 36
C2 50
R40 29
FT32
1
2
3
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11
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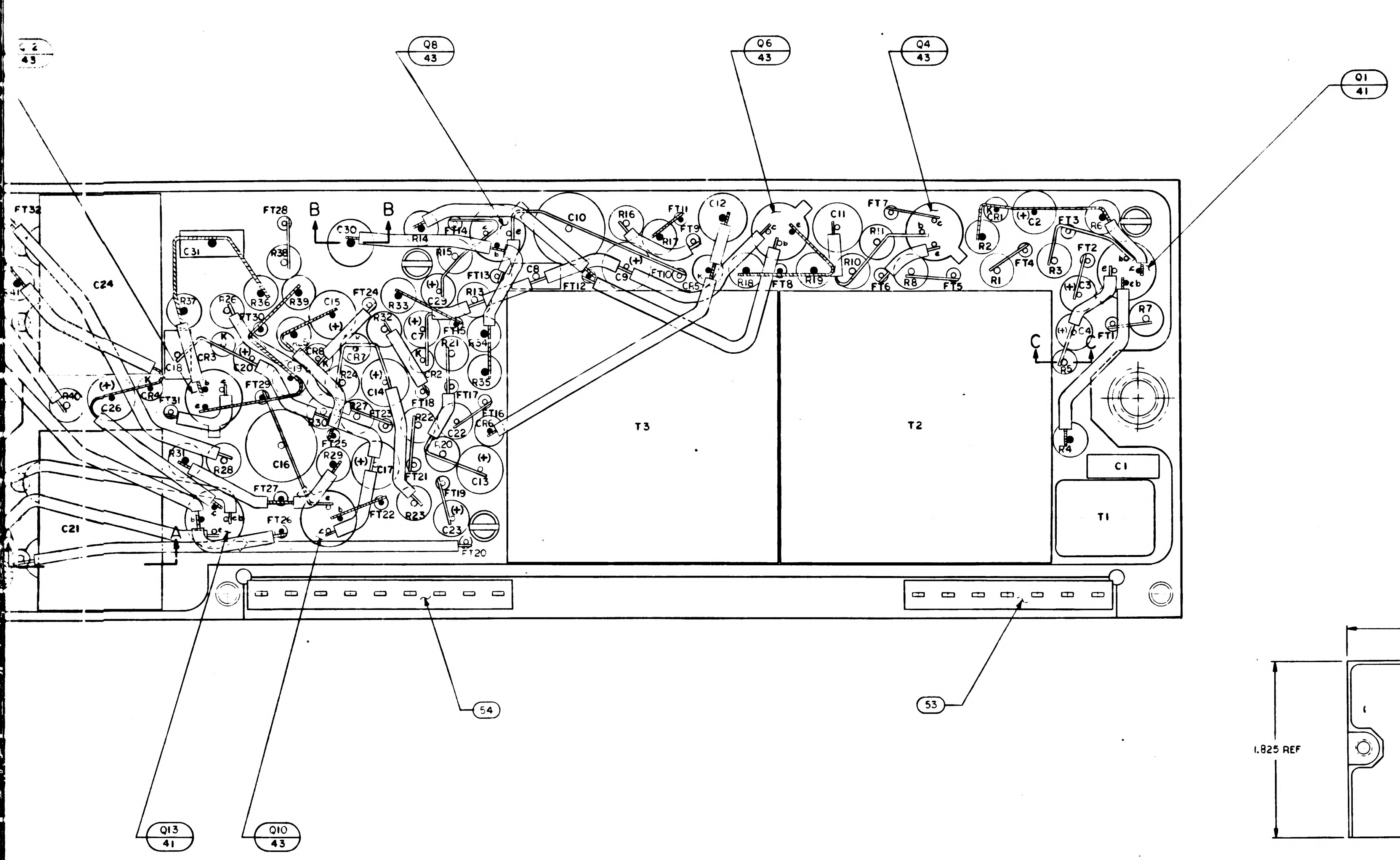
13
14
15
16
(+)
R1 29
T2 46
R10 17
T3 45
Q7 43
FT20
C13 32
R21 19
CR6 40
FT16
R35 27
R34 48
R13 16
FT13
FT22
FT21
R23 19
C25 35
FT17
R20 24
FT19
C23 52
C22 51
Q9 43
FT23
CR2 39
C17 32
FT18
R22 23
T4 44
SEE NOTE 22
C16 37
R30 16
FT27
R24 24
FT25
FT26
R27 24
R29 21
C14 32
R31 24
R28 14

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEEDTHRU
4. K INDICATES CATHODE SIDE OF DIODE
5. (+) INDICATES POSITIVE SIDE OF CAPACITOR
6. WELD PER ND 1002005
7. ASSEMBLE FIND NO. 4 AND FIND NO. 5 PER 1002136
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
9. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
10. BOND Q2, Q3, Q5, Q7, Q9, Q11, T1, T2, T3, T4, C1, C21, C24, AND C25 TO FIND NO. 2 PER ND 1002004 TYPE I
11. BOND Q1, Q4, Q6, Q8, Q10, Q12 AND Q13 TO FIND NO 3 PER ND 1002004 TYPE I
12. BOND FIND NO. 3 TO FIND NO. 1 PER ND 1002004 TYPE I
13. MARK .100/.060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN.
14. MARK .140/.100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002123. CENTRALIZE AS SHOWN.
15. TYPICAL SLEEVING FOR R5, R44, CR1, CR2, CR3, AND CR4
16. TYPICAL SLEEVING DIMENSION FOR FT2, FT5, FT8, AND FT27
17. INDICATED AREAS TO BE FREE OF ENCAPSULATION
18.
19. ENCAPSULATE MODULE PER ND 1002002, BLACK POLYURETHANE FOAM. REMOVE ALL FLASHING
20. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
21. COMPONENTS HAVING BUTT WELDED LEADS MUST BE POSITIONED SO RIBBON WELD OCCURS ON WELDABLE PORTION OF LEAD
22. TRIM UNUSED LEADS ON T1 AND T4 .03 MAX FROM BODY
23. BOND FIND NO. 53 AND 54 TO FIND NO 4 PER ND 1002237
24. MOUNTING TORQUE FOR FIND NO. 55 TO BE 15-20 INCH OUNCES

1007512 B

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TCRR 15227		
B	REPLACED WITH CHANGE BY REV C PER TDRR 20120	23 JUN 65	A.N.



Q8 43
Q6 43
Q4 43
Q1 41
Q13 41
Q10 43
54
53
FT32
FT28
C30
B
B
C31
R38
R14
R15
FT14
C10
R16
FT11
C12
FT7
C11
R11
CR1
C2
FT3
R6
C24
R37
R36
FT30
R39
C15
FT24
C29
FT13
C8
FT12
C9
CR5
R18
FT8
R19
R10
FT6
R8
FT5
R2
R1
FT4
R3
FT2
C3
R7
C18
CR3
C20
CR8
R33
R32
CR7
R34
C7
FT15
R21
R13
R35
FT1
C4
C
C
R40
C26
CR4
FT31
FT29
C19
R30
R27
R24
C14
FT25
R22
FT18
R2
FT17
FT16
CR6
C22
R5
R4
T3
T2
R31
R28
C16
R29
FT27
C17
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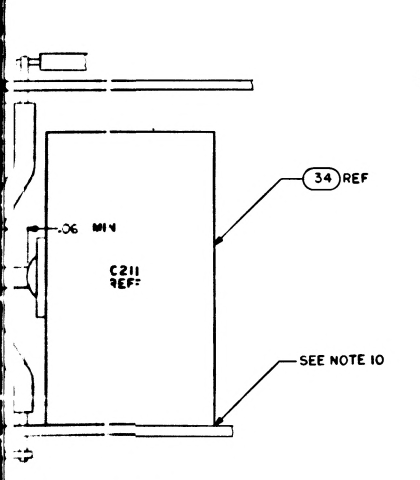
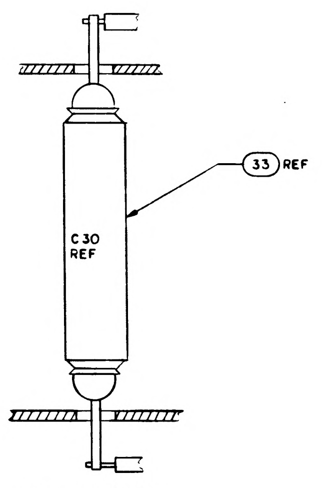
C13
FT21
C1
T1
C21
A
A
FT26
C28
FT22
R23
FT19
C23
FT20



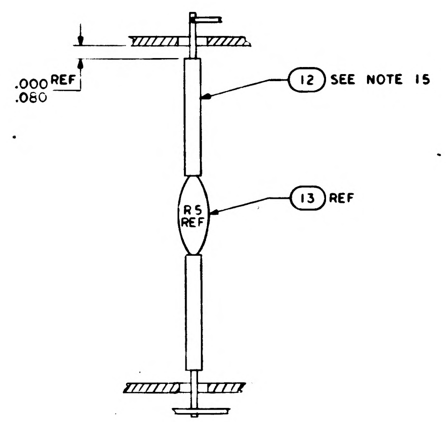
34 REF
.06 MIN
C21 REF
SEE NOTE 10

SECTION A-A



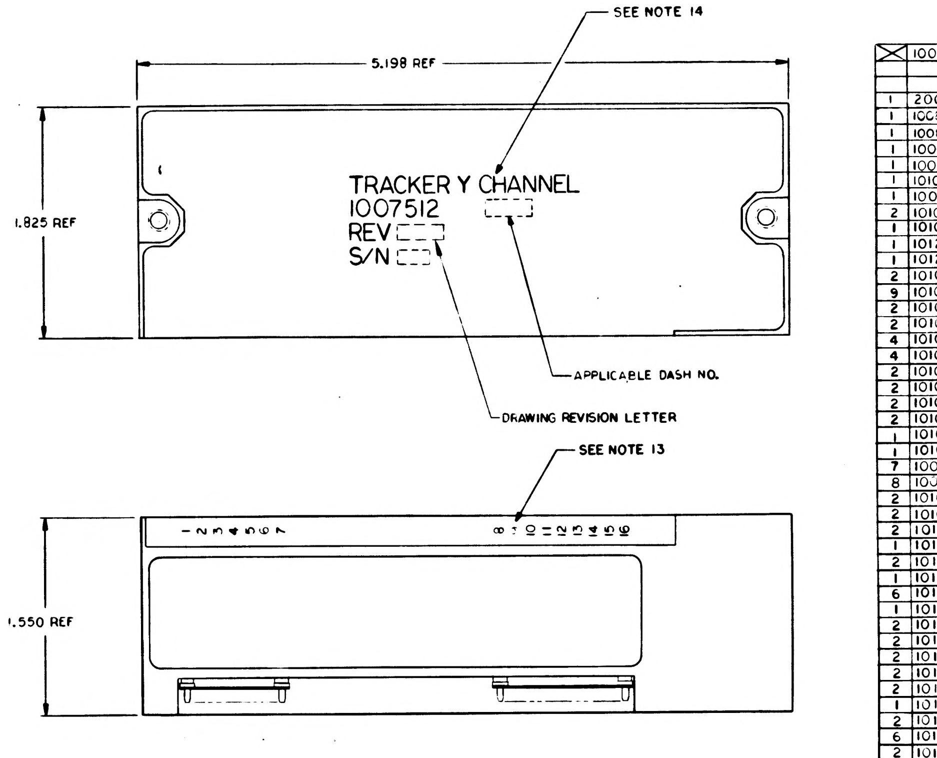
33 REF
C30 REF

SECTION B-B
SEE NOTE 21



.000 REF
.080
12 SEE NOTE 15
13 REF
R5 REF

SECTION C-C



SEE NOTE 14
5.198 REF
1.825 REF
TRACKER Y CHANNEL
1007512
REV
S/N
APPLICABLE DASH NO.
DRAWING REVISION LETTER
SEE NOTE 13
1.550 REF
1 2 3 4 5 6 7
8 9 10 11 12 13 14 15 16

MARKING VIEW
SCALE 2/1

Ⓑ REPLACED WITH CHANGE BY REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	1009511	SCHEMATIC	REF
1	2008093	TERMINAL THREADED	55
1	1008540-9	GASKET CONNECTOR MINIATURE	54
1	1008540-7	GASKET, CONNECTOR, MINIATURE	53
1	1006755-57	CAPACITOR	52
1	1006755-61	CAPACITOR	51
1	1010317-7	CAPACITOR	50
1	1006793-90	CAPACITOR	49
2	1010364-506	RESISTOR	48
1	1010364-492	RESISTOR	47
1	1012054	TRANSFORMER	46
1	1012053	TRANSFORMER	45
2	1010329	TRANSFORMER	44
9	1010397-1	TRANSISTOR	43
2	1010367	TRANSISTOR	42
2	1010342	TRANSISTOR	41
4	1010362-002	DIODE	40
4	1010286-12	DIODE	39
2	1010409-15	CAPACITOR	38
2	1010393-044	CAPACITOR	37
2	1010393-037	CAPACITOR	36
2	1010359-29	CAPACITOR	35
1	1010317-5	CAPACITOR	34
1	1010316-106	CAPACITOR	33
7	1006755-77	CAPACITOR	32
8	1006755-69	CAPACITOR	31
2	1010374-29	RESISTOR	30
2	1010374-1	RESISTOR	29
2	1010364-765	RESISTOR	28
1	1010364-428	RESISTOR	27
2	1010364-719	RESISTOR	26
1	1010364-683	RESISTOR	25
6	1010364-635	RESISTOR	24
1	1010364-604	RESISTOR	23
2	1010364-587	RESISTOR	22
2	1010364-580	RESISTOR	21
2	1010364-535	RESISTOR	20
2	1010364-518	RESISTOR	19
2	1010364-502	RESISTOR	18
1	1010364-443	RESISTOR	17
2	1010364-388	RESISTOR	16
6	1010364-251	RESISTOR	15
2	1010364-151	RESISTOR	14
2	1006750-51	RESISTOR	13
AR	1006776-21	INSULATION SLEEVING	12
AR	1006776-20	INSULATION SLEEVING	11
AR	1006757-1	WIRE .010 X .020	10
AR	1006776-22	INSULATION SLEEVING	9
AR	1006757-8	WIRE .020 DIA	8
4	1008161-3	SCREW, CAP SLOTTED HD	7
4	1015135-19	SPACER, NYLON	6
16	1006782-5	CONTACT, WRAPOST-MALE, MIN	5
16	1006775	INSULATOR, WRAPOST-MALE, MIN	4
1	1008513	WIRING BOARD BOTTOM	3
1	1008511	WIRING BOARD TOP	2
1	1008514	FRAME	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
1007585	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT

DRAWN K.E.Tag DATE 7/1/64
CHECKED 15 Sep 64
APPROVAL 3 Nov 64
APPROVAL B. R. 11-9-64
NASA APPROVAL 12-1-64
MIT APPROVAL W Kupfer

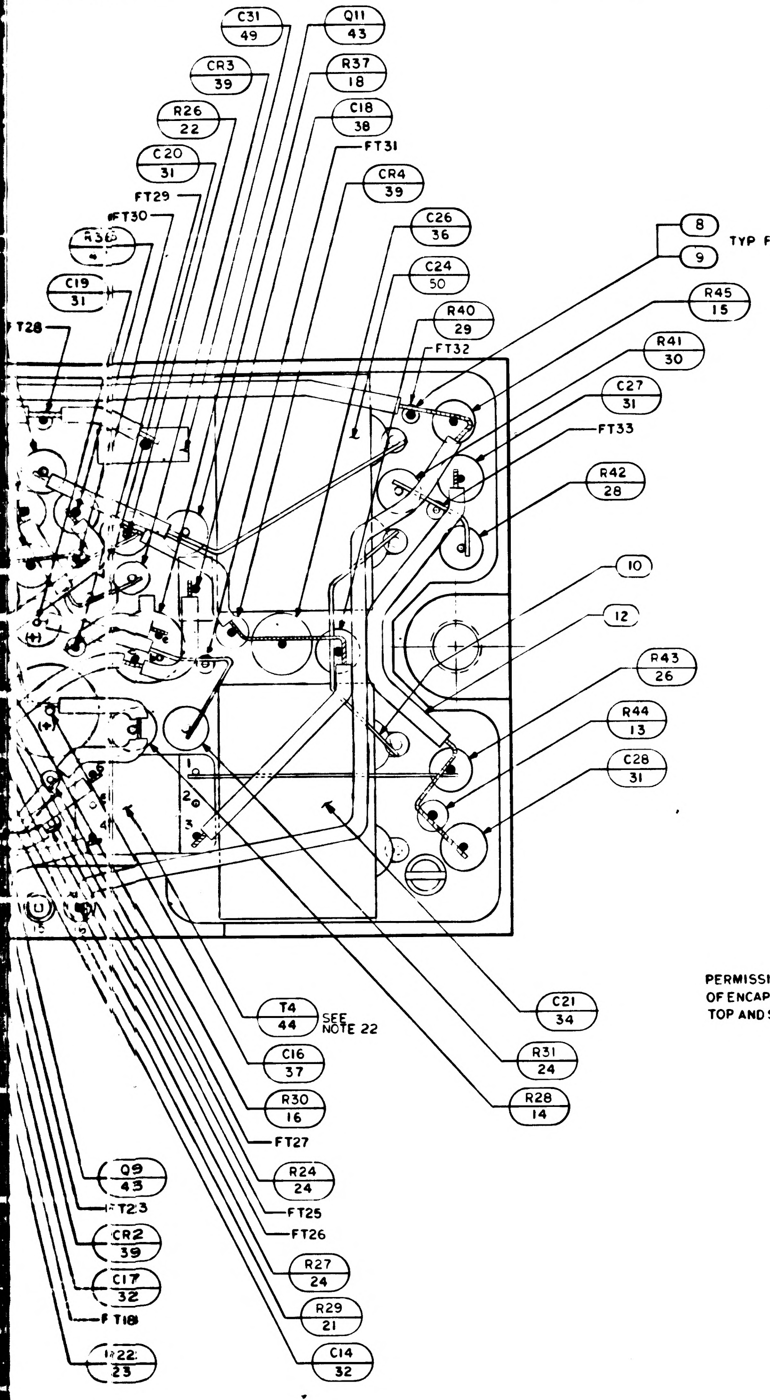
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRACKER Y CHANNEL
MODULE ASSY

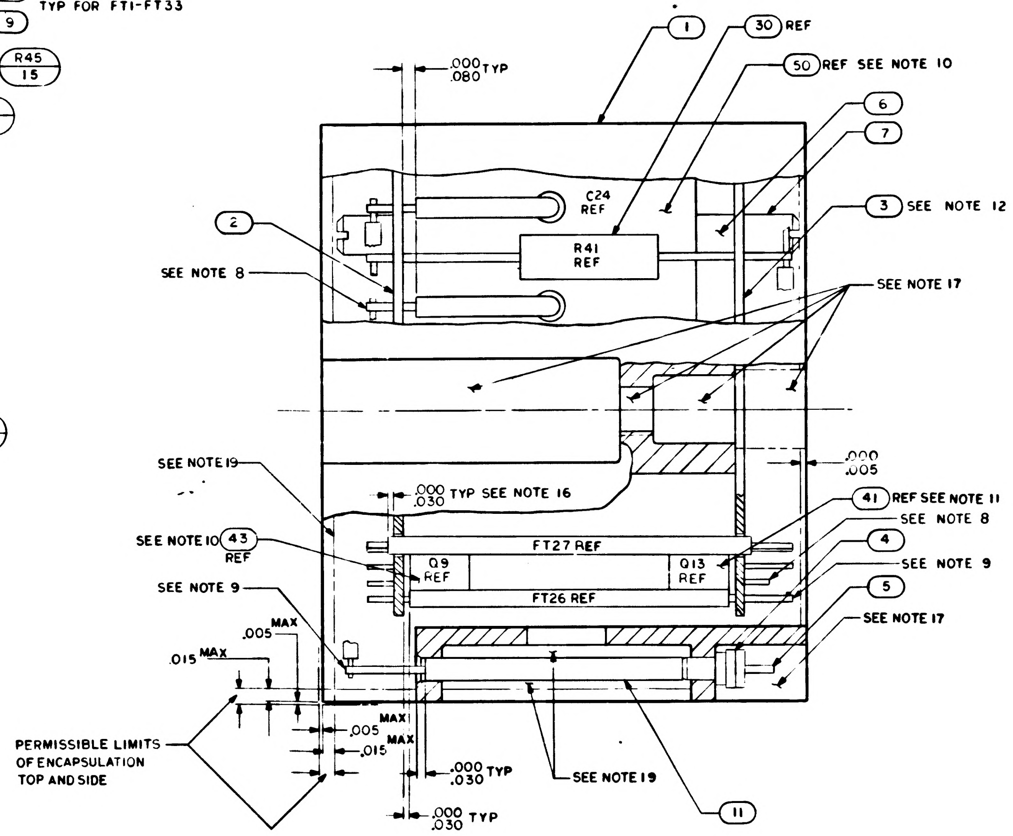
CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 1007512
SCALE 5/1
WT
SHEET 1 OF 1

1007512 B

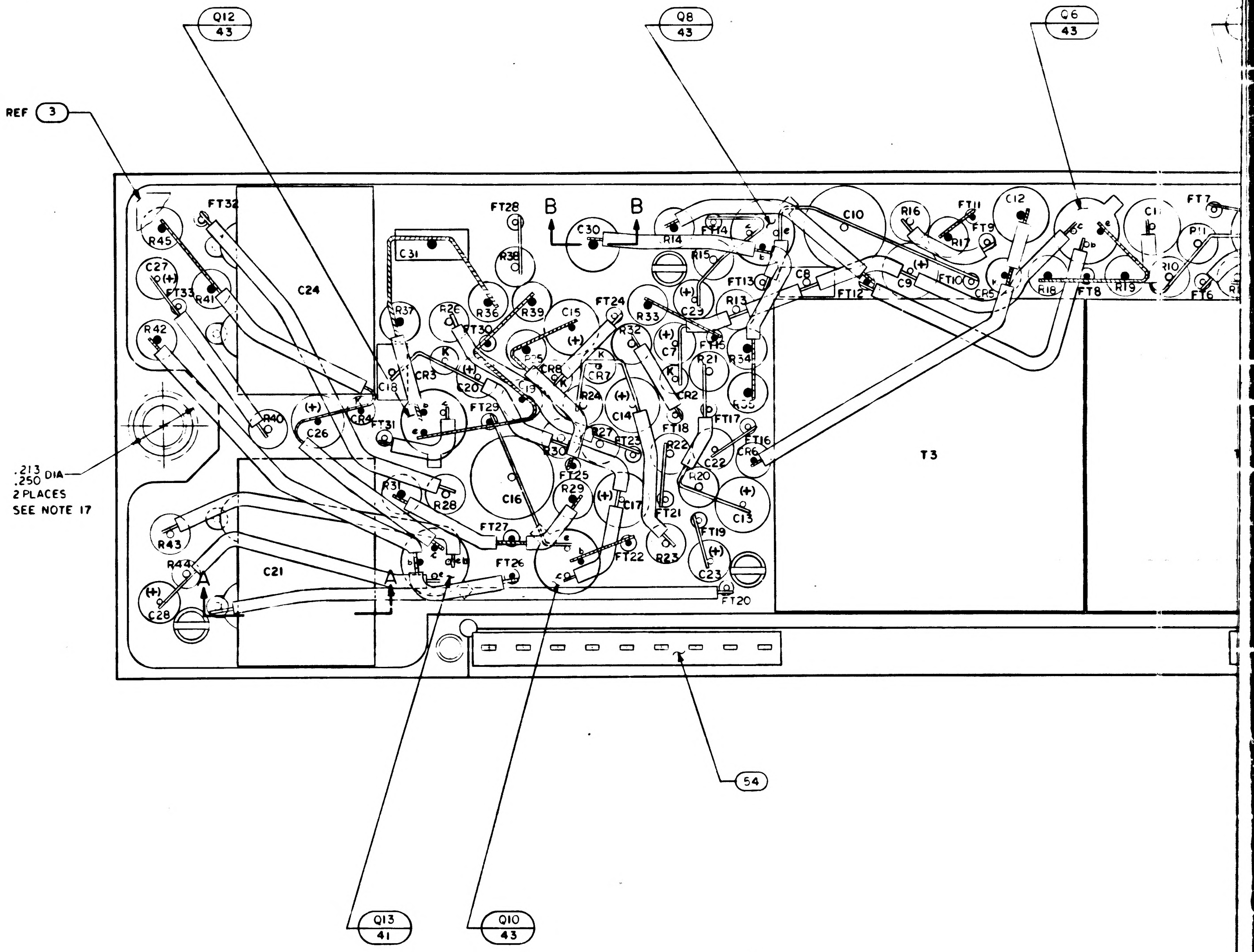
3/1007512



C31 49
Q11 43
CR3 39
R37 18
R26 22
C18 38
C20 31
FT31
FT29
CR4 39
FT30
C26 36
R36
C24 50
C19 31
8
9
TYP FOR FT1-FT33
FT28
R45 15
R40 29
FT32
R41 30
C27 31
FT33
R42 28
10
12
R43 26
R44 13
C28 31
C21 34
T4 44
SEE NOTE 22
R31 24
C16 37
R28 14
R30 16
FT27
Q9 43
R24 24
FT23
FT25
FT26
CR2 39
R27 24
C17 32
R29 21
FT18
C14 32
R22 23



1
30 REF
.000 .080 TYP
50 REF SEE NOTE 10
6
7
2
C24 REF
3 SEE NOTE 12
R41 REF
SEE NOTE 8
SEE NOTE 17
.000 .005
SEE NOTE 19
.000 .030 TYP SEE NOTE 16
41 REF SEE NOTE 11
SEE NOTE 8
SEE NOTE 10 43 REF
FT27 REF
Q9 REF
Q13 REF
4
SEE NOTE 9
FT26 REF
SEE NOTE 9
5
SEE NOTE 17
.005 MAX
.015 MAX
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND SIDE
.000 .030 TYP
SEE NOTE 19
.000 .030 TYP
11



Q12 43
Q8 43
Q6 43
REF 3
FT32
FT28
B
B
C30
R14
FT14
C10
R16
FT11
C12
FT7
R45
C31
R38
R15
FT9
R17
C27
FT33
R41
C24
R37
R20
R36
R39
C15
FT13
C8
C9
FT10
C5
R16
FT8
R13
FT6
R42
FT30
FT24
R33
C29
R13
CR3
CR8
C7
R21
R34
C18
C20
FT29
R24
C14
CR2
FT17
R40
C26
CR4
FT31
C16
FT18
R22
FT16
.213 DIA .250
2 PLACES
SEE NOTE 17
R27
FT23
R20
C22
T3
R31
R28
FT25
R29
C17
C13
FT27
FT21
FT19
R43
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C21
R44
FT26
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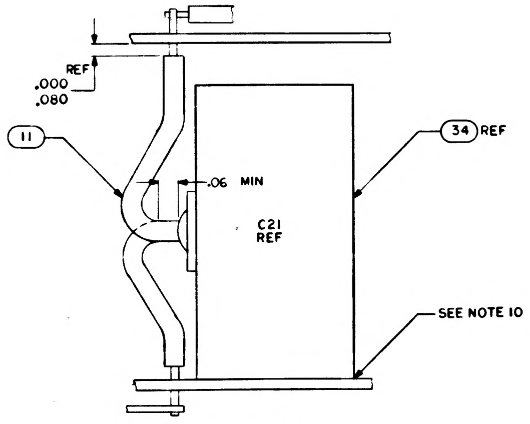
FT20
C28
54
Q13 41
Q10 43



REF
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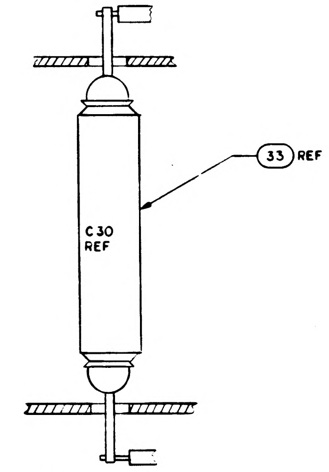
11
34 REF
.06 MIN
C21 REF
SEE NOTE 10

SECTION A-A



33 REF
C30 REF

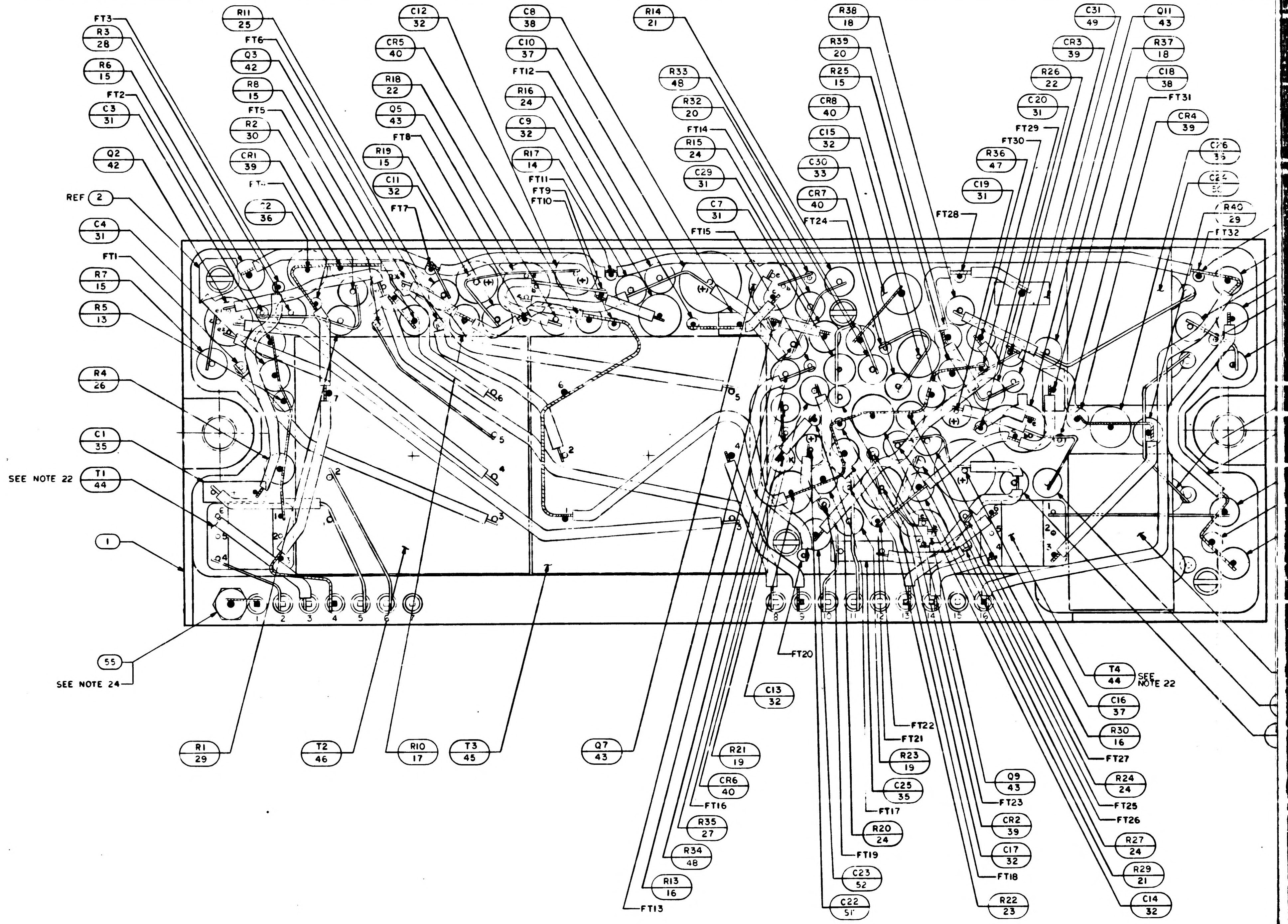
SECTION B-B
SEE NOTE 21

.000 .080 REF

1007512 B

2/1007512

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO


FT3
R3 28
R6 15
FT2
C3 31
Q2 42
REF 2
C4 31
FT1
R7 15
R5 13
R4 26
C1 35
SEE NOTE 22
T1 44
1
55
SEE NOTE 24
R11 25
FT6
Q3 42
R8 15
FT5
R2 30
CR1 39
36
C12 32
CR5 40
R18 22
Q5 43
FT8
R19 15
C11 32
FT7
C8 38
C10 37
FT12
R16 24
C9 32
R17 14
FT11
FT9
FT10
R14 21
R33 48
R32 20
FT14
R15 24
C29 31
C7 31
FT15
R38 18
R39 20
R25 15
CR8 40
C15 32
C30 33
CR7 40
FT24
C31 49
CR3 39
R26 22
C20 31
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R37 18
C18 38
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K
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R1 29
T2 46
R10 17
T3 45
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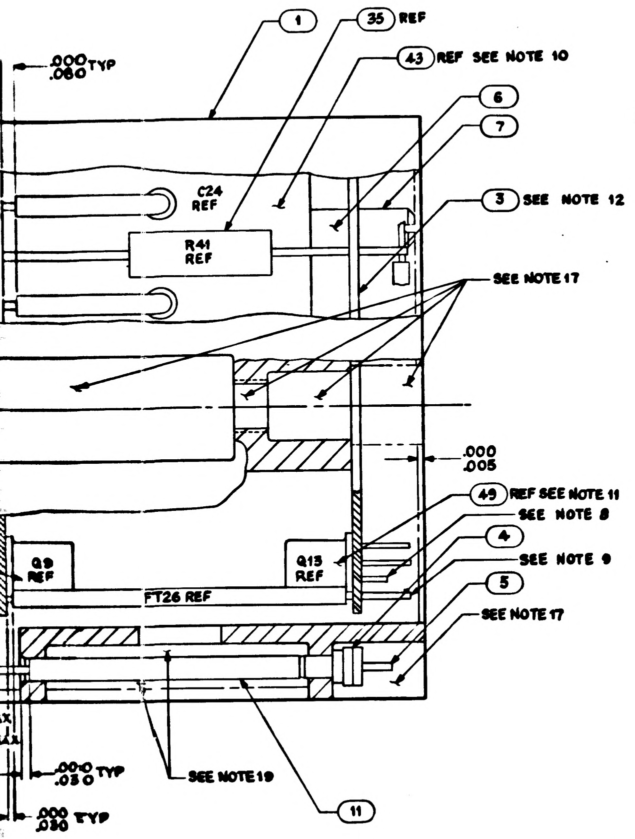
FT20
C13 32
FT22
FT21
R21 19
R23 19
CR6 40
C25 35
FT16
FT17
R35 27
R20 24
R34 48
FT19
R13 16
FT13
C23 52
C22 51
Q9 43
FT23
CR2 39
C17 32
FT18
R22 23
T4 44
SEE NOTE 22
C16 37
R30 16
FT27
R24 24
FT25
FT26
R27 24
R29 21
C14 32

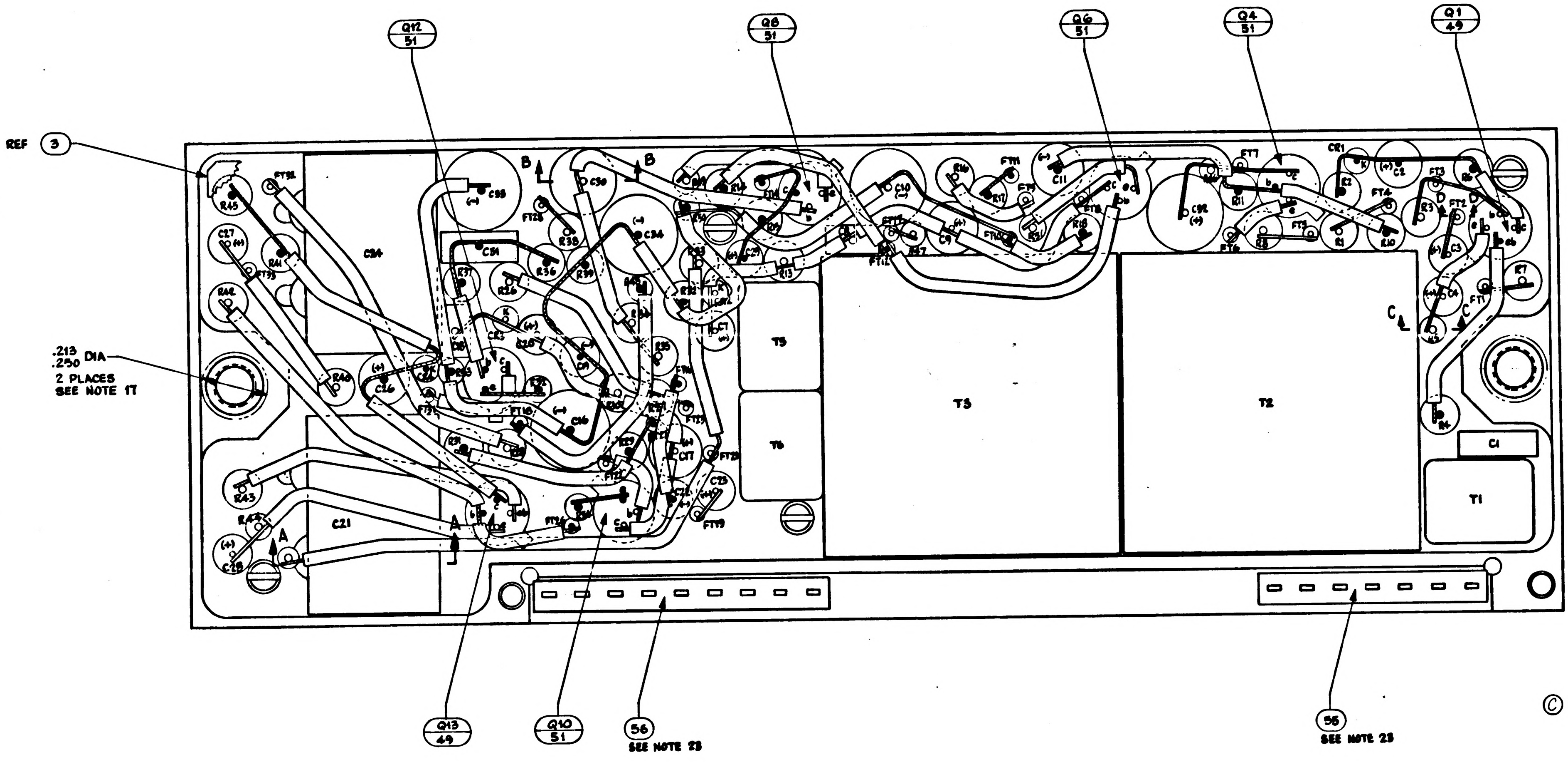
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEEDTHRU
4. K INDICATES CATHODE SIDE OF DIODE
5. (+) INDICATES POSITIVE SIDE OF CAPACITOR
6. WELD PER ND 1002005
7. ASSEMBLE FIND NO 4 AND FIND NO.5 PER 1002136
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
9. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
10. BOND Q2, Q3, Q5, Q7, Q9, Q11, T1, T2, T3, T4, C1, C21, C24 AND C25 TO FIND NO.2 PER ND 1002004 TYPE I
11. BOND Q1, Q4, Q6, Q8, Q10, Q12 AND Q13 TO FIND NO 3 PER ND 1002004 TYPE I
12. BOND FIND NO.3 TO FIND NO.1 PER ND 1002004 TYPE I
13. MARK .100/.060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN
14. MARK .140/.100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002123. CENTRALIZE AS SHOWN
15. TYPICAL SLEEVING FOR R5, R44, CR1, CR2, CR3, AND CR4
16. TYPICAL SLEEVING DIMENSION FOR FT2, FT5, FT8, AND FT27
17. INDICATED AREAS TO BE FREE OF ENCAPSULATION
18.
19. ENCAPSULATE MODULE PER ND 1002002, BLACK POLYURETHANE FOAM. REMOVE ALL FLASHING
20. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
21. COMPONENTS HAVING BUTT WELDED LEADS MUST BE POSITIONED SO RIBBON WELD OCCURS ON WELDABLE PORTION OF LEAD
22. TRIM UNUSED LEADS ON T1 AND T4 .03 MAX FROM BODY
23. BOND FIND NO. 53 AND 54 TO FIND NO 4 PER ND 1002237
24. MOUNTING TORQUE FOR FIND NO. 55 TO BE 15-20 INCH OUNCES

REVISIONS ~~[illegible]~~					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
C		REPLACES REVISION B WITH CHANGE PER TORR 20120	–	14 MAY 65	DKD WK

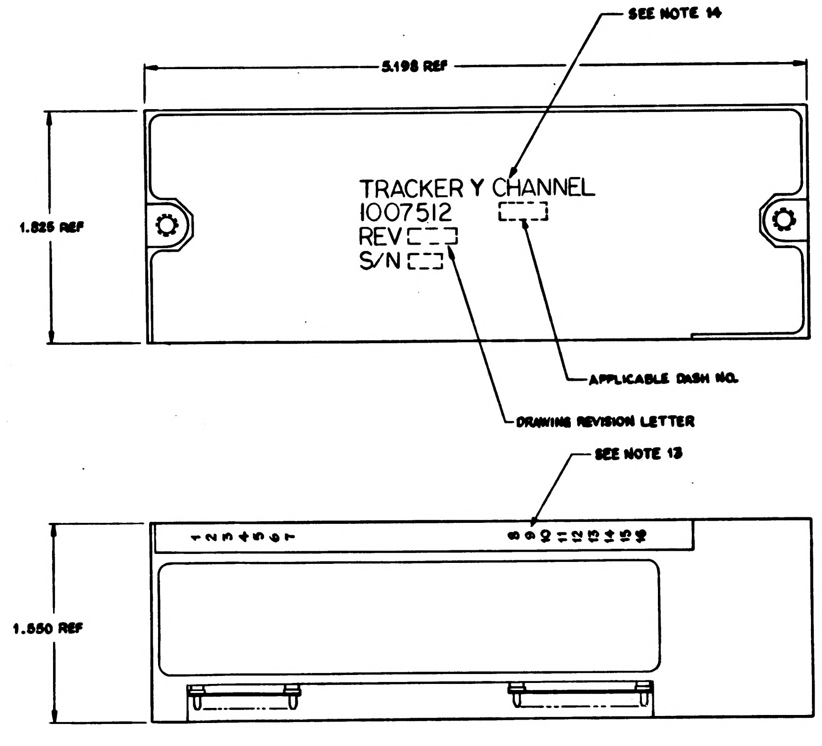


.000 TYP
.080
1
35 REF
43 REF SEE NOTE 10
6
7
3 SEE NOTE 12
C24 REF
R41 REF
SEE NOTE 17
.000
.005
49 REF SEE NOTE 11
SEE NOTE 8
4
SEE NOTE 9
5
SEE NOTE 17
Q9 REF
Q13 REF
FT26 REF
.000 TYP
.030
.000 TYP
.030
SEE NOTE 19
11



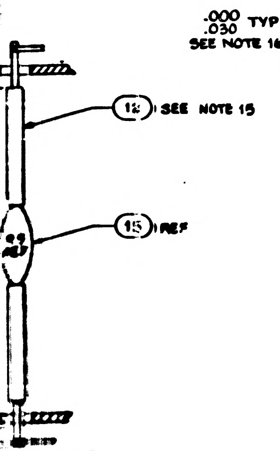
Q12
51
Q8
51
Q6
51
Q4
51
Q1
49
REF 3
.213 DIA
.250
2 PLACES
SEE NOTE 17
A
B
C
C34
C21
T5
T6
T3
T2
T1
C1
Q13
49
Q10
51
56
SEE NOTE 23
55
SEE NOTE 23

Ⓒ REPLACES REV(B) WITH CHANGE



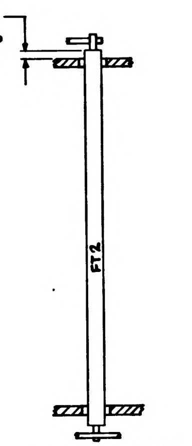
SEE NOTE 14
5.198 REF
1.825 REF
TRACKER Y CHANNEL
1007512
REV
S/N
APPLICABLE DASH NO.
DRAWING REVISION LETTER
SEE NOTE 13
1.550 REF

MARKING VIEW
SCALE 2/1



12 SEE NOTE 15
15 REF

…ION C-C



.000 TYP
.030
SEE NOTE 16
FT2

SECTION D-D

				REF		X	1009511	SCHEMATIC
				2		58	1006750-60	RESISTOR
				1		57	2008093	TERMINAL THREADED
				1		56	1008540-9	GASKET, CONNECTOR MINIATURE
				1		55	1008540-7	GASKET, CONNECTOR MINIATURE
SEE NOTE 25				1		54	1012054	TRANSFORMER
				1		53	1012053	TRANSFORMER
				4		52	1010329-1	TRANSFORMER
				9		51	1010397-1	TRANSISTOR
				2		50	1010367	TRANSISTOR
				2		49	1010342	TRANSISTOR
				2		48	1010830-9	DIODE
				2		47	1010830-11	DIODE
				5		46	1010393-044	CAPACITOR
				2		45	1010393-037	CAPACITOR
				2		44	1010359-29	CAPACITOR
				1		43	1010317-7	CAPACITOR
				1		42	1010317-5	CAPACITOR
SEE NOTE 25				1		41	1010316-1	CAPACITOR
SEE NOTE 25				1		40	1006793-84	CAPACITOR
				3		39	1006755-77	CAPACITOR
				6		38	1006755-69	CAPACITOR
				1		37	1006755-61	CAPACITOR
				3		36	1006755-57	CAPACITOR
				2		35	1010374-29	RESISTOR
				2		34	1010374-1	RESISTOR
				2		33	1010369-148	RESISTOR
				2		32	1010364-765	RESISTOR
				1		31	1010364-732	RESISTOR
				2		30	1010409-15	CAPACITOR
				1		29	1010364-697	RESISTOR
				1		28	1010364-683	RESISTOR
				2		27	1010364-635	RESISTOR
				2		26	1010364-579	RESISTOR
				2		25	1010364-539	RESISTOR
				2		24	1010364-535	RESISTOR
				2		23	1010364-505	RESISTOR
				1		22	1010364-477	RESISTOR
				4		21	1010364-719	RESISTOR
				2		20	1010364-387	RESISTOR
				2		19	1006750-39	RESISTOR
				2		18	1010364-251	RESISTOR
				2		17	1010364-151	RESISTOR
				3		16	1006750-108	RESISTOR
				2		15	1006750-51	RESISTOR
				2		14	1006750-15	RESISTOR
				2		13	1006750-8	RESISTOR
				AR		12	1006776-21	INSULATION SLEEVING
				AR		11	1006776-20	INSULATION SLEEVING
				AR		10	1006757-1	WIRE .010 X .020
				AR		9	1006776-22	INSULATION SLEEVING
				AR		8	1006757-8	WIRE .020 DIA
SEE NOTE 25				8		7	1008161-3	SCREW, CAP SLOTTED HD
				4		6	1015135-19	SPACER NYLON
SEE NOTE 25				16		5	1006782-5	CONTACT, WRAPOST-MALE, MIN
SEE NOTE 25				16		4	1006775	INSULATOR, WRAPOST-MALE, MIN
				1		3	1008513	WIRING BOARD BOTTOM
				1		2	1008511	WIRING BOARD TOP
				1		1	1008514	FRAME
	QUANTITY REQUIRED			011	EFFECTIVITY	FIND NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
							LIST OF PARTS AND MATERIALS	

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007585		-011
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + – DECIMALS + – ANGLES + –
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS-9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN DATE 14 APR 65
CHECKED 19 APR 65
APPROVAL 20 APR 65
APPROVAL
NASA APPROVAL 6-15-65
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

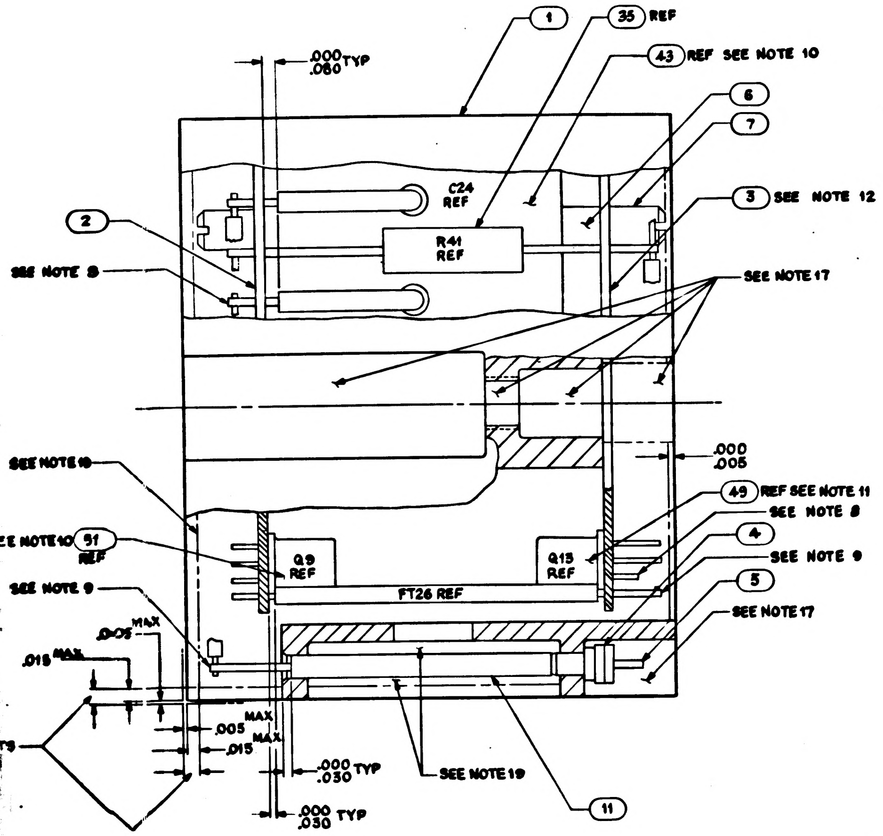
TRACKER Y CHANNEL MODULE ASSY

CODE IDENT NO. 80230 SIZE J2 1007512
SCALE 5:1 SHEET 1 OF 1

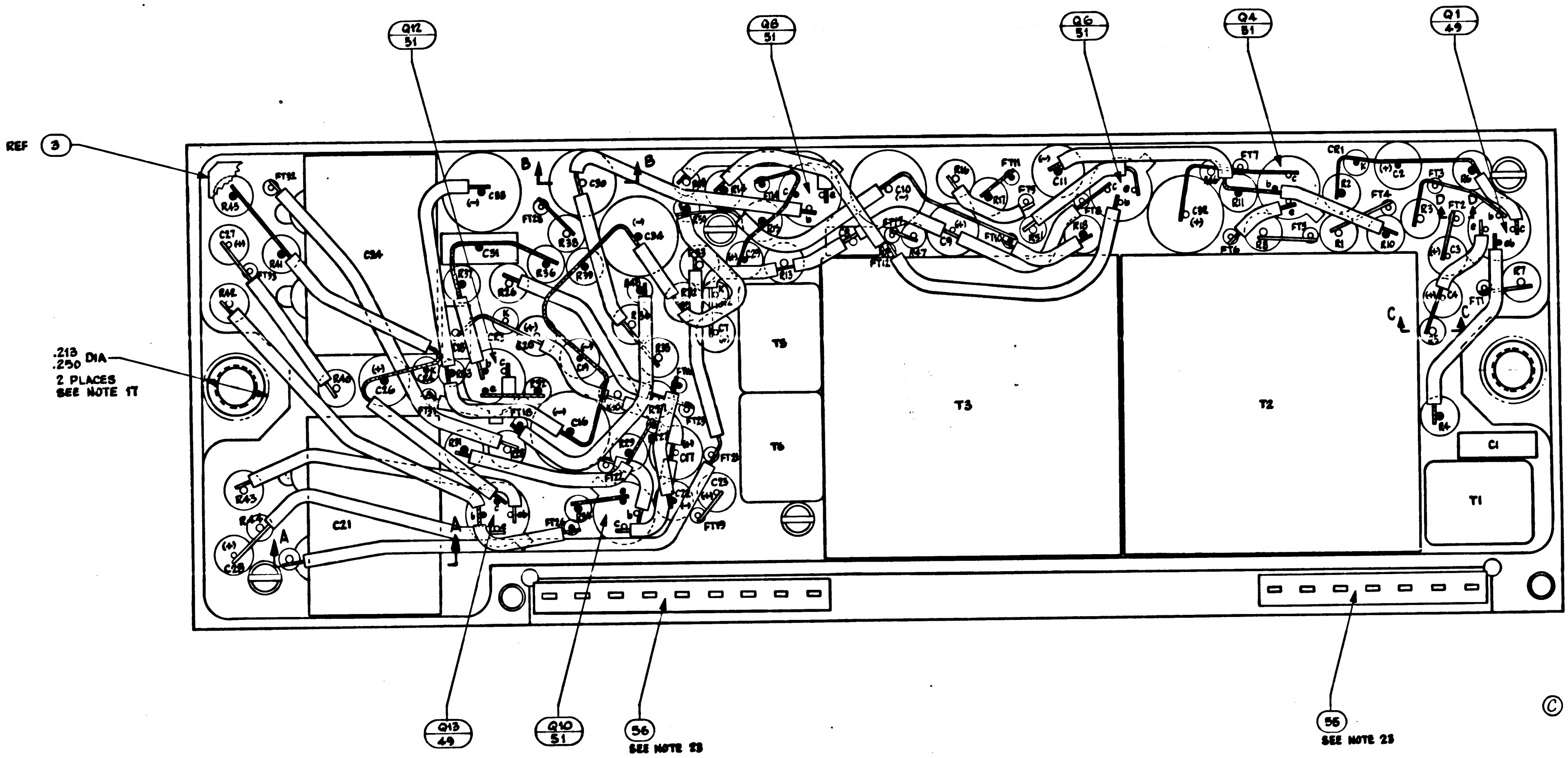
1007512 C

1007512 REV LTR C SH 1

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
C		REPLACES REVISION B WITH CHANGE PER TDRR 20120	–	14 MAY 65	TKD WK



1
35 REF
43 REF SEE NOTE 10
6
7
3 SEE NOTE 12
.000 TYP
.060
C24 REF
R41 REF
2
SEE NOTE 8
SEE NOTE 17
SEE NOTE 19
51 REF
SEE NOTE 10
SEE NOTE 9
Q9 REF
Q15 REF
FT26 REF
49 REF SEE NOTE 11
SEE NOTE 8
4
SEE NOTE 9
5
SEE NOTE 17
.000
.005
.015 MAX
.005 MAX
.005
.015 MAX
.000 TYP
.030
SEE NOTE 19
.000 TYP
.030
11



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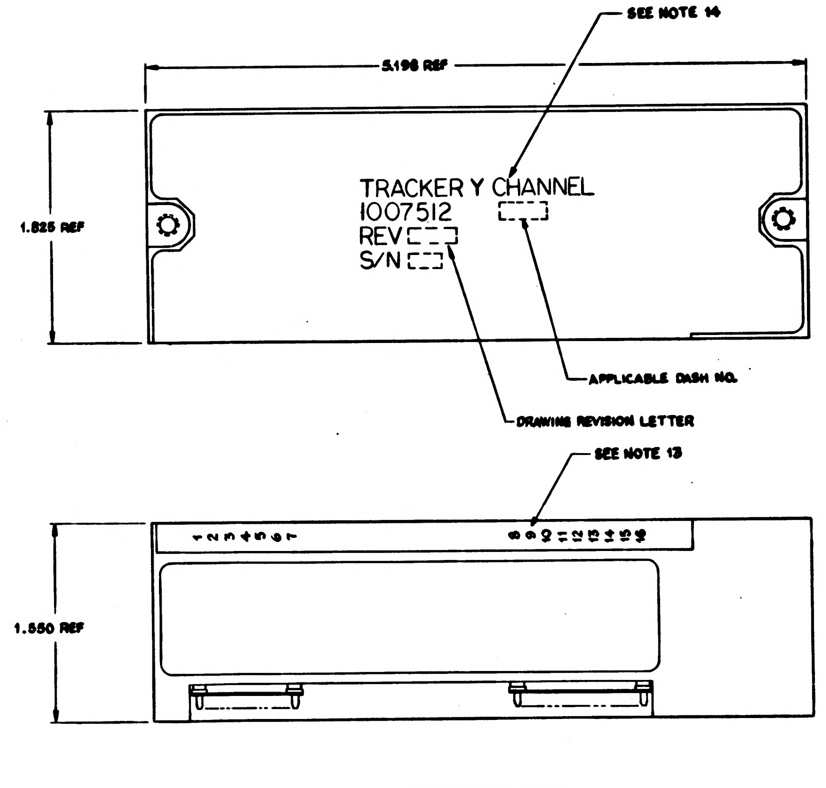
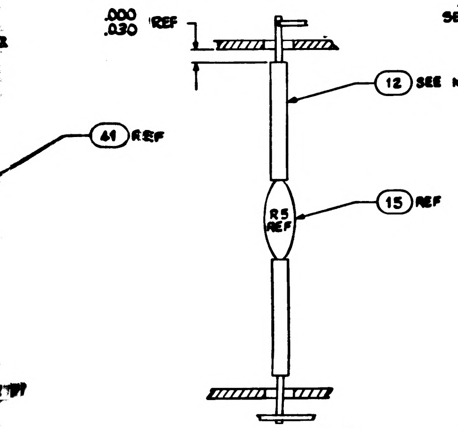
Q12 51
Q8 51
Q6 51
Q4 51
Q1 49
.213 .230 DIA
2 PLACES
SEE NOTE 17
C34
C21
T5
T6
T3
T2
C1
T1
A
B
C
Q13 49
Q10 51
56 SEE NOTE 23
56 SEE NOTE 23

Ⓒ REPLACES REV(B) WITH CHANGE



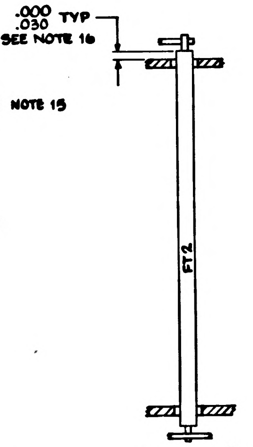
SEE NOTE 14
5.196 REF
1.825 REF
TRACKER Y CHANNEL
1007512
REV
S/N
APPLICABLE DASH NO.
DRAWING REVISION LETTER
SEE NOTE 13
1.550 REF

MARKING VIEW
SCALE 2/1



.000 REF
.030
12 SEE NOTE 15
41 REF
15 REF
R5 REF

SECTION C-C



.000 TYP
.030
SEE NOTE 16
FT2

SECTION D-D

SEE NOTE 25

			REF		X	1009511	SCHEMATIC
			2		58	1006750-60	RESISTOR
			1		57	2008093	TERMINAL THREADED
			1		56	1008540-9	GASKET, CONNECTOR MINIATURE
			1		55	1008540-7	GASKET, CONNECTOR MINIATURE
			1		54	1012054	TRANSFORMER
			1		53	1012053	TRANSFORMER
			4		52	1010329-1	TRANSFORMER
			9		51	1010397-1	TRANSISTOR
			2		50	1010367	TRANSISTOR
			2		49	1010342	TRANSISTOR
			2		48	1010830-9	DIODE
			2		47	1010830-11	DIODE
			5		46	1010393-044	CAPACITOR
			2		45	1010393-037	CAPACITOR
			2		44	1010359-29	CAPACITOR
			1		43	1010317-7	CAPACITOR
			1		42	1010317-5	CAPACITOR
			1		41	1010316-1	CAPACITOR
			011	EFFECTIVITY	FIND NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

SEE NOTE 25

SEE NOTE 25

			1		40	1006793-84	CAPACITOR
			3		39	1006755-77	CAPACITOR
			6		38	1006755-69	CAPACITOR
			1		37	1006755-61	CAPACITOR
			3		36	1006755-57	CAPACITOR
			2		35	1010374-29	RESISTOR
			2		34	1010374-1	RESISTOR
			2		33	1010369-148	RESISTOR
			2		32	1010364-765	RESISTOR
			1		31	1010364-732	RESISTOR
			2		30	1010409-15	CAPACITOR
			1		29	1010364-697	RESISTOR
			1		28	1010364-683	RESISTOR
			2		27	1010364-635	RESISTOR
			2		26	1010364-579	RESISTOR
			2		25	1010364-539	RESISTOR
			2		24	1010364-535	RESISTOR
			2		23	1010364-505	RESISTOR
			1		22	1010364-477	RESISTOR
			4		21	1010364-719	RESISTOR
			2		20	1010364-387	RESISTOR
			2		19	1006750-39	RESISTOR
			2		18	1010364-251	RESISTOR
			2		17	1010364-151	RESISTOR
			3		16	1006750-108	RESISTOR
			2		15	1006750-51	RESISTOR
			2		14	1006750-15	RESISTOR
			2		13	1006750-8	RESISTOR
			AR		12	1006776-21	INSULATION SLEEVING
			AR		11	1006776-20	INSULATION SLEEVING
			AR		10	1006757-1	WIRE .010 X .020
			AR		9	1006776-22	INSULATION SLEEVING
			AR		8	1006757-8	WIRE .020 DIA
			8		7	1008161-3	SCREW, CAP SLOTTED HD
			4		6	1015135-19	SPACER NYLON
			16		5	1006782-5	CONTACT, WRAPOST-MALE, MIN
			16		4	1006775	INSULATOR, WRAPOST-MALE, MIN
			1		3	1008513	WIRING BOARD BOTTOM
			1		2	1008511	WIRING BOARD TOP
			1		1	1008514	FRAME
			011	EFFECTIVITY	FIND NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

SEE NOTE 25

SEE NOTE 25

SEE NOTE 25

1007585		-011
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + − DECIMALS + − ANGLES + −
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS-9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN DATE 14 APR 65
CHECKED 19 APR 65
APPROVAL 20 APR 65
APPROVAL
NASA APPROVAL 6-5-65
MIT APPROVAL

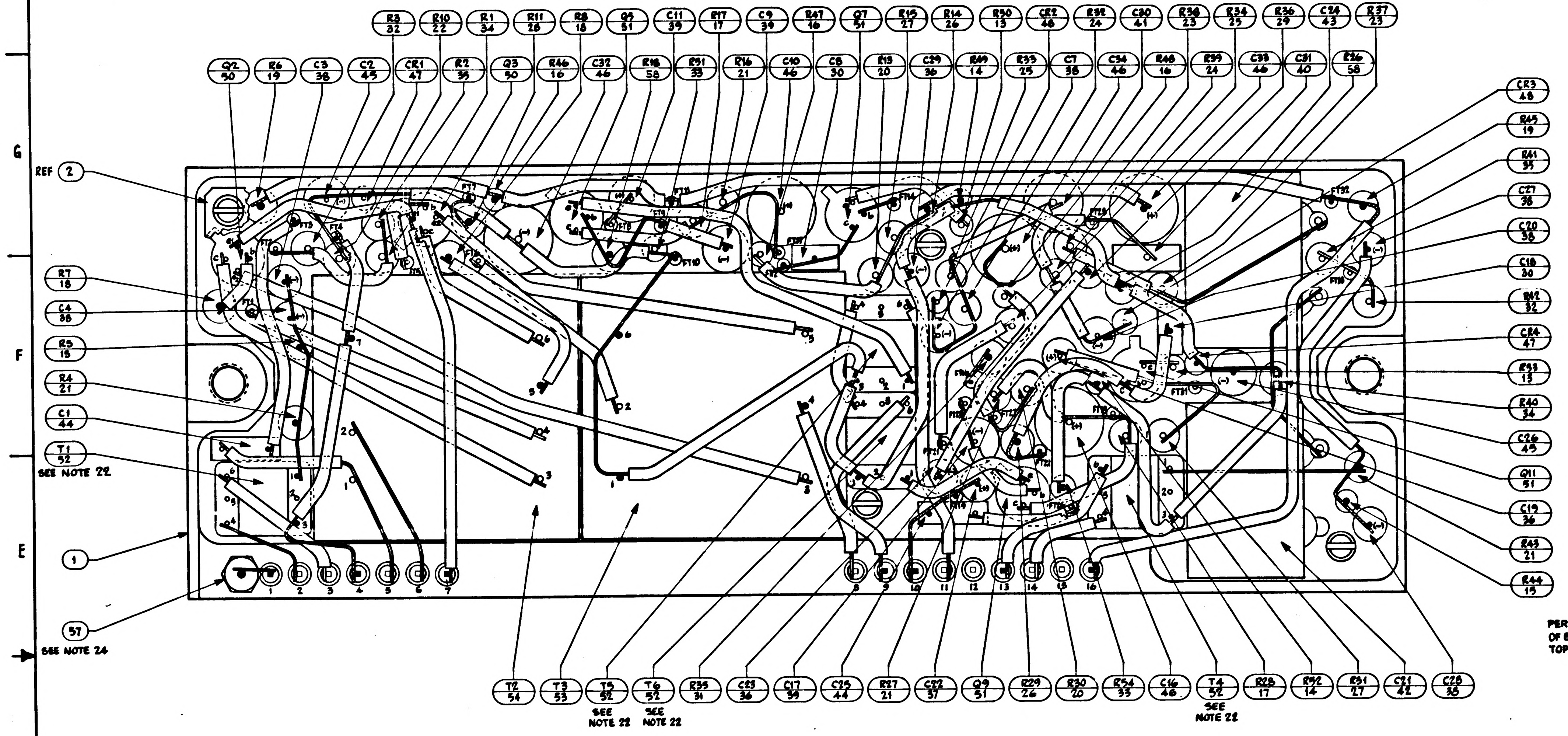
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TRACKER Y CHANNEL
MODULE ASSY

CODE IDENT NO. 80230
SIZE J2
1007512
SCALE 5:1
SHEET 1 OF 1

1007512	REV LTR C	SH 1

E2


Q2 50
R6 19
C3 38
C2 45
R3 32
CR1 47
R10 22
R2 35
R1 34
Q3 50
R11 28
R46 16
R8 18
C32 46
Q5 51
R18 58
C11 39
R51 33
R17 17
R16 21
C9 39
C10 46
R47 16
C8 30
Q7 51
R13 20
R15 27
C29 36
R14 26
R49 14
R50 13
R33 25
CR2 48
C7 38
R32 24
C34 46
C30 41
R48 16
R38 23
R39 24
R34 25
C33 46
R36 29
C31 40
C24 43
R26 58
R37 23
CR3 48
R45 19
R41 35
C27 38
C20 38
C18 30
R42 32
CR4 47
R53 13
R40 34
C26 45
Q11 51
C19 36
R43 21
R44 15
REF 2
R7 18
C6 38
R5 15
R4 21
C1 44
T1 32
SEE NOTE 22
1
57
SEE NOTE 24
T2 54
T3 53
T5 52
SEE NOTE 22
T6 52
SEE NOTE 22
R35 31
C23 36
C17 39
C25 44
R27 21
C22 37
Q9 51
R29 26
R30 20
R54 33
C16 46
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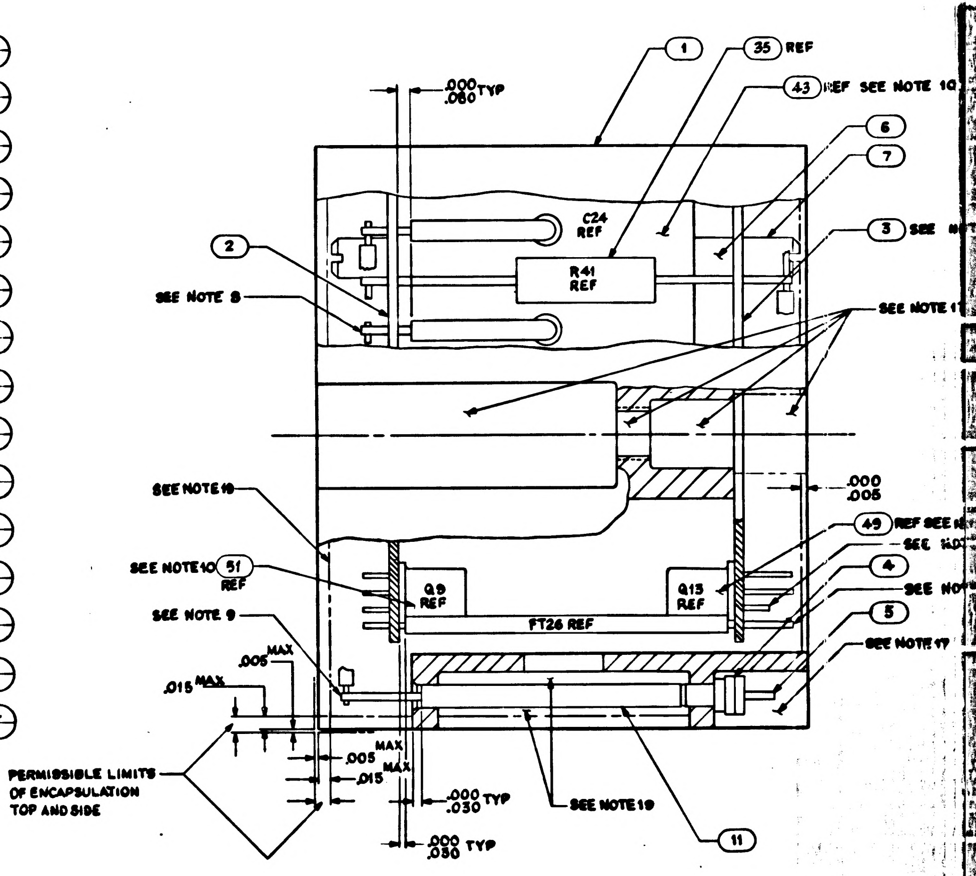
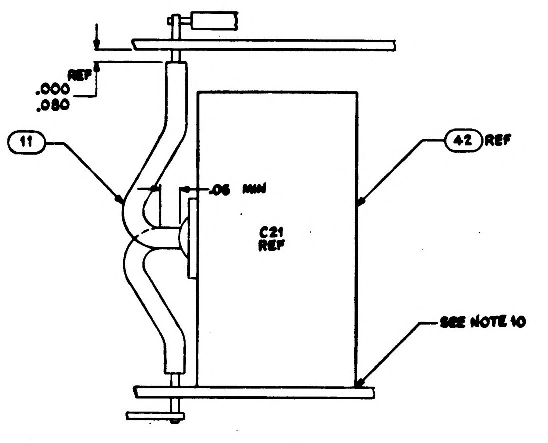
SEE NOTE 22
R28 17
R52 14
R31 27
C21 42
C28 38
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16


1
35 REF
43 REF SEE NOTE 10
6
7
3 SEE
.000
.080 TYP
C24 REF
R41 REF
2
SEE NOTE 8
SEE NOTE 1
SEE NOTE 19
SEE NOTE 10 51 REF
SEE NOTE 9
Q9 REF
Q13 REF
FT26 REF
.000
.005
49 REF SEE
SEE
4
SEE NO
5
SEE NOTE 17
.005 MAX
.015 MAX
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND SIDE
.000
.030 TYP
SEE NOTE 19
.000
.030 TYP
11

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. K INDICATES CATHODE SIDE OF DIODE
5. (+) INDICATES POSITIVE SLIDE OF CAPACITOR
6. WELD PER ND 1002005
7. ASSEMBLE FIND NO. 4 AND FIND NO. 5 PER 1002136
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
9. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
10. BOND Q2, Q3, Q5, Q7, Q9, Q11, T1, T2, T3, T4, T5, T6, C1, C21, C24, AND C25 TO FIND NO. 2 PER ND 1002004 TYPE I
11. BOND Q1, Q4, Q6, Q8, Q10, Q12, AND Q13 TO FIND NO. 3 PER ND 1002004 TYPE I
12. BOND FIND NO. 3 TO FIND NO. 1 PER ND 1002004 TYPE I
13. MARK .100/.060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN.
14. MARK .140/.100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002123. CENTRALIZE AS SHOWN.
15. TYPICAL SLEEVING FOR R5, R46 THRU R50, R52, R53, AND CR1 THRU CR4.
16. TYPICAL SLEEVING DIMENSION FOR FT2 AND FT5
17. INDICATED AREAS TO BE FREE OF ENCAPSULATION
19. ENCAPSULATE MODULE PER ND 1002002, BLACK POLYURETHANE FOAM. REMOVE ALL FLASHING
20. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
21. COMPONENTS HAVING BUTT WELDED LEADS MUST BE POSITIONED SO RIBBON WELD OCCURS ON WELDABLE PORTION OF LEAD
22. TRIM UNUSED LEADS ON T1, T4, T5, AND T6 .03 MAX FROM BODY
23. BOND FIND NO. 55 AND 56 TO FIND NO. 4 PER ND 1002237
24. MOUNTING TORQUE FOR FIND NO. 57 TO BE 15-20 INCH OUNCES
25. VENDOR ITEM - SEE SPECIFICATION CONTROL DRAWING
26. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
27. EXCEPT FOR THE HELICOIL INSERT MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR 8 HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
28. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL OF THE REQUIREMENTS OF PS 1007512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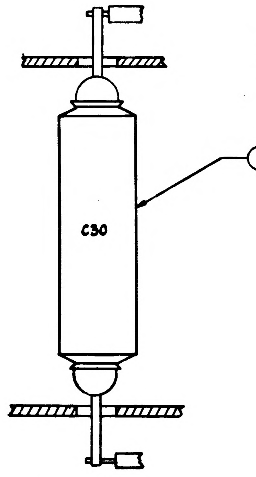
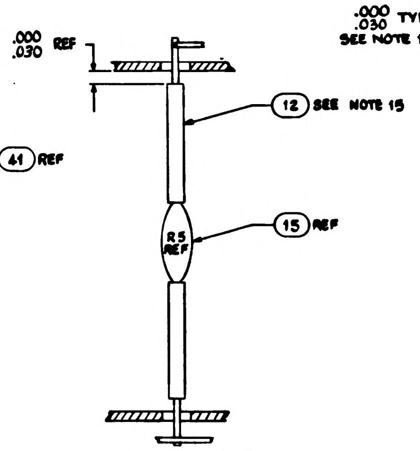
.000
.080
11
.06 MIN
C21 REF
42 REF
SEE NOTE 10

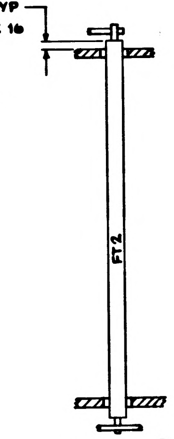
SECTION A-A



SECTION B-B
SEE NOTE 21


.000
.030 REF
12 SEE NOTE 15
R5 REF
15 REF

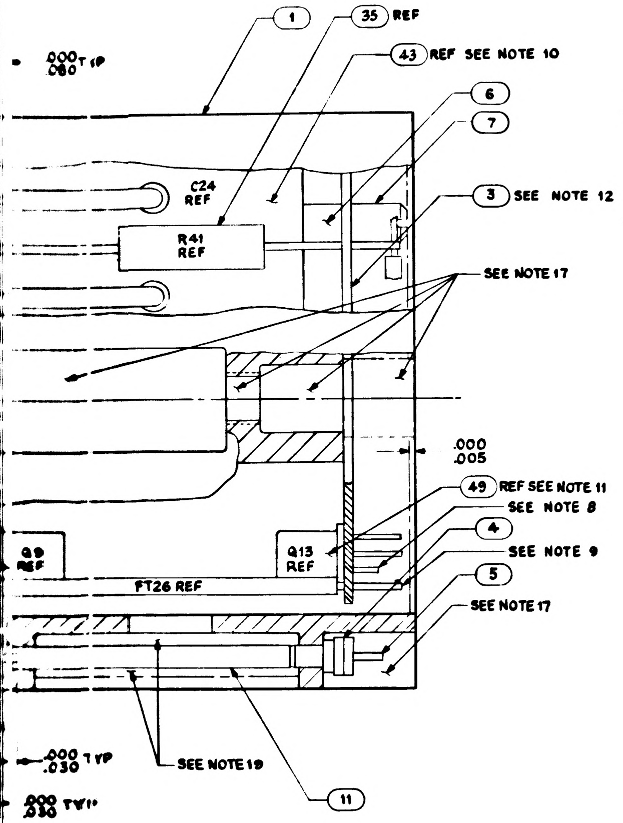
SECTION C-C


.000
.030 TYP
SEE NOTE 16
FT2

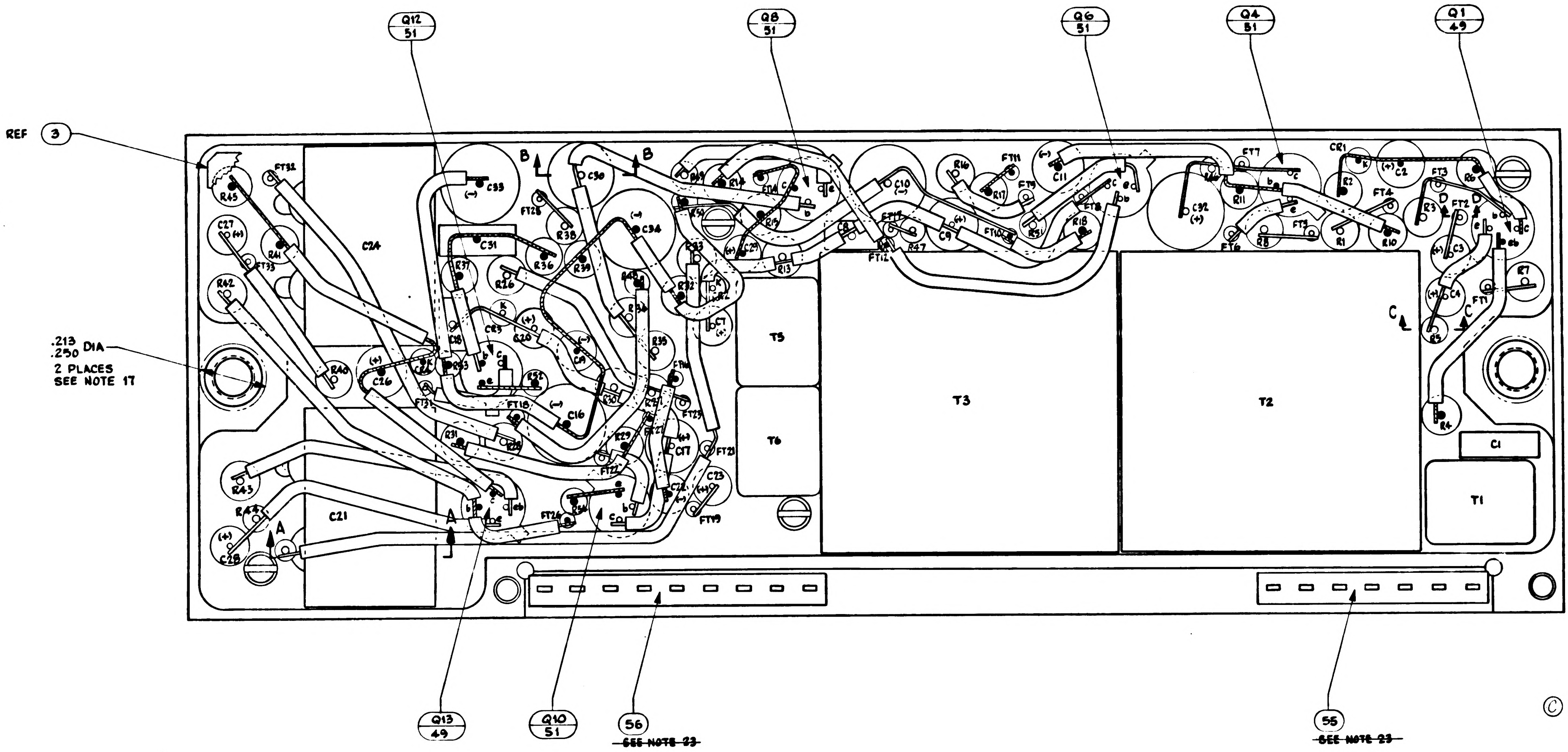
SECTION D-D

1007512 REV LTR C SH 1

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
C		REPLACES REVISION B WITH CHANGE PER TDRR 20120	–	+ MAY 65	CKD WC
D		REVISED PER TDRR 20.43		25 ... 65	

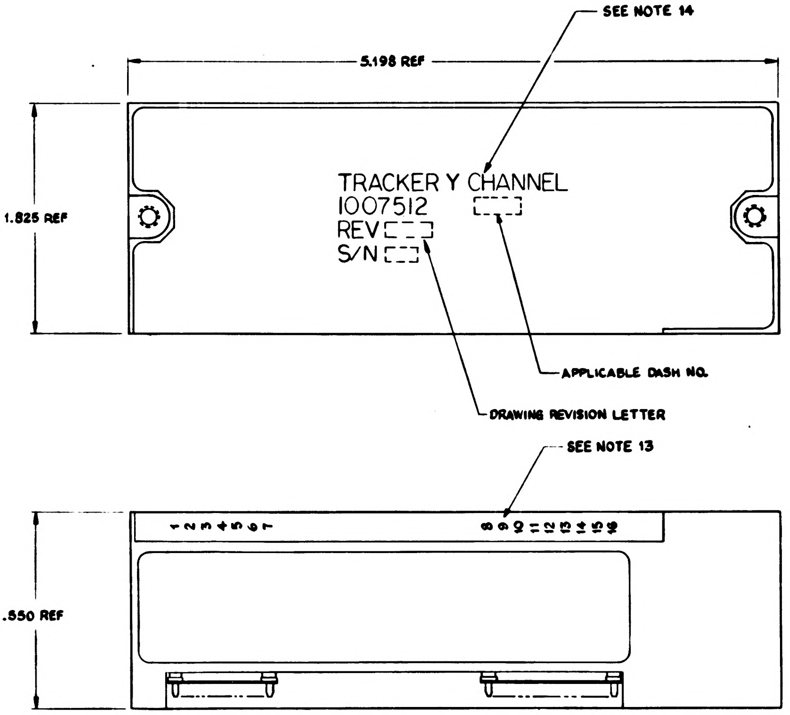


1
35 REF
43 REF SEE NOTE 10
6
7
3 SEE NOTE 12
.000 TYP .080
C24 REF
R41 REF
SEE NOTE 17
.000 .005
49 REF SEE NOTE 11
SEE NOTE 8
4
SEE NOTE 9
5
SEE NOTE 17
Q9 REF
Q13 REF
FT26 REF
.000 TYP .030
SEE NOTE 19
.000 TYP .030
11



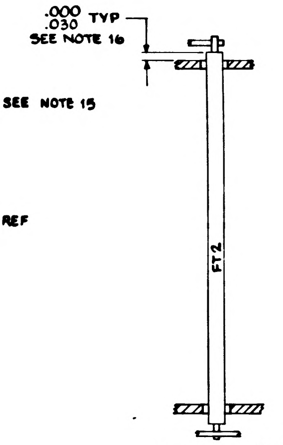
Q12 51
Q8 51
Q6 51
Q4 51
Q1 49
REF 3
.213 .250 DIA
2 PLACES
SEE NOTE 17
C24
C21
T5
T6
T3
T2
T1
C1
A
B
C
Q13 49
Q10 51
56 SEE NOTE 23
55 SEE NOTE 23

Ⓒ REPLACES REV(B) WITH CHANGE



SEE NOTE 14
5.198 REF
1.825 REF
TRACKER Y CHANNEL
1007512
REV
S/N
APPLICABLE DASH NO.
DRAWING REVISION LETTER
SEE NOTE 13
1.550 REF

MARKING VIEW
SCALE 2/1



.000 TYP
.030
SEE NOTE 16
FT2

SECTION D-D

12 SEE NOTE 15

15 REF

C-C

			011	EFFECTIVITY	FIND NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			REF		X	1009511	SCHEMATIC
			2		58	1006750-60	RESISTOR
			1		57	2008093	TERMINAL THREADED
			1		56	1008540-9	GASKET, CONNECTOR MINIATURE
			1		55	1008540-7	GASKET, CONNECTOR MINIATURE
			1		54	1012054	TRANSFORMER
			1		53	1012053	TRANSFORMER
			4		52	1010329-1	TRANSFORMER
			9		51	1010397-1	TRANSISTOR
			2		50	1010367	TRANSISTOR
			2		49	1010342	TRANSISTOR
			2		48	1010830-9	DIODE
			2		47	1010830-11	DIODE
			5		46	1010393-044	CAPACITOR
			2		45	1010393-037	CAPACITOR
			2		44	1010359-29	CAPACITOR
			1		43	1010317-7	CAPACITOR
			1		42	1010317-5	CAPACITOR
			1		41	1010316-1	CAPACITOR
			1		40	1006793-84	CAPACITOR
			3		39	1006755-77	CAPACITOR
			6		38	1006755-69	CAPACITOR
			1		37	1006755-61	CAPACITOR
			3		36	1006755-57	CAPACITOR
			2		35	1010374-29	RESISTOR
			2		34	1010374-1	RESISTOR
			2		33	1010369-148	RESISTOR
			2		32	1010364-765	RESISTOR
			1		31	1010364-732	RESISTOR
			2		30	1010409-15	CAPACITOR
			1		29	1010364-697	RESISTOR
			1		28	1010364-683	RESISTOR
			2		27	1010364-635	RESISTOR
			2		26	1010364-579	RESISTOR
			2		25	1010364-539	RESISTOR
			2		24	1010364-535	RESISTOR
			2		23	1010364-505	RESISTOR
			1		22	1010364-477	RESISTOR
			4		21	1010364-719	RESISTOR
			2		20	1010364-387	RESISTOR
			2		19	1006750-39	RESISTOR
			1		18	1010364-251	RESISTOR
			2		17	1010364-151	RESISTOR
			3		16	1006750-108	RESISTOR
			2		15	1006750-51	RESISTOR
			2		14	1006750-15	RESISTOR
			2		13	1006750-8	RESISTOR
			AR		12	1006776-21	INSULATION SLEEVING
			AR		11	1006776-20	INSULATION SLEEVING
			AR		10	1006757-1	WIRE .010 X .020
			AR		9	1006776-22	INSULATION SLEEVING
			AR		8	1006757-8	WIRE .020 DIA
			8		7	1008161-3	SCREW, CAP SLOTTED HD
			4		6	1015135-19	SPACER NYLON
			16		5	1006782-5	CONTACT, WRAPOST-MALE, MIN
			16		4	1006775	INSULATOR, WRAPOST-MALE, MIN
			1		3	1008513	WIRING BOARD BOTTOM
			1		2	1008511	WIRING BOARD TOP
			1		1	1008514	FRAME

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

SEE NOTE 25 (find nos. 54–41)
SEE NOTE 25 (find nos. 40–7)
SEE NOTE 25 (find no. 5)
SEE NOTE 25 (find no. 4)

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007585		-011

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

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DIMENSIONS ARE IN INCHES
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FRACTIONS + – DECIMALS + – ANGLES + –
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS-9-497

M I T
INSTRUMENTATION LAB
Cambridge Mass
DRAWN 14 APR 65
CHECKED 19 APR 65
APPROVAL 21 APR 65
APPROVAL
NASA APPROVAL
MIT APPROVAL

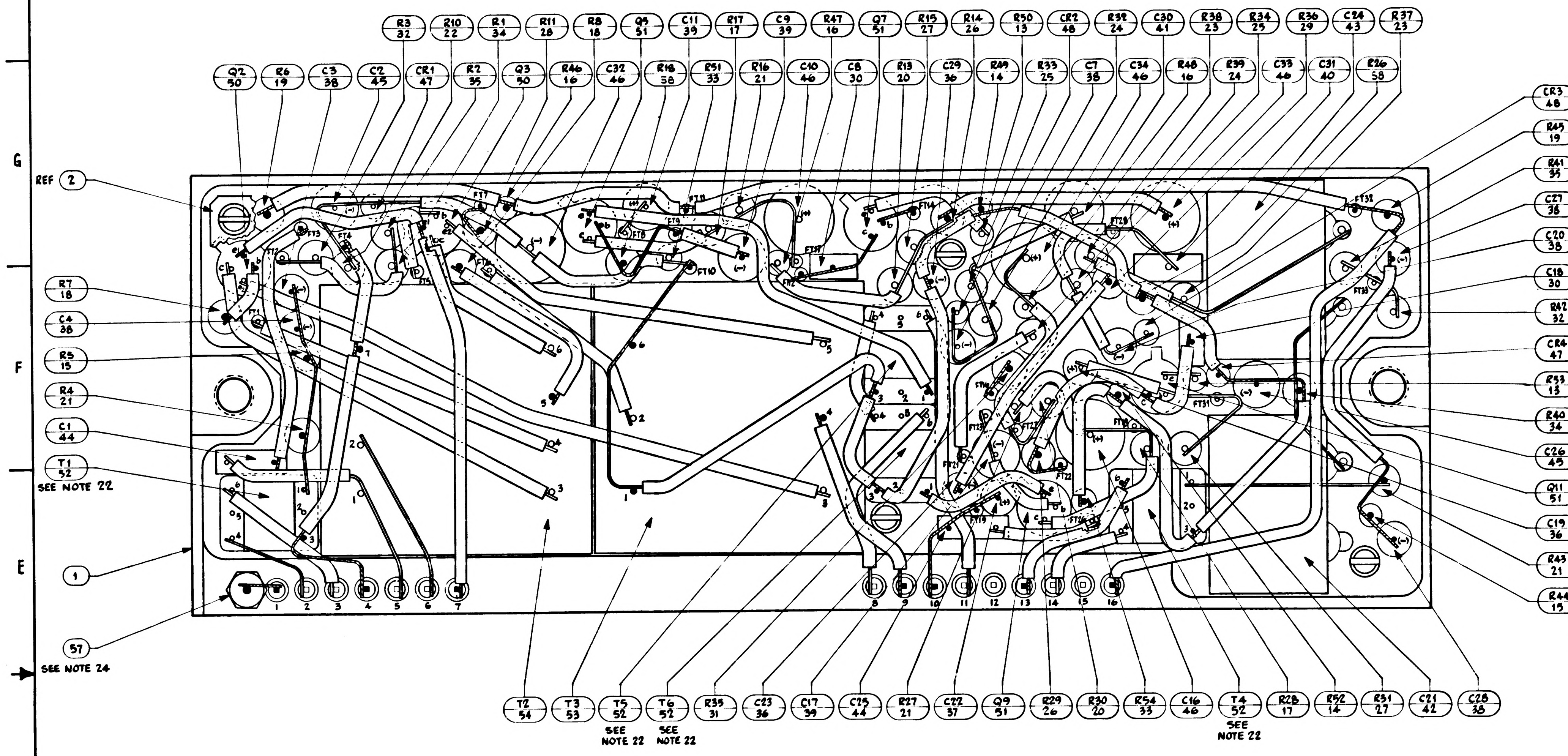
MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TRACKER Y CHANNEL
MODULE ASSY

CODE IDENT NO 80230
SIZE J2
1007512
SCALE 5:1
SHEET 1 OF 1

1007512 REV D SH 1

2/1007512



R3 32
R10 22
R1 34
R11 28
R8 18
Q5 51
C11 39
R17 17
C9 39
R47 16
Q7 51
R15 27
R14 26
R50 13
CR2 48
R38 24
C30 41
R38 23
R34 25
R36 29
C24 43
R37 23
Q2 50
R6 19
C3 38
C2 45
CR1 47
R2 35
Q3 50
R46 16
C32 46
R18 58
R51 33
R16 21
C10 46
C8 30
R13 20
C29 36
R49 14
R33 25
C7 38
C34 46
R48 16
R39 24
C33 46
C31 40
R26 58
CR3 48
R45 19
R41 34
C27 38
C20 38
C18 30
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CR4 47
R53 13
R40 34
C26 45
Q11 51
C19 36
R43 21
R44 15
REF 2
R7 18
C4 38
R5 15
R4 21
C1 44
T1 52
SEE NOTE 22
1
57
SEE NOTE 24
T2 54
T3 53
T5 52
SEE NOTE 22
T6 52
SEE NOTE 22
R35 31
C23 36
C17 39
C25 44
R27 21
C22 37
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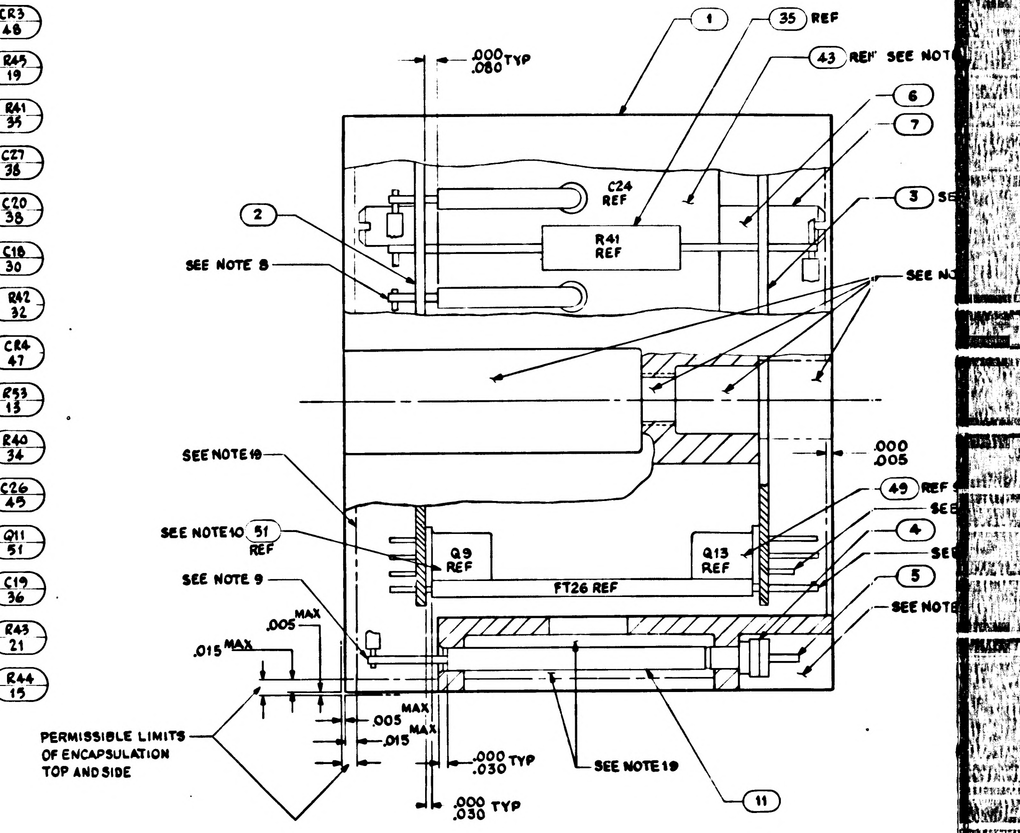
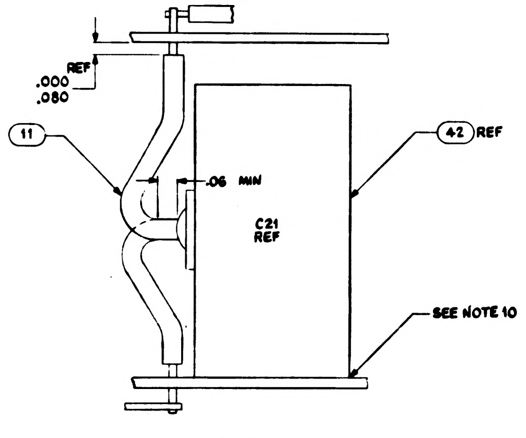
T4 52
SEE NOTE 22
R28 17
R52 14
R31 27
C21 42
C28 38



1
35 REF
43 REF SEE NOTE
.000 .080 TYP
6
7
3
2
SEE NOTE 8
C24 REF
R41 REF
SEE NOTE
SEE NOTE 19
.000 .005
49 REF
SEE NOTE 10
51 REF
Q9 REF
Q13 REF
4
SEE NOTE 9
FT26 REF
5
SEE NOTE
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND SIDE
.005 MAX
.015 MAX
.000 .030 TYP
SEE NOTE 19
.000 .030 TYP
11

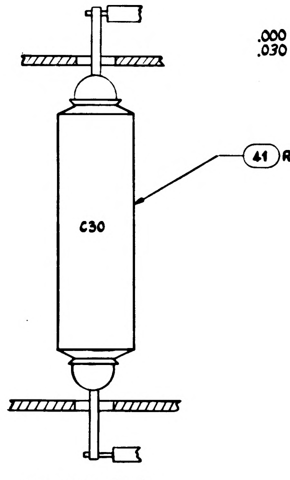
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. K INDICATES CATHODE SIDE OF DIODE
5. (+) INDICATES POSITIVE SLIDE OF CAPACITOR
6. WELD PER ND 1002005
7. ASSEMBLE FIND NO. 4 AND FIND NO. 5 PER 1002136
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
9. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
10. BOND Q2, Q3, Q5, Q7, Q9, Q11, T1, T2, T3, T4, T5, T6, C1, C21, C24, AND C25 TO FIND NO. 2 PER ND 1002004 TYPE I
11. BOND Q1, Q4, Q6, Q8, Q10, Q12, AND Q13 TO FIND NO. 3 PER ND 1002004 TYPE I
12. BOND FIND NO. 3 TO FIND NO. 1 PER ND 1002004 TYPE I
13. MARK .100/.060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN.
14. MARK .140/.100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002123. CENTRALIZE AS SHOWN.
15. TYPICAL SLEEVING FOR R5, R46 THRU R50, R52, R53, AND CR1 THRU CR4.
16. TYPICAL SLEEVING DIMENSION FOR FT2 AND FT5
17. INDICATED AREAS TO BE FREE OF ENCAPSULATION
19. ENCAPSULATE MODULE PER ND 1002002, BLACK POLYURETHANE FOAM. REMOVE ALL FLASHING
20. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
21. COMPONENTS HAVING BUTT WELDED LEADS MUST BE POSITIONED SO RIBBON WELD OCCURS ON WELDABLE PORTION OF LEAD
22. TRIM UNUSED LEADS ON T1, T4, T5, AND T6 .03 MAX FROM BODY
~~23. BOND FIND NO. 55 AND 56 TO FIND NO. 4 PER ND 1002237~~
24. MOUNTING TORQUE FOR FIND NO. 57 TO BE 15-20 INCH OUNCES
25. VENDOR ITEM - SEE SPECIFICATION CONTROL DRAWING
26. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
27. EXCEPT FOR THE HELICOIL INSERT MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR 8 HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
28. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL OF THE REQUIREMENTS OF PS 1007512

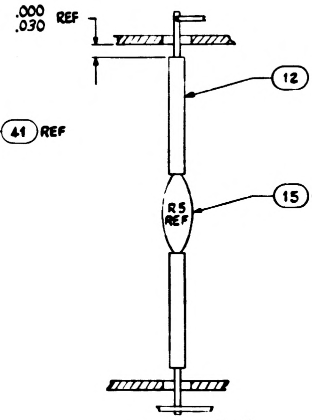


.000 .080 REF
11
.06 MIN
C21 REF
42 REF
SEE NOTE 10

SECTION A-A

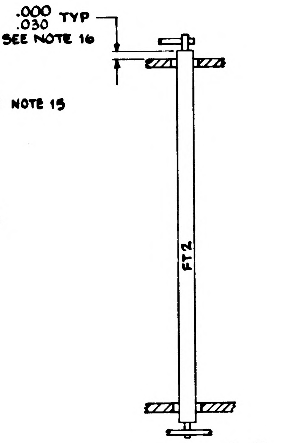


SECTION B-B
SEE NOTE 21



.000 .030 REF
12 SEE NOTE 15
15 REF
R5 REF

SECTION C-C



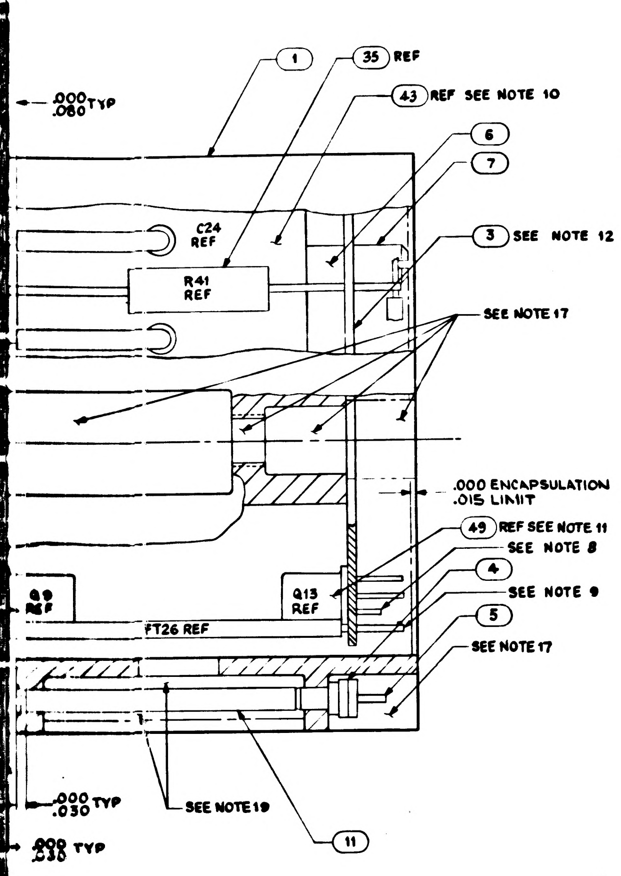
.000 .030 TYP
SEE NOTE 16
FT2

SECTION D-D

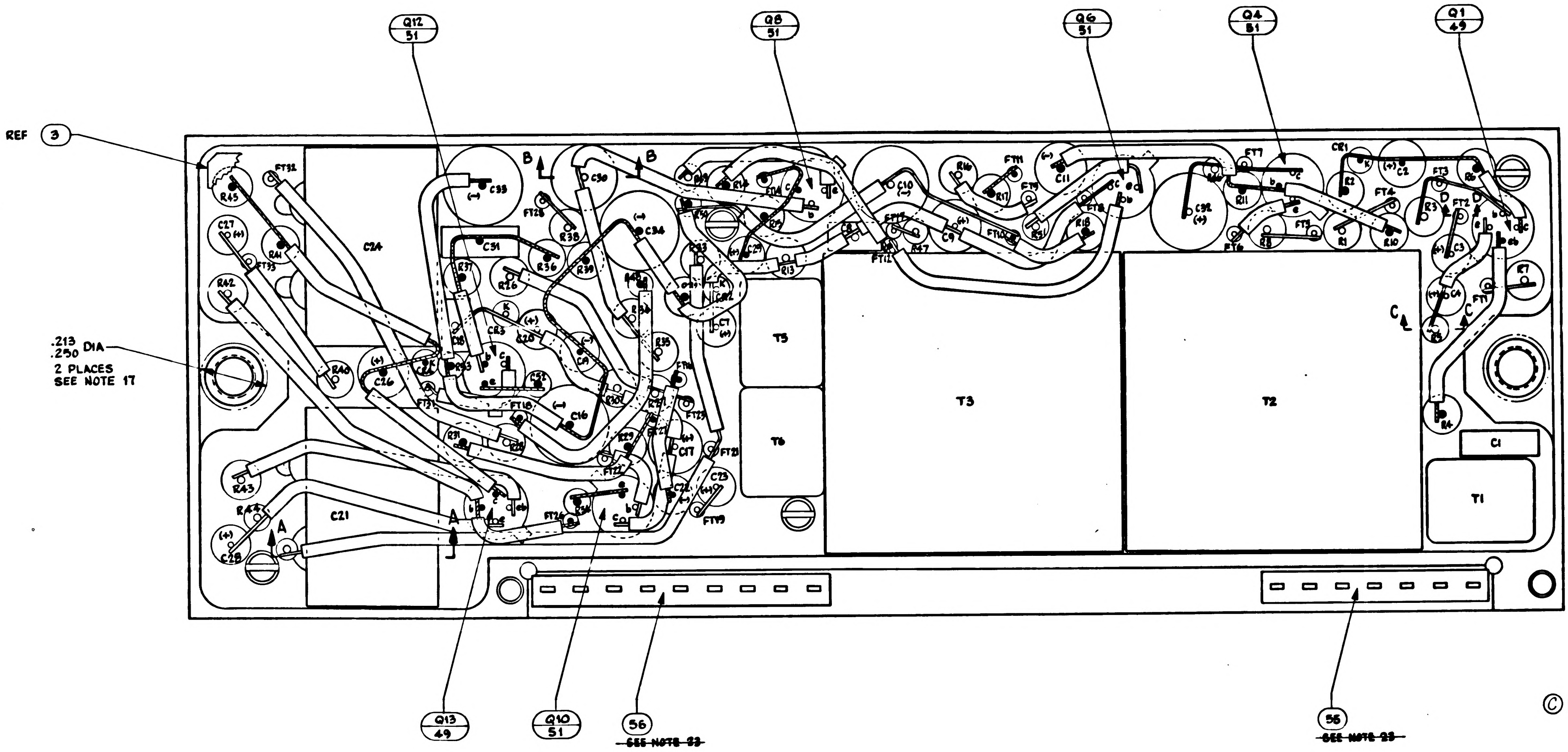
1007512 SH 1

1710007512

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
C		REPLACES REVISION B WITH CHANGE PER TORR 20120	–	14 MAY 65	DKD WK
D		REVISED PER TDRR 20143		25 JUN 65	
E		REVISED PER TDRR 22940			

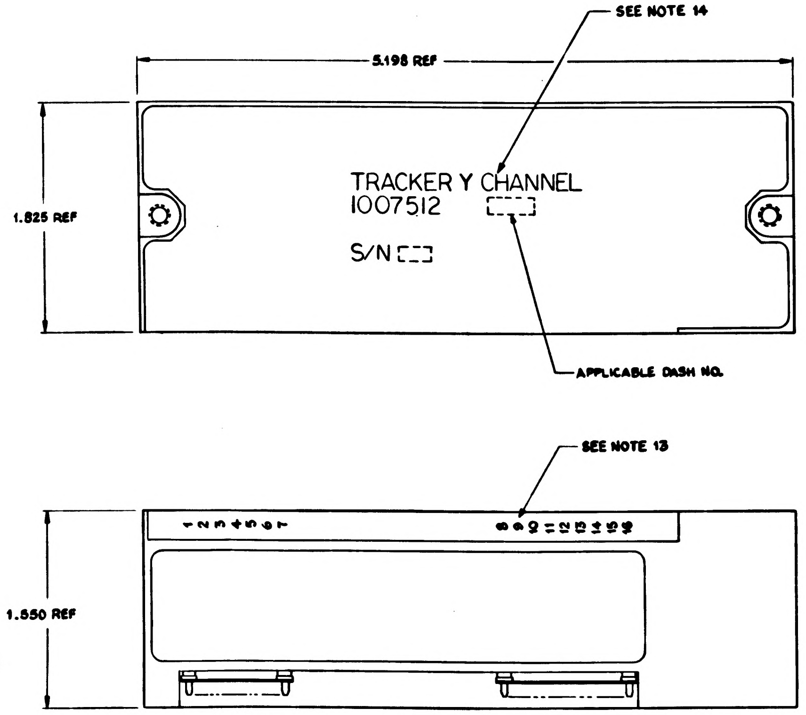


.000 TYP
.080
1
35 REF
43 REF SEE NOTE 10
6
7
3 SEE NOTE 12
C24 REF
R41 REF
SEE NOTE 17
.000 ENCAPSULATION
.015 LIMIT
49 REF SEE NOTE 11
SEE NOTE 8
4
SEE NOTE 9
5
SEE NOTE 17
Q9 REF
Q13 REF
FT26 REF
.000 TYP
.030
SEE NOTE 19
11
.000 TYP
.030



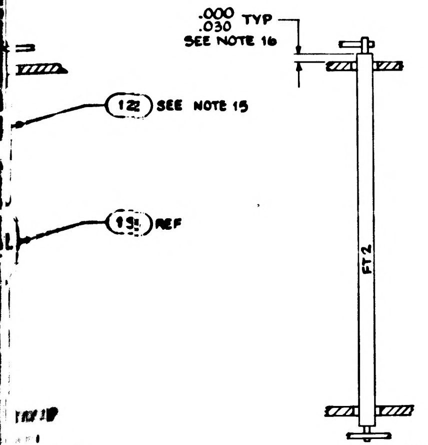
Q12 51
Q8 51
Q6 51
Q4 51
Q1 49
REF 3
.213 DIA
.250
2 PLACES
SEE NOTE 17
B
C24
C21
T5
T6
T3
T2
T1
C1
A
C
Q13 49
Q10 51
56
SEE NOTE 23
56
SEE NOTE 23

Ⓒ REPLACES REV(B) WITH CHANGE



SEE NOTE 14
5.198 REF
1.825 REF
TRACKER Y CHANNEL
1007512
S/N
APPLICABLE DASH NO.
SEE NOTE 13
1.550 REF

MARKING VIEW
SCALE 2/1



.000 TYP
.030
SEE NOTE 16
12 SEE NOTE 15
13 REF
FT 2

SECTION D-D

C-C

			011	EFFECTIVITY	FIND NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			REF		X	1009511	SCHEMATIC
			2		58	1006750-60	RESISTOR
			1		57	2008093	TERMINAL THREADED
			1		56	1008540-9	GASKET, CONNECTOR MINIATURE
			1		55	1008540-7	GASKET, CONNECTOR MINIATURE
			1		54	1012054	TRANSFORMER
			1		53	1012053	TRANSFORMER
			4		52	1010329-1	TRANSFORMER
			9		51	1010397-1	TRANSISTOR
			2		50	1010367	TRANSISTOR
			2		49	1010342	TRANSISTOR
			2		48	1010830-9	DIODE
			2		47	1010830-11	DIODE
			5		46	1010393-044	CAPACITOR
			2		45	1010393-037	CAPACITOR
			2		44	1010359-29	CAPACITOR
			1		43	1010317-7	CAPACITOR
			1		42	1010317-5	CAPACITOR
			1		41	1010316-1	CAPACITOR
QUANTITY REQUIRED						LIST OF PARTS AND MATERIALS	

SEE NOTE 25 (items 54–41); SEE NOTE 25 (item 47); SEE NOTE 25 (items 45, 44)

			011	EFFECTIVITY	FIND NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
			1		40	1006793-84	CAPACITOR
			3		39	1006755-77	CAPACITOR
			6		38	1006755-69	CAPACITOR
			1		37	1006755-61	CAPACITOR
			3		36	1006755-57	CAPACITOR
			2		35	1010374-29	RESISTOR
			2		34	1010374-1	RESISTOR
			2		33	1010369-148	RESISTOR
			2		32	1010364-765	RESISTOR
			1		31	1010364-732	RESISTOR
			2		30	1010409-15	CAPACITOR
			1		29	1010364-697	RESISTOR
			1		28	1010364-683	RESISTOR
			2		27	1010364-635	RESISTOR
			2		26	1010364-579	RESISTOR
			2		25	1010364-539	RESISTOR
			2		24	1010364-535	RESISTOR
			2		23	1010364-505	RESISTOR
			1		22	1010364-477	RESISTOR
			4		21	1010364-719	RESISTOR
			2		20	1010364-387	RESISTOR
			2		19	1006750-39	RESISTOR
			2		18	1010364-251	RESISTOR
			2		17	1010364-151	RESISTOR
			3		16	1006750-108	RESISTOR
			2		15	1006750-51	RESISTOR
			2		14	1006750-15	RESISTOR
			2		13	1006750-8	RESISTOR
			AR		12	1006776-21	INSULATION SLEEVING
			AR		11	1006776-20	INSULATION SLEEVING
			AR		10	1006757-1	WIRE .010 X .020
			AR		9	1006776-22	INSULATION SLEEVING
			AR		8	1006757-8	WIRE .020 DIA
			8		7	1008161-3	SCREW, CAP SLOTTED HD
			4		6	1015135-19	SPACER NYLON
			16		5	1006782-5	CONTACT, WRAPOST-MALE, MIN
			16		4	1006775	INSULATOR, WRAPOST-MALE, MIN
			1		3	1008513	WIRING BOARD BOTTOM
			1		2	1008511	WIRING BOARD TOP
			1		1	1008514	FRAME
QUANTITY REQUIRED						LIST OF PARTS AND MATERIALS	

SEE NOTE 25 (items 40–8); SEE NOTE 25 (item 7); SEE NOTE 25 (item 5); SEE NOTE 25 (item 4)

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007585		-011
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + – DECIMALS + – ANGLES + –
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE 14 APR 65
CHECKED Udorich 19 APR 65
APPROVAL 20 APR 65
APPROVAL 4/19/65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

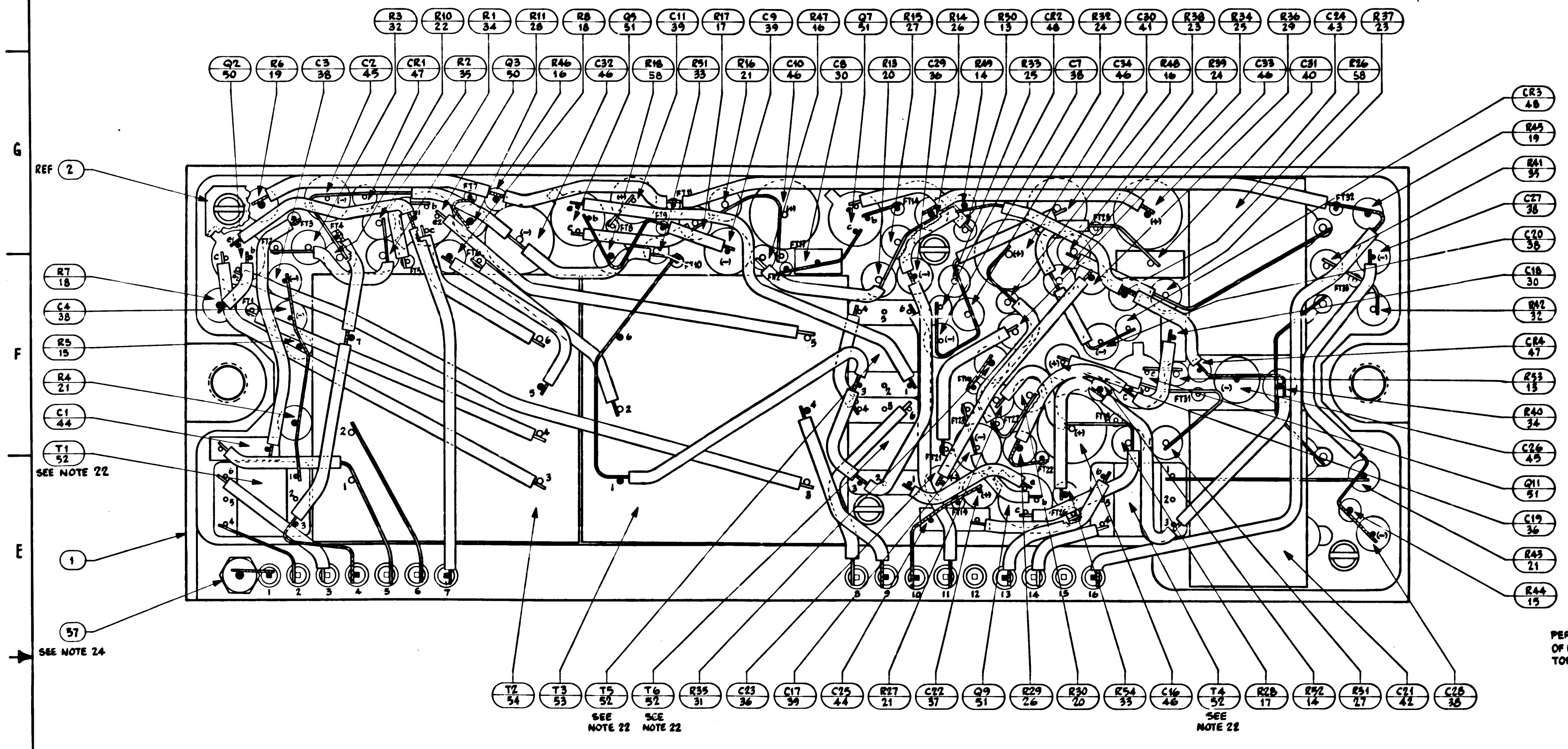
TRACKER Y CHANNEL MODULE ASSY

CODE IDENT NO. 80230
SIZE J2
1007512
SCALE 5:1
SHEET 1 OF 1

1007512 E

1007512

2/1007512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R10 22
R1 34
R11 28
R8 18
Q5 51
C11 39
R17 17
C9 39
R47 16
Q7 51
R15 27
R14 26
R50 13
CR2 48
R32 24
C30 41
R38 23
R34 25
R36 29
C24 43
R37 23
Q2 50
R6 19
C3 38
C2 45
CR1 47
R2 35
Q3 50
R46 16
C32 46
R18 58
R51 33
R16 21
C10 46
C8 30
R13 20
C29 36
R49 14
R33 25
C7 38
C34 46
R48 16
R39 24
C33 46
C31 40
R26 58
CR3 48
R45 19
R41 35
C27 38
C20 38
C18 30
R42 32
C24 47
R43 13
R40 34
C26 45
Q11 51
C19 36
R43 21
R44 15
REF 2
R7 18
C4 38
R5 15
R4 21
C1 44
T1 52
SEE NOTE 22
1
57
SEE NOTE 24
T2 54
T3 53
T5 52
SEE NOTE 22
T6 52
SEE NOTE 22
R35 31
C23 36
C17 39
C25 44
R27 21
C22 37
Q9 51
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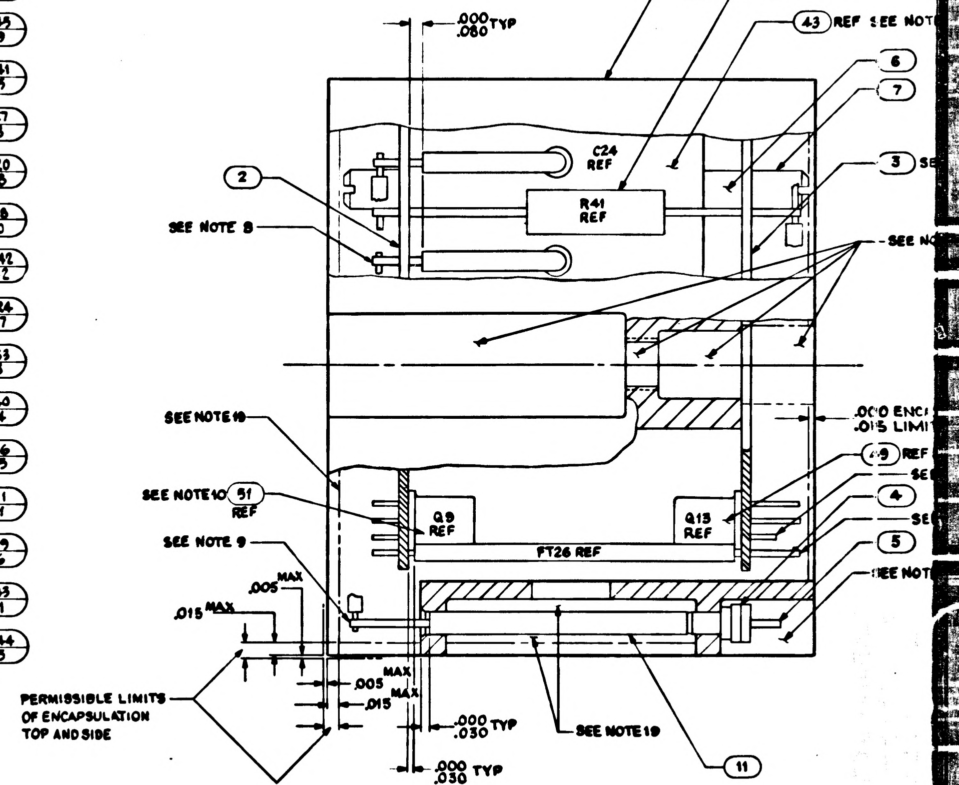
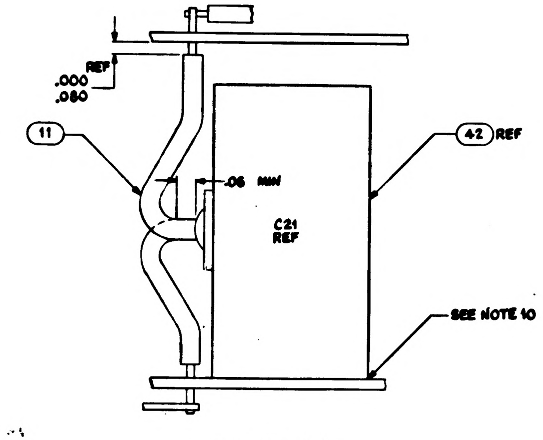
C16 46
T4 52
SEE NOTE 22
R28 17
R52 14
R31 27
C21 42
C28 38

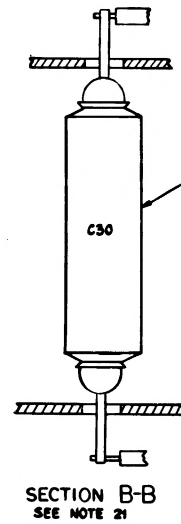

1
35 REF
43 REF SEE NOTE
6
7
3
C24 REF
R41 REF
2
SEE NOTE 8
.000
.080 TYP
SEE NOTE 10
SEE NOTE 10 51 REF
SEE NOTE 9
Q9 REF
Q13 REF
FT26 REF
.005 MAX
.015 MAX
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND SIDE
.000
.030 TYP
.000
.030 TYP
SEE NOTE 19
11
4
5
.010 ENC
.015 LIMIT

NOTES:

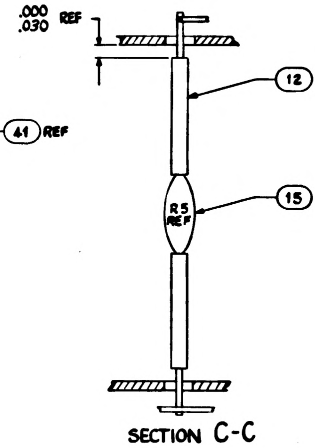
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. K INDICATES CATHODE SIDE OF DIODE
5. (+) INDICATES POSITIVE SLIDE OF CAPACITOR
6. WELD PER ND 1002005
7. ASSEMBLE FIND NO. 4 AND FIND NO. 5 PER 1002136
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
9. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
10. BOND Q2, Q3, Q5, Q7, Q9, Q11, T1, T2, T3, T4, T5, T6, C1, C21, C24, AND C25 TO FIND NO. 2 PER ND 1002004 TYPE I
11. BOND Q1, Q4, Q6, Q8, Q10, Q12, AND Q13 TO FIND NO. 3 PER ND 1002004 TYPE I
12. BOND FIND NO. 3 TO FIND NO. 1 PER ND 1002004 TYPE I
13. MARK .100/.060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN.
14. MARK .140/.100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002123. CENTRALIZE AS SHOWN.
15. TYPICAL SLEEVING FOR R5, R46 THRU R50, R52, R53, AND CR1 THRU CR4.
16. TYPICAL SLEEVING DIMENSION FOR FT2 AND FT5
17. INDICATED AREAS TO BE FREE OF ENCAPSULATION
19. ENCAPSULATE MODULE PER ND 1002002, BLACK POLYURETHANE FOAM. REMOVE ALL FLASHING
20. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
21. COMPONENTS HAVING BUTT WELDED LEADS MUST BE POSITIONED SO RIBBON WELD OCCURS ON WELDABLE PORTION OF LEAD
22. TRIM UNUSED LEADS ON T1, T4, T5, AND T6 .03 MAX FROM BODY
~~23. BOND FIND NO. 55 AND 56 TO FIND NO. 4 PER ND 1002237~~
24. MOUNTING TORQUE FOR FIND NO. 57 TO BE 15-20 INCH OUNCES
25. VENDOR ITEM - SEE SPECIFICATION CONTROL DRAWING
26. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
27. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
28. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL OF THE REQUIREMENTS OF PS 1007512


.000
.080
REF
11
42 REF
.06 MIN
C21 REF
SEE NOTE 10

SECTION A-A



SECTION B-B
SEE NOTE 21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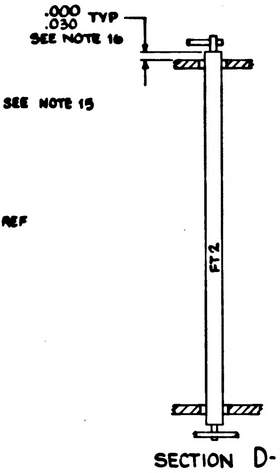
.030 REF
12 SEE NOTE 15
15 REF
R5 REF

SECTION C-C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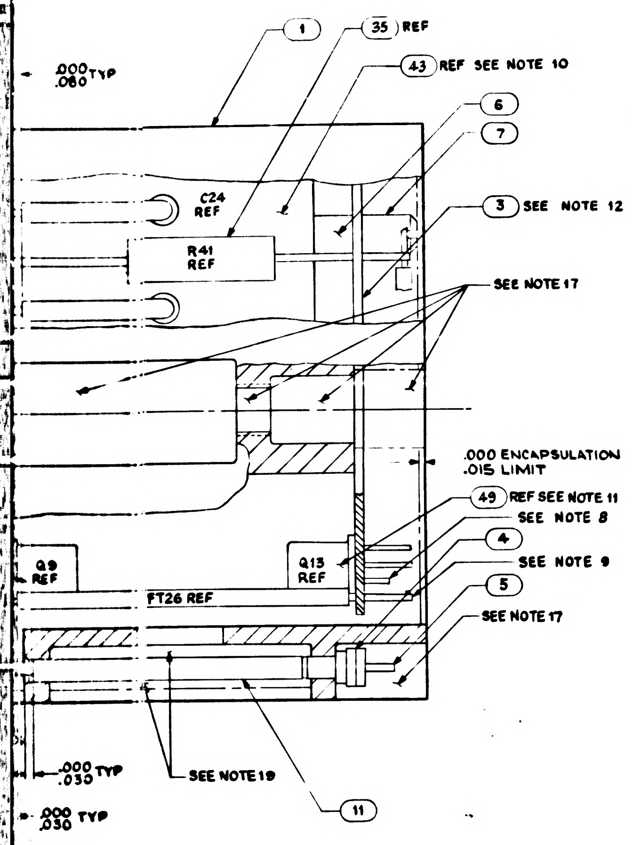
.030
SEE NOTE 16
FT2

SECTION D-D

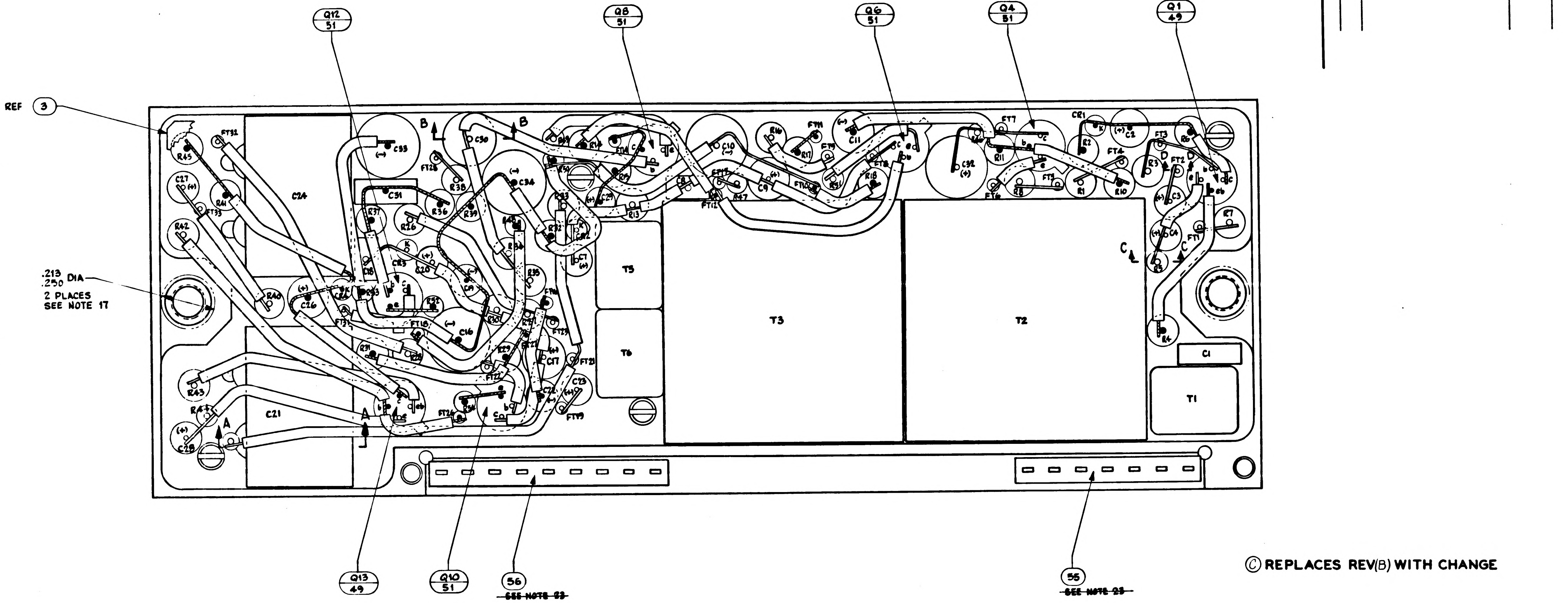
1007512	REV E	SH 1

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
C		REPLACES REVISION B WITH CHANGE PER TDRR 20120	–	14 MAY 65	DKD wk
Ⓜ D		REVISED PER TDRR 20143		25 JUN 65	JDC
Ⓜ E		REVISED PER TDRR 22940		20 OCT 65	
F		REVISED PER TDRR 23888		NOV 65	JJJ

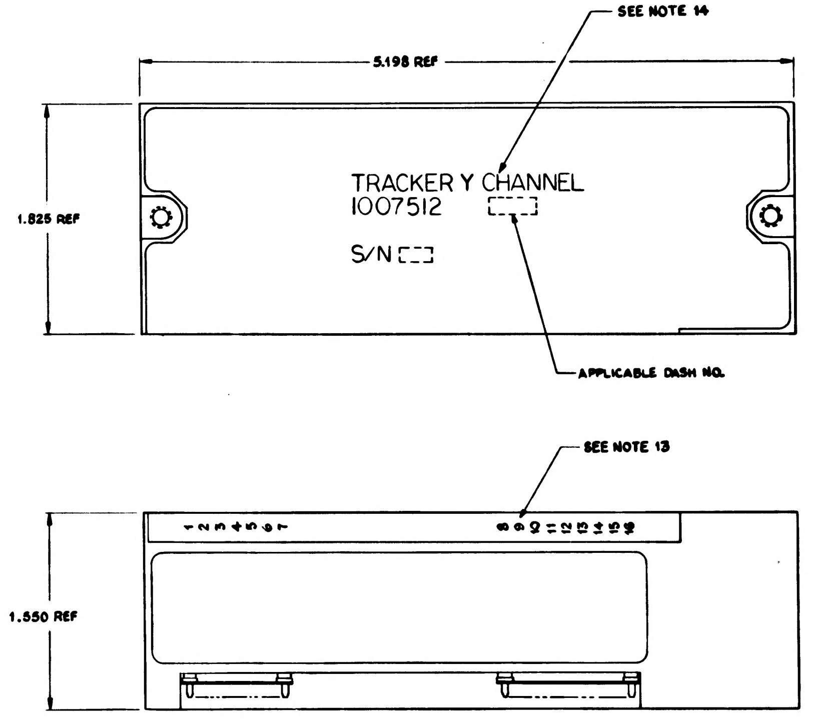


.000 .080 TYP
1
35 REF
43 REF SEE NOTE 10
6
7
3 SEE NOTE 12
C24 REF
R41 REF
SEE NOTE 17
.000 ENCAPSULATION
.015 LIMIT
49 REF SEE NOTE 11
SEE NOTE 8
4
SEE NOTE 9
5
SEE NOTE 17
Q9 REF
Q13 REF
FT26 REF
.000 .030 TYP
SEE NOTE 19
.000 .030 TYP
11



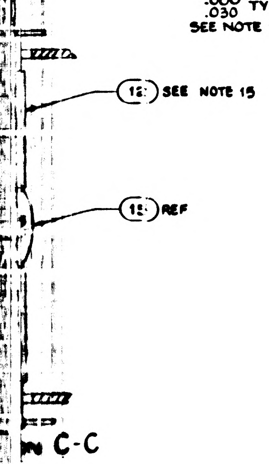
Q12 51
Q8 51
Q6 51
Q4 51
Q1 49
REF 3
.213 .250 DIA
2 PLACES
SEE NOTE 17
C24
C21
T5
T6
T3
T2
T1
C1
B
A
C
D
Q13 49
Q10 51
56
~~SEE NOTE 23~~
55
~~SEE NOTE 23~~

Ⓒ REPLACES REV(B) WITH CHANGE



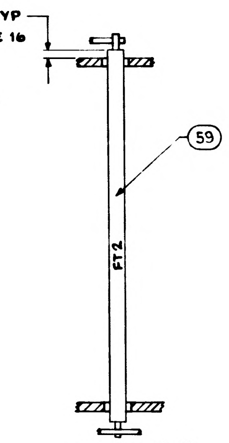
SEE NOTE 14
5.198 REF
1.825 REF
TRACKER Y CHANNEL
1007512
S/N
APPLICABLE DASH NO.
SEE NOTE 13
1.550 REF

MARKING VIEW
SCALE 2/1



12 SEE NOTE 15
12 REF

C-C



.000 TYP
.030
SEE NOTE 16
59
FT2

SECTION D-D

			011	EFFECTIVITY	FIND NO	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	
			REF		X	1009511	SCHEMATIC	
			AR		59	1010848-2	WIRE, ELECTRICAL-NICKEL	
			2		58	1006750-60	RESISTOR	
			1		57	2008093	TERMINAL THREADED	
			1		56	1008540-9	GASKET, CONNECTOR MINIATURE	
			1		55	1008540-7	GASKET, CONNECTOR MINIATURE	
SEE NOTE 25			1		54	1012054	TRANSFORMER	
			1		53	1012053	TRANSFORMER	
			4		52	1010329-1	TRANSFORMER	
			9		51	1010397-1	TRANSISTOR	
			2		50	1010367	TRANSISTOR	
			2		49	1010342	TRANSISTOR	
			2		48	1010830-9	DIODE	
			2		47	1010830-11	DIODE	SEE NOTE 25
			5		46	1010393-044	CAPACITOR	
			2		45	1010393-037	CAPACITOR	SEE NOTE 25
			2		44	1010359-29	CAPACITOR	SEE NOTE 25
			1		43	1010317-7	CAPACITOR	
			1		42	1010317-5	CAPACITOR	
SEE NOTE 25			1		41	1010316-1	CAPACITOR	

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

			011	EFFECTIVITY	FIND NO.	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
SEE NOTE 25			1		40	1006793-84	CAPACITOR
			3		39	1006755-77	CAPACITOR
			6		38	1006755-69	CAPACITOR
			1		37	1006755-61	CAPACITOR
			3		36	1006755-57	CAPACITOR
			2		35	1010374-29	RESISTOR
			2		34	1010374-1	RESISTOR
			2		33	1010369-148	RESISTOR
			2		32	1010364-765	RESISTOR
			1		31	1010364-732	RESISTOR
			2		30	1010409-15	CAPACITOR
			1		29	1010364-697	RESISTOR
			1		28	1010364-683	RESISTOR
			2		27	1010364-635	RESISTOR
			2		26	1010364-579	RESISTOR
			2		25	1010364-539	RESISTOR
			2		24	1010364-535	RESISTOR
			2		23	1010364-505	RESISTOR
			1		22	1010364-477	RESISTOR
			4		21	1010364-719	RESISTOR
			2		20	1010364-387	RESISTOR
			2		19	1006750-39	RESISTOR
			2		18	1010364-251	RESISTOR
			2		17	1010364-151	RESISTOR
			3		16	1006750-108	RESISTOR
			2		15	1006750-51	RESISTOR
			2		14	1006750-15	RESISTOR
			2		13	1006750-8	RESISTOR
			AR		12	1006776-21	INSULATION SLEEVING
			AR		11	1006776-20	INSULATION SLEEVING
			AR		10	1006757-1	WIRE .010 X .020
			~~AR~~		9	~~1006776-22~~	~~INSULATION SLEEVING~~
			~~AR~~		8	~~1006757-8~~	~~WIRE .020 DIA~~
SEE NOTE 25			8		7	1008161-3	SCREW, CAP SLOTTED HD
			4		6	1015135-19	SPACER NYLON
SEE NOTE 25			16		5	1006782-5	CONTACT, WRAPOST-MALE, MIN
SEE NOTE 25			16		4	1006775	INSULATOR, WRAPOST-MALE, MIN
			1		3	1008513	WIRING BOARD BOTTOM
			1		2	1008511	WIRING BOARD TOP
			1		1	1008514	FRAME

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007585		-011

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
CONTRACT NAS-9-497

MIT
INSTRUMENTATION LAB
Cambridge Mass
DRAWN Jorgensen DATE 14 APR 65
CHECKED Uldomich 19 APR 65
APPROVAL 20 APR 65
APPROVAL 4/19/65
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

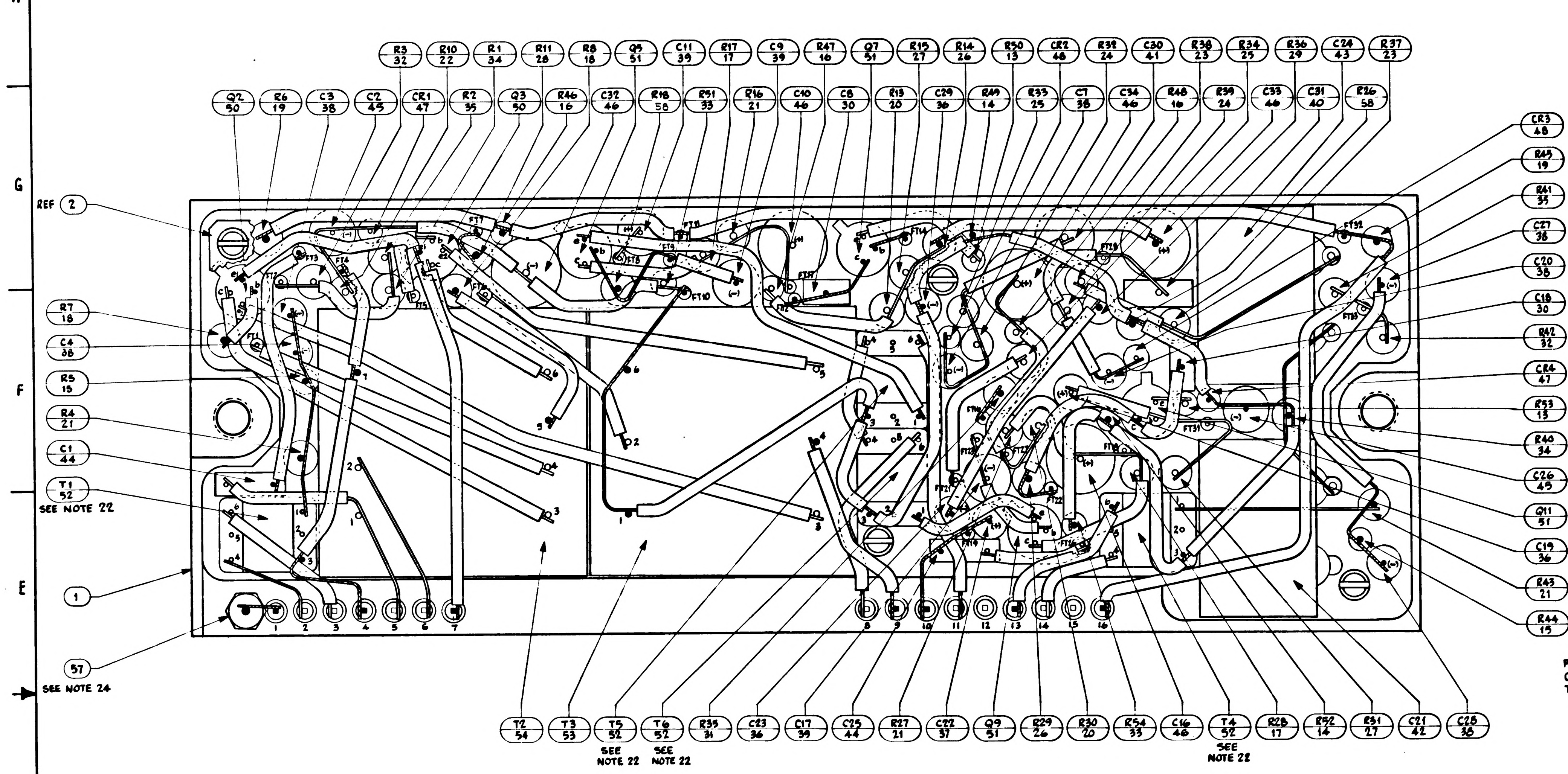
TRACKER Y CHANNEL
MODULE ASSY

CODE IDENT NO. 80230
SIZE J_2
1007512
SCALE 5:1
SHEET 1 OF 1

1007512 F

1007512

27 1007512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R50 13
CR2 48
R32 24
C30 41
R38 23
R34 25
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C24 43
R37 23
Q2 50
R6 19
C3 38
C2 45
CR1 47
R2 35
Q3 50
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C32 46
R18 58
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SEE NOTE 22
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SEE NOTE 24
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T5 52
SEE NOTE 22
T6 52
SEE NOTE 22
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T4 52
SEE NOTE 22
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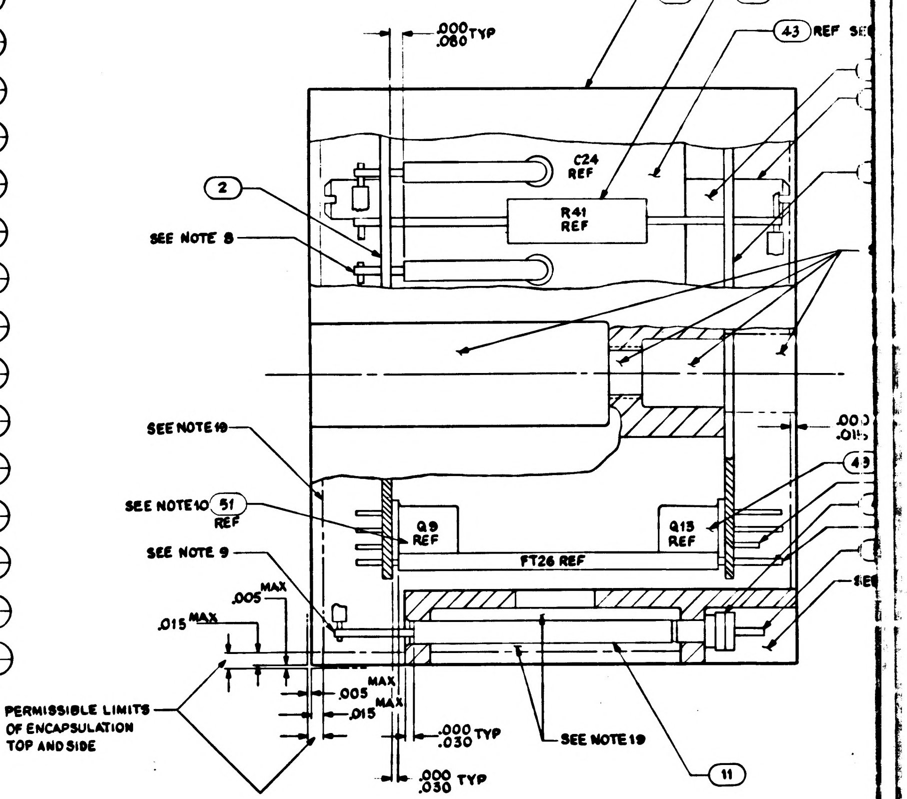
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SEE NOTE 10
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REF
SEE NOTE 9
Q9
REF
Q13
REF
FT26 REF
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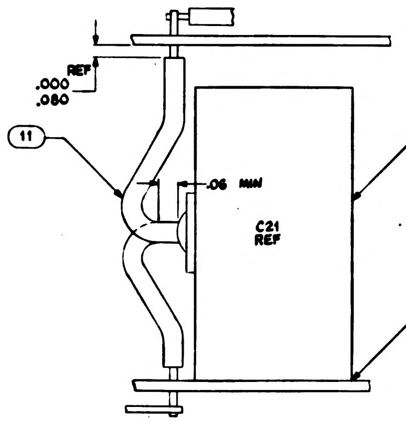
43
.005 MAX
.015 MAX
PERMISSIBLE LIMITS OF ENCAPSULATION TOP AND SIDE
.000
.030 TYP
SEE NOTE 19
.000
.030 TYP
11

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. K INDICATES CATHODE SIDE OF DIODE
5. (+) INDICATES POSITIVE SLIDE OF CAPACITOR
6. WELD PER ND 1002005
7. ASSEMBLE FIND NO. 4 AND FIND NO. 5 PER 1002136
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
9. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
10. BOND Q2, Q3, Q5, Q7, Q9, Q11, T1, T2, T3, T4, T5, T6, C1, C21, C24, AND C25 TO FIND NO. 2 PER ND 1002004 TYPE I
11. BOND Q1, Q4, Q6, Q8, Q10, Q12, AND Q13 TO FIND NO. 3 PER ND 1002004 TYPE I
12. BOND FIND NO. 3 TO FIND NO. 1 PER ND 1002004 TYPE I
13. MARK .100/.060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN.
14. MARK .140/.100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002123. CENTRALIZE AS SHOWN.
15. TYPICAL SLEEVING FOR R5, R46 THRU R50, R52, R53, AND CR1 THRU CR4.
16. TYPICAL ~~SLEEVING~~ DIMENSION FOR FT2 AND FT5
17. INDICATED AREAS TO BE FREE OF ENCAPSULATION
19. ENCAPSULATE MODULE PER ND 1002002, BLACK POLYURETHANE FOAM. REMOVE ALL FLASHING
20. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
21. COMPONENTS HAVING BUTT WELDED LEADS MUST BE POSITIONED SO RIBBON WELD OCCURS ON WELDABLE PORTION OF LEAD
22. TRIM UNUSED LEADS ON T1, T4, T5, AND T6 .03 MAX FROM BODY
23. ~~BOND FIND NO. 55 AND 56 TO FIND NO. 4 PER ND 1002237~~
24. MOUNTING TORQUE FOR FIND NO. 57 TO BE 15-20 INCH OUNCES
25. VENDOR ITEM - SEE SPECIFICATION CONTROL DRAWING
26. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
27. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND 1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
28. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL OF THE REQUIREMENTS OF PS 1007512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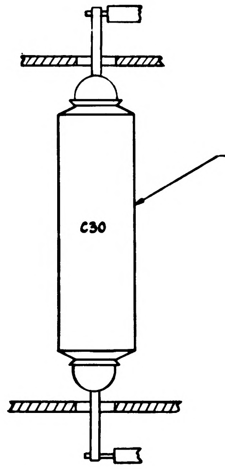
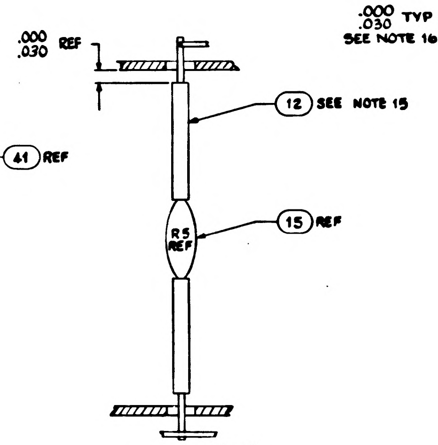
11
.06 MIN
C21
REF
42 REF
SEE NOTE 10

SECTION A-A



SECTION B-B
SEE NOTE 21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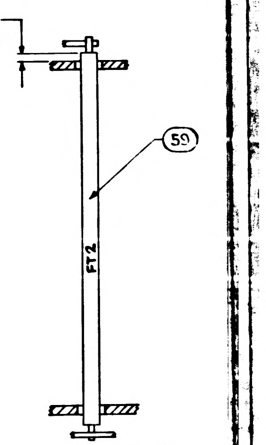
12 SEE NOTE 15
R5
REF
15 REF

SECTION C-C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SEE NOTE 16
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FT2

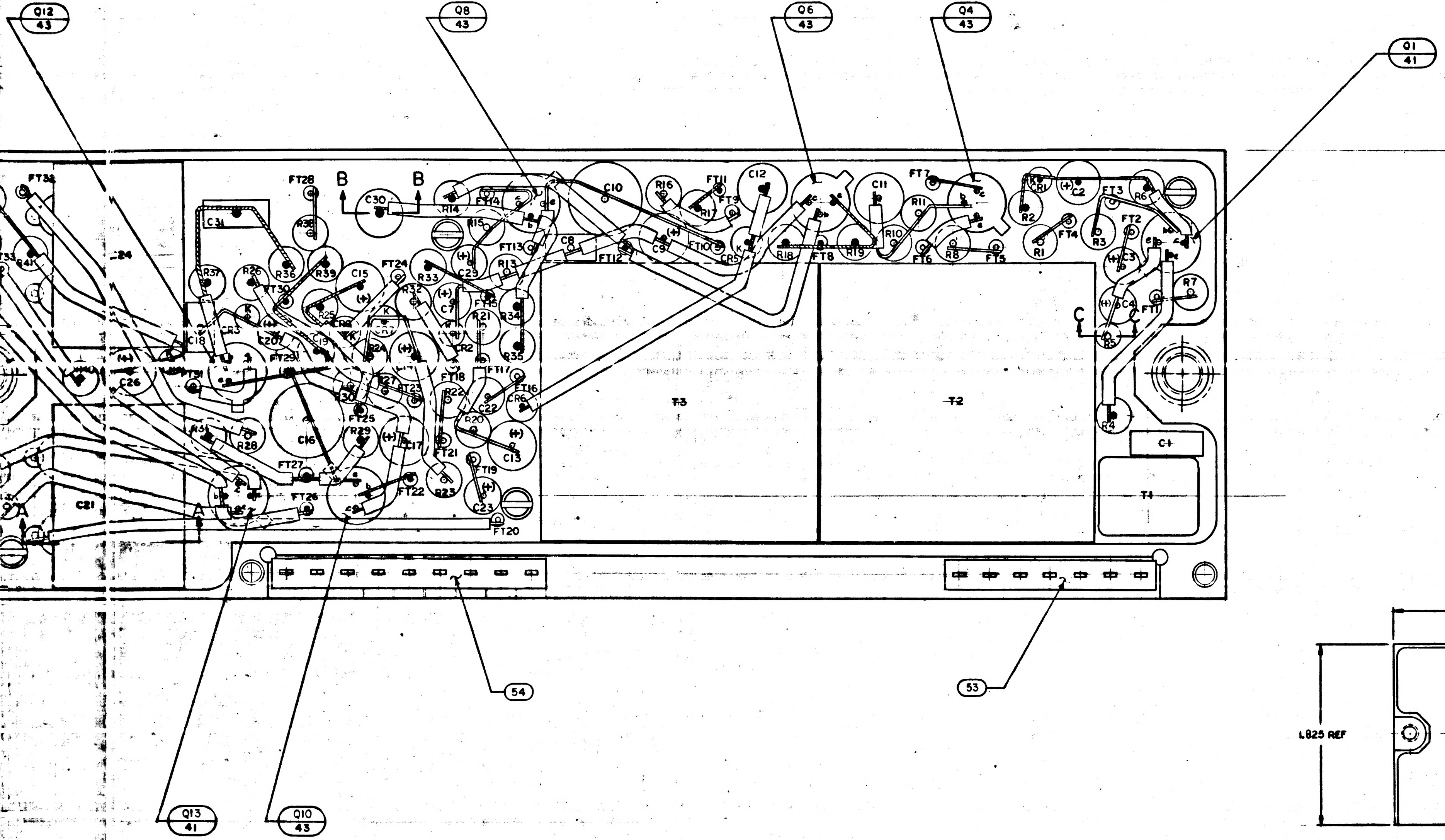
SECTION D-D

1007512	REV LTR -	SH 1

1007512

SYM	DESCRIPTION	DATE	APPROVAL

REVISIONS 14546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R19
R10
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R7
R6
R4
R3
R2
R1
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FT26
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FT21
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FT25
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FT2
FT4
FT5
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53
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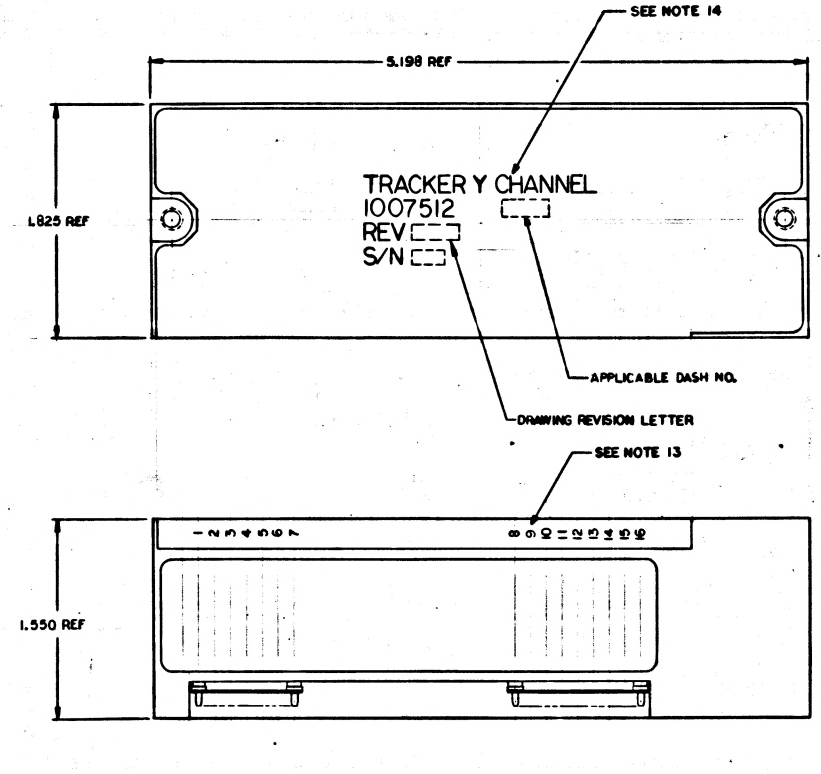
Q10 43


SEE NOTE 14
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TRACKER Y CHANNEL
1007512
REV
S/N
APPLICABLE DASH NO.
DRAWING REVISION LETTER
SEE NOTE 13
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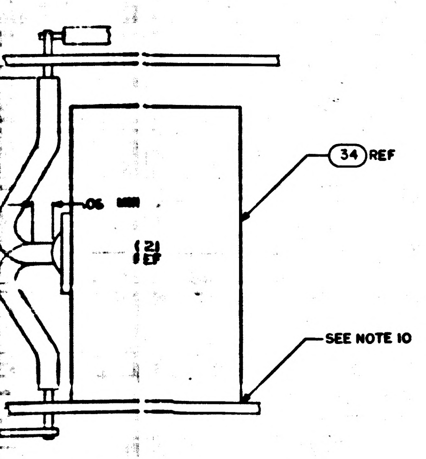
MARKING VIEW
SCALE 2/1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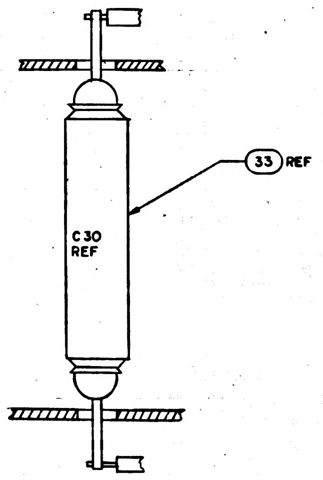
SEE NOTE 10

SECTION A-A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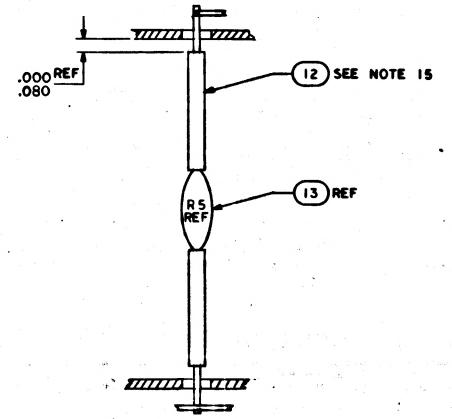
SECTION B-B
SEE NOTE 21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12 SEE NOTE 15
R5 REF
13 REF

SECTION C-C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	1009511	SCHEMATIC	REF
1	2008093	TERMINAL THREADED	55
1	1008540-9	GASKET CONNECTOR MINIATURE	54
1	1008540-7	GASKET, CONNECTOR, MINIATURE	53
1	1006755-57	CAPACITOR	52
1	1006755-61	CAPACITOR	51
1	1010317-7	CAPACITOR	50
1	1006793-	CAPACITOR	49
2	1010364-506	RESISTOR	48
1	1010364-492	RESISTOR	47
1	1012054	TRANSFORMER	46
1	1012053	TRANSFORMER	45
2	1010329	TRANSFORMER	44
9	1010397-1	TRANSISTOR	43
2	1010367	TRANSISTOR	42
2	1010342	TRANSISTOR	41
4	1010362-002	DIODE	40
4	1010286-12	DIODE	39
2	1010409-15	CAPACITOR	38
2	1010393-044	CAPACITOR	37
2	1010393-037	CAPACITOR	36
2	1010359-29	CAPACITOR	35
1	1010317-5	CAPACITOR	34
1	1010316-106	CAPACITOR	33
7	1006755-77	CAPACITOR	32
8	1006755-69	CAPACITOR	31
2	1010374-29	RESISTOR	30
2	1010374-1	RESISTOR	29
2	1010364-765	RESISTOR	28
1	1010364-428	RESISTOR	27
2	1010364-719	RESISTOR	26
1	1010364-683	RESISTOR	25
6	1010364-635	RESISTOR	24
1	1010364-604	RESISTOR	23
2	1010364-587	RESISTOR	22
2	1010364-580	RESISTOR	21
2	1010364-535	RESISTOR	20
2	1010364-518	RESISTOR	19
2	1010364-502	RESISTOR	18
1	1010364-443	RESISTOR	17
2	1010364-388	RESISTOR	16
6	1010364-251	RESISTOR	15
2	1010364-151	RESISTOR	14
2	1006750-51	RESISTOR	13
AR	1006776-21	INSULATION SLEEVING	12
AR	1006776-20	INSULATION SLEEVING	11
AR	1006757-1	WIRE,.010 X.020	10
AR	1006776-22	INSULATION SLEEVING	9
AR	1006757-8	WIRE,.020 DIA	8
4	1008161-3	SCREW,CAP SLOTTED HD	7
4	1015135-19	SPACER, NYLON	6
16	1006782-5	CONTACT, WRAPOST-MALE, MIN	5
16	1006775	INSULATOR, WRAPOST-MALE, MIN	4
1	1008513	WIRING BOARD BOTTOM	3
1	1008511	WIRING BOARD TOP	2
1	1008514	FRAME	1

011 LIST OF MATERIALS

1007585	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
REQ. NO. CONTRACT
DRAWN X.S.Tong DATE 7/7/64
CHECKED 15SEP64
APPROVAL 3 NOV 64
APPROVAL A.R. 11-9-64
NASA APPROVAL W.J. 12-1-64
MIT APPROVAL W Kupfer 1Dec64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRACKER Y CHANNEL
MODULE ASSY

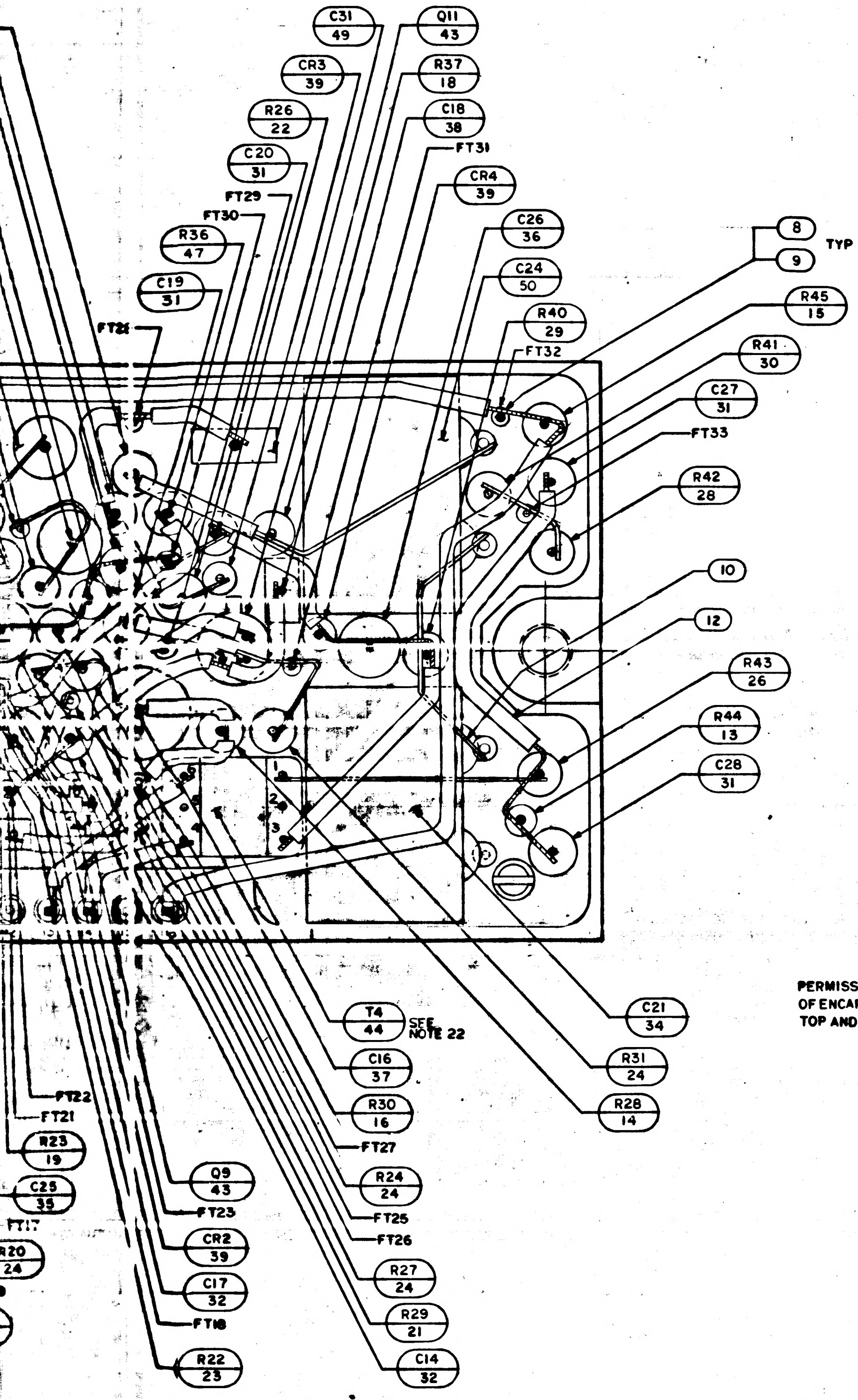
CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007512
SCALE 5/1 WT SHEET 1 OF 1

1007512

1007512

34

MASTER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C19 31
R40 29
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FT32
R45 18
8
9
TYP FOR FT1-FT33
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C27 31
FT33
R42 28
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R44 13
C28 31
T4 44 SEE NOTE 22
C16 37
C21 34
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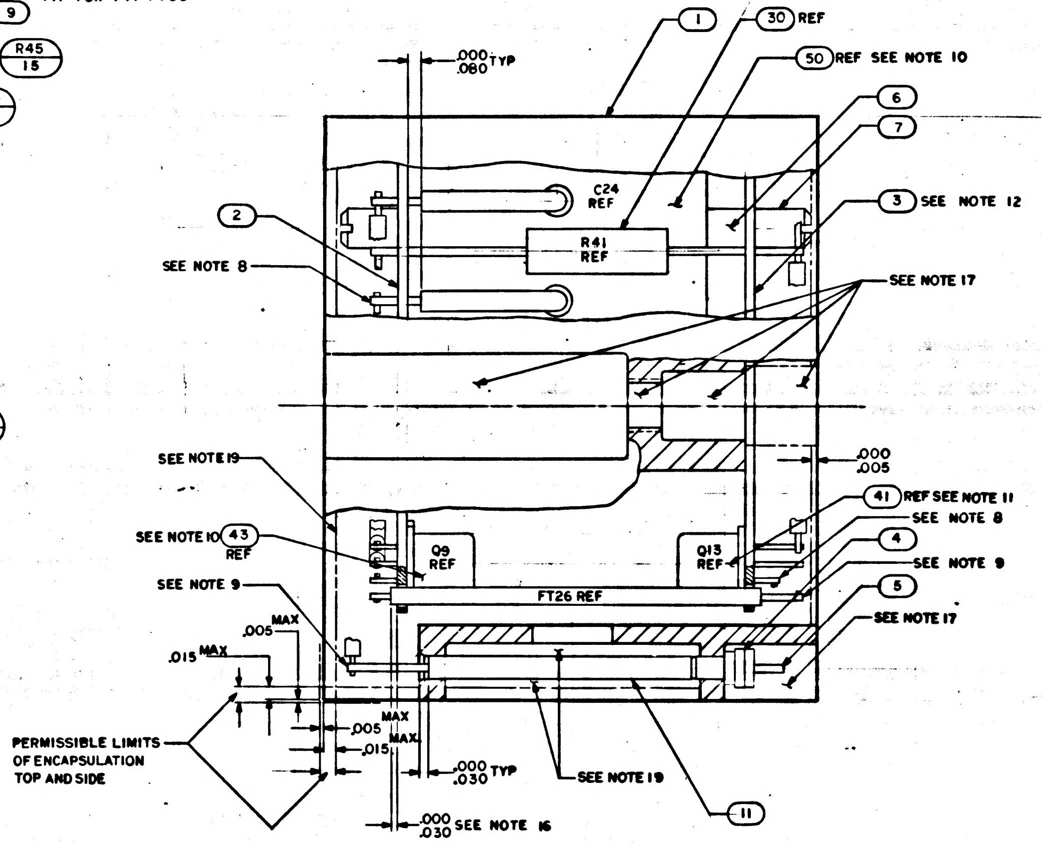
R22 23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SEE NOTE 8
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5
SEE NOTE 9
FT26 REF
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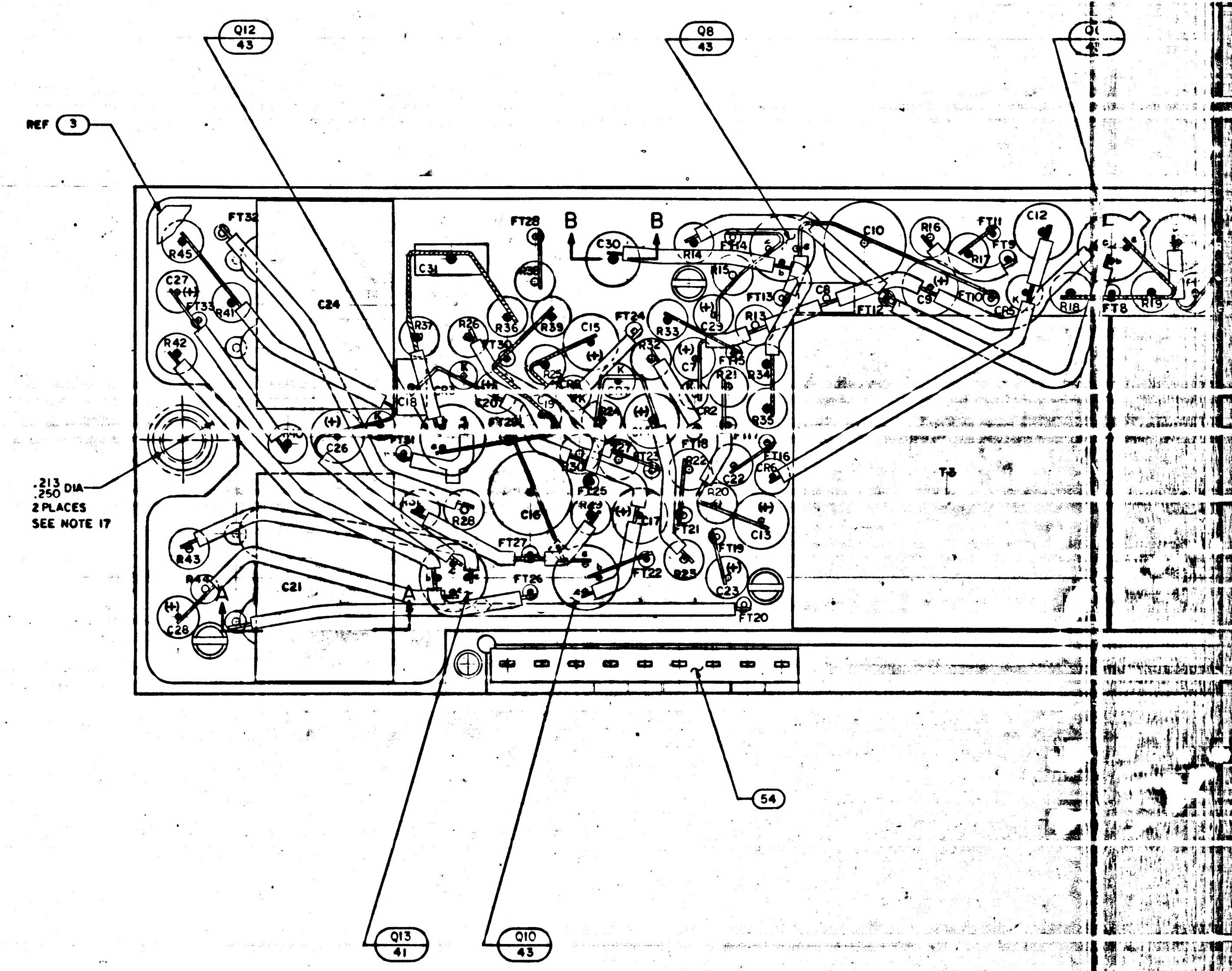
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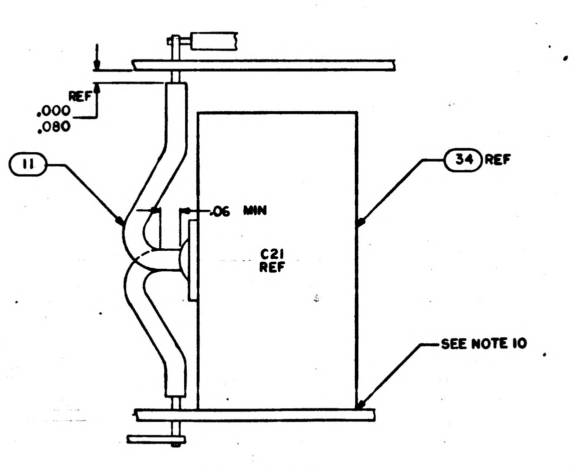
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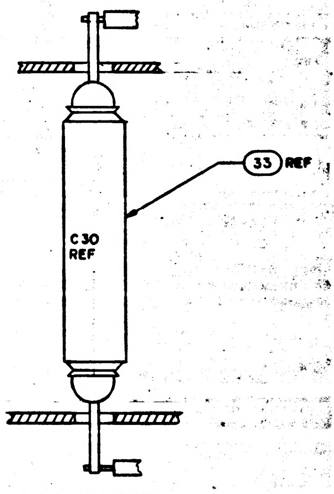
34 REF
SEE NOTE 10

SECTION A-A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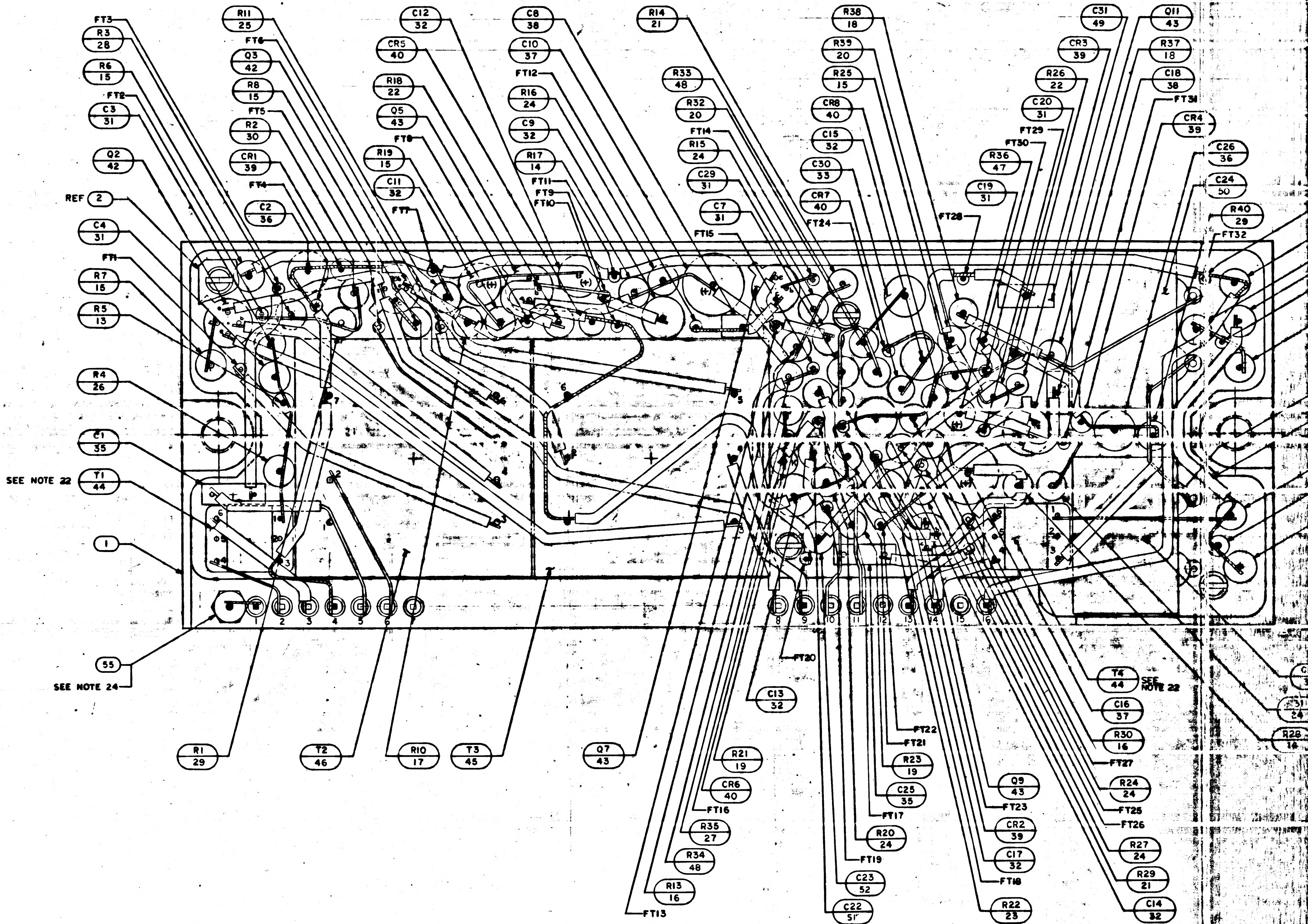
SECTION B-B
SEE NOTE 21

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

D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FT23
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C17 32
FT18
R22 23
T4 44
SEE NOTE 22
C16 37
R30 16
FT27
R24 24
FT25
FT26
R27 24
R29 21
C14 32

C

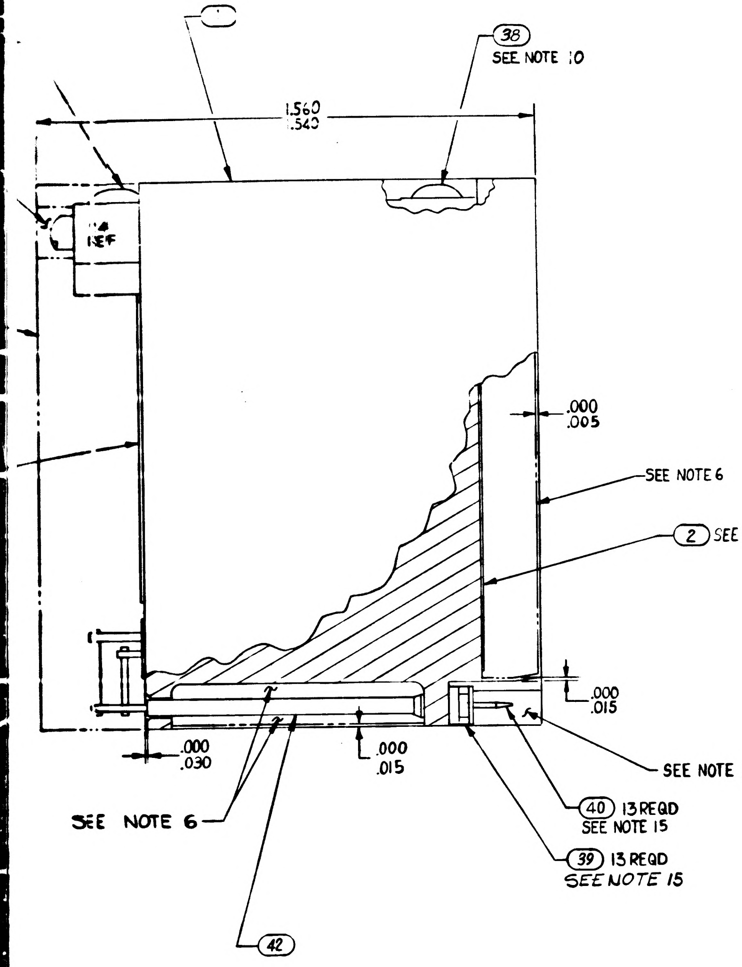
B

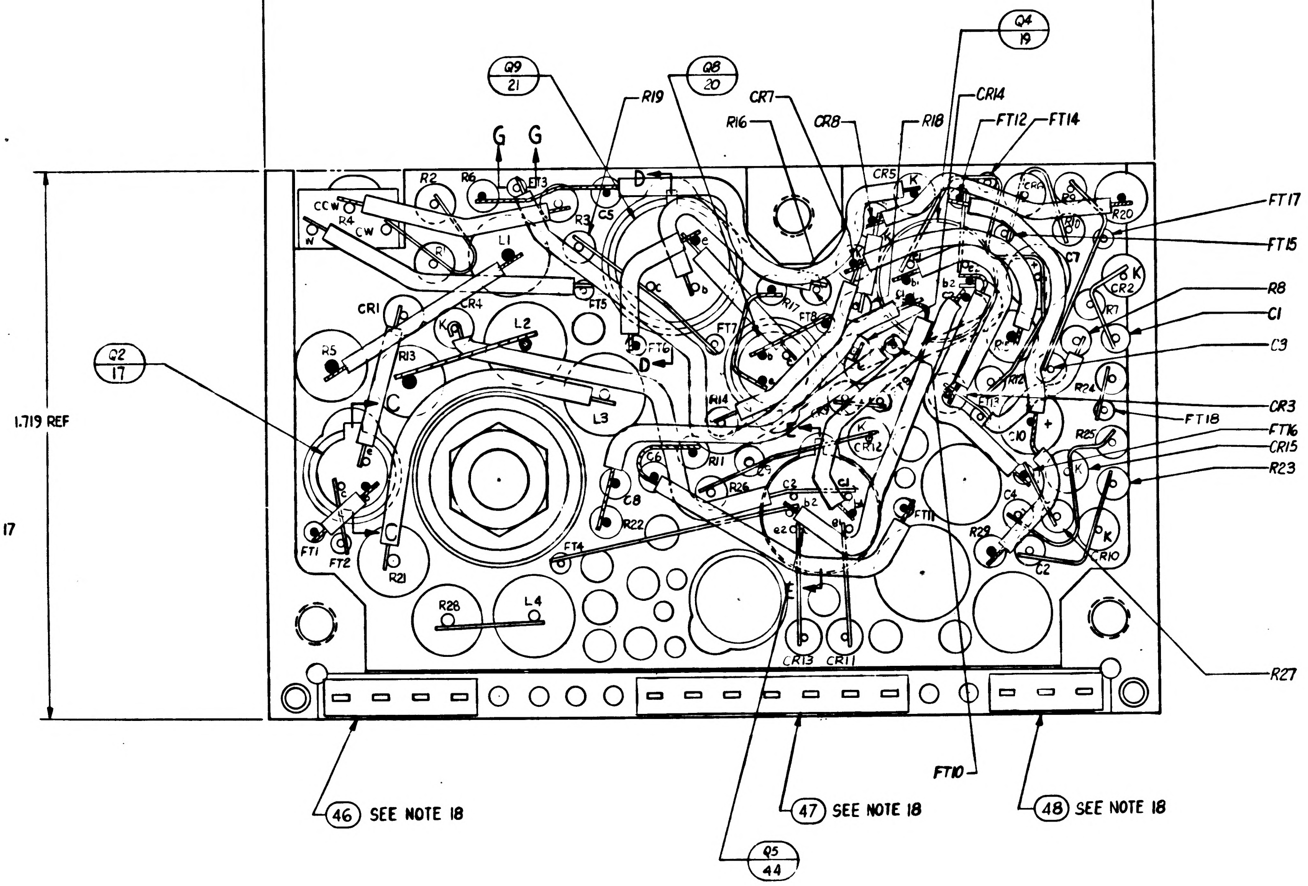
NOTES:

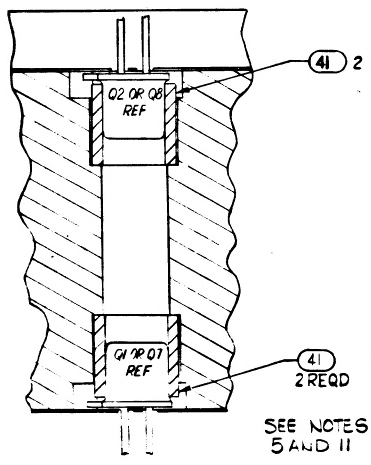
1. INTERPRET DRAWING IN ACCORDANCE WITH STANANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEEDTHRU
4. K INDICATES CATHODE SIDE OF DIODE
5. (+) INDICATES POSITIVE SIDE OF CAPACITOR
6. WELD PER ND 1002005
7. ASSEMBLE FIND NO.4 AND FIND NO.5 PER 1002136
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
9. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
10. BOND Q2, Q3, Q5, Q7, Q9, Q11, T1, T2, T3, T4, C1, C21, C24, AND C25 TO FIND NO.2 PER ND 1002004 TYPE I
11. BOND Q1, Q4, Q6, Q8, Q10, Q12 AND Q13 TO FIND NO 3 PER ND 1002004 TYPE I
12. BOND FIND NO.3 TO FIND NO.1 PER ND 1002004 TYPE I
13. MARK .100/.060 HIGH WHITE CHARACTERS PER ND 1002019. CENTRALIZE AS SHOWN.
14. MARK .140/.100 HIGH WHITE CHARACTERS PER ND 1002019 AND SERIALIZE PER ND 1002123. CENTRALIZE AS SHOWN.
15. TYPICAL SLEEVING FOR R5, R44, CR1, CR2, CR3, AND CR4
16. TYPICAL SLEEVING DIMENSION FOR FT2, FT5, FT8, AND FT27
17. INDICATED AREAS TO BE FREE OF ENCAPSULATION
18. COAT CASES OF Q2, Q5, Q6, Q7, AND Q8 PER ND 1002035 BEFORE ENCAPSULATION
19. ENCAPSULATE MODULE PER ND 1002002, BLACK POLYURETHANE FOAM. REMOVE ALL FLASHING
20. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
21. COMPONENTS HAVING BUTT WELDED LEADS MUST BE POSITIONED SO RIBBON WELD OCCURS ON WELDABLE PORTION OF LEAD
22. TRIM UNUSED LEADS ON T1 AND T4 .03 MAX FROM BODY
23. BOND FIND NO. 53 AND 54 TO FIND NO 4 PER ND 1002237
24. MOUNTING TORQUE FOR FIND NO. 55 TO BE 15-20 INCH OUNCES

A

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A1		Ⓐ1 REVISED PER TDRR 16635		25 FEB 65	RS

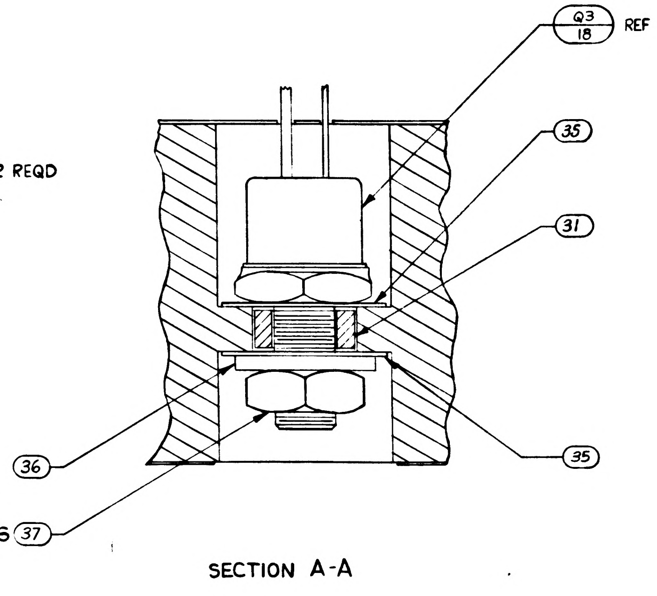

38
SEE NOTE 10
1.560
.540
REF
.000
.005
SEE NOTE 6
2 SEE NOTE 17
.000
.015
.000
.030
.000
.015
SEE NOTE 13
40 13 REQD
SEE NOTE 15
39 13 REQD
SEE NOTE 15
SEE NOTE 6
42


2.844 REF.
1.719 REF
Q9
21
Q8
20
Q4
19
Q2
17
Q5
44
G G
R19
CR7
R16
CR8
R18
CR14
FT12
FT14
FT17
FT15
R8
C1
C9
CR3
FT18
FT16
CR15
R23
R27
FT10
CR13
CR11
R2
R6
FT3
C5
R4
CW
CC
L1
CR1
CR4
L2
R5
R13
L3
R21
R28
L4
FT1
FT2
C8
R22
FT4
C6
R11
C3
C4
R29
C2
R10
R20
C7
CR2
R24
R25
R12
46 SEE NOTE 18
47 SEE NOTE 18
48 SEE NOTE 18

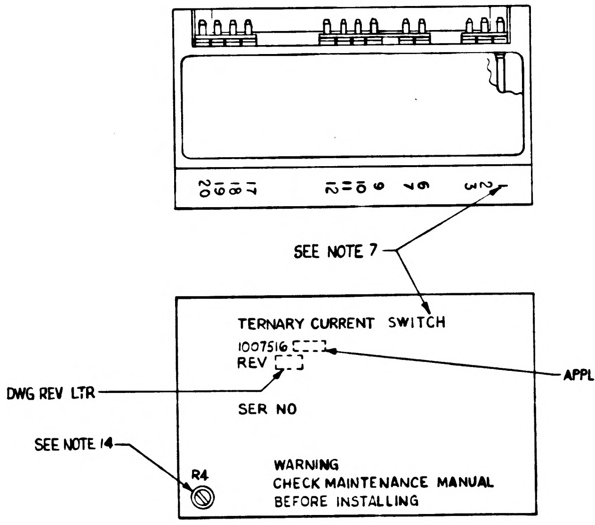

41 2 REQD
Q2 OR Q8
REF
Q1 OR Q7
REF
41
2 REQD
SEE NOTES
5 AND 11

SECTION C-C

TYPICAL INSTALLATION FOR
FIND NO. ②C & ⑰


Q3
18
REF
35
31
35
36
37

SECTION A-A


20 19 18 17
12 11 10 9
7 6
3 2
SEE NOTE 7
TERNARY CURRENT SWITCH
1007516
REV
APPLICABLE DASH NO
DWG REV LTR
SER NO
SEE NOTE 14
R4
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2:1

QUANTITY REQUIRED			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
			X		1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
			1		1010497	DIODE	49
			1		1008540-3	GASKET, CONNECTOR MINIATURE	48
			1		1008540-7	GASKET, CONNECTOR MINIATURE	47
			1		1008540-4	GASKET, CONNECTOR MINIATURE	46
			2		1006750-82	RESISTOR, FIXED MF, 120K 1/4W ±2%	45
			1		1010715-1	TRANSISTOR	44
			AR		1006776-22	INSULATION, SLEEVING	43
			AR		1006776-20	INSULATION, SLEEVING	42
			4		1008025-1	INSULATOR, BUSHING	41
			13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
			13		1006775	INSULATOR, WRAPOST MALE MINAT	39
			2		1000093-3	SCREW, BUTTON HEAD	38
			1		MS35650-104	NUT, PLAIN, HEX	37
			1		1008020-1	WASHER, FLAT	36
			2		1008024-1	WASHER, INSULATOR	35
			AR		1006787-2	WIRE, ELECTRICAL .020 DIA	34
			AR		1006757-1	WIRE, ELECTRICAL .010 X .020	33
			2		1008025-2	INSULATOR, BUSHING	32
			1		1008021-1	INSULATOR, BUSHING	31
			AR		1006776-21	INSULATION SLEEVING	30
			2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35V ±10%	29
			4		1006777-13	CAPACITOR, FIXED CER, 100 UUF 100V ±10%	28
			4		1006777-20	CAPACITOR, FIXED CER, 470 UUF 100V ±10%	27
			3		1010394	DIODE	26
			2		1010384	DIODE	25
			4		1010462-6	DIODE	24
			5		1010385	DIODE	23
			4		1010388-39	INDUCTOR, .01H 75MA ±5%	22
			2		1010386	TRANSISTOR	21
			2		1006752	TRANSISTOR	20
			2		1010376-4	TRANSISTOR	19
			1		1010269-3	TRANSISTOR	18
			2		1010357-1	TRANSISTOR	17
			2		1006760-56	RESISTOR, FIXED MF, 10K 1/2 W ±2%	16
			1		1006750-62	RESISTOR, FIXED MF, 18K 1/4 W ±2%	15
			2		1010369-148	RESISTOR, FIXED COMP. 20, 1/8 W ±5%	14
			2		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	13
			2		1006750-18	RESISTOR, FIXED MF, 270 1/4W ±2%	12
			4		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
			4		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ±2%	10
			2		1010369-87	RESISTOR, FIXED MF, 180K 1/8W ±5%	9
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	8
			1		1010373-10	RESISTOR, VARIABLE. 0K 1W ±5%	7
			1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±1%	6
			1		1010364-711	RESISTOR, FIXED MF, 100K 1/8W ±1%	5
			1		1010364-683	RESISTOR, FIXED MF, 170K 1/8W ±1%	4
			1		1008600	INSULATOR, TOP	3
			1		1008255	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1

LIST OF PARTS AND MATERIALS

1007516 A

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE WISCONSIN
ACSP PN
DRAWN C. Knuth DATE 20 Apr 64
CHECKED 25 AUG 64
J M BLYSHAK 3 DEC 64
APPROVAL 27 Aug 64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

CODE IDENT NO.
SIZE J2
1007516
SCALE 5:1
SHEET 1 OF 1

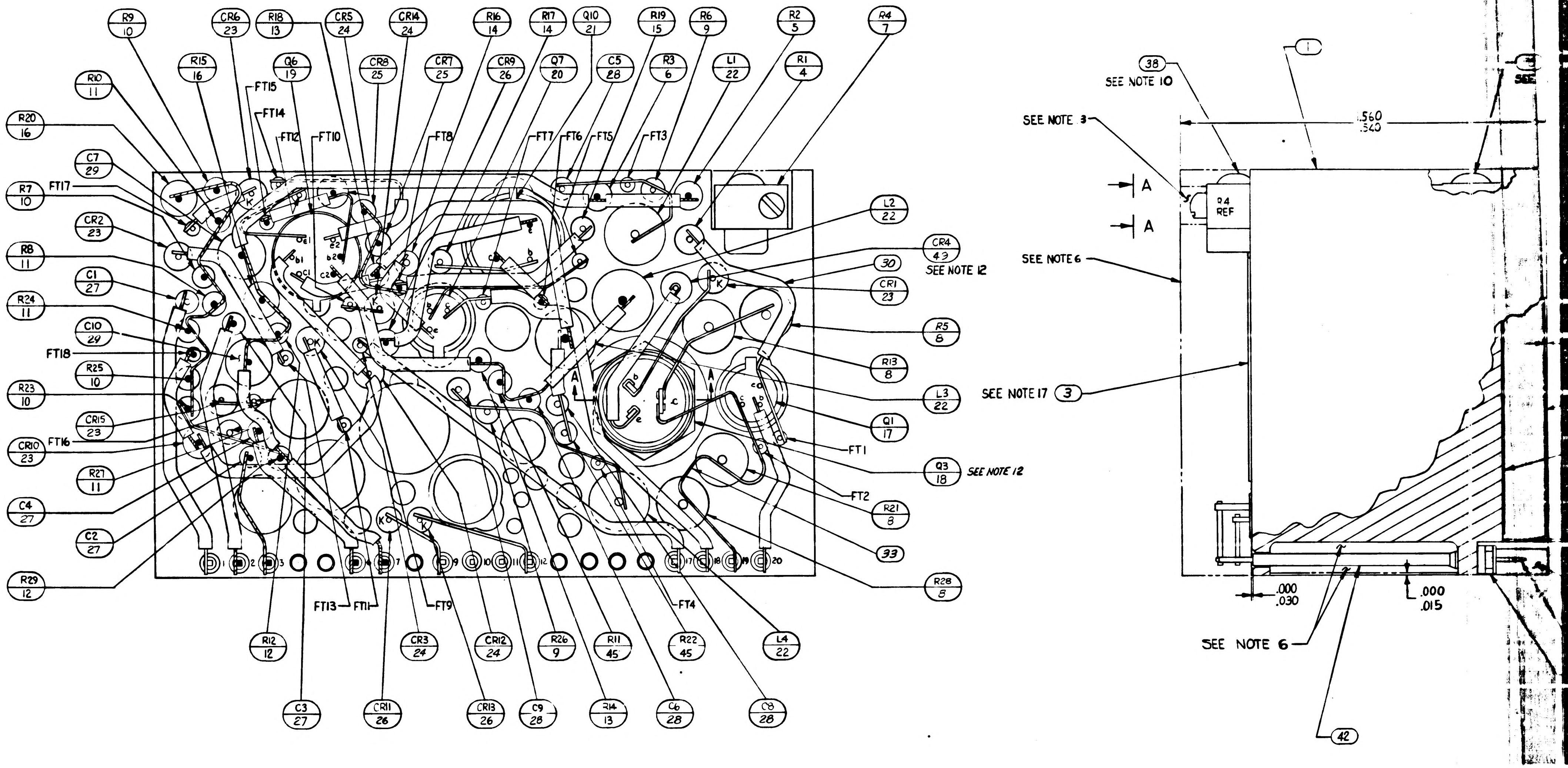
1007516	A

27 1007516

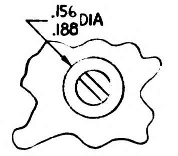
1007516

NOTES:

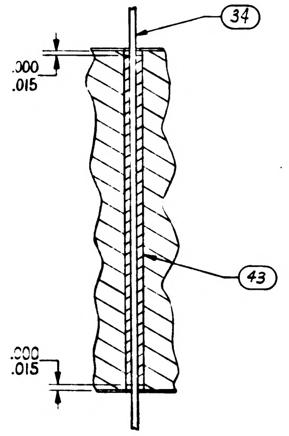
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO. 4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD C AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    BROKEN PATHS INDICATE INSULATION SLEEVING
    K INDICATES CATHODE SIDE OF DIODE
    FT( ) INDICATES FEED THRU
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    C INDICATES COLLECTOR LEAD OF TRANSISTOR
    B INDICATES BASE LEAD OF TRANSISTOR
    E INDICATES EMITTER LEAD OF TRANSISTOR
    C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.



R9 10
CR6 23
R18 13
CR5 24
CR14 24
R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
R4 7
R10 11
R15 16
Q6 19
CR8 25
CR7 25
CR9 26
Q7 20
C5 28
R3 6
L1 22
R1 4
R20 16
C7 29
R7 10
FT17
CR2 23
R8 11
C1 27
R24 11
C10 29
FT18
R25 10
R23 10
CR15 23
FT16
CR10 23
R27 11
C4 27
C2 27
R29 12
FT15
FT14
FT12
FT10
FT8
FT7
FT6
FT5
FT3
e1
e2
b1
b2
c1
c2
K
A
L2 22
CR4 43
SEE NOTE 12
30
CR1 23
R5 8
R13 8
L3 22
Q1 17
FT1
Q3 18
SEE NOTE 12
FT2
R21 8
33
R28 8
1
2
3
7
9
10
11
12
17
18
19
20
FT13
FT11
FT9
FT4
R12 12
CR3 24
CR12 24
R26 9
R11 45
R22 45
L4 22
C3 27
CR11 26
CR13 26
C9 28
R14 13
C6 28
C8 28
38
SEE NOTE 10
1
SEE NOTE 3
.560
.540
A
A
R4 REF
SEE NOTE 6
SEE NOTE 17
3
.000
.030
.000
.015
SEE NOTE 6
42

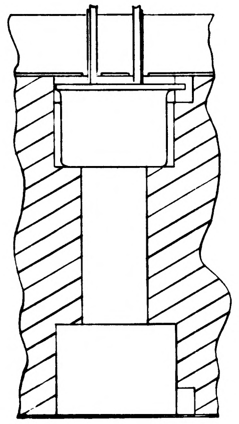


VIEW A-A



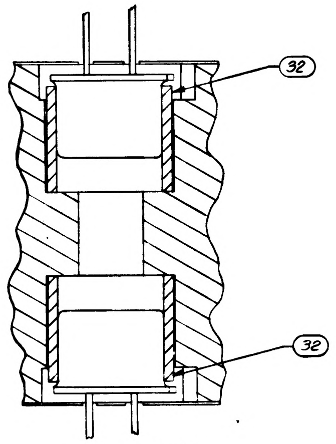
34
.000
.015
43
.000
.015

SECTION G-G

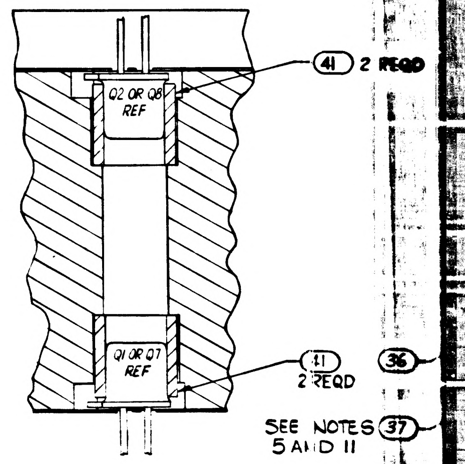


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO. (19)



SECTION D-D



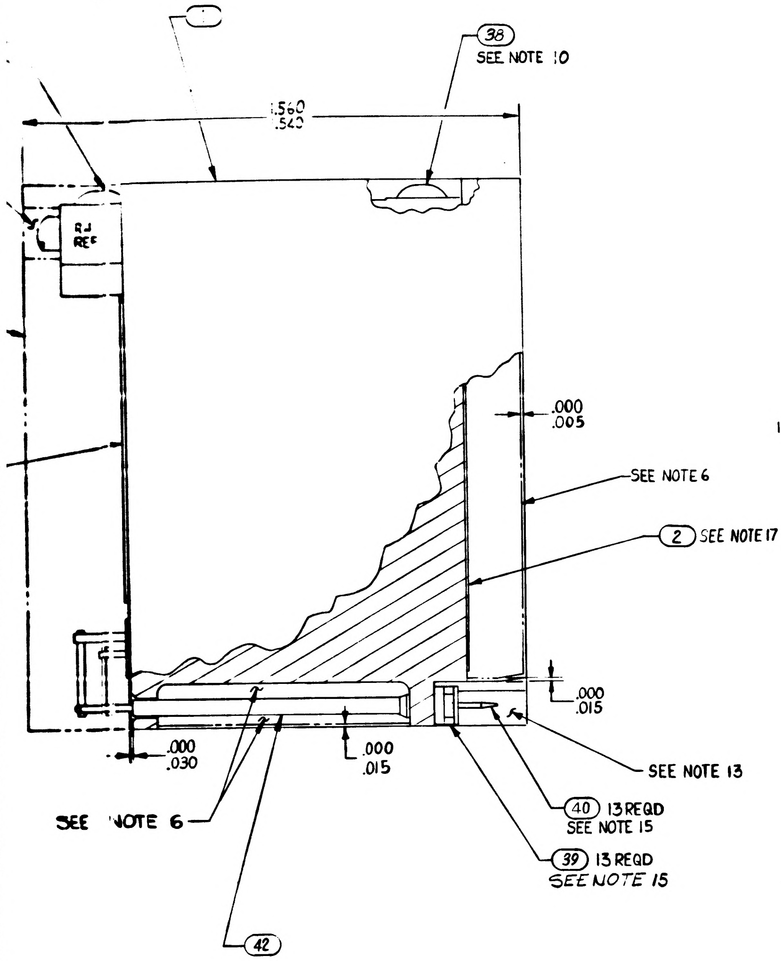
41
2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
41
2 REQD
36
SEE NOTES 37
5 AND 11

SECTION C-C

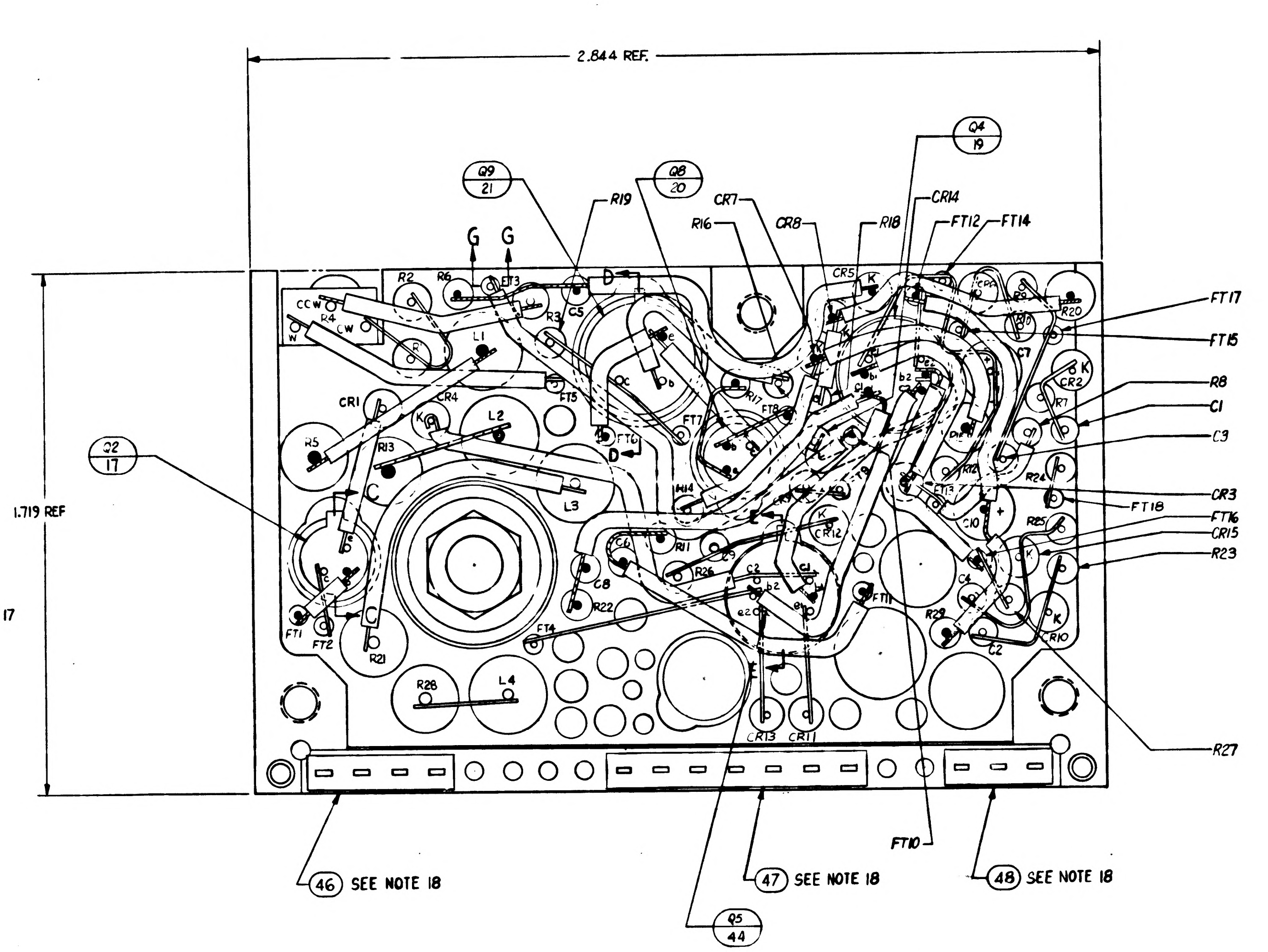
TYPICAL INSTALLATION FOR FIND NO. (20) & (17)

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A1		(A1) REVISED PER TDRR 16635		25-FEB-65	RS
B	—	REVISED PER TDRR 16854	—	4-MAR-65	B

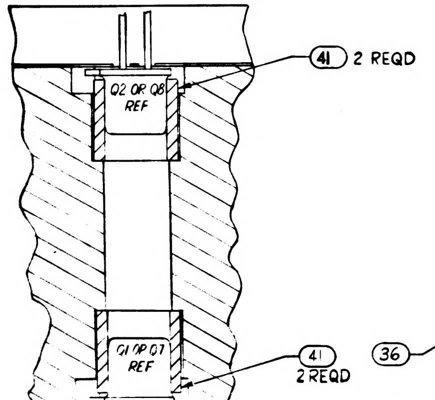
(M)



38
SEE NOTE 10
1.560
1.520
RJ REF
.000
.005
SEE NOTE 6
2 SEE NOTE 17
.000
.015
.000
.030
.000
.015
SEE NOTE 13
40 13 REQD SEE NOTE 15
39 13 REQD SEE NOTE 15
SEE NOTE 6
42



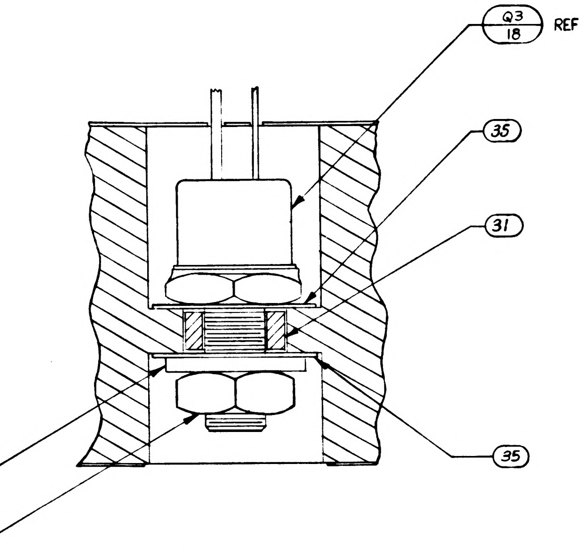
2.844 REF.
1.719 REF
Q9 21
Q8 20
Q4 19
Q2 17
Q5 44
R19
CR7
R16
CR8
R18
CR14
FT12
FT14
FT17
FT15
R8
C1
C3
CR3
FT18
FT16
CR15
R23
R27
FT10
CR13
CR11
G
G
D
D
E
C
CCW
CW
R2
R6
R4
L1
L2
L3
L4
CR1
CR4
R5
R13
R21
R22
R26
R28
C5
C8
FT1
FT2
FT4
FT5
FT11
R20
R24
R25
R29
R10
C2
C4
C7
CR2
CR5
K
46 SEE NOTE 18
47 SEE NOTE 18
48 SEE NOTE 18



41 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
41 2 REQD

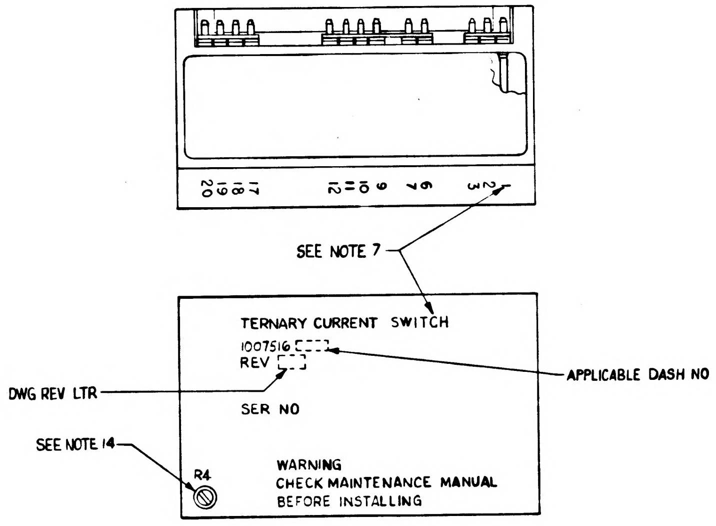
SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. (20) & (17)



Q3 18 REF
35
31
35
36
SEE NOTES 5 AND 11 37

SECTION A-A



20 19 18 17
12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 7
TERNARY CURRENT SWITCH
1007516-
REV
SER NO
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING
R4
DWG REV LTR
APPLICABLE DASH NO
SEE NOTE 14

MARKING VIEW
SCALE 2:1

			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
			☒		1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
			4		1010833-001	DIODE	50
			1		1010497	DIODE	49
			1		1008540-3	GASKET, CONNECTOR MINIATURE	48
			1		1008540-7	GASKET, CONNECTOR MINIATURE	47
			1		1008540-4	GASKET, CONNECTOR MINIATURE	46
			2		1006750-82	RESISTOR, FIXED MF, 120K 1/4W ±2%	45
			1		1010715-1	TRANSISTOR	44
			AR		1006776-22	INSULATION, SLEEVING	43
			AR		1006776-20	INSULATION, SLEEVING	42
			4		1008025-1	INSULATOR, BUSHING	41
			13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
			13		1006775	INSULATOR, WRAPOST MALE MINAT	39
			2		1000093-3	SCREW, BUTTON HEAD	38
			1		MS35650-104	NUT, PLAIN, HEX	37
			1		1008020-1	WASHER, FLAT	36
			2		1008024-1	WASHER, INSULATOR	35
			AR		1006787-2	WIRE, ELECTRICAL .020 DIA	34
			AR		1006757-1	WIRE, ELECTRICAL .010 X .020	33
			2		1008025-2	INSULATOR, BUSHING	32
			1		1008021-1	INSULATOR, BUSHING	31
			AR		1006776-21	INSULATION SLEEVING	30
			2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35 V ± 10%	29
			4		1006777-13	CAPACITOR, FIXED CER, 100 UUF 100 V ± 10%	28
			4		1006777-20	CAPACITOR, FIXED CER, 470 UUF 100 V ± 10%	27
			3		1010394	DIODE	26
			2		1010384	DIODE	25
			~~4~~		~~1010462-6~~	~~DIODE~~	~~24~~
			5		1010385	DIODE	23
			4		1010388-39	INDUCTOR, .01H 75MA ± 5%	22
			2		1010386	TRANSISTOR	21
			2		1006752	TRANSISTOR	20
			2		1010376-4	TRANSISTOR	19
			1		1010269-3	TRANSISTOR	18
			2		1010357-1	TRANSISTOR	17
			2		1006760-56	RESISTOR, FIXED MF, 10K 1/2 W ± 2%	16
			1		1006750-62	RESISTOR, FIXED MF, 18K 1/4 W ± 2%	15
			2		1010369-148	RESISTOR, FIXED COMP 20, 1/8 W ±5%	14
			2		1006750-15	RESISTOR, FIXED MF, 200 1/4W ± 2%	13
			2		1006750-18	RESISTOR, FIXED MF, 270 1/4 W ± 2%	12
			4		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ± 2%	11
			4		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ± 2%	10
			2		1010369-87	RESISTOR, FIXED MF, 180K 1/8W ±5%	9
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ± 1%	8
			1		1010373-10	RESISTOR, VARIABLE, 10K 1W ±5%	7
			1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±	6
			1		1010364-711	RESISTOR, FIXED MF, 100K 1/8W ±	5
			1		1010364-683	RESISTOR, FIXED MF, 170K 1/8W ±	4
			1		1008600	INSULATOR, TOP	3
			1		1008255	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1

QUANTITY REQUIRED
LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS + — − — DECIMALS + — − — ANGLES + — − —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN C. Knoth DATE 20 Jul 64
CHECKED 25 Aug 64
J M ELYSHAK 3 DEC 64
APPROVAL 27 Aug 64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

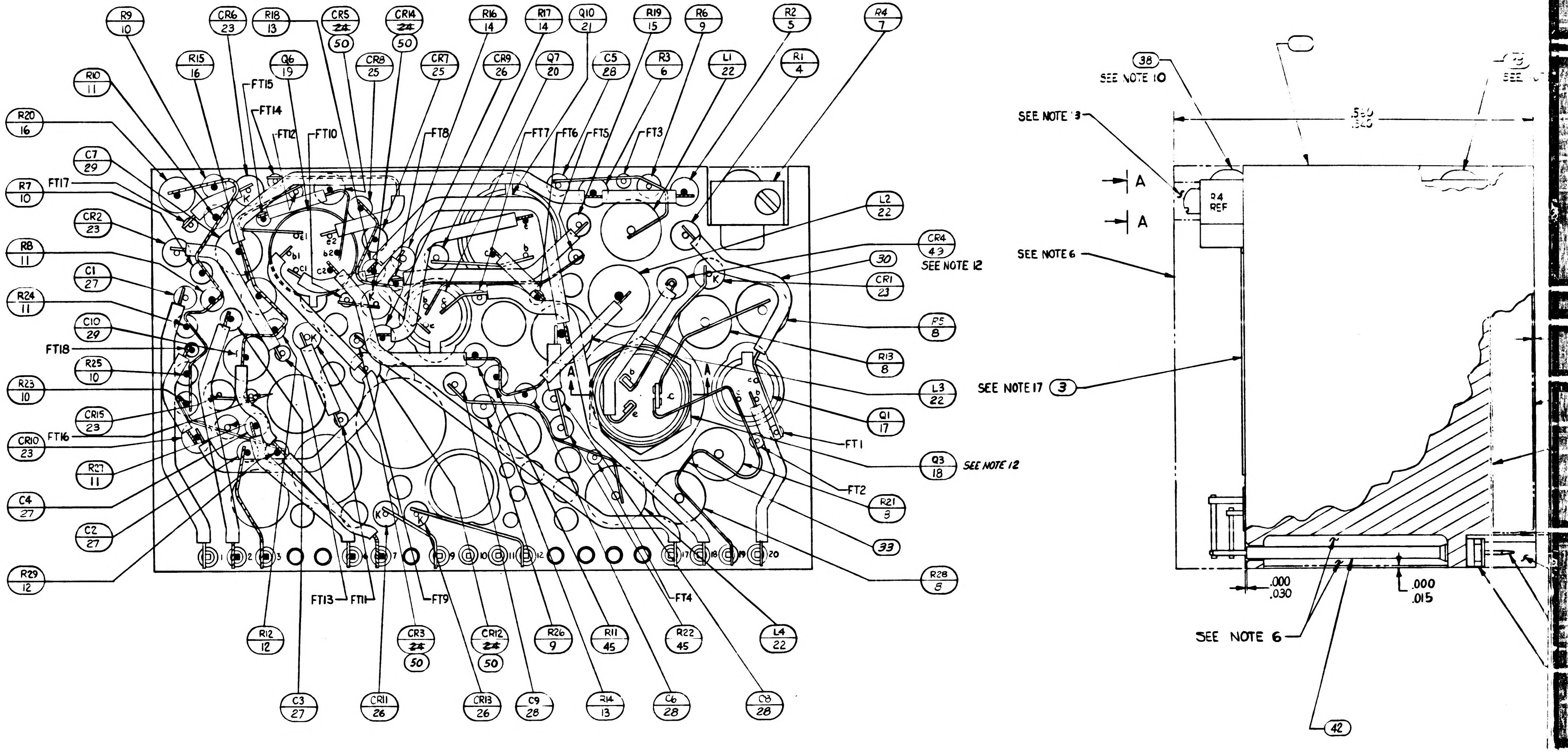
CODE IDENT NO.
SIZE J2
1007516
SCALE 5:1
SHEET 1 OF 1

1007516

27 1007516

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK P.N. NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO. 4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD C AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    BROKEN PATHS INDICATE INSULATION SLEEVING
    K INDICATES CATHODE SIDE OF DIODE
    FT( ) INDICATES FEED THRU
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    C INDICATES COLLECTOR LEAD OF TRANSISTOR
    B INDICATES BASE LEAD OF TRANSISTOR
    E INDICATES EMITTER LEAD OF TRANSISTOR
    C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.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R18 13
CR5 24 50
CR14 24 50
R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
R4 7
R15 16
Q6 19
CR8 25
CR7 25
CR9 26
Q7 20
C5 28
R3 6
L1 22
R1 4
R10 11
R20 16
C7 29
R7 10
CR2 23
R8 11
C1 27
R24 11
C10 29
R25 10
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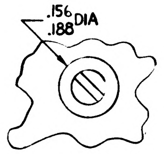
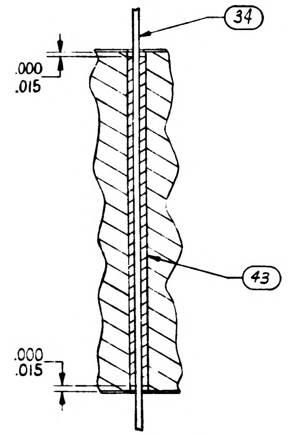
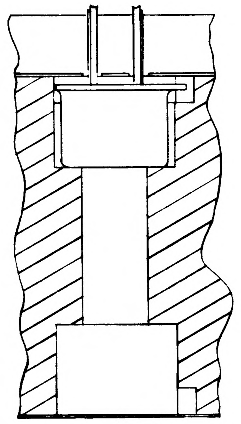
CR15 23
CR10 23
R27 11
C4 27
C2 27
R29 12
FT1
FT2
FT3
FT4
FT5
FT6
FT7
FT8
FT9
FT10
FT11
FT12
FT13
FT14
FT15
FT16
FT17
FT18
L2 22
CR4 43 SEE NOTE 12
30
CR1 23
R5 8
R13 8
L3 22
Q1 17
Q3 18 SEE NOTE 12
R21 3
33
R28 8
L4 22
R22 45
R11 45
R26 9
CR12 24 50
CR3 24 50
R12 12
C3 27
CR11 26
CR13 26
C9 28
R14 13
C6 28
C8 28
K
38 SEE NOTE 10
SEE NOTE 3
SEE NOTE 6
SEE NOTE 17 3
A
A
R4 REF
.560 .540
.000 .030
.000 .015
SEE NOTE 6
42



VIEW A-A

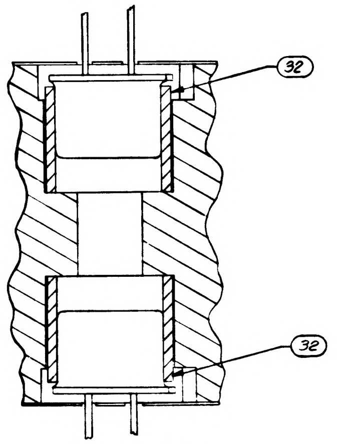

34
.000 .015
43
.000 .015

SECTION G-G

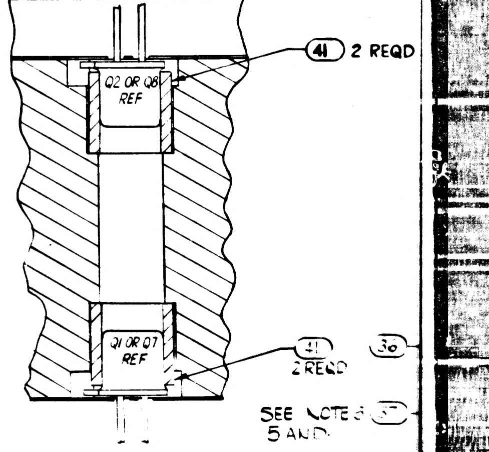


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO (19)



SECTION D-D

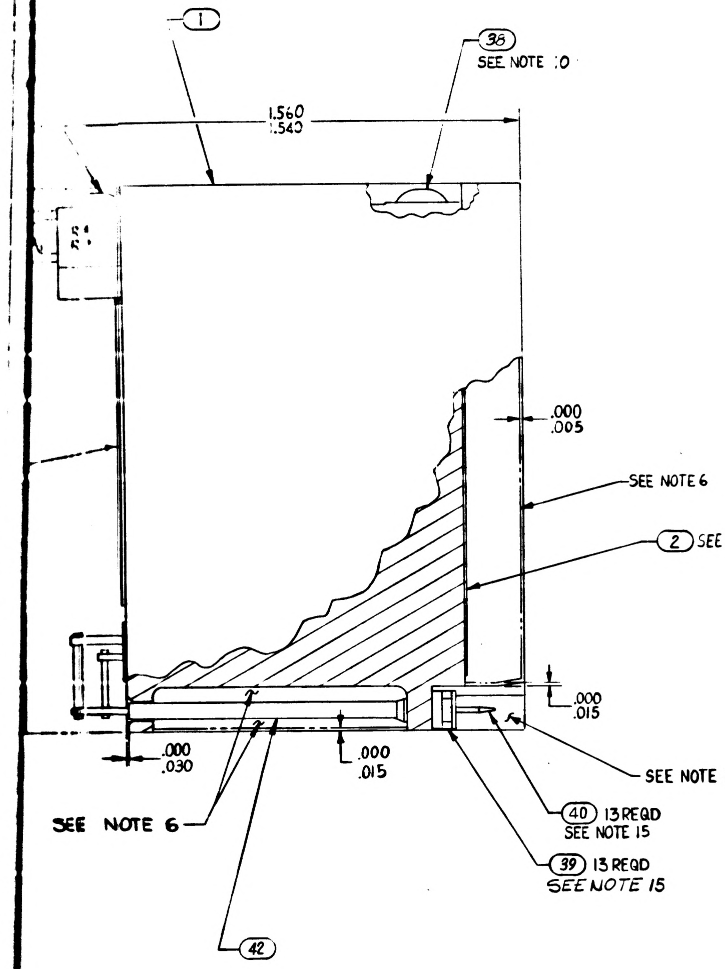

41 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
31 2 REQD
36
SEE NOTE 5 AND

SECTION C-C

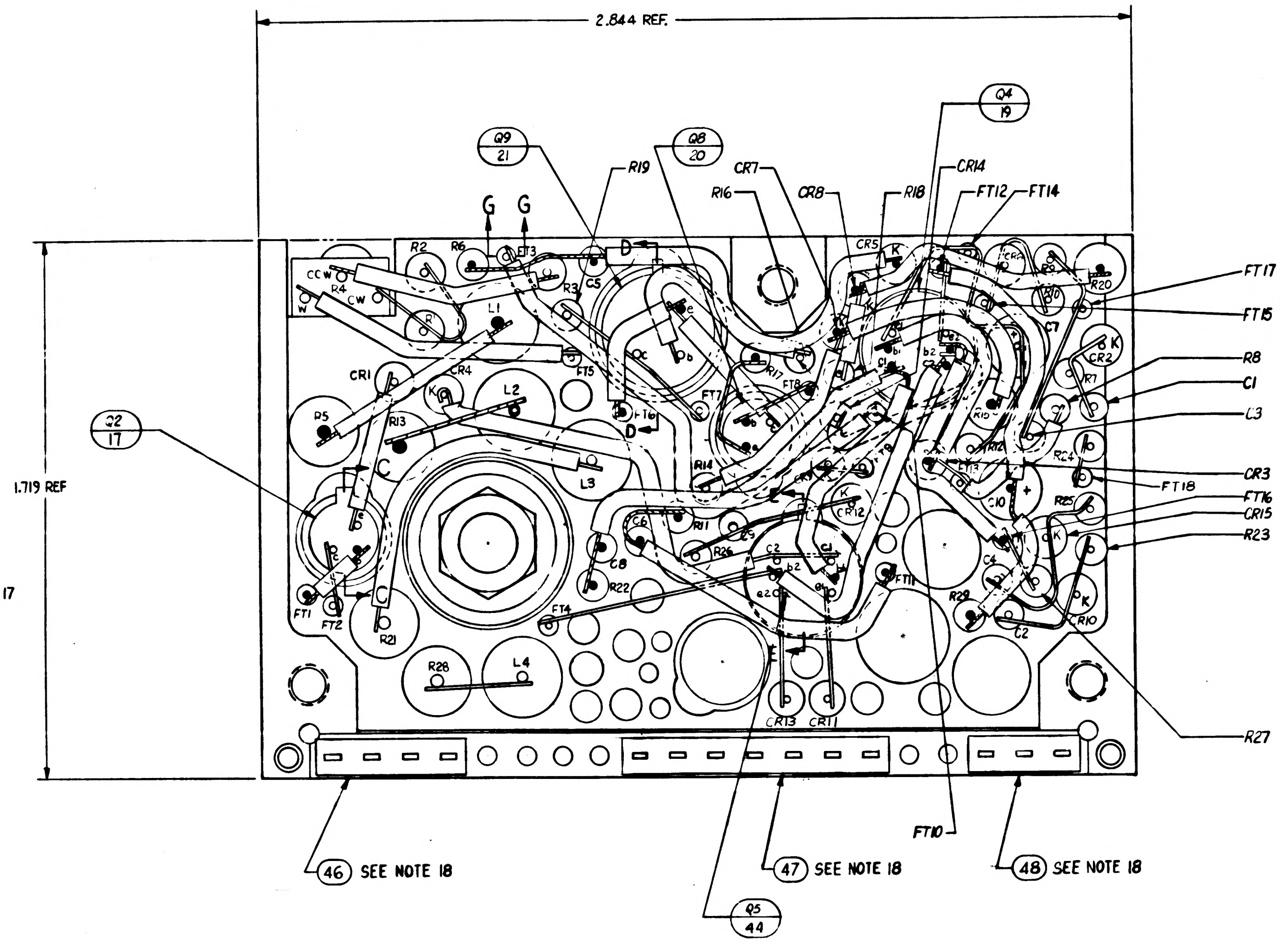
TYPICAL INSTALLATION FOR FIND NO. (20) & (17)

1007516

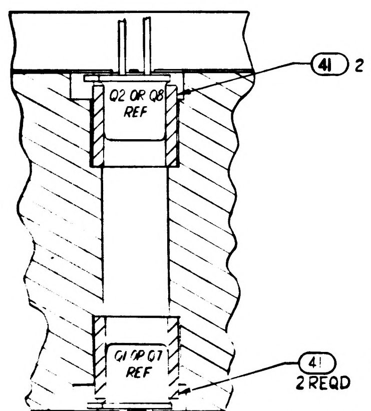
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A1		(A1) REVISED PER TDRR 16635		25-FEB-65	KS
B	—	REVISED PER TDRR 16854	—	4-MAR-65	B
C		REVISED PER TDRR 1730		2 MAR 65	



1
38
SEE NOTE 10
1.560
1.540
.000
.005
SEE NOTE 6
2 SEE NOTE 17
.000
.015
SEE NOTE 13
.000
.030
.000
.015
SEE NOTE 6
40 13 REQD
SEE NOTE 15
39 13 REQD
SEE NOTE 15
42



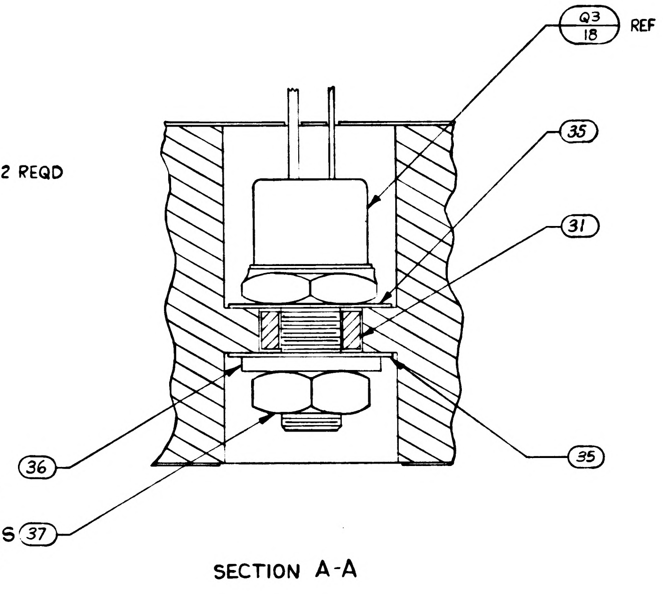
2.844 REF.
1.719 REF
Q9
21
Q8
20
Q4
19
Q2
17
Q5
44
R19
CR7
R16
CR8
R18
CR14
FT12
FT14
FT17
FT15
R8
C1
L3
CR3
FT18
FT16
CR15
R23
R27
FT10
G
G
D
R2
R6
FT3
C5
L1
CR1
R4
L2
R5
R13
C
L3
R14
R11
R26
C2
C8
R22
FT4
FT1
FT2
R21
R28
L4
CR13
CR11
FT11
R29
C4
C2
CR10
CR5
C7
R20
CR2
R25
C10
CR12
46 SEE NOTE 18
47 SEE NOTE 18
48 SEE NOTE 18



41 2 REQD
Q2 OR Q8 REF
Q4 OR Q7 REF
41
2 REQD

SECTION C-C

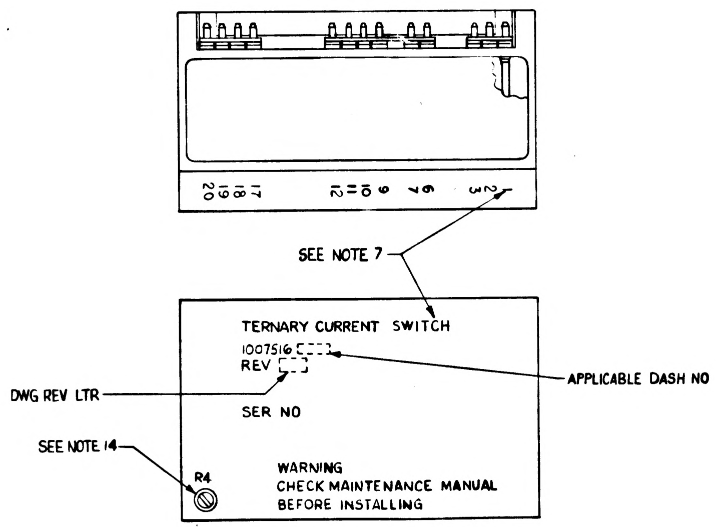
TYPICAL INSTALLATION FOR FIND NO. (20) & (17)



Q3
18
REF
35
31
36
37
35

SEE NOTES 5 AND 11

SECTION A-A



20 19 18 17
12 11 10 9
7 6
3 2
SEE NOTE 7
APPLICABLE DASH NO
DWG REV LTR
SEE NOTE 14
R4

TERNARY CURRENT SWITCH
1007516-
REV
SER NO
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2:1

			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
			☒		1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
			4		1010833-001	DIODE	50
			1		1010497	DIODE	49
			1		1008540-3	GASKET, CONNECTOR MINIATURE	48
			1		1008540-7	GASKET, CONNECTOR MINIATURE	47
			1		1008540-4	GASKET, CONNECTOR MINIATURE	46
			2		1006750-82	RESISTOR, FIXED MF, 120K 1/4W ±2%	45
			1		1010715-1	TRANSISTOR	44
			AR		1006776-22	INSULATION, SLEEVING	43
			AR		1006776-20	INSULATION, SLEEVING	42
			4		1008025-1	INSULATOR, BUSHING	41
			13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
			13		1006775	INSULATOR, WRAPOST MALE MINAT	39
			2		1000093-3	SCREW, BUTTON HEAD	38
			1		MS35650-104	NUT, PLAIN, HEX	37
			1		1008020-1	WASHER, FLAT	36
			2		1008024-1	WASHER, INSULATOR	35
			AR		1006767-2	WIRE, ELECTRICAL .020 DIA	34
			AR		1006757-1	WIRE, ELECTRICAL .010 X .020	33
			2		1008025-2	INSULATOR, BUSHING	32
			1		1008021-1	INSULATOR, BUSHING	31
			AR		1006776-21	INSULATION SLEEVING	30
			2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35 V ±10%	29
			4		1006777-13	CAPACITOR, FIXED CER, 100 UUF 100V ±10%	28
			4		1006777-20	CAPACITOR, FIXED CER, 470 UUF 100 V ±10%	27
			3		1010394	DIODE	26
			2		1010384	DIODE	25
			~~4~~		~~1010462-6~~	~~DIODE~~	~~24~~
			5		1010385	DIODE	23
			4		1010388-39	INDUCTOR, .01H 75MA ±5%	22
			2		1010386	TRANSISTOR	21
			2		1006752	TRANSISTOR	20
			2		1010376-4	TRANSISTOR	19
			1		1010269-3	TRANSISTOR	18
			2		1010357-1	TRANSISTOR	17
			2		1006760-56	RESISTOR, FIXED MF, 10K 1/2 W ±2%	16
			1		1006750-62	RESISTOR, FIXED MF, 18K 1/4 W ±2%	15
			2		1010369-148	RESISTOR, FIXED COMP 20, 1/8 W ±5%	14
			2		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	13
			2		1006750-18	RESISTOR, FIXED MF, 270 1/4W ±2%	12
			4		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
			4		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ±2%	10
			2		1010369-87	RESISTOR, FIXED MF, 180K 1/8W ±5%	9
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	8
			1		1010373-10	RESISTOR, VARIABLE, 10K 1W ±5%	7
			1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±1%	6
			1		1010364-711	RESISTOR, FIXED MF, 100K 1/8W ±1%	5
			1		1010364-683	RESISTOR, FIXED MF, 178K 1/8W ±1%	4
			1		1008600	INSULATOR, TOP	3
			1		1008255	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN C. Knych DATE 20 Apr 64
CHECKED 25 Aug 64
J M BAYSHAK 3 DEC 64
APPROVAL 27 Aug 64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

CODE IDENT NO.
SIZE J2
1007516
SCALE 5:1
SHEET 1 OF 1

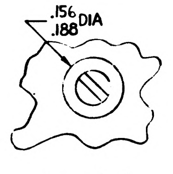
1007516 C

1007516 REV LTR C

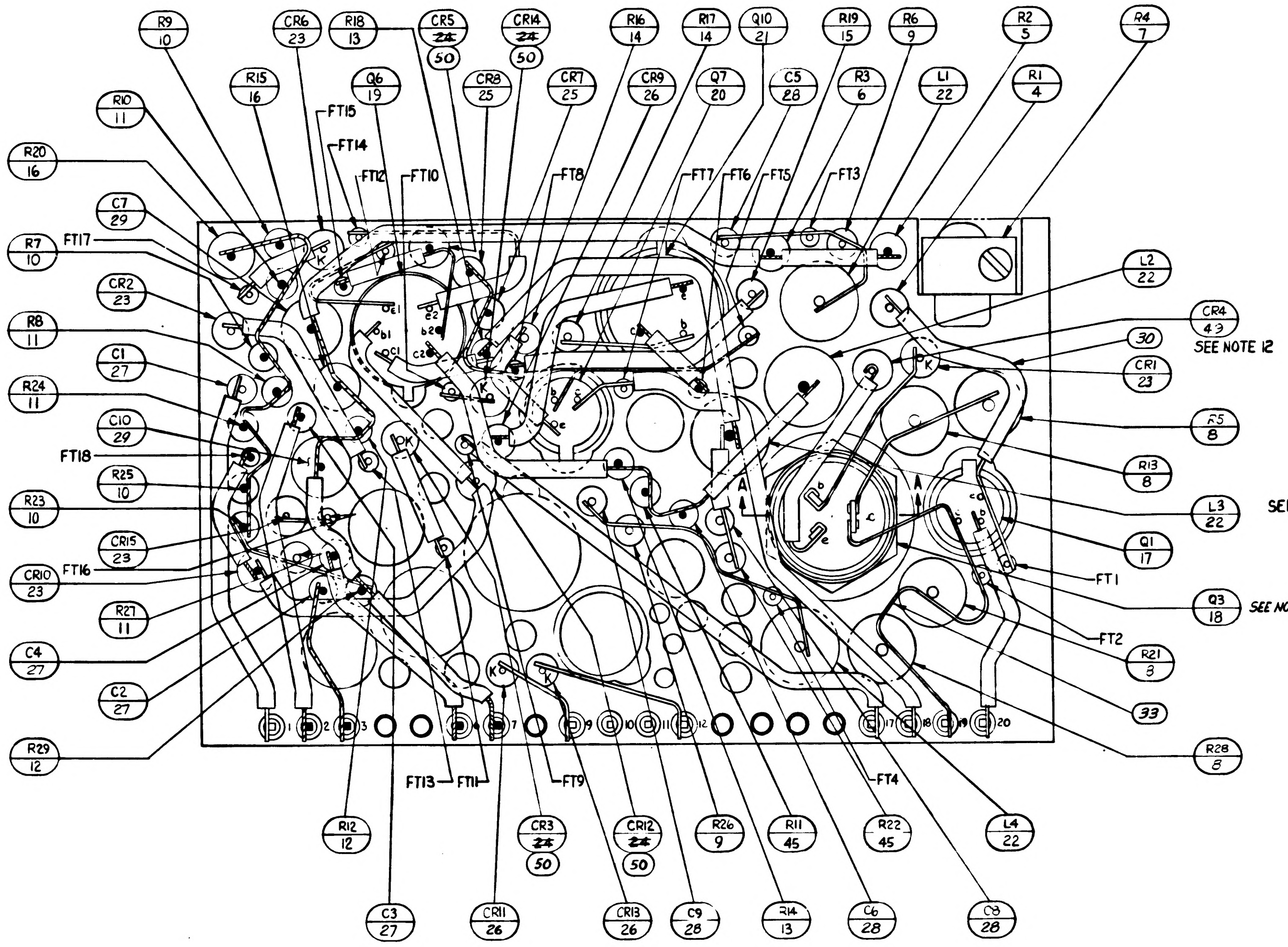
2710007516

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK P/N NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO. 4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD C AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    BROKEN PATHS INDICATE INSULATION SLEEVING
    K INDICATES CATHODE SIDE OF DIODE
    FT( ) INDICATES FEED THRU
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    C INDICATES COLLECTOR LEAD OF TRANSISTOR
    B INDICATES BASE LEAD OF TRANSISTOR
    E INDICATES EMITTER LEAD OF TRANSISTOR
    C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
20. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.



VIEW A-A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CR6 23
R18 13
CR5 24 50
CR14 24 50
R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
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R15 16
Q6 19
CR8 25
CR7 25
CR9 26
Q7 20
C5 28
R3 6
L1 22
R1 4
R20 16
FT15
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R24 11
C10 29
FT18
R25 10
R23 10
CR15 23
CR10 23
FT16
R27 11
C4 27
C2 27
R29 12
L2 22
CR4 43
SEE NOTE 12
30
CR1 23
R5 8
R13 8
L3 22
Q1 17
FT1
Q3 18
SEE NOTE 12
FT2
R21 3
33
R28 8
FT4
L4 22
FT13
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R12 12
CR3 24 50
CR12 24 50
R26 9
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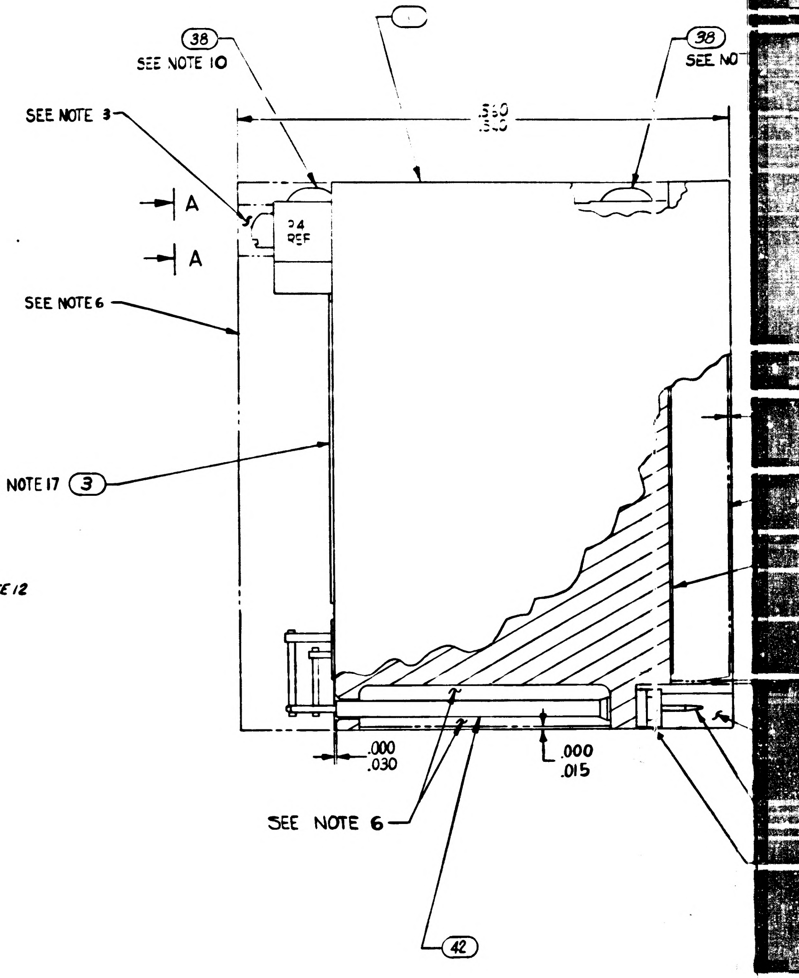
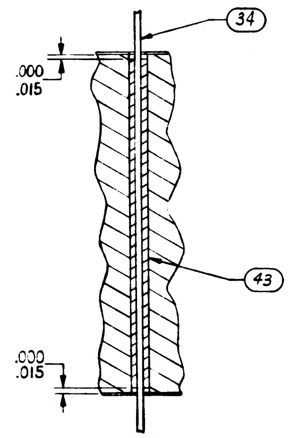
K
1 2 3 7 9 10 11 12 17 18 19 20


38
SEE NOTE 10
38
SEE NO
SEE NOTE 3
A
A
.530
.500
24
REF
SEE NOTE 6
SEE NOTE 17
3
.000
.030
.000
.015
SEE NOTE 6
42


34
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43
.000
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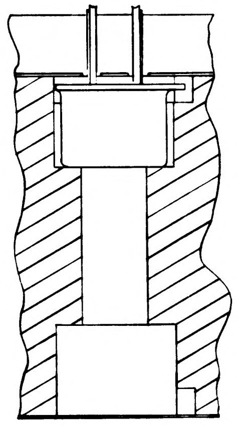
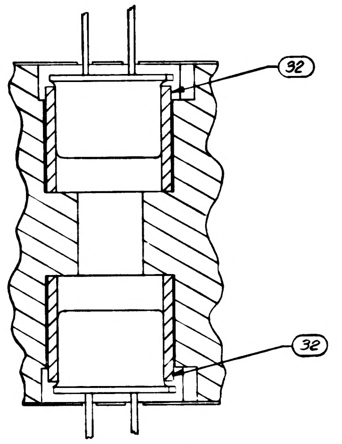
SECTION G-G

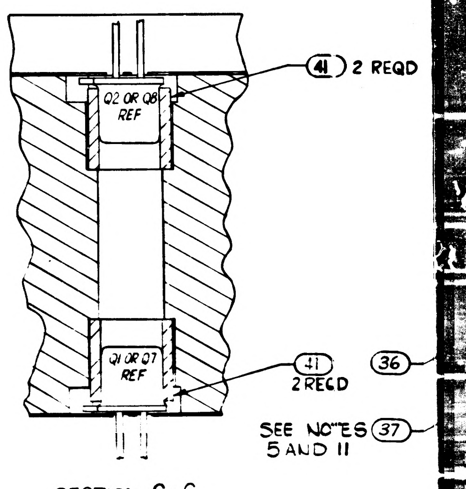


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO. (19)



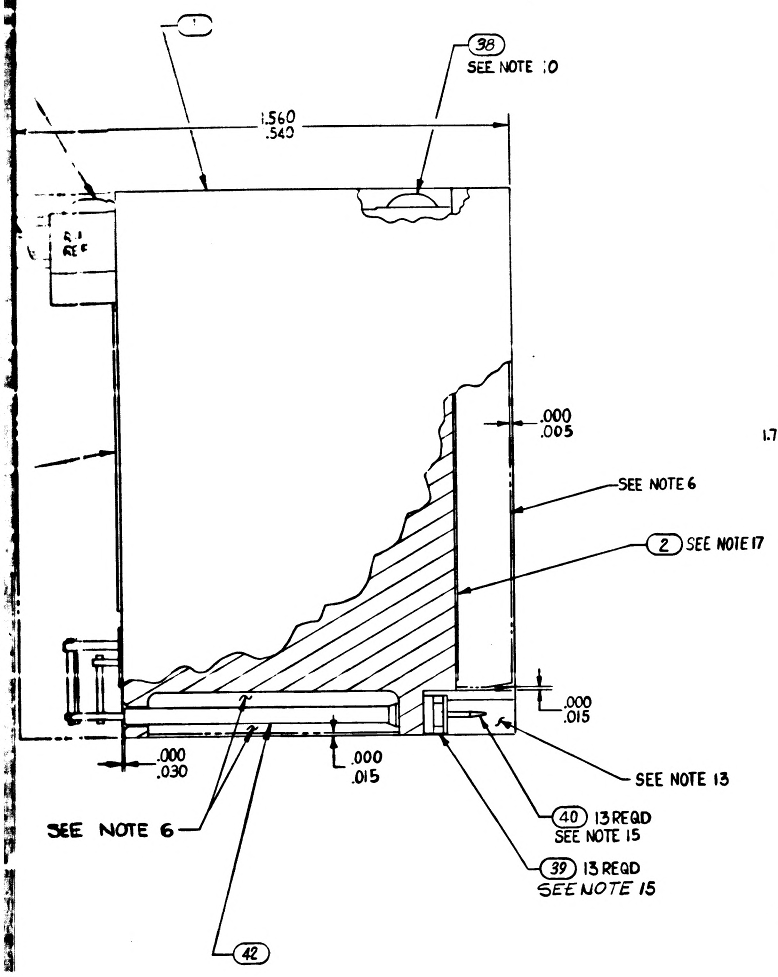
SECTION D-D


41 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
41
2 REQD
36
SEE NOTES 37
5 AND 11

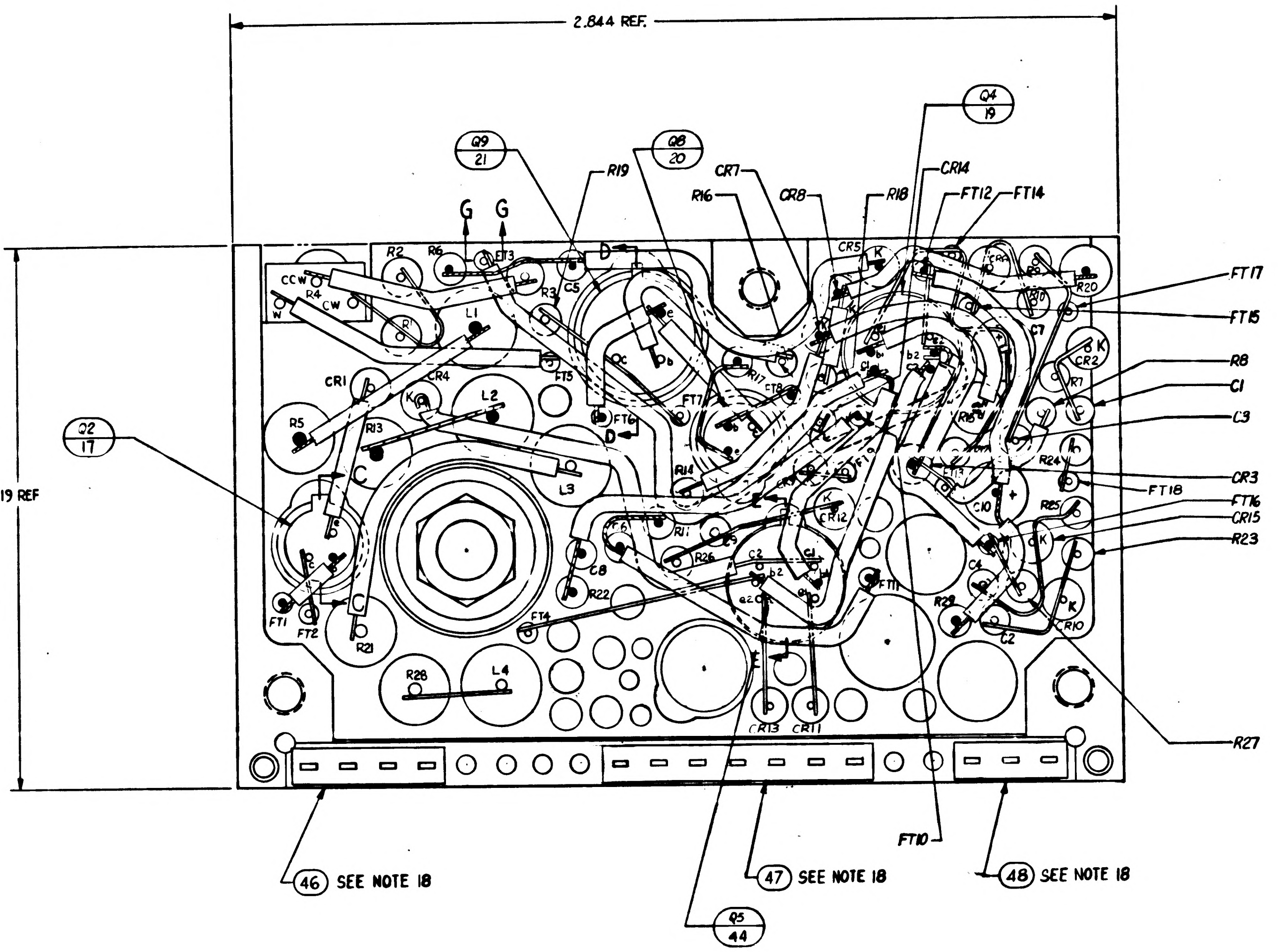
SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. (20) & (17)

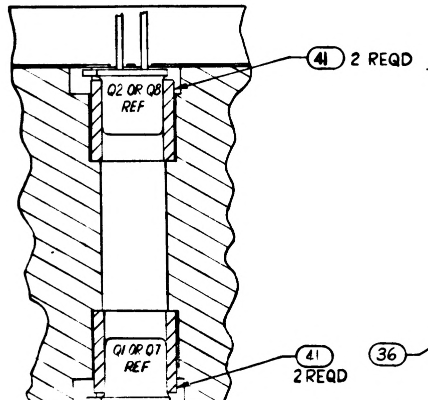
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A1		Ⓐ REVISED PER TDRR 16635		25-FEB-65	RS
B	—	REVISED PER TDRR 16854	—	4-MAR-65	B.
C		REVISED PER TDRR 17307		12 MAR 65	JMR
D	—	REVISED PER TDRR 17627	—	24 MAR 65	EM



1.560
.540
38 SEE NOTE 10
R1 REF
.000
.005
SEE NOTE 6
2 SEE NOTE 17
.000
.015
.000
.030
.000
.015
SEE NOTE 13
40 13 REQD SEE NOTE 15
39 13 REQD SEE NOTE 15
SEE NOTE 6
42



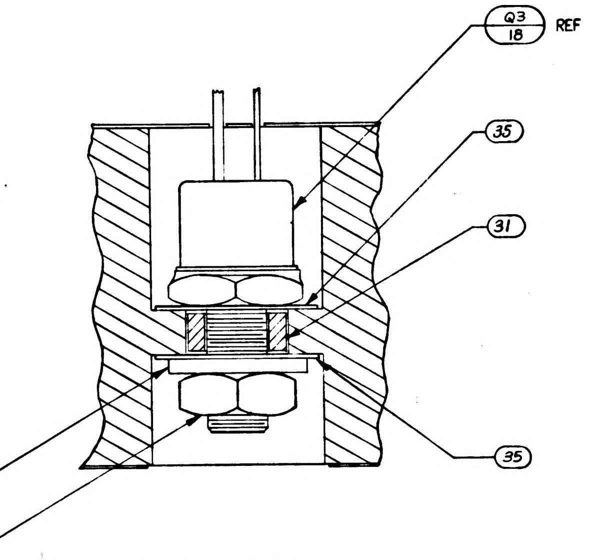
2.844 REF.
1.719 REF
Q9 21
Q8 20
Q4 19
Q2 17
Q5 44
R19
CR7
R16
CR8
R18
CR14
FT12
FT14
FT17
FT15
R8
C1
L3
CR3
FT18
FT16
CR15
R23
R27
G
G
R2
R6
FT3
R4
CCW
CW
L1
R3
C5
CR1
CR4
L2
R5
R13
FT15
FT6
D
D
R11
FT7
R17
FT8
CR5
R20
CR2
R7
R24
C10
R25
R9
C7
C4
C2
R10
R1
R26
C3
C8
R22
FT1
FT2
R21
FT4
FT11
R29
R28
L4
CR13
CR11
FT10
46 SEE NOTE 18
47 SEE NOTE 18
48 SEE NOTE 18



41 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
41 2REQD

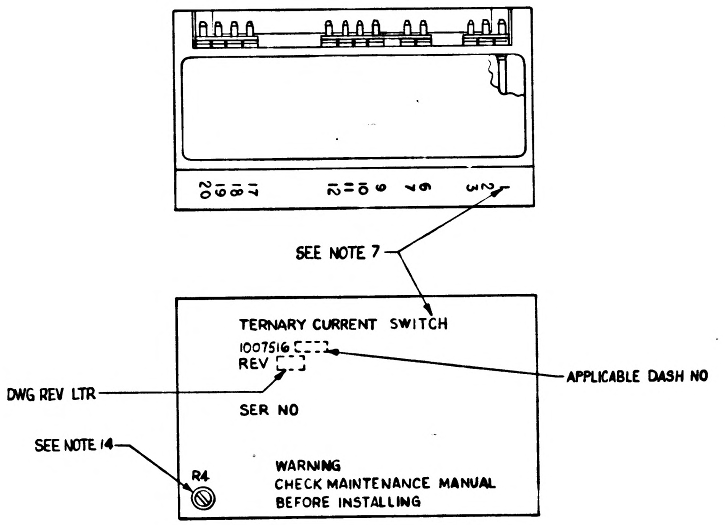
SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. (20) & (17)



Q3 18 REF
35
31
35
36
SEE NOTES 37 5 AND 11

SECTION A-A



20 19 18 17 12 11 10 9 8 7 6 3 2 1
SEE NOTE 7
TERNARY CURRENT SWITCH
1007516
REV
APPLICABLE DASH NO
DWG REV LTR
SER NO
SEE NOTE 14
R4
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2:1

			QTY	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
					1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
			4		1010833-001	DIODE	50
			1		1010497	DIODE	49
			1		1008540-3	GASKET, CONNECTOR MINIATURE	48
			1		1008540-7	GASKET, CONNECTOR MINIATURE	47
			1		1008540-4	GASKET, CONNECTOR MINIATURE	46
			2		1006750-82	RESISTOR, FIXED MF, 120K 1/4W ±2%	45
			1		1010715-1	TRANSISTOR	44
			AR		1006776-22	INSULATION, SLEEVING	43
			AR		1006776-20	INSULATION, SLEEVING	42
			4		1008025-1	INSULATOR, BUSHING	41
			13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
			13		1006775	INSULATOR, WRAPOST MALE MINAT	39
			2		1000093-3	SCREW, BUTTON HEAD	38
			1		MS35650-104	NUT, PLAIN, HEX	37
			1		1008020-1	WASHER, FLAT	36
			2		1008024-1	WASHER, INSULATOR	35
			AR		1006787-2	WIRE, ELECTRICAL .020 DIA	34
			AR		1006757-1	WIRE, ELECTRICAL .010 X .020	33
			2		1008025-2	INSULATOR, BUSHING	32
			1		1008021-1	INSULATOR, BUSHING	31
			AR		1006776-21	INSULATION SLEEVING	30
			2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35V ±10%	29
			4		1006777-13	CAPACITOR, FIXED CER, 100 UUF 100V ±10%	28
			4		1006777-20	CAPACITOR, FIXED CER, 470 UUF 100V ±10%	27
			3		1010394	DIODE	26
			2		1010384	DIODE	25
			~~4~~		~~1010462-6~~	~~DIODE~~	~~24~~
			5		1010385	DIODE	23
			4		1010388-39	INDUCTOR, .01H 75MA ±5%	22
			2		1010386	TRANSISTOR	21
			2		1006752	TRANSISTOR	20
			2		1010376-4	TRANSISTOR	19
			1		1010269-3	TRANSISTOR	18
			2		1010357-1	TRANSISTOR	17
			2		1006760-56	RESISTOR, FIXED MF, 10K 1/2 W ±2%	16
			1		1006750-62	RESISTOR, FIXED MF, 18K 1/4 W ±2%	15
			2		1010369-148	RESISTOR, FIXED COMP 20, 1/8 W ±5%	14
			2		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	13
			2		1006750-18	RESISTOR, FIXED MF, 270 1/4W ±2%	12
			4		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
			4		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ±2%	10
			2		1010369-87	RESISTOR, FIXED MF, 180K 1/8W ±5%	9
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	8
			1		1010373-10	RESISTOR, VARIABLE, OK 1W ±5%	7
			1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±1%	6
			1		1010364-711	RESISTOR, FIXED MF, 100K 1/8W ±1%	5
			1		1010364-683	RESISTOR, FIXED MF, 178K 1/8W ±1%	4
			1		1008600	INSULATOR, TOP	3
			1		1008255	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1
			011				

QUANTITY REQUIRED — LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN C. Krutsch DATE 20 Jul 64
CHECKED W. Diehl 25 Aug 64
J M Blysmak 3 Dec 64
APPROVAL 27 Aug 64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

CODE IDENT NO. SIZE J2 1007516
SCALE 5:1 SHEET 1 OF 1

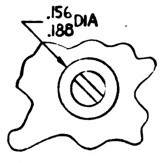
1007516 D

1007516 REV LTR D

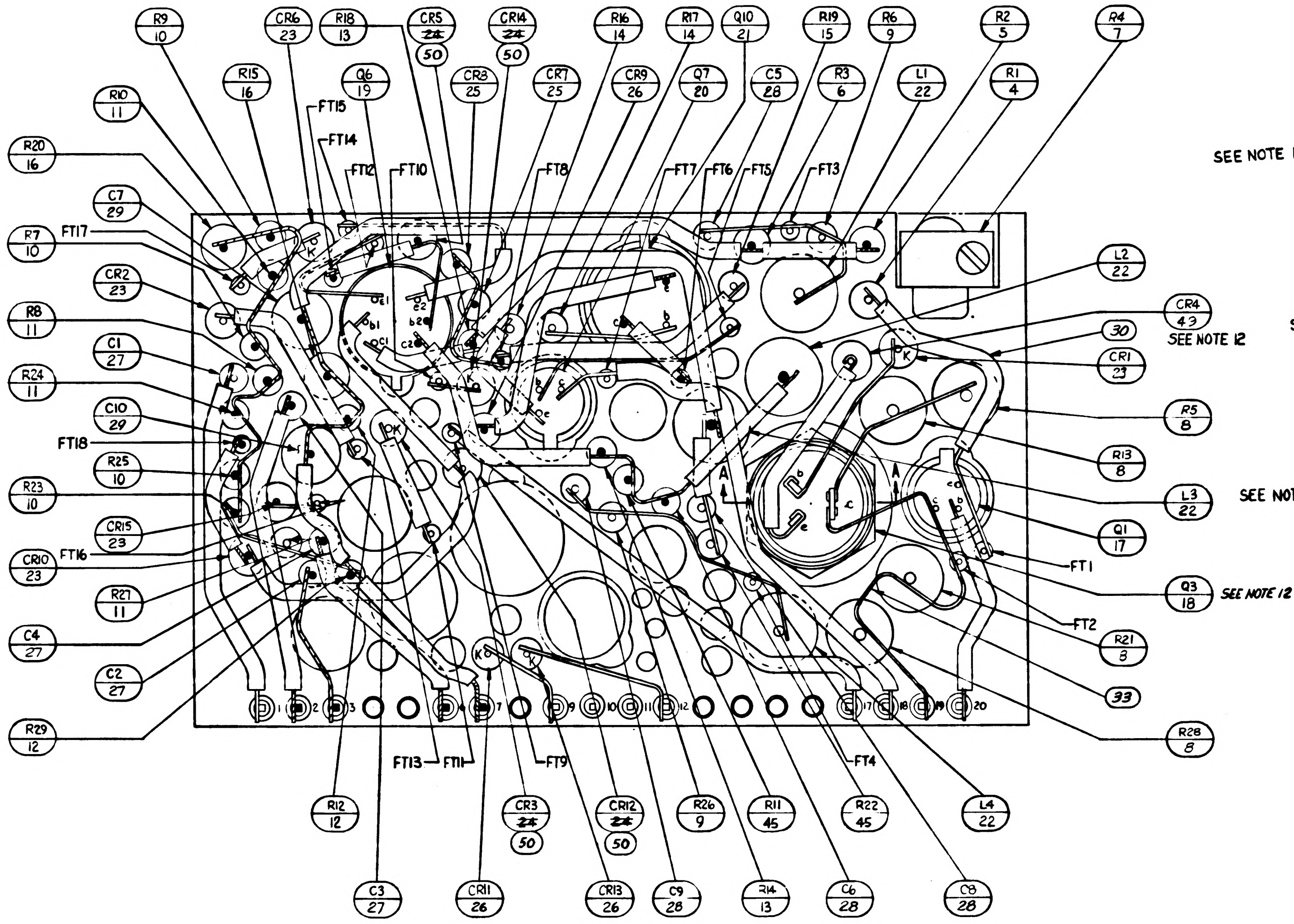
2/1007516

NOTES:

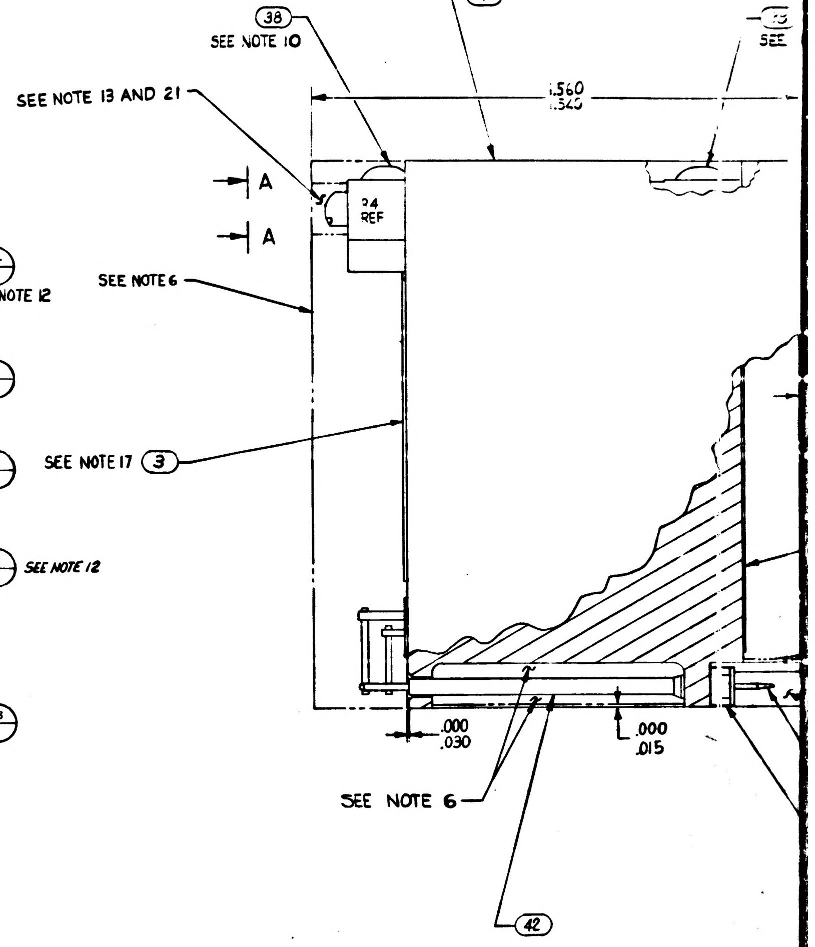
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO. 4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD C AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    - BROKEN PATHS INDICATE INSULATION SLEEVING
    - K INDICATES CATHODE SIDE OF DIODE
    - FT( ) INDICATES FEED THRU
    - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    - C INDICATES COLLECTOR LEAD OF TRANSISTOR
    - B INDICATES BASE LEAD OF TRANSISTOR
    - E INDICATES EMITTER LEAD OF TRANSISTOR
    - C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    - B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    - E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
20. BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.
21. SEAL CALIBRATION POT R4 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007016 HAVE BEEN SATISFIED.



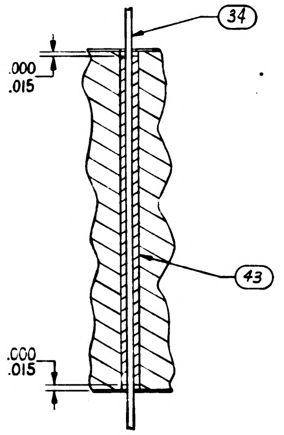
VIEW A-A



R9 10
CR6 23
R18 13
CR5 ~~24~~ 50
CR14 ~~24~~ 50
R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
R4 7
R10 11
R15 16
Q6 19
CR8 25
CR7 25
CR9 26
Q7 20
C5 28
R3 6
L1 22
R1 4
R20 16
FT15
FT14
FT12
FT10
FT8
FT7
FT6
FT5
FT3
C7 29
R7 10
FT17
CR2 23
R8 11
C1 27
R24 11
C10 29
FT18
R25 10
R23 10
CR15 23
FT16
CR10 23
R27 11
C4 27
C2 27
R29 12
L2 22
CR4 43
SEE NOTE 12
30
CR1 23
R5 8
R13 8
L3 22
Q1 17
FT1
Q3 18
SEE NOTE 12
FT2
R21 3
33
R28 8
FT13
FT11
FT9
FT4
R12 12
CR3 ~~24~~ 50
CR12 ~~24~~ 50
R26 9
R11 45
R22 45
L4 22
C3 27
CR11 26
CR13 26
C9 28
R14 13
C6 28
C8 28

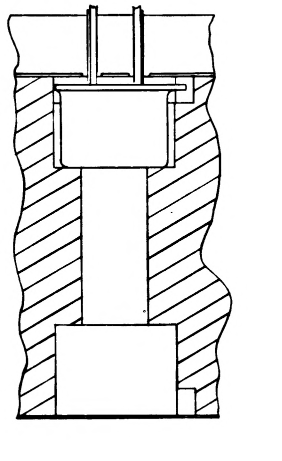


38
SEE NOTE 10
1
SEE NOTE 13 AND 21
A
A
R4 REF
1.560
1.540
SEE NOTE 6
SEE NOTE 17
3
.000
.030
.000
.015
SEE NOTE 6
42



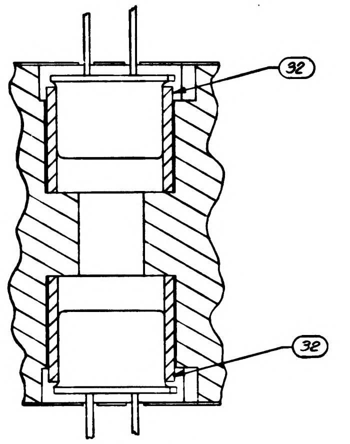
34
.000
.015
43
.000
.015

SECTION G-G

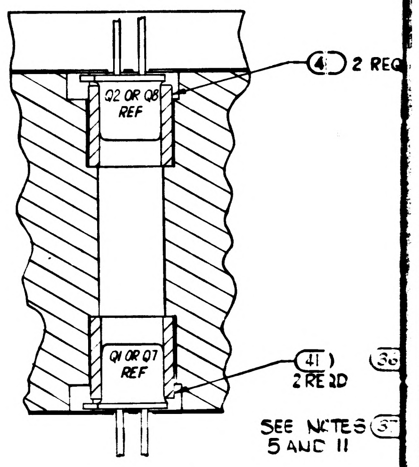


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO. (19)



SECTION D-D



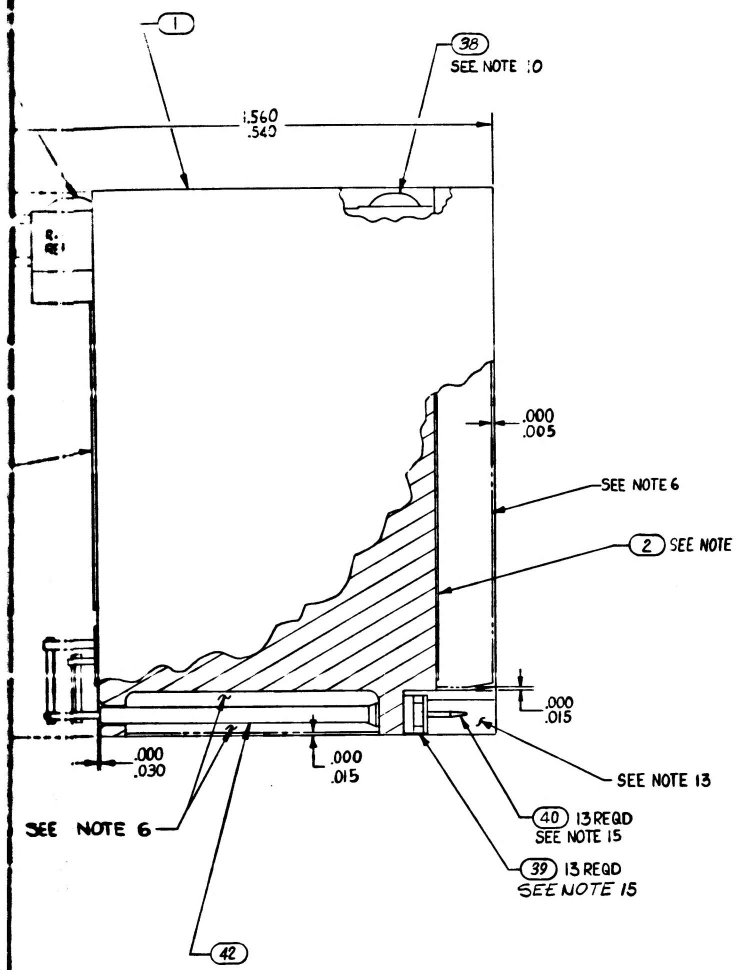
4 2 REQ
Q2 OR Q8 REF
Q1 OR Q7 REF
41 2 REQD
36
SEE NOTES 5 AND 11

SECTION C-C

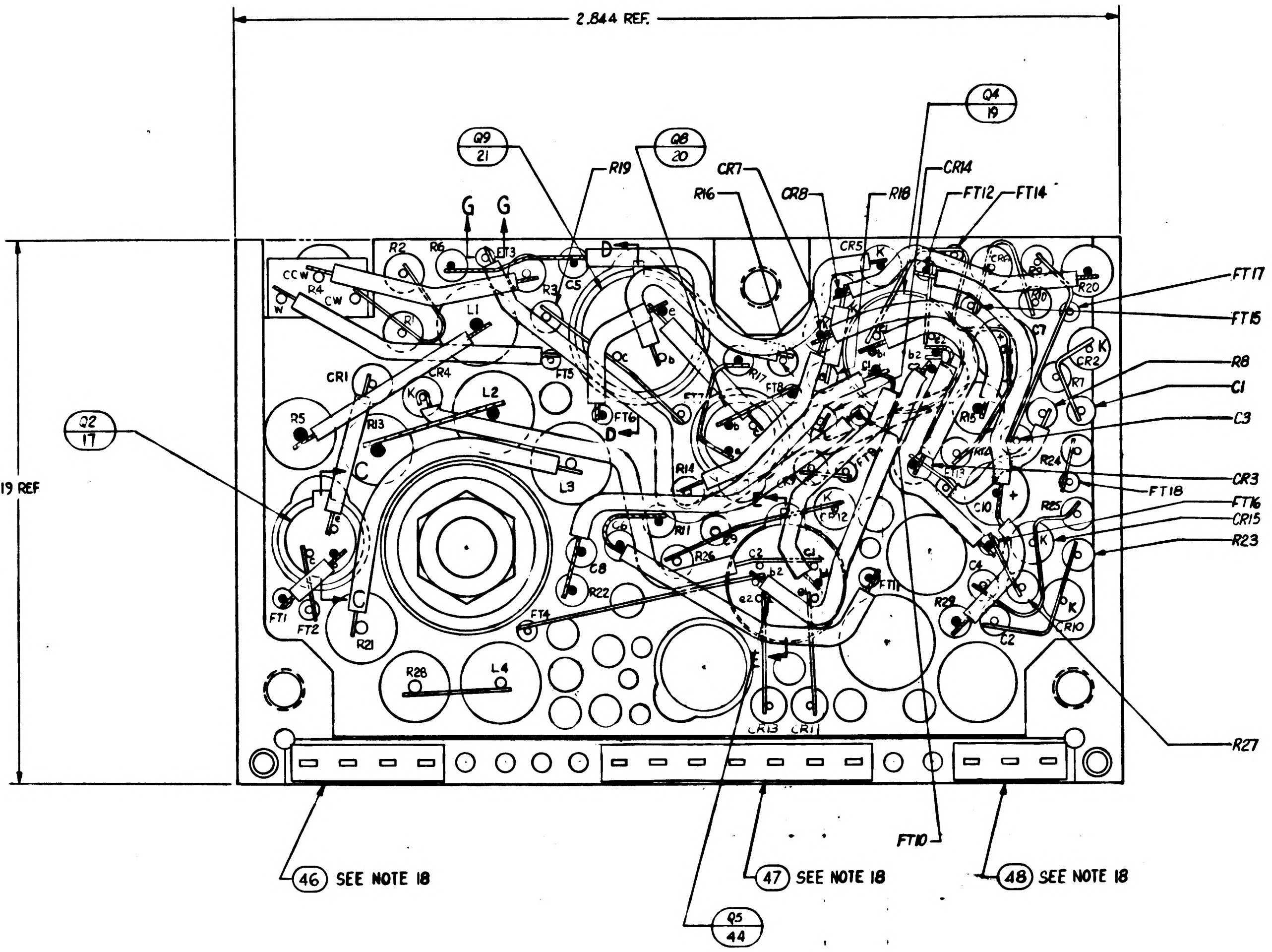
TYPICAL INSTALLATION FOR FIND NO. (20) & (17)

1007516

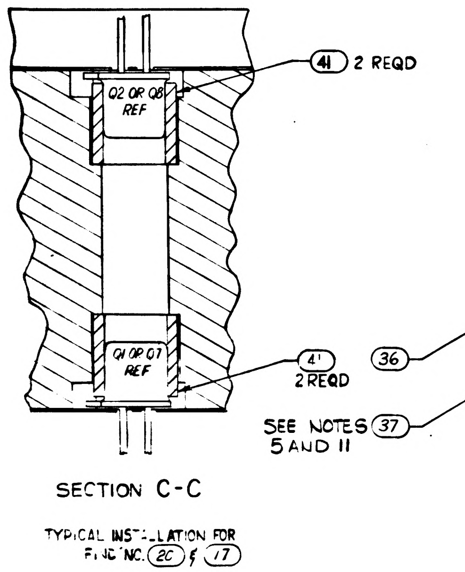
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A1		Ⓐ1 REVISED PER TDRR 16635		25-FEB-65	RS
B	—	REVISED PER TDRR 16854	—	4-MAR-65	B.
C		REVISED PER TDRR 17307		12 MAR 65	JAR
D	—	REVISED PER TDRR 17627	—	24 MAR 65	EM AU
E	—	REVISED PER TDRR 18937	—	17 MAY 65	



1
38
SEE NOTE 10
1.560
1.540
.000
.005
SEE NOTE 6
2 SEE NOTE 17
.000
.015
.000
.030
.000
.015
SEE NOTE 13
SEE NOTE 6
40 13 REQD
SEE NOTE 15
39 13 REQD
SEE NOTE 15
42



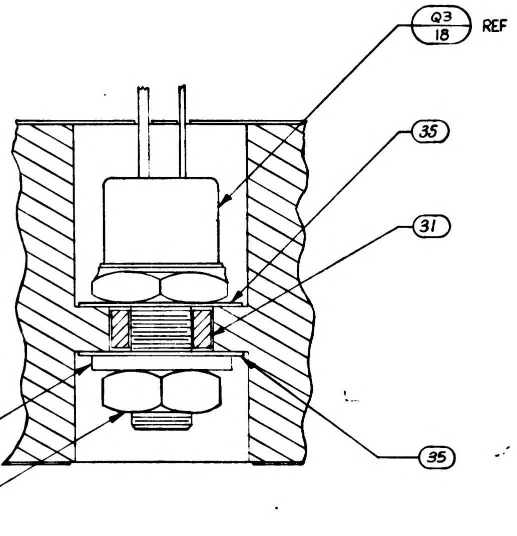
2.844 REF.
1.719 REF
Q9 21
Q8 20
Q4 19
R19
CR7
CR14
R16
CR8
R18
FT12
FT14
G
G
FT17
FT15
R8
C1
C3
Q2 17
CR3
FT18
FT16
CR15
R23
R27
46 SEE NOTE 18
47 SEE NOTE 18
48 SEE NOTE 18
FT10
Q5 44
R2
R6
R4
R1
L1
R3
C5
CR4
L2
CR1
R5
R13
FT5
FT6
L3
R14
R11
R26
C8
R22
FT4
FT1
FT2
R21
R28
L4
CR13
CR11
FT11
R29
C4
C2
R10
R24
R25
C10
C7
R20
CR5
CR2
R17



41 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
41 2 REQD

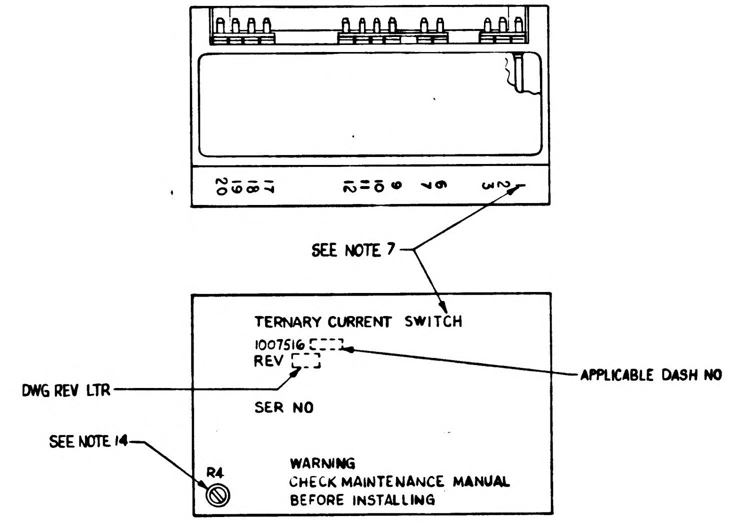
SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. ⑳ & ⑰



Q3 18 REF
35
31
36
35
SEE NOTES 37 5 AND 11

SECTION A-A



20 19 18 17 12 11 10 9 6 4 3 2
SEE NOTE 7
DWG REV LTR
APPLICABLE DASH NO
SEE NOTE 14
R4

TERNARY CURRENT SWITCH
1007516 -
REV
SER NO
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2:1

QUANTITY REQUIRED								
			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
			╳		1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
			4		1010833-001	DIODE	50
			1		1010497	DIODE	49
			1		1008540-3	GASKET, CONNECTOR MINIATURE	48
			1		1008540-7	GASKET, CONNECTOR MINIATURE	47
			1		1008540-4	GASKET, CONNECTOR MINIATURE	46
			2		1006750-82	RESISTOR, FIXED MF, 120K 1/4W ±2%	45
			1		1010715-1	TRANSISTOR	44
			AR		1006776-22	INSULATION, SLEEVING	43
			AR		1006776-20	INSULATION, SLEEVING	42
			4		1008025-1	INSULATOR, BUSHING	41
			13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
			13		1006775	INSULATOR, WRAPOST MALE MINAT	39
			2		1000093-3	SCREW, BUTTON HEAD	38
			1		MS35650-104	NUT, PLAIN, HEX	37
			1		1008020-1	WASHER, FLAT	36
			2		1008024-1	WASHER, INSULATOR	35
			AR		1006787-2	WIRE, ELECTRICAL .020 DIA	34
			AR		1006757-1	WIRE, ELECTRICAL .010 X .020	33
			2		1008025-2	INSULATOR, BUSHING	32
			1		1008021-1	INSULATOR, BUSHING	31
			AR		1006776-21	INSULATION SLEEVING	30
			2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35 V ± 10%	29
			4		1006777-13	CAPACITOR, FIXED CER, 100 UUF 100 V ± 10%	28
			4		1006777-20	CAPACITOR, FIXED CER, 470 UUF 100 V ± 10%	27
			3		1010394	DIODE	2[illegible]
			2		1010384	DIODE	25
			~~4~~		~~1010462-6~~	~~DIODE~~	24
			5		1010385	DIODE	23
			4		1010388-39	INDUCTOR, .01H 75MA ± 5%	22
			2		1010386	TRANSISTOR	21
			2		1006752	TRANSISTOR	20
			2		1010376-4	TRANSISTOR	19
			1		1010269-3	TRANSISTOR	18
			2		1010357-1	TRANSISTOR	17
			2		1006760-56	RESISTOR, FIXED MF, 10K 1/2 W ± 2%	16
			1		1006750-62	RESISTOR, FIXED MF, 18K 1/4 W ± 2%	15
			2		1010369-148	RESISTOR, FIXED COMP, 20 1/8 W ± 5%	14
			2		1006750-15	RESISTOR, FIXED MF, 200 1/4 W ± 2%	13
			2		1006750-18	RESISTOR, FIXED MF, 270 1/4 W ± 2%	12
			4		1006750-67	RESISTOR, FIXED MF, 30K 1/4 W ± 2%	[illegible]
			4		1006750-81	RESISTOR, FIXED MF, 110K 1/4 W ± 2%	10
			2		1010369-87	RESISTOR, FIXED MF, 180K 1/8 W ± 5%	9
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ± 1%	8
			1		1010373-10	RESISTOR, VARIABLE, 0K 1W ± 5%	7
			1		1010364-557	RESISTOR, FIXED MF, 392K 1/8 W ± 1%	6
			1		1010364-635	RESISTOR, FIXED MF, 100K 1/8 W ± 1%	5
			1		1010364-683	RESISTOR, FIXED MF, 178K 1/8 W ± 1%	4
			1		1008600	INSULATOR, TOP	3
			1		1008255	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN [illegible] DATE 20 JULY 64
CHECKED [illegible] 25 AUG 64
J M BLYSHAK 3 DEC 64
APPROVAL 27 AUG 64
APPROVAL
NASA APPROVAL
MIT APPROVAL

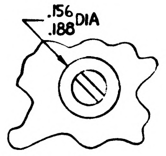
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

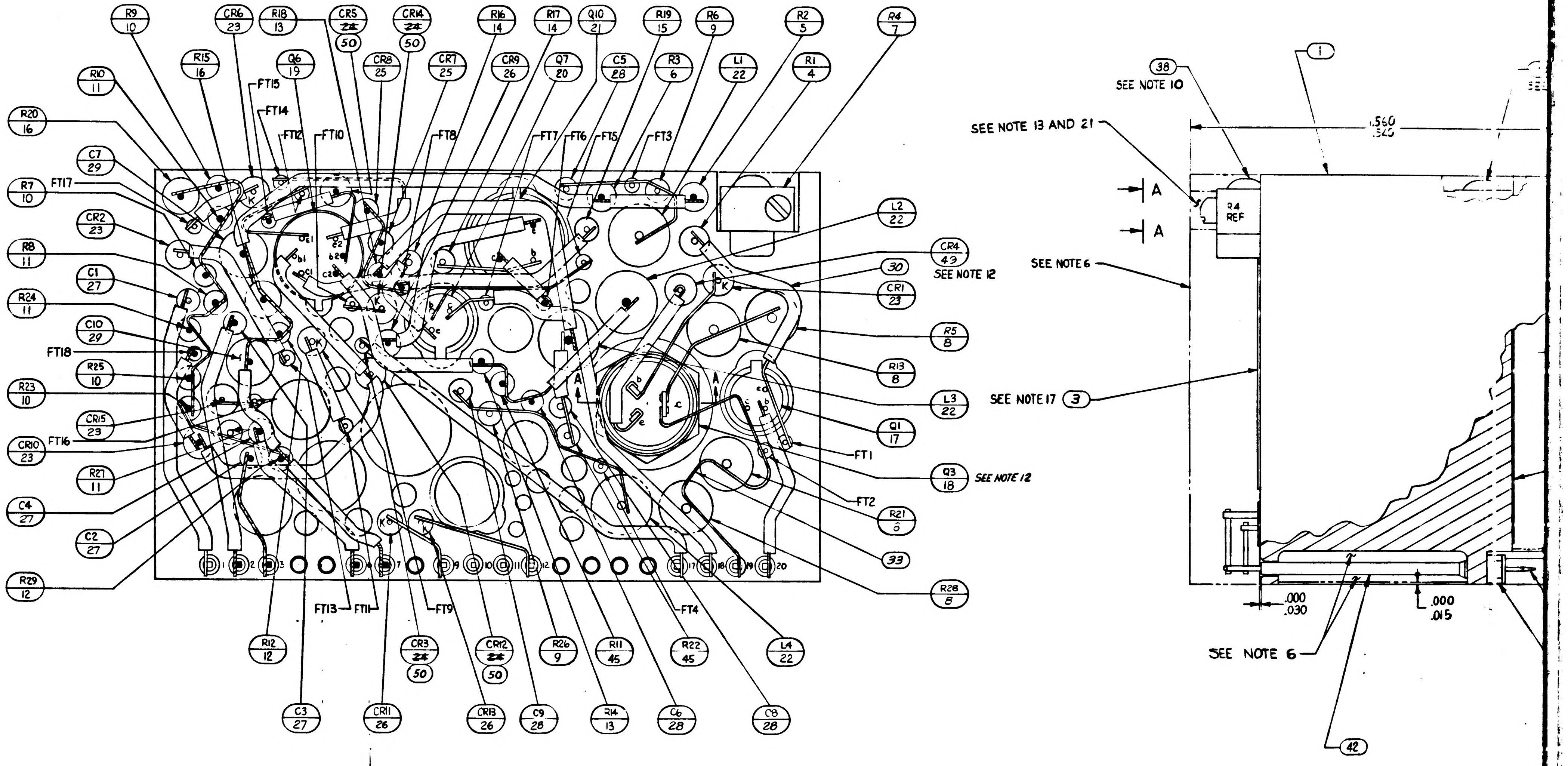
CODE IDENT NO. 80230
SIZE J2
1007516
SCALE 5:1
SHEET 1 OF 1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO.4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD C AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    BROKEN PATHS INDICATE INSULATION SLEEVING
    K INDICATES CATHODE SIDE OF DIODE
    FT( ) INDICATES FEED THRU
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    C INDICATES COLLECTOR LEAD OF TRANSISTOR
    B INDICATES BASE LEAD OF TRANSISTOR
    E INDICATES EMITTER LEAD OF TRANSISTOR
    C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
20. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.
21. SEAL CALIBRATION POT R4 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007016 HAVE BEEN SATISFIED.



VIEW A-A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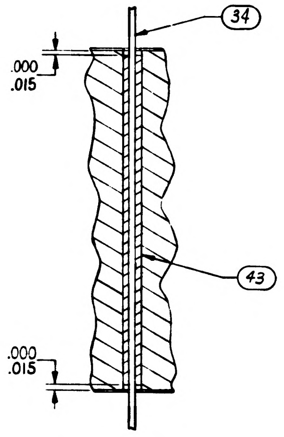
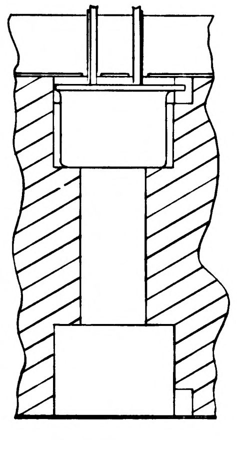
CR6 23
R18 13
CR5 24 50
CR14 24 50
R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
R4 7
R15 16
Q6 19
CR8 25
CR7 25
CR9 26
Q7 20
C5 28
R3 6
L1 22
R1 4
R10 11
R20 16
C7 29
R7 10
CR2 23
R8 11
C1 27
R24 11
C10 29
R25 10
R23 10
CR15 23
CR10 23
R27 11
C4 27
C2 27
R29 12
FT17
FT18
FT16
FT15
FT14
FT12
FT10
FT8
FT7
FT6
FT5
FT3
FT1
FT2
FT4
FT13
FT11
FT9
L2 22
CR4 49
SEE NOTE 12
30
CR1 23
R5 8
R13 8
L3 22
Q1 17
Q3 18
SEE NOTE 12
R21 6
33
R28 8
L4 22
R12 12
CR3 24 50
CR12 24 50
R26 9
R11 45
R22 45
C3 27
CR11 26
CR13 26
C9 28
R14 13
C6 28
C8 28
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
38
SEE NOTE 10
1
SEE NOTE 13 AND 21
A
A
R4 REF
.560
.540
SEE NOTE 6
SEE NOTE 17
3
.000
.030
.000
.015
SEE NOTE 6
42

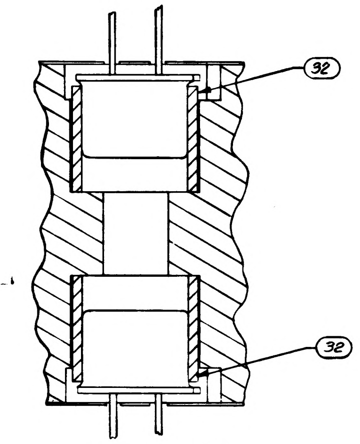

34
.000
.015
43
.000
.015

SECTION G-G

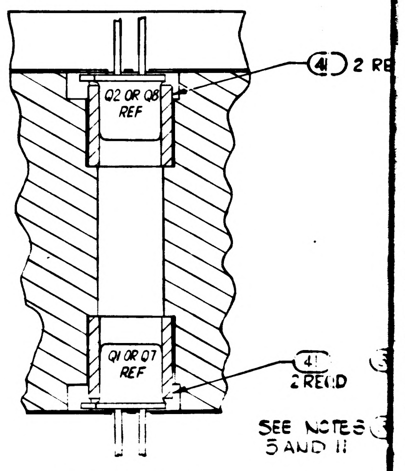


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO. (19)



SECTION D-D


41 2 RE
Q2 OR Q8 REF
Q1 OR Q7 REF
41 2 REQD
SEE NOTES 5 AND 11

SECTION C-C

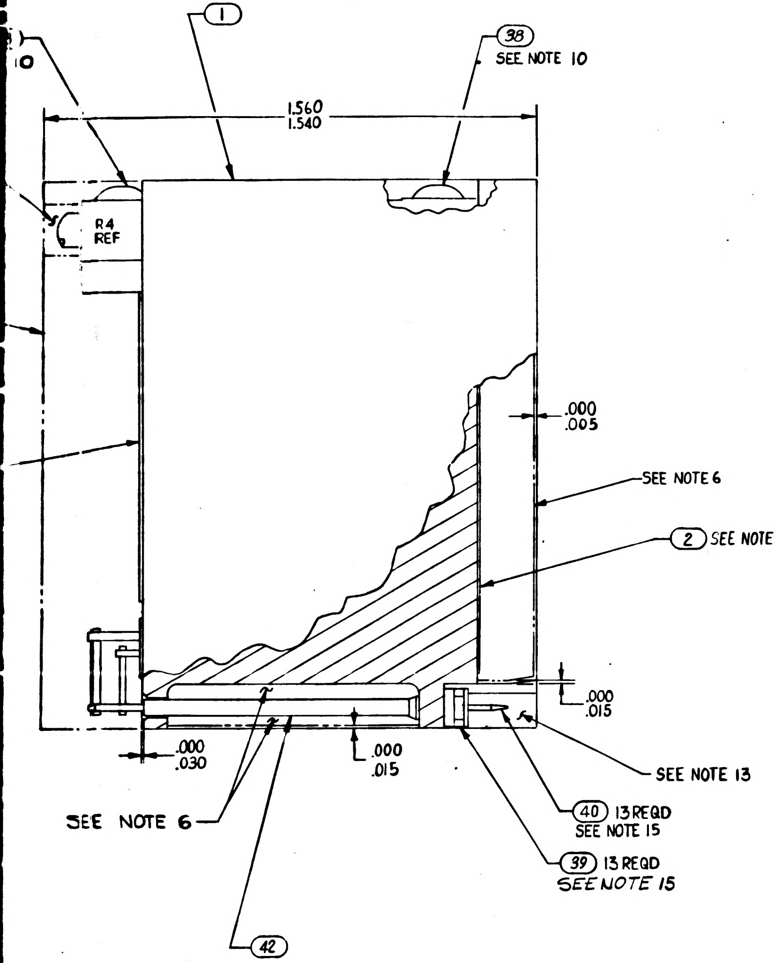
TYPICAL INSTALLATION FOR FIND NO. (20) & (17)

1007516

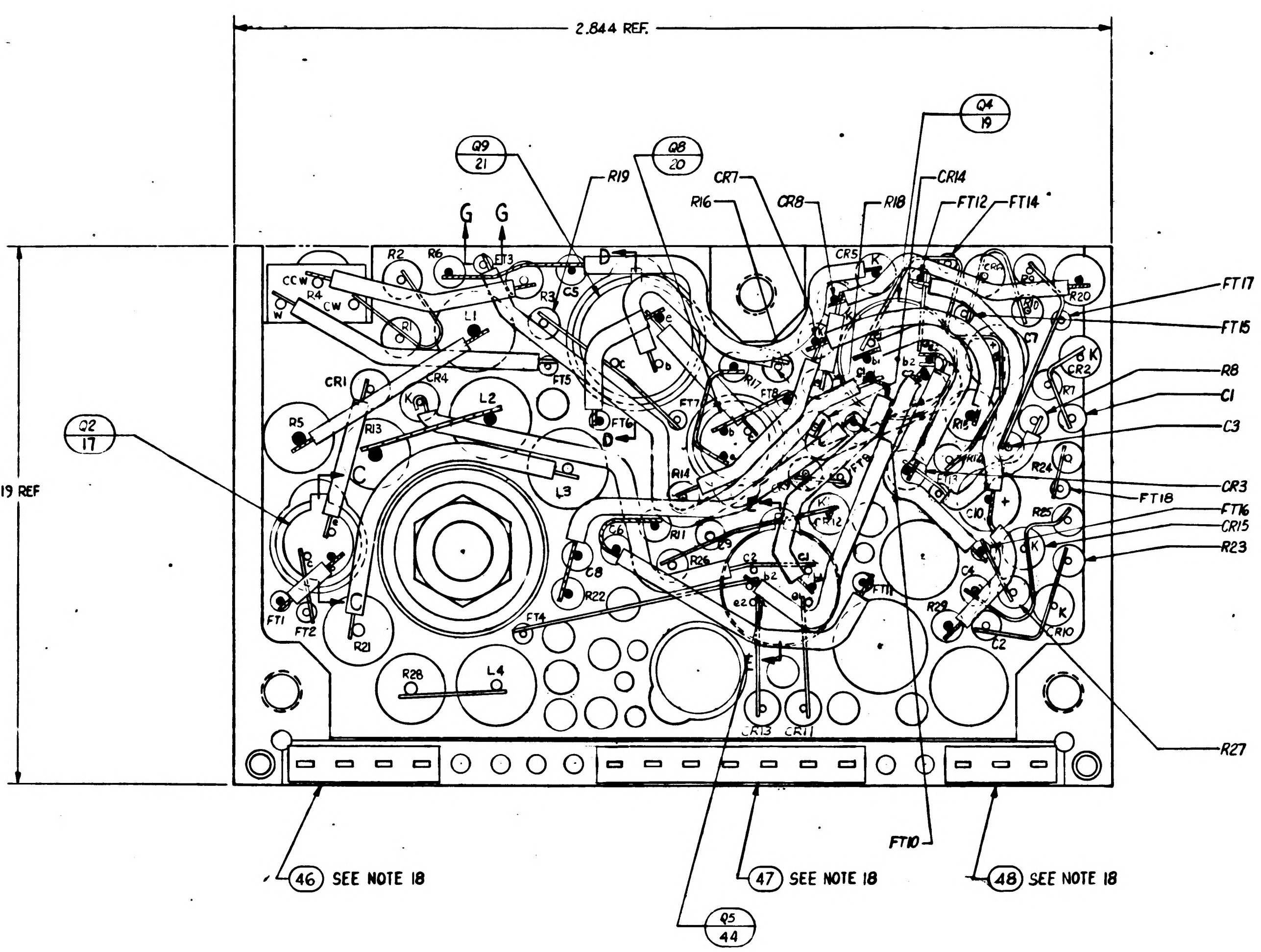
1/1007516

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A1		Ⓐ1 REVISED PER TDRR 16635		25-FEB-65	RS
B	—	REVISED PER TDRR 16854	—	4-MAR-65	B.
C		REVISED PER TDRR 17307		12 MAR 65	JHR
D	—	REVISED PER TDRR 17627	—	24 MAR 65	EM AU
E	—	REVISED PER TDRR 18937	—	17 MAY 65	A.N.
F	-	REVISED PER TDRR 19288	—	1 JUNE 65	LGC

REVISIONS 14708



1
38
SEE NOTE 10
10
1.560
1.540
R4 REF
.000
.005
SEE NOTE 6
2 SEE NOTE 17
.000
.015
.000
.030
.000
.015
SEE NOTE 13
SEE NOTE 6
40 13 REQD SEE NOTE 15
39 13 REQD SEE NOTE 15
42



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1.719 REF
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Q8 20
Q4 19
Q2 17
Q5 44
R19
CR7
R16
CR8
R18
CR14
FT12
FT14
FT17
FT15
R8
C1
C3
CR3
FT18
FT16
CR15
R23
R27
FT10
G
G
R2
R6
FT3
R3
C5
R4
CCW
CW
R1
L1
CR1
CR4
FT5
L2
R5
R13
L3
CR5
R20
C7
CR2
R7
R26
R25
C10
C6
R11
R21
R28
L4
R22
C8
C2
R10
R29
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FT13
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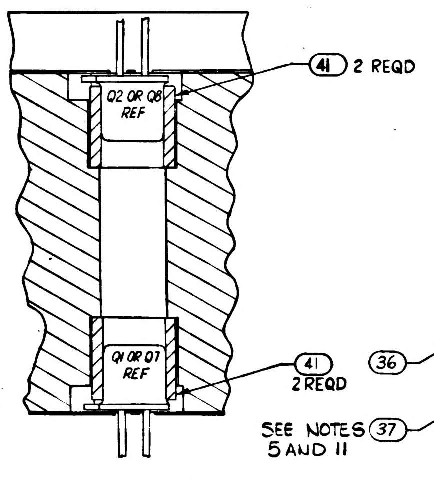
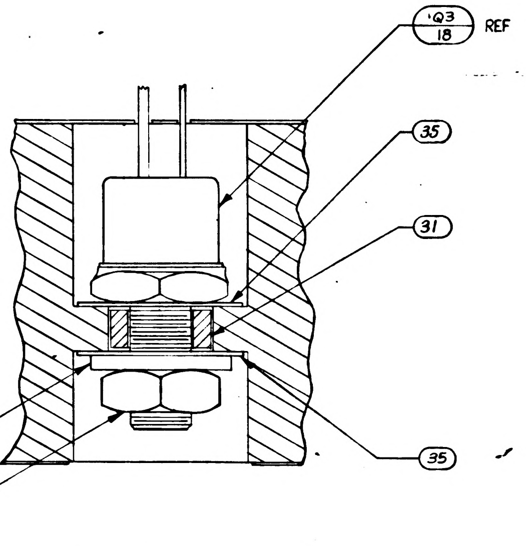
FT2
FT4
FT6
FT7
FT8
CR13
CR11
D
46 SEE NOTE 18
47 SEE NOTE 18
48 SEE NOTE 18



41 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
41 2 REQD

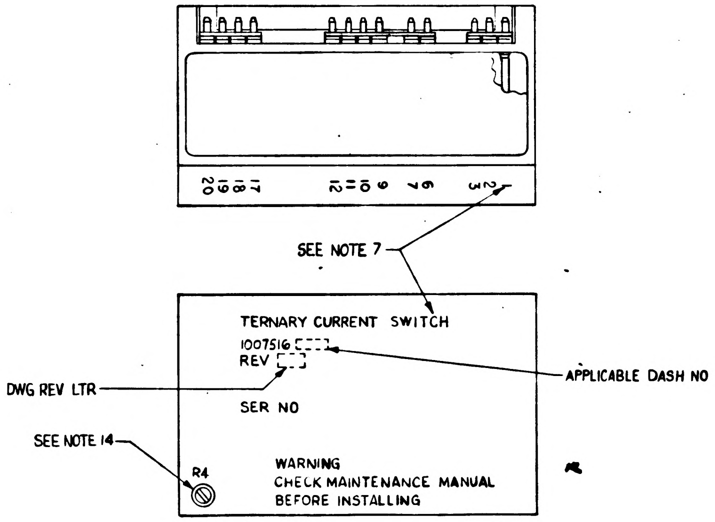
SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. ⑳ & ⑰



Q3 18 REF
35
31
36
35
SEE NOTES 37 5 AND 11

SECTION A-A



20 19 18 17
12 11 10 9
7 6
3 2
SEE NOTE 7
TERNARY CURRENT SWITCH
1007516
REV
SER NO
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING
R4
APPLICABLE DASH NO
DWG REV LTR
SEE NOTE 14

MARKING VIEW
SCALE 2:1

QUANTITY REQUIRED			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO.
			☒		1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF.
			4		1010833-001	DIODE	50
			1		1010497	DIODE	49
			1		1008540-3	GASKET, CONNECTOR MINIATURE	48
			1		1008540-7	GASKET, CONNECTOR MINIATURE	47
			1		1008540-4	GASKET, CONNECTOR MINIATURE	46
			2		1006750-82	RESISTOR, FIXED MF, 120K ¼W ±2%	45
			1		1010715-1	TRANSISTOR	44
			AR		1006776-22	INSULATION, SLEEVING	43
			AR		1006776-20	INSULATION, SLEEVING	42
			4		1008025-1	INSULATOR, BUSHING	41
			13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
			13		1006775	INSULATOR, WRAPOST MALE MINAT	39
			2		1000093-3	SCREW, BUTTON HEAD	38
			1		MS35650-104	NUT, PLAIN, HEX	37
			1		1008020-1	WASHER, FLAT	36
			2		1008024-1	WASHER, INSULATOR	35
			AR		1006787-2	WIRE, ELECTRICAL .020 DIA	34
			AR		1006757-1	WIRE, ELECTRICAL ~~.010~~ X .020	33
			2		1008025-2	INSULATOR, BUSHING	32
			1		1008021-1	INSULATOR, BUSHING	31
			AR		1006776-21	INSULATION SLEEVING	30
			2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35V ± 10%	29
			4		1006777-13	CAPACITOR, FIXED CER, 100 UUF 100V ± 10%	28
			4		1006777-20	CAPACITOR, FIXED CER, 470 UUF 100V ± 10%	27
			3		1010394	DIODE	26
			2		1010384	DIODE	25
			~~4~~		~~1010462-6~~	~~DIODE~~	~~24~~
			5		1010385	DIODE	23
			4		1010388-39	INDUCTOR, .01H 75MA ± 5%	22
			2		1010386	TRANSISTOR	21
			2		1006752	TRANSISTOR	20
			2		1010376-4	TRANSISTOR	19
			1		1010269-3	TRANSISTOR	18
			2		1010357-1	TRANSISTOR	17
			2		1006760-56	RESISTOR, FIXED MF, 10K ½W ± 2%	16
			1		1006750-62	RESISTOR, FIXED MF, 18K ¼W ± 2%	15
			2		1010369-148	RESISTOR, FIXED COMP 20, ⅛W ±5%	14
			2		1006750-15	RESISTOR, FIXED MF, 200 ¼W ± 2%	13
			2		1006750-18	RESISTOR, FIXED MF, 270 ¼W ± 2%	12
			4		1006750-67	RESISTOR, FIXED MF, 30K ¼W ± 2%	11
			4		1006750-81	RESISTOR, FIXED MF, 110K ¼W ± 2%	10
			2		1010369-87	RESISTOR, FIXED MF, 180K ⅛W ± 5%	9
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ± 1%	8
			1		1010373-10	RESISTOR, VARIABLE, 10K 1W ±5%	7
			1		1010364-557	RESISTOR, FIXED MF, 392K ⅛W ± 1%	6
			1		1010364-635	RESISTOR, FIXED MF, 100K ⅛W ± 1%	5
			1		1010364-683	RESISTOR, FIXED MF, 178K ⅛W ± 1%	4
			1		1008600	INSULATOR, TOP	3
			1		1008255	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE
CHECKED W. Bright 25 Nov. 64
J M BLYSHAK 3 DEC 64
APPROVAL 27 Nov '64
APPROVAL
NASA APPROVAL 12-7-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH, COMPUTER OUTPUT, ASSEMBLY

CODE IDENT NO. 80230
SIZE J2
1007516
SCALE 5:1
SHEET 1 of 1

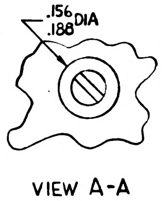
1007516 F

1007516 REV LTR F

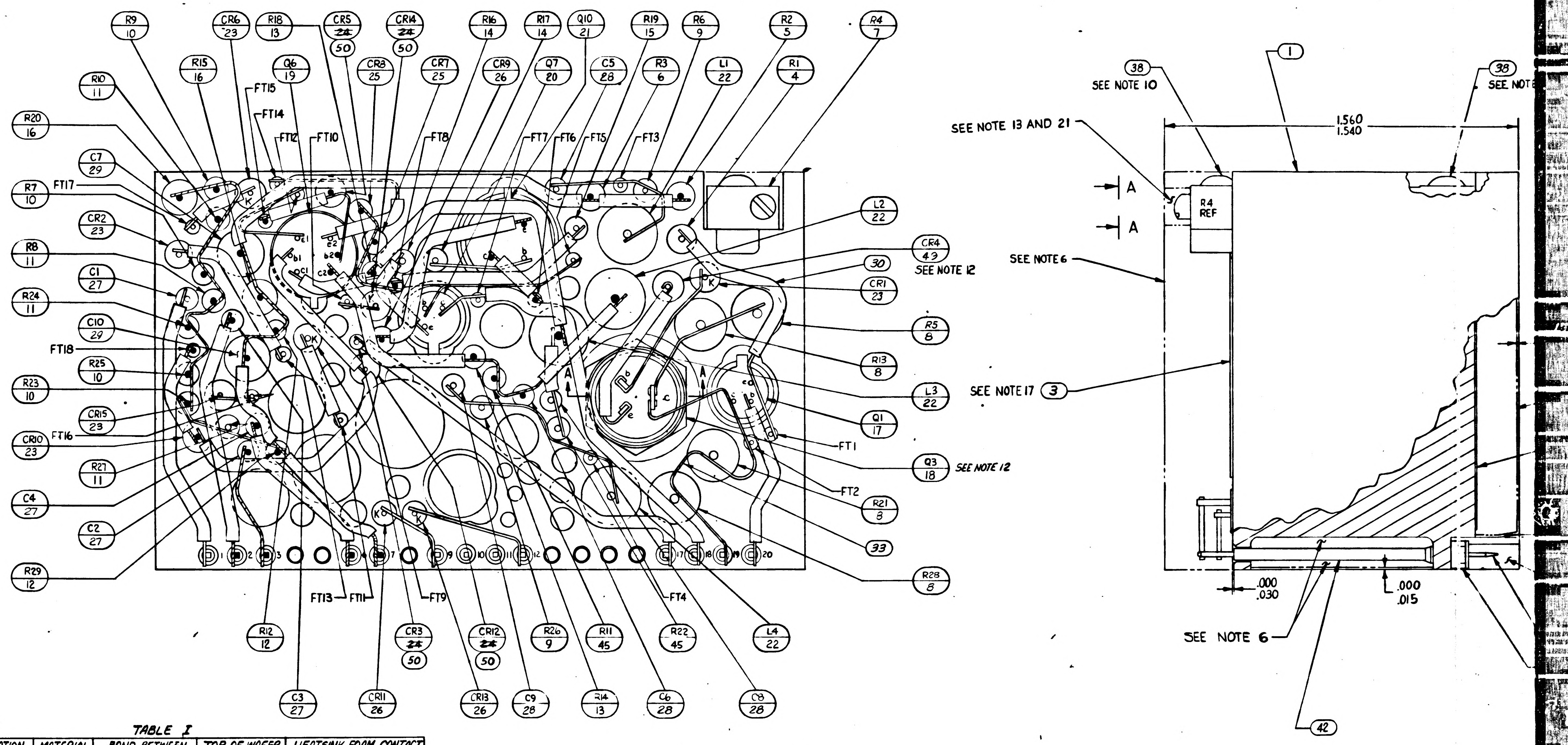
2/1007516

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND ㊲.
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO. 4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD C AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    BROKEN PATHS INDICATE INSULATION SLEEVING
    K INDICATES CATHODE SIDE OF DIODE
    FT( ) INDICATES FEED THRU
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    C INDICATES COLLECTOR LEAD OF TRANSISTOR
    B INDICATES BASE LEAD OF TRANSISTOR
    E INDICATES EMITTER LEAD OF TRANSISTOR
    C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
20. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
21. SEAL CALIBRATION POT R4 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007016 HAVE BEEN SATISFIED.
22. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS & APPLICATION OF PRIMER BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL. ADHESIVE & COATING MATERIAL PER ND1002187 TYPE I. PRIMER TO CONSIST OF SIX PARTS BY VOLUME OF 1012504-1 & ONE PART BY VOLUME OF 1012504-2. APPLY MATERIAL & PRIMER AS INDICATED IN TABLE I.



VIEW A-A



R9 10
CR6 23
R18 13
CR5 24 50
CR14 24 50
R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
R4 7
R10 11
R15 16
Q6 19
CR8 25
CR7 25
CR9 26
Q7 20
C5 28
R3 6
L1 22
R1 4
FT15
FT14
FT12
FT10
FT8
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FT6
FT5
FT3
R20 16
C7 29
R7 10
FT17
CR2 23
R8 11
C1 27
R24 11
C10 29
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R23 10
CR15 23
CR10 23
FT16
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C4 27
C2 27
R29 12
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FT1
Q3 18
SEE NOTE 12
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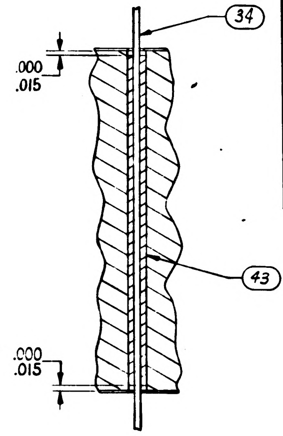
CR3 24 50
CR12 24 50
R26 9
R11 45
R22 45
L4 22
C3 27
CR11 26
CR13 26
C9 28
R14 13
C6 28
C8 28
38
SEE NOTE 10
1
38
SEE NOTE 13 AND 21
1.560
1.540
A
A
R4 REF
SEE NOTE 6
SEE NOTE 17
3
.000
.030
.000
.015
SEE NOTE 6
42

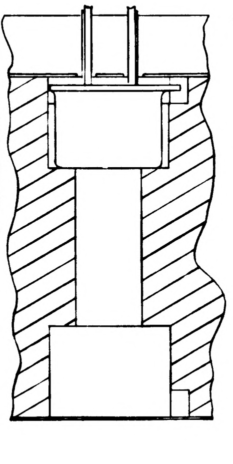
TABLE I

CONFIGURATION	MATERIAL	BOND BETWEEN WAFER & HEAT-SINK	TOP OF WAFER AT PERIMETER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	ADHESIVE	.12 MIN 100% OF PERIMETER .25 MIN 80% OF PERIMETER	.25 MIN 100% OF PERIMETER	N/A
WAFER & ADJACENT VERTICAL HEAT-SINK SURFACE	ADHESIVE	CORNER FILLET & VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	.25 MIN 100% OF PERIMETER	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	PRIMER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 TO .06 OF EXTERNAL EDGE.



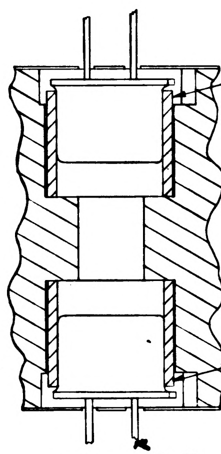
34
.000
.015
43
.000
.015

SECTION G-G

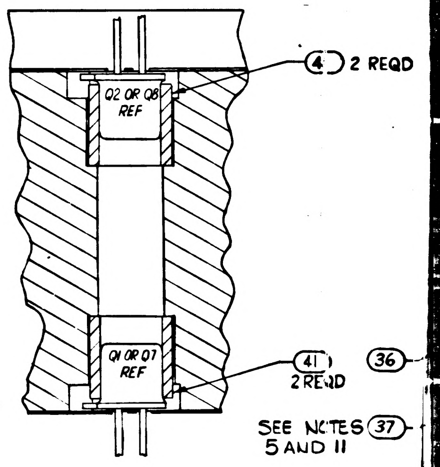


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO. ⑲



SECTION D-D



4 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
41 2 REQD
36
SEE NOTES 37 5 AND 11

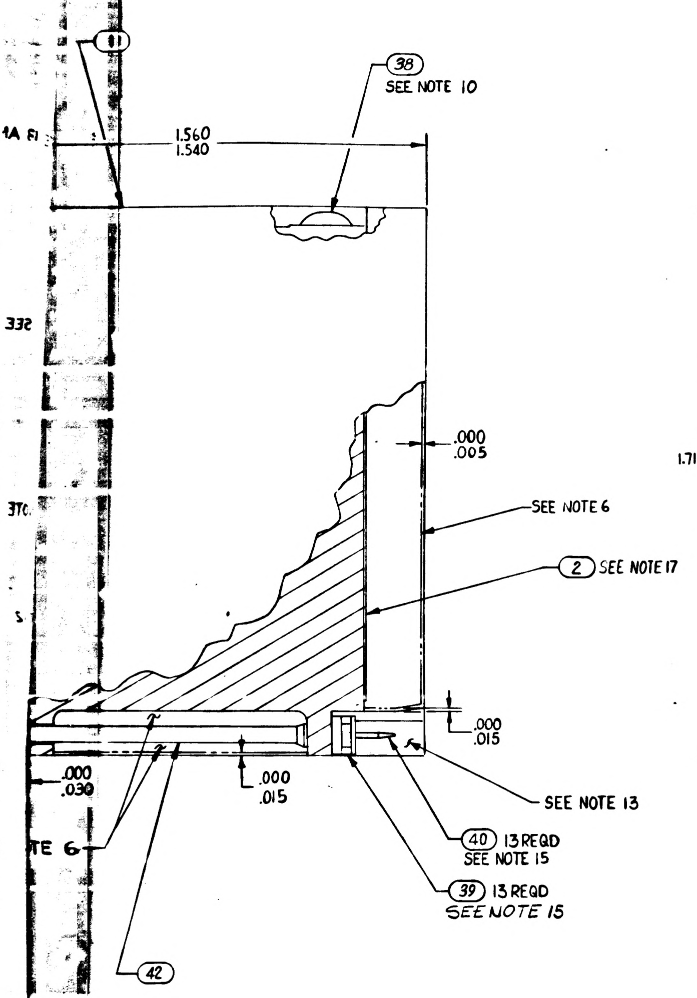
SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. ⑳ & ⑰

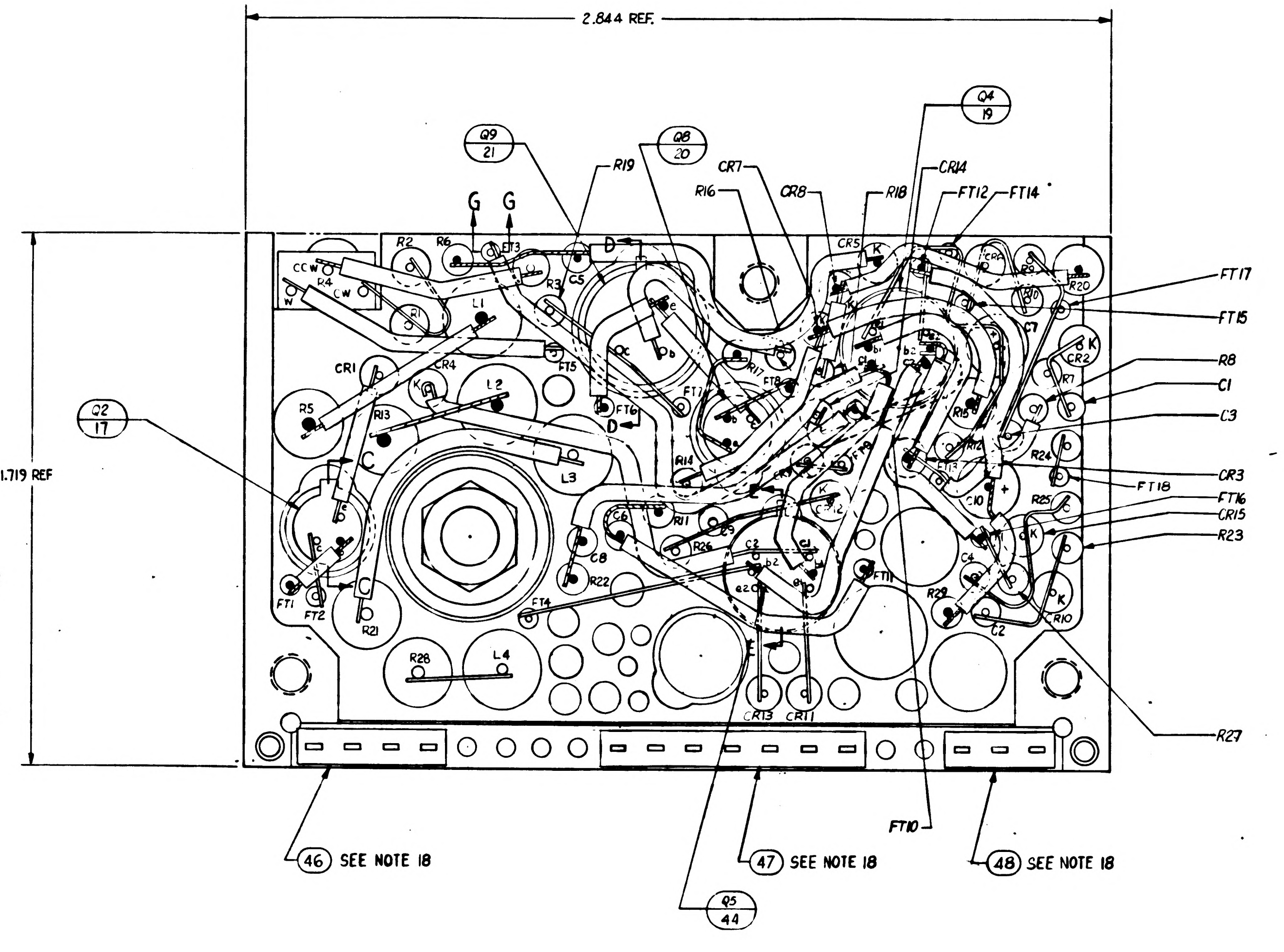
1007516 REV LTR F

1/1007516

REVISIONS 14708					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
(M) A1		(A1) REVISED PER TDRR 16635		25-FEB-65	RS PJ
(M) B	—	REVISED PER TDRR 16854	—	4-MAR-65	B.
(M) C		REVISED PER TDRR 17307		12 MAR 65	JHR EF
(M) D	—	REVISED PER TDRR 17627	—	24 MAR 65	EM AU
(M) E	—	REVISED PER TDRR 18937	—	17 MAY 65	A.N.
F	–	REVISED PER TDRR 19288	—	1 JUNE 65	LAC
G		REVISED PER TDRR 19289		2 JUN 65	EF



81
38 SEE NOTE 10
1.560
1.540
SEE NOTE 6
.000
.005
2 SEE NOTE 17
.000
.015
.000
.030
.000
.015
SEE NOTE 13
40 13 REQD SEE NOTE 15
39 13 REQD SEE NOTE 15
42



2.844 REF.
1.719 REF
Q9 21
Q8 20
Q4 19
Q2 17
Q5 44
G
G
R19
CR7
R16
CR8
R18
CR14
FT12
FT14
FT17
FT15
R8
C1
C3
CR3
FT18
FT16
CR15
R23
R27
CR13
CR11
FT10
R2
R6
C5
R3
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L1
L2
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CR1
R4
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R13
R14
R11
R26
R22
R21
R28
C6
C8
C2
C4
C10
C7
R7
CR2
R20
R24
R25
R29
R10
FT1
FT2
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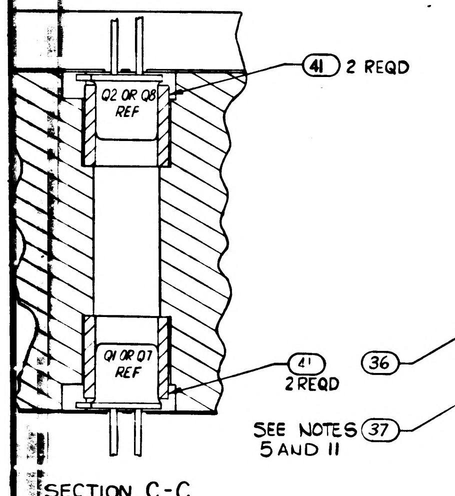
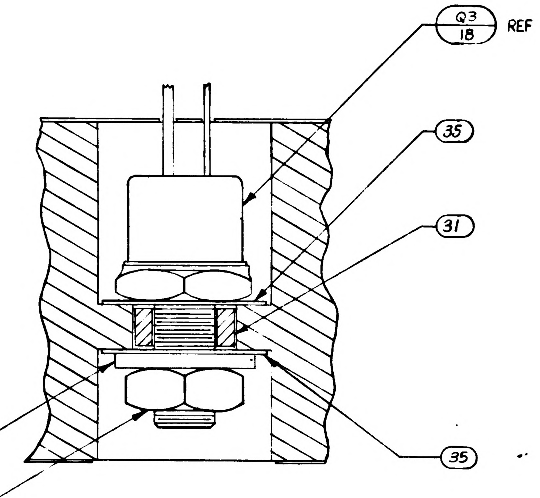
FT11
D
C
K
CCW
CW
W
46 SEE NOTE 18
47 SEE NOTE 18
48 SEE NOTE 18



41 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
41 2 REQD
SEE NOTES 37 5 AND 11

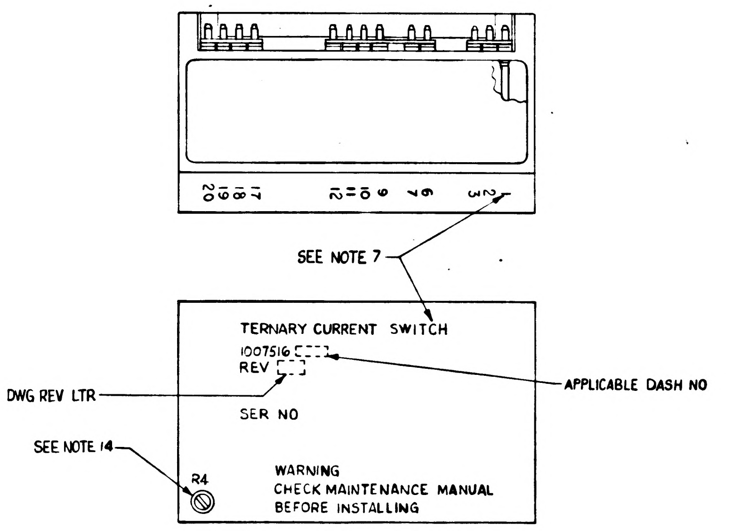
SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. 20 & 17



Q3 18 REF
35
31
36
35

SECTION A-A



20 19 18 17
12 11 10 9
8 7 6
3 2 1
SEE NOTE 7
TERNARY CURRENT SWITCH
1007516
REV
APPLICABLE DASH NO
DWG REV LTR
SER NO
SEE NOTE 14
R4
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2:1

			X		1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
			4		1010833-001	DIODE	50
			1		1010497	DIODE	49
			1		1008540-3	GASKET, CONNECTOR MINIATURE	48
			1		1008540-7	GASKET, CONNECTOR MINIATURE	47
			1		1008540-4	GASKET, CONNECTOR MINIATURE	46
			2		1006750-82	RESISTOR, FIXED MF, 120K 1/4W ±2%	45
			1		1010715-1	TRANSISTOR	44
			AR		1006776-22	INSULATION, SLEEVING	43
			AR		1006776-20	INSULATION, SLEEVING	42
			4		1008025-1	INSULATOR, BUSHING	41
			13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
			13		1006775	INSULATOR, WRAPOST MALE MINAT	39
			2		1000093-3	SCREW, BUTTON HEAD	38
			1		MS35650-104	NUT, PLAIN, HEX	37
			1		1008020-1	WASHER, FLAT	36
			2		1008024-1	WASHER, INSULATOR	35
			AR		1006767-2	WIRE, ELECTRICAL .020 DIA	34
			AR		1006757-1	WIRE, ELECTRICAL .010 X.020	33
			2		1008025-2	INSULATOR. BUSHING	32
			1		1008021-1	INSULATOR, BUSHING	31
			AR		1006776-21	INSULATION SLEEVING	30
			2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35V ±10%	29
			4		1006777-13	CAPACITOR, FIXED CER, 100 UUF 100V ±10%	28
			4		1006777-20	CAPACITOR, FIXED CER, 470 UUF 100V ±10%	27
			3		1010394	DIODE	26
			2		1010384	DIODE	25
			~~4~~		~~1010462-6~~	~~DIODE~~	~~24~~
			5		1010385	DIODE	23
			4		1010388-39	INDUCTOR, .01H 75MA ±5%	22
			2		1010386	TRANSISTOR	21
			2		1006752	TRANSISTOR	20
			2		1010376-4	TRANSISTOR	19
			1		1010269-3	TRANSISTOR	18
			2		1010357-1	TRANSISTOR	17
			2		1006760-56	RESISTOR, FIXED MF, 10K 1/2 W ±2%	16
			1		1006750-62	RESISTOR, FIXED MF, 18K 1/4 W ±2%	15
			2		1010369-148	RESISTOR, FIXED COMP 20, 1/8 W ±5%	14
			2		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	13
			2		1006750-18	RESISTOR, FIXED MF, 270 1/4W ±2%	12
			4		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
			4		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ±2%	10
			2		1010369-87	RESISTOR, FIXED MF, 180K 1/8W ±5%	9
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	8
			1		1010373-10	RESISTOR, VARIABLE, 10K 1W ±5%	7
			1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±1%	6
			1		1010364-635	RESISTOR, FIXED MF, 100K 1/8W ±1%	5
			1		1010364-663	RESISTOR, FIXED MF, 178K 1/8W ±1%	4
			1		1008600	INSULATOR, TOP	3
			1		1008255	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

1007516 G

1007574		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN C. Knofsk DATE 20 Jul 64
CHECKED W. Oreal 25 Aug 64
J M BLYSHAK 3 DEC 64
APPROVAL J. W. [illegible] 27 Aug 64
APPROVAL [illegible] 9/4/64
NASA APPROVAL 12-8-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

TERNARY CURRENT SWITCH, COMPUTER OUTPUT, ASSEMBLY

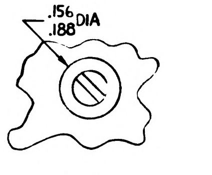
CODE IDENT NO. 80230
SIZE J2
1007516
SCALE 5:1
SHEET 1 of 1

REL LTR G

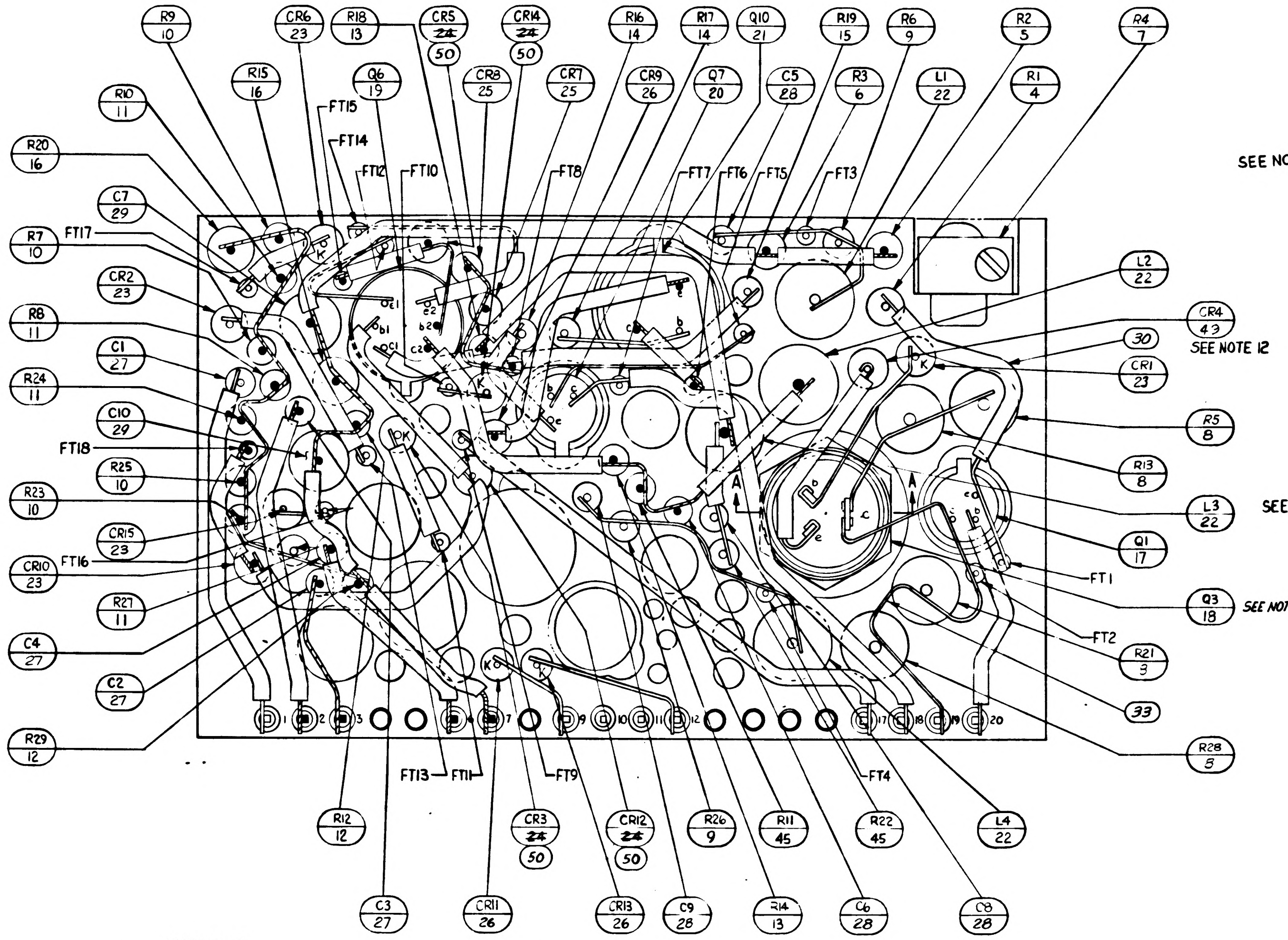
2/1007516

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND 1002019 & SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO. 4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD C AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND 1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND 1002009 METHOD C
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND 1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    BROKEN PATHS INDICATE INSULATION SLEEVING
    K INDICATES CATHODE SIDE OF DIODE
    FT( ) INDICATES FEED THRU
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    C INDICATES COLLECTOR LEAD OF TRANSISTOR
    B INDICATES BASE LEAD OF TRANSISTOR
    E INDICATES EMITTER LEAD OF TRANSISTOR
    C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND 1002237.
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
20. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
21. SEAL CALIBRATION POT R4 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007016 HAVE BEEN SATISFIED.
22. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS & APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL & COATING AS INDICATED IN TABLE I.



VIEW A-A


R9 10
CR6 23
R18 13
CR5 ~~24~~ 50
CR14 ~~24~~ 50
R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
R4 7
R15 16
Q6 19
CR8 25
CR7 25
CR9 26
Q7 20
C5 28
R3 6
L1 22
R1 4
R10 11
R20 16
FT15
FT14
FT12
FT10
FT8
FT7
FT6
FT5
FT3
C7 29
FT17
R7 10
CR2 23
R8 11
C1 27
R24 11
C10 29
FT18
R25 10
R23 10
CR15 23
CR10 23
FT16
R27 11
C4 27
C2 27
R29 12
L2 22
CR4 43
SEE NOTE 12
30
CR1 23
R5 8
R13 8
L3 22
Q1 17
FT1
Q3 18
SEE NOTE 12
FT2
R21 3
33
R28 5
FT4
L4 22
FT13
FT11
FT9
R12 12
CR3 ~~24~~ 50
CR12 ~~24~~ 50
R26 9
R11 45
R22 45
C3 27
CR11 26
CR13 26
C9 28
R14 13
C6 28
C8 28
1
2
3
4
5
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7
8
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10
11
12
13
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15
16
17
18
19
20
K
A

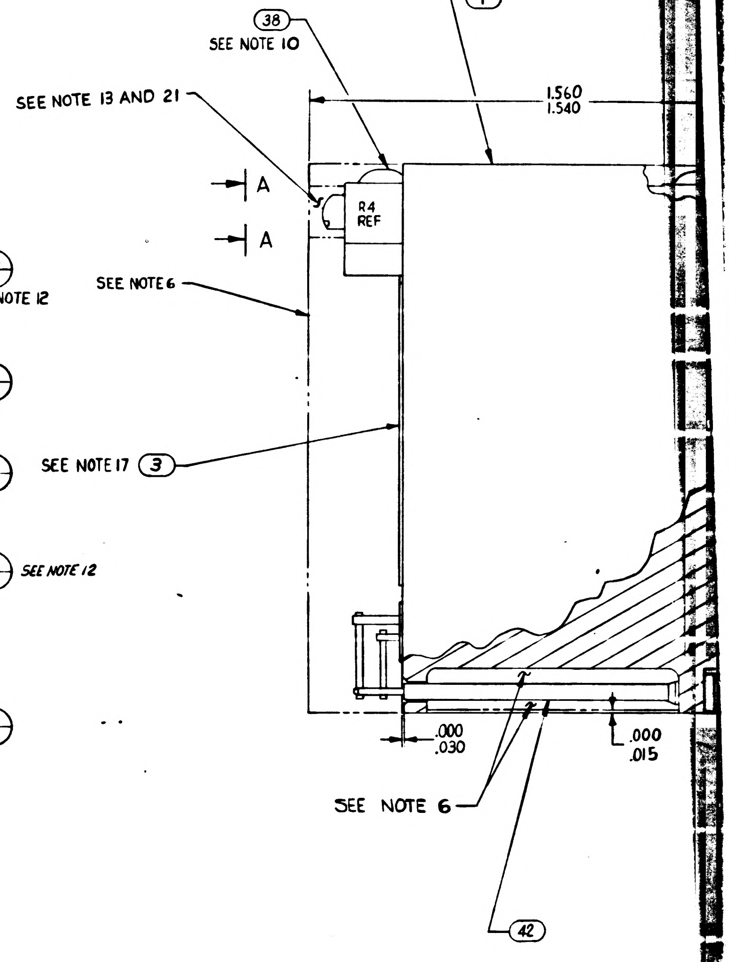
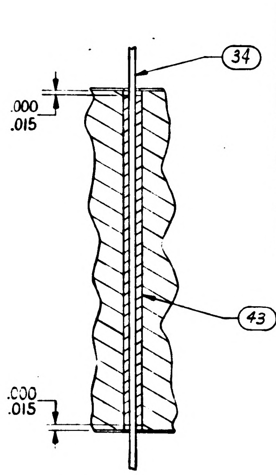
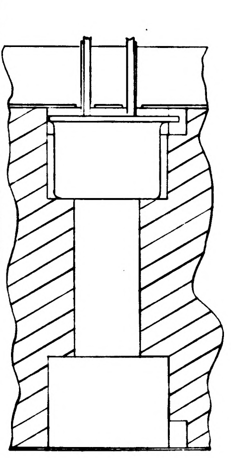

38
SEE NOTE 10
1
SEE NOTE 13 AND 21
1.560
1.540
A
A
R4 REF
SEE NOTE 6
SEE NOTE 17
3
.000
.030
.000
.015
SEE NOTE 6
42

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.

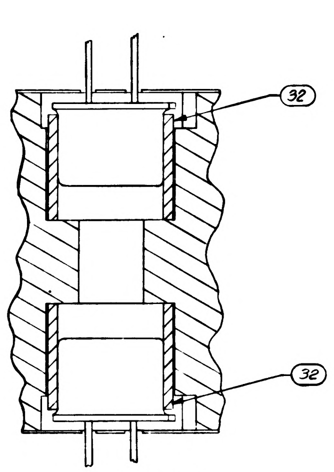

34
.000
.015
43
.000
.015

SECTION G-G

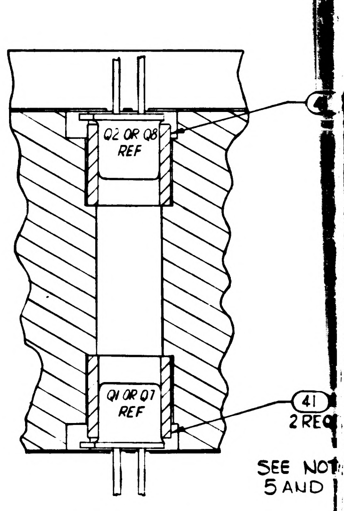


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO (19)



SECTION D-D


Q2 OR Q8 REF
Q1 OR Q7 REF
41
2 REQ
SEE NOTE
5 AND

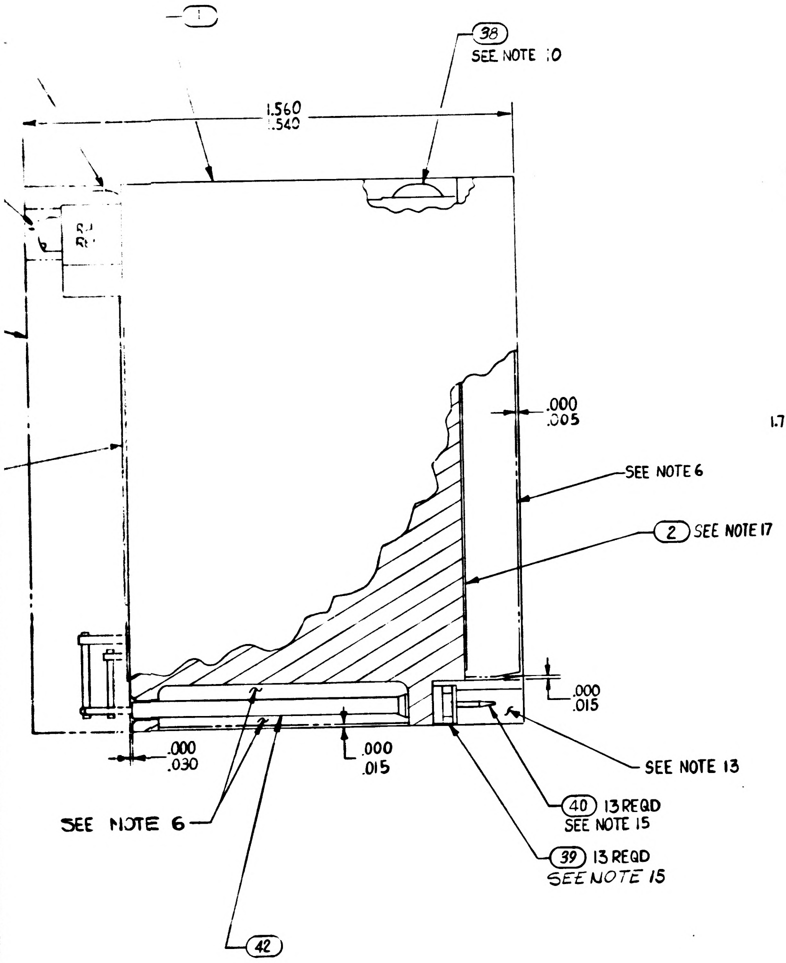
SECTION C-C

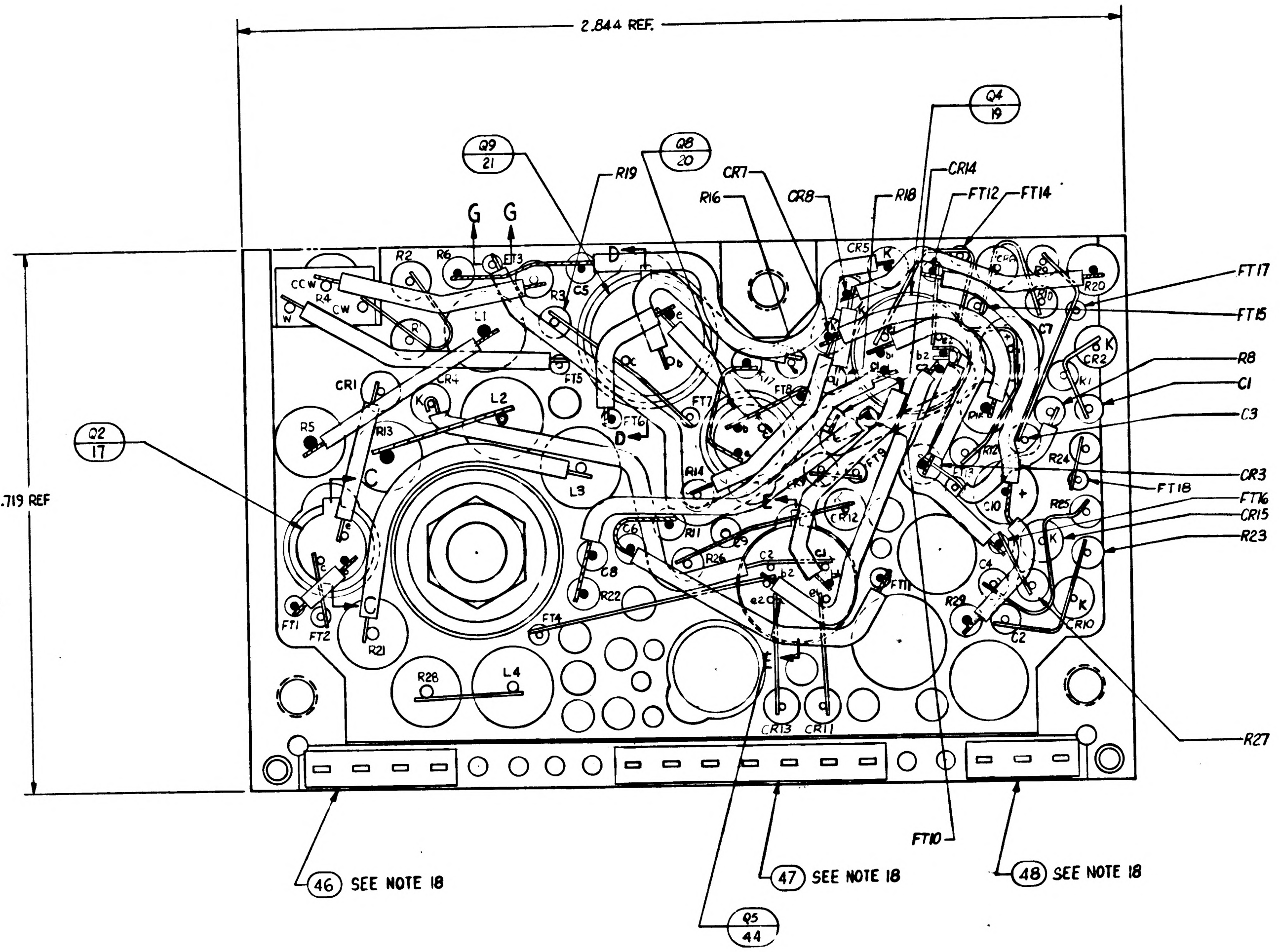
TYPICAL INSTALLATION FOR FIND NO. (20) & (17)

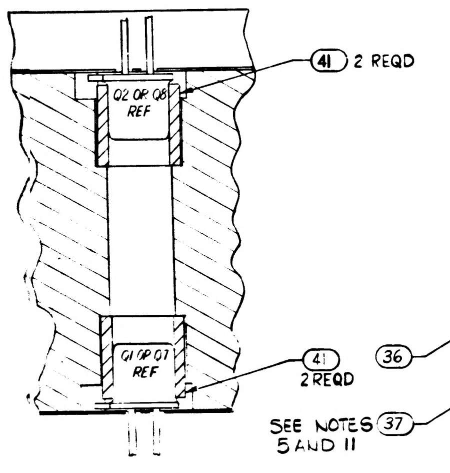
1007516	REV LTR G

1/1007516

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A1		Ⓐ① REVISED PER TDRR 16635		25-FEB-65	RS
B	—	REVISED PER TDRR 16854	—	4-MAR-65	
C		REVISED PER TDRR 17307		12 MAR 65	
D	—	REVISED PER TDRR 17627	—	24 MAR 65	EM
E	—	REVISED PER TDRR 18937	—	17 MAY 65	
F	-	REVISED PER TDRR 19288	—	1 JUNE 65	
G		REVISED PER TDRR 19289		2 JUN 65	
H		REVISED PER TDRR 19290		3 JUN 65	

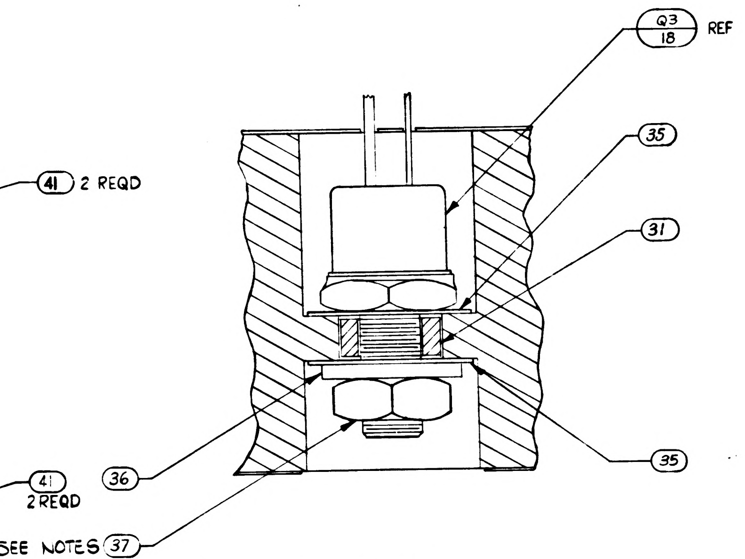

38
SEE NOTE 10
1.560
1.540
.000
.005
SEE NOTE 6
2 SEE NOTE 17
.000
.015
.000
.030
.000
.015
SEE NOTE 13
40 13 REQD
SEE NOTE 15
39 13 REQD
SEE NOTE 15
SEE NOTE 6
42


2.844 REF.
1.719 REF
Q9 21
Q8 20
Q4 19
Q2 17
Q5 44
G
G
R19
CR7
CR8
R16
R18
CR14
FT12
FT14
FT17
FT15
R8
C1
C3
CR3
FT18
FT16
CR15
R23
R27
FT10
CR1
CR4
R5
R13
L1
L2
L3
L4
R2
R6
R4
R3
C5
CCW
CW
FT3
FT5
FT6
FT7
FT8
FT9
FT11
FT13
FT4
FT1
FT2
R11
R12
R14
R20
R21
R22
R24
R25
R26
R28
R9
R10
CR2
CR5
CR6
CR9
CR10
CR11
CR12
CR13
C2
C4
C6
C7
C8
C10
46 SEE NOTE 18
47 SEE NOTE 18
48 SEE NOTE 18

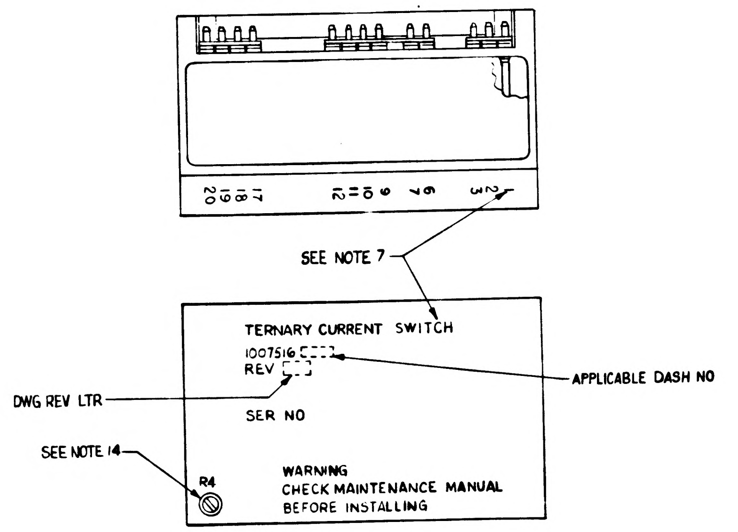

Q2 OR Q8 REF
41 2 REQD
Q1 OR Q7 REF
41 2 REQD

SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. ⑳ & ⑰


Q3 18 REF
35
31
36
35
SEE NOTES 37 5 AND 11

SECTION A-A


20 19 18 17
12 11 10 9
7 6
3 2 1
SEE NOTE 7
DWG REV LTR
APPLICABLE DASH NO
SEE NOTE 14
R4

TERNARY CURRENT SWITCH
1007516 [- -]
REV [- -]

SER NO

WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2:1

QUANTITY REQUIRED			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
			☒		1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
			4		1010833-001	DIODE	50
			1		1010497	DIODE	49
			1		1008540-3	GASKET, CONNECTOR MINIATURE	48
			1		1008540-7	GASKET, CONNECTOR MINIATURE	47
			1		1008540-4	GASKET, CONNECTOR MINIATURE	46
			2		1006750-82	RESISTOR, FIXED MF, 120K 1/4W ±2%	45
			1		1010715-1	TRANSISTOR	44
			AR		1006776-22	INSULATION, SLEEVING	43
			AR		1006776-20	INSULATION, SLEEVING	42
			4		1008025-1	INSULATOR, BUSHING	41
			13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
			13		1006775	INSULATOR, WRAPOST MALE MINAT	39
			2		1000093-3	SCREW, BUTTON HEAD	38
			1		MS35650-104	NUT, PLAIN, HEX	37
			1		1008020-1	WASHER, FLAT	36
			2		1008024-1	WASHER, INSULATOR	35
			AR		1006787-2	WIRE, ELECTRICAL .020 DIA	34
			AR		1006757-1	WIRE, ELECTRICAL .010 X .020	33
			2		1008025-2	INSULATOR, BUSHING	32
			1		1008021-1	INSULATOR, BUSHING	31
			AR		1006776-21	INSULATION SLEEVING	30
			2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35 V ± 10%	29
			4		1006777-13	CAPACITOR, FIXED CER, 100 UUF 100V ± 10%	28
			4		1006777-20	CAPACITOR, FIXED CER, 470 UUF 100V ± 10%	27
			3		1010394	DIODE	26
			2		1010384	DIODE	25
			~~4~~		~~1010462-6~~	~~DIODE~~	~~24~~
			5		1010385	DIODE	23
			4		1010388-39	INDUCTOR, .01H 75MA ± 5%	22
			2		1010386	TRANSISTOR	21
			2		1006752	TRANSISTOR	20
			2		1010376-4	TRANSISTOR	19
			1		1010269-3	TRANSISTOR	18
			2		1010357-1	TRANSISTOR	17
			2		1006760-56	RESISTOR, FIXED MF, 10K 1/2 W ± 2%	16
			1		1006750-62	RESISTOR, FIXED MF, 18K 1/4 W ± 2%	15
			2		1010369-148	RESISTOR, FIXED COMP 20, 1/8 W ±5%	14
			2		1006750-15	RESISTOR, FIXED MF, 200 1/4 W ± 2%	13
			2		1006750-16	RESISTOR, FIXED MF, 270 1/4 W ± 2%	12
			4		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
			4		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ±2%	10
			2		1010369-87	RESISTOR, FIXED MF, 180K 1/8W ±5%	9
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	8
			1		1010373-10	RESISTOR, VARIABLE, 10K 1W ±5%	7
			1		1010364-557	RESISTOR, FIXED MF, 332K 1/8W ±1%	6
			1		1010364-635	RESISTOR, FIXED MF, 100K 1/8W ±1%	5
			1		1010364-683	RESISTOR, FIXED MF, 178K 1/8W ±1%	4
			1		1008600	INSULATOR, TOP	3
			1		1008255	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —

DO NOT SCALE THIS DRAWING

MATERIAL —

CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN C. Knofle DATE 20 Jul 64
CHECKED 25 Aug 64
J M RAYSMAN 1 DEC 64
APPROVAL 27 Aug 64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

CODE IDENT NO. 80230
SIZE J2
1007516
SCALE 5:1
SHEET 1 OF 1

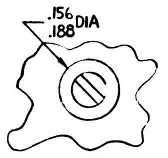
1007516 H

1007516

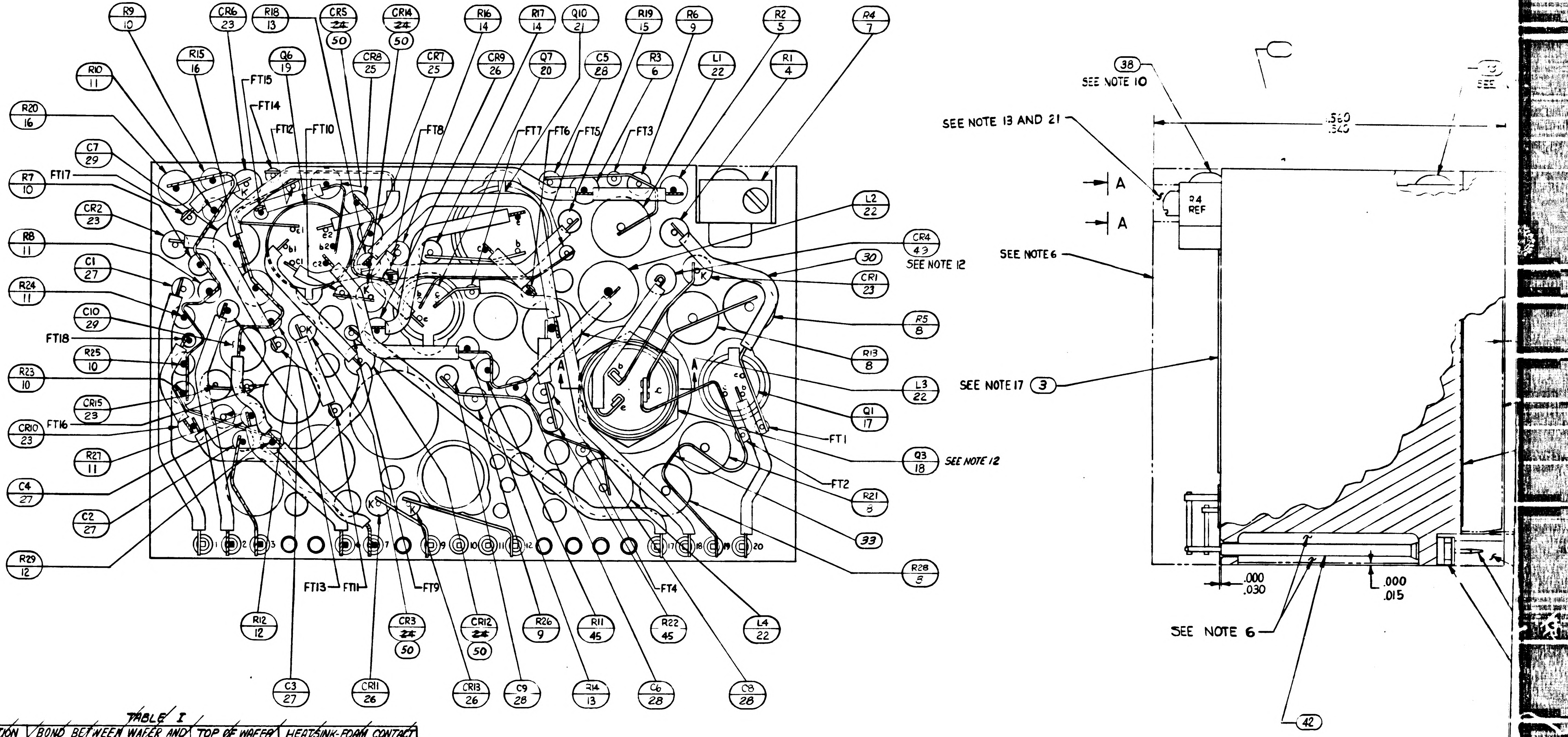
2710075 16

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO. 4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD H AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    - BROKEN PATHS INDICATE INSULATION SLEEVING
    - K INDICATES CATHODE SIDE OF DIODE
    - FT( ) INDICATES FEED THRU
    - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    - C INDICATES COLLECTOR LEAD OF TRANSISTOR
    - B INDICATES BASE LEAD OF TRANSISTOR
    - E INDICATES EMITTER LEAD OF TRANSISTOR
    - C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    - B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    - E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
20. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
21. SEAL CALIBRATION POT R4 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007016 HAVE BEEN SATISFIED.
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS & APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL & COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.



VIEW A-A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R18 13
CR5 24 50
CR14 24 50
R16 14
R17 14
Q10 21
R19 15
R6 9
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R15 16
Q6 19
CR8 25
CR7 25
CR9 26
Q7 20
C5 28
R3 6
L1 22
R1 4
FT15
FT14
FT12
FT10
FT8
FT7
FT6
FT5
FT3
R20 16
C7 29
FT17
R7 10
CR2 23
R8 11
C1 27
R24 11
C10 29
FT18
R25 10
R23 10
CR15 23
FT16
CR10 23
R21 11
C4 27
C2 27
R29 12
L2 22
CR4 43
SEE NOTE 12
30
CR1 23
R5 8
R13 8
L3 22
Q1 17
FT1
Q3 18
SEE NOTE 12
FT2
R21 8
33
R28 8
FT13
FT11
FT9
FT4
R12 12
CR3 24 50
CR12 24 50
R26 9
R11 45
R22 45
L4 22
C3 27
CR11 26
CR13 26
C9 28
R14 13
C6 28
C8 28
K
A
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10
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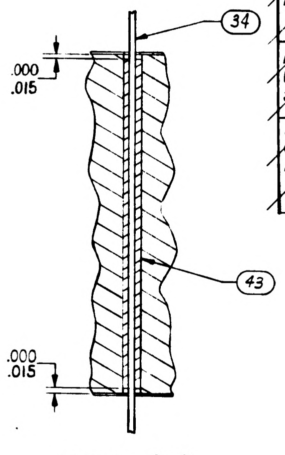
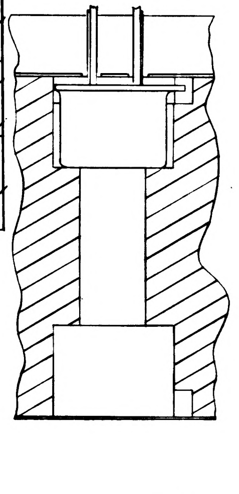
12
17
18
19
20
38
SEE NOTE 10
SEE NOTE 13 AND 21
A
A
R4 REF
.560
.540
SEE NOTE 6
SEE NOTE 17
3
.000
.030
.000
.015
SEE NOTE 6
42

TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.~~

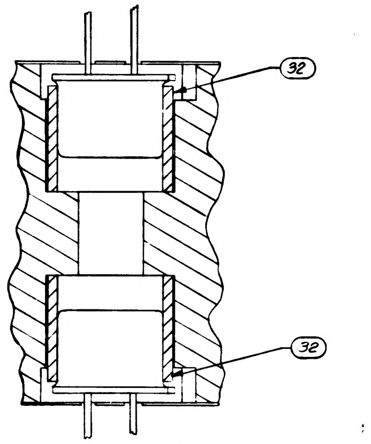

34
.000
.015
43
.000
.015

SECTION G-G

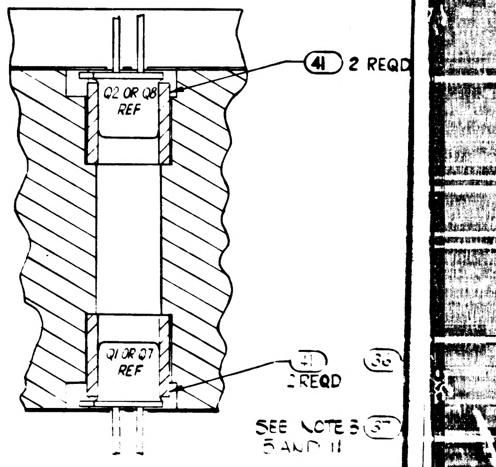


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO (19)



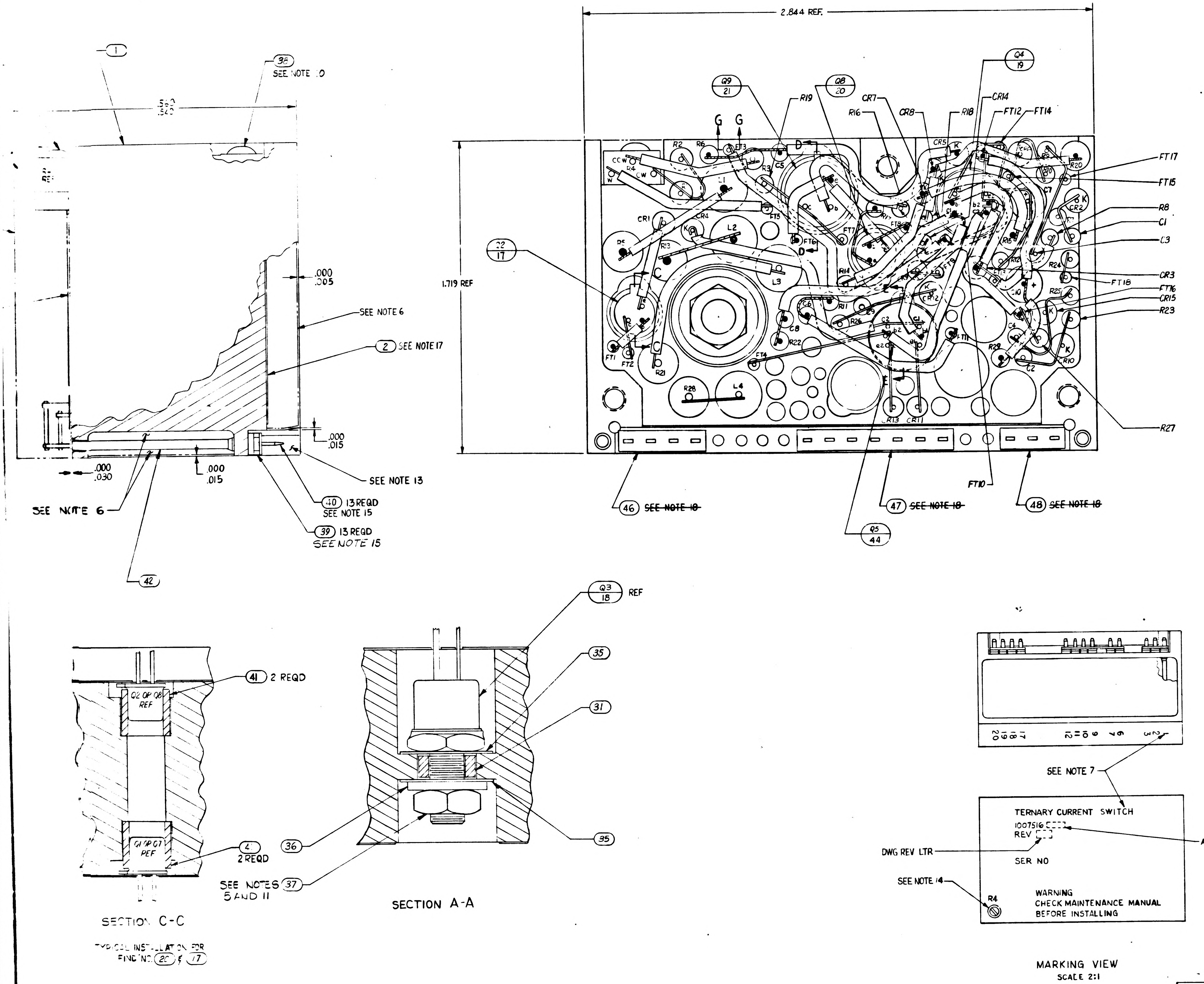
SECTION D-D


41 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
2 REQD
SEE NOTE 5
AND 11

SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. (20) & (17)

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A1		(A1) REVISED PER TDRR 16635		25 FEB 65	
B	—	REVISED PER TDRR 16854	—	4 MAR 65	
C		REVISED PER TDRR 17307		2 MAR 65	
D	—	REVISED PER TDRR 17627	—	24 MAR 65	
E	—	REVISED PER TDRR 18937	—	7 MAY 65	
F	-	REVISED PER TDRR 19288	—	1 JUNE 65	
G		REVISED PER TDRR 19289		65	
H		REVISED PER TDRR 19290		65	
J		REVISED PER TDRR 20143		65	



2.844 REF.
1.719 REF
1
38
SEE NOTE 10
.500
.520
.000
.005
SEE NOTE 6
2 SEE NOTE 17
.000
.015
.000
.030
.000
.015
SEE NOTE 13
SEE NOTE 6
40 13 REQD
SEE NOTE 15
39 13 REQD
SEE NOTE 15
42
Q9 21
Q8 20
Q4 19
Q2 17
Q5 44
R19
CR7
R16
CR8
R18
CR14
FT12
FT14
FT17
FT15
R8
C1
L3
CR3
FT18
FT16
CR15
R23
R27
R2
R6
FT3
R3
C5
R4
CCW
CW
L1
CR1
CR4
L2
FT5
FT6
R13
L3
R5
FT1
FT2
R21
C8
R22
FT4
R11
R26
R14
C2
C3
C6
C7
R20
R9
R7
CR2
CR5
CR6
CR12
CR11
R24
R25
R29
R10
R12
R28
L4
FT7
FT8
FT9
FT10
FT11
FT13
G
G
D
D
E
46 ~~SEE NOTE 18~~
47 ~~SEE NOTE 18~~
48 ~~SEE NOTE 18~~
Q3 18 REF
35
31
35
36
37 SEE NOTES 5 AND 11
41 2 REQD
Q2 OR Q8 REF
Q4 OR Q7 REF
4 2 REQD
SECTION C-C
TYPICAL INSTALLATION FOR FIND NO. 20 & 17
SECTION A-A
20 19 18 17
12 11 10 9
7 6 5
3 2 1
SEE NOTE 7
TERNARY CURRENT SWITCH
1007516
REV
APPLICABLE DASH NO
DWG REV LTR
SER NO
SEE NOTE 14
R4
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING
MARKING VIEW
SCALE 2:1

			☒		1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
			4		1010833-001	DIODE	50
			1		1010497	DIODE	49
			1		1008540-3	GASKET, CONNECTOR MINIATURE	48
			1		1008540-7	GASKET, CONNECTOR MINIATURE	47
			1		1008540-4	GASKET, CONNECTOR MINIATURE	46
			2		1006750-82	RESISTOR, FIXED MF, 120K ¼W ±2%	45
			1		1010715-1	TRANSISTOR	44
			AR		1006776-22	INSULATION, SLEEVING	43
			AR		1006776-20	INSULATION, SLEEVING	42
			4		1008025-1	INSULATOR, BUSHING	41
			13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
			13		1006775	INSULATOR, WRAPOST MALE MINAT	39
			2		1000093-3	SCREW, BUTTON HEAD	38
			1		MS35650-104	NUT, PLAIN, HEX	37
			1		1008020-1	WASHER, FLAT	36
			2		1008024-1	WASHER, INSULATOR	35
			AR		1006767-2	WIRE, ELECTRICAL .020 DIA	34
			AR		1006757-1	WIRE, ELECTRICAL .010 X .020	33
			2		1008025-2	INSULATOR, BUSHING	32
			1		1008021-1	INSULATOR, BUSHING	31
			AR		1006776-21	INSULATION SLEEVING	30
			2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35V ±10%	29
			4		1006777-13	CAPACITOR, FIXED CER, 100 UUF 100V ±10%	28
			4		1006777-20	CAPACITOR, FIXED CER, 470 UUF 100V ±10%	27
			3		1010394	DIODE	26
			2		1010384	DIODE	25
			~~4~~		~~1010462-6~~	~~DIODE~~	~~24~~
			5		1010385	DIODE	23
			4		1010388-39	INDUCTOR, .01H 75MA ±5%	22
			2		1010386	TRANSISTOR	21
			2		1006752	TRANSISTOR	20
			2		1010376-4	TRANSISTOR	19
			1		1010269-3	TRANSISTOR	18
			2		1010357-1	TRANSISTOR	17
			2		1006760-56	RESISTOR, FIXED MF, 10K ½W ±2%	16
			1		1006750-62	RESISTOR, FIXED MF, 18K ¼W ±2%	15
			2		1010369-148	RESISTOR, FIXED COMP 20, ⅛W ±5%	14
			2		1006750-15	RESISTOR, FIXED MF, 200 ¼W ±2%	13
			2		1006750-18	RESISTOR, FIXED MF, 270 ¼W ±2%	12
			4		1006750-67	RESISTOR, FIXED MF, 30K ¼W ±2%	11
			4		1006750-81	RESISTOR, FIXED MF, 110K ¼W ±2%	10
			2		1010369-87	RESISTOR, FIXED MF, 180K ⅛W ±5%	9
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	8
			1		1010373-10	RESISTOR, VARIABLE, 10K 1W ±5%	7
			1		1010364-557	RESISTOR, FIXED MF, 332K ⅛W ±1%	6
			1		1010364-635	RESISTOR, FIXED MF, 100K ⅛W ±1%	5
			1		1010364-683	RESISTOR, FIXED MF, [illegible]K ⅛W ±	4
			1		1008600	INSULATOR, TOP	3
			1		1008255	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

1007516 J

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN C. Knight DATE 20 Mar 64
CHECKED 25 AUG 64
J. M. PATSHAK 3 DEC 64
APPROVAL 27 AUG 64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

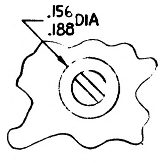
TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

CODE IDENT NO. 80230
SIZE J2
1007516
SCALE 5:1
SHEET 1 OF 1

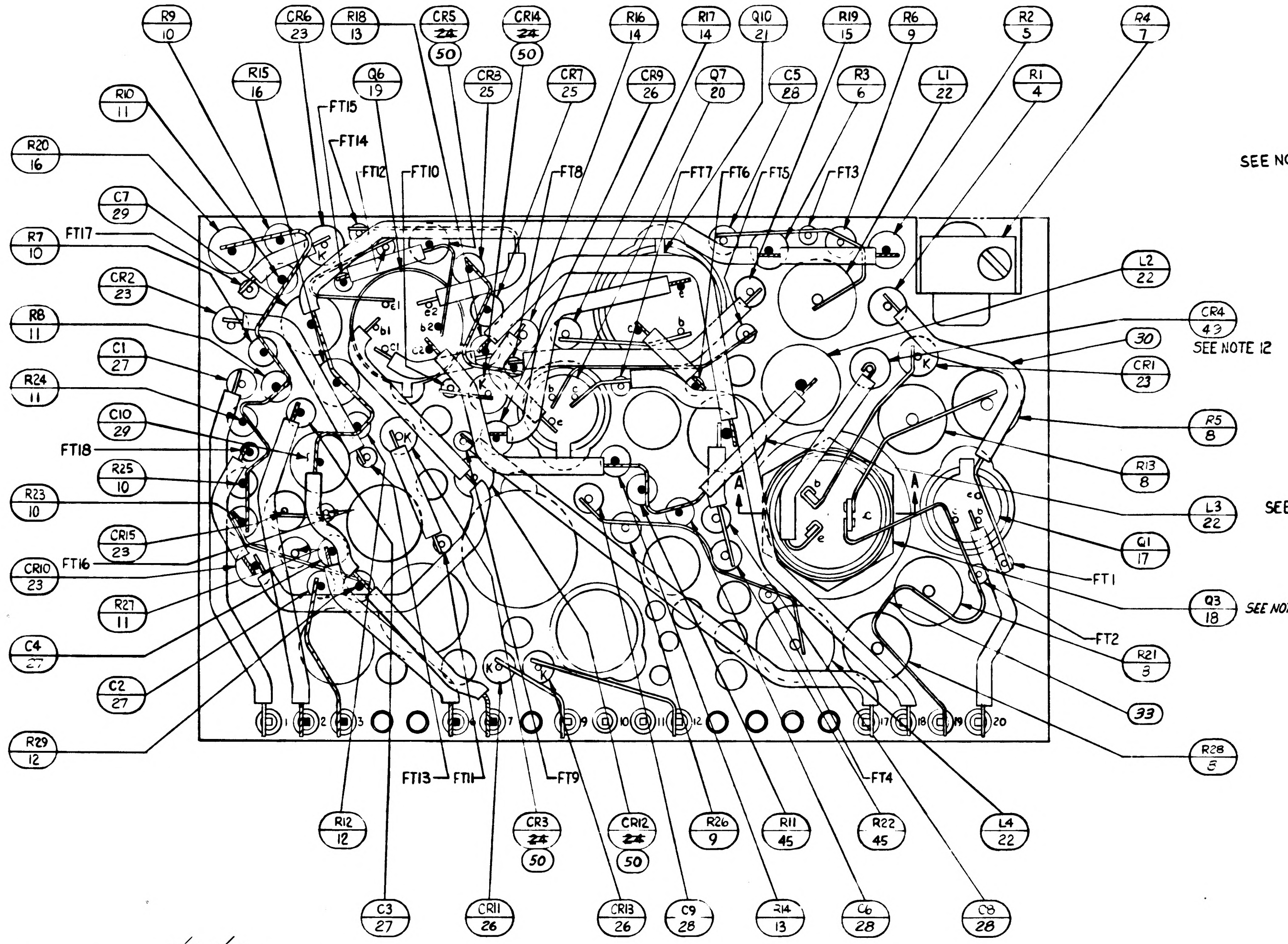
2/1007516

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO. 4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD H AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    - BROKEN PATHS INDICATE INSULATION SLEEVING
    - K INDICATES CATHODE SIDE OF DIODE
    - FT( ) INDICATES FEED THRU
    - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    - C INDICATES COLLECTOR LEAD OF TRANSISTOR
    - B INDICATES BASE LEAD OF TRANSISTOR
    - E INDICATES EMITTER LEAD OF TRANSISTOR
    - C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    - B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    - E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. ~~BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND 1002237.~~
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
20. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
21. SEAL CALIBRATION POT R4 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007016 HAVE BEEN SATISFIED.
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS & APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II, APPLY MATERIAL & COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.



VIEW A-A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CR6 23
R18 13
CR5 24 50
CR14 24 50
R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
R4 7
R15 16
Q6 19
CR8 25
CR7 25
CR9 26
Q7 20
C5 28
R3 6
L1 22
R1 4
R10 11
R20 16
C7 29
R7 10
CR2 23
R8 11
C1 27
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FT12
FT13
FT14
FT15
FT16
FT17
FT18
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SEE NOTE 12
30
CR1 23
R5 8
R13 8
L3 22
SEE NOTE 17 3
Q1 17
Q3 18
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R28 8
R12 12
CR3 24 50
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R26 9
R11 45
R22 45
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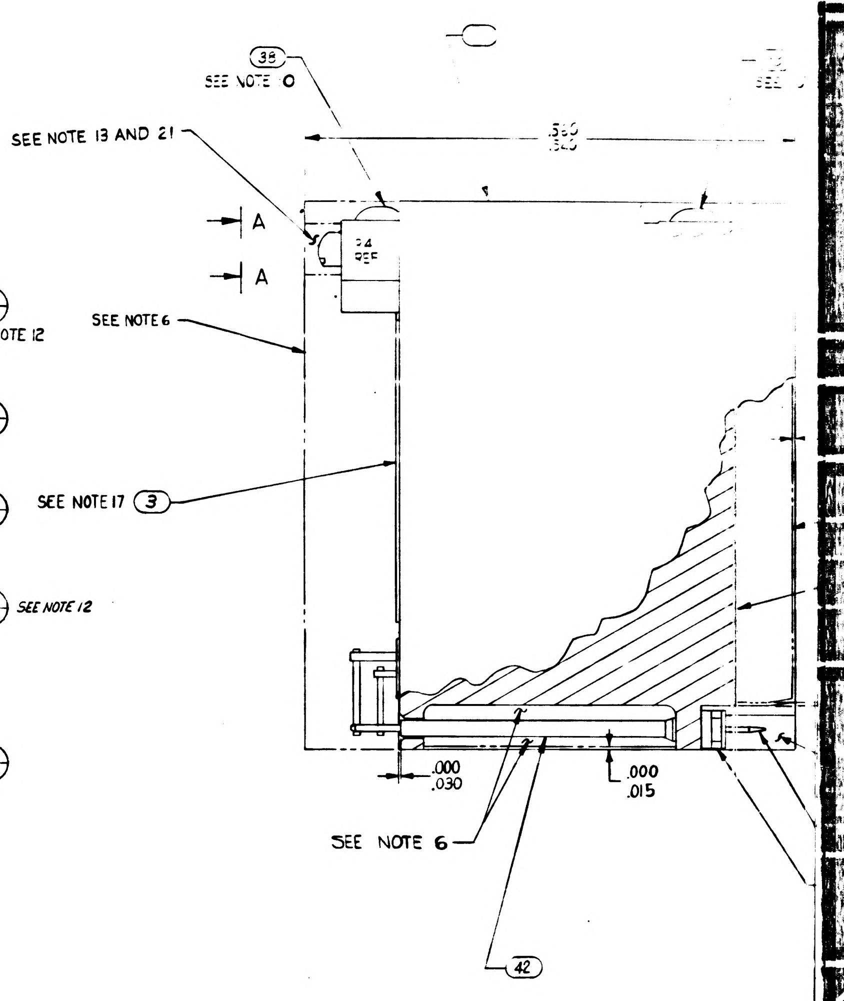
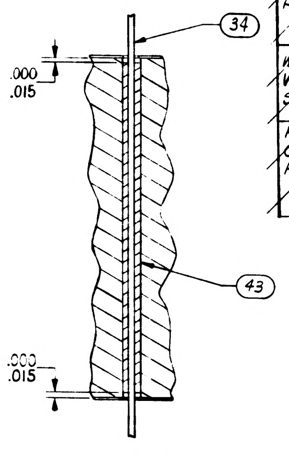
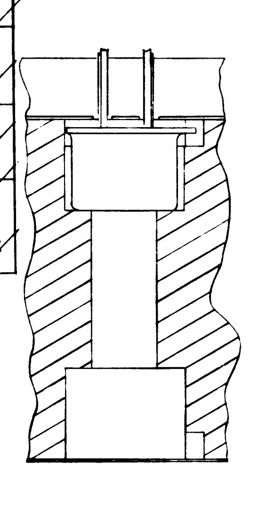

38
SEE NOTE 10
SEE NOTE 13 AND 21
A
A
24 REF
SEE NOTE 6
.000
.030
.000
.015
SEE NOTE 6
42

TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.~~

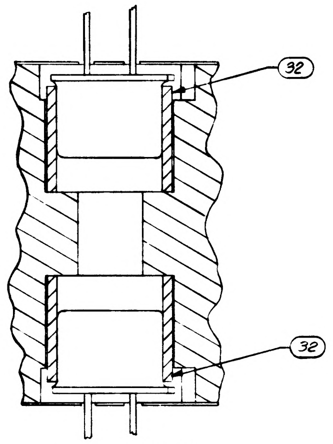

34
.000
.015
43
.000
.015

SECTION G-G

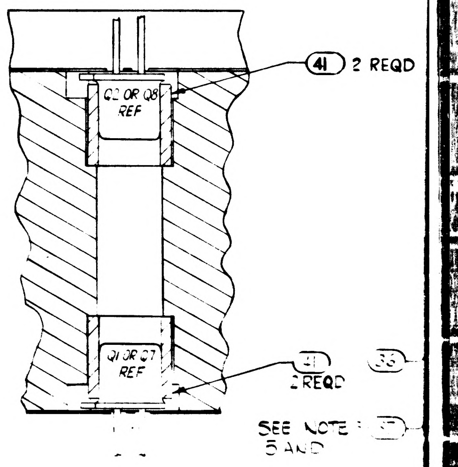


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO (19)



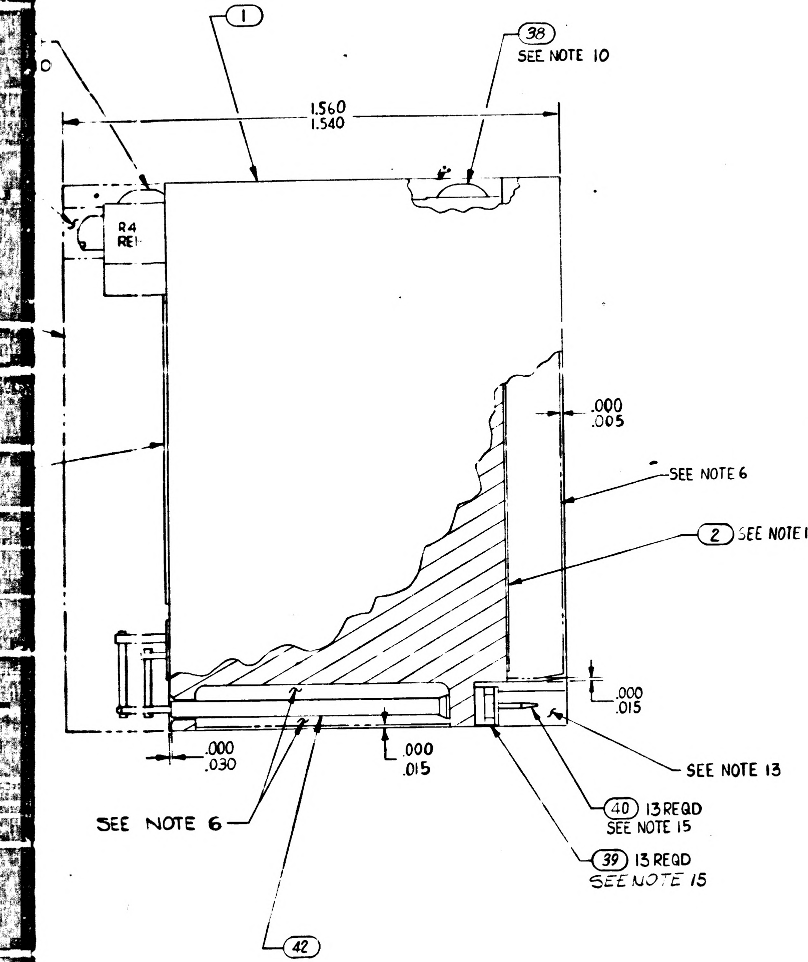
SECTION D-D

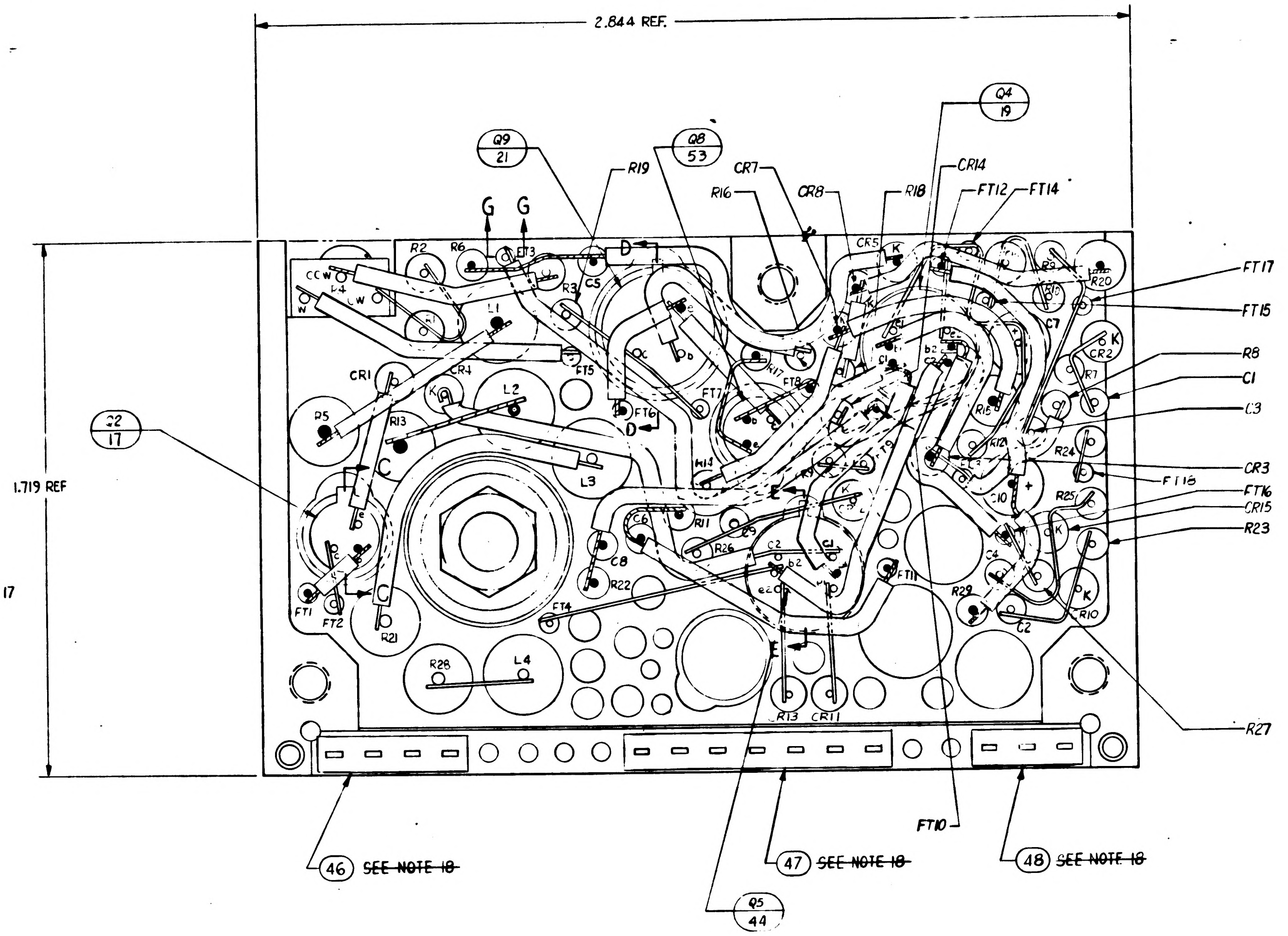

41 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
2 REQD
SEE NOTE
5 AND

SECTION C-C

TYPICAL INSTALLATION FOR FIND NO (3) & (17)

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A1		(A1) REVISED PER TDRR 16635		25-FEB-65	
B	—	REVISED PER TDRR 16854	—	4-MAR-65	B.
C		REVISED PER TDRR 17307		12 MAR 65	JHK EF
D	—	REVISED PER TDRR 17627	—	24 MAR 65	EM AU
E	—	REVISED PER TDRR 18937	—	17 MAY 65	A.N.
F	–	REVISED PER TDRR 19288	—	1 JUNE 65	
G		REVISED PER TDRR 19289		JUN 65	EF
H		REVISED PER TDRR 19290		JUN 65	RWH
J		REVISED PER TDRR 20143		9 JUN 65	RH
K		REVISED PER TDRR 21278		31 JUL 65	RLP


1
38
SEE NOTE 10
1.560
1.540
R4
RE
.000
.005
SEE NOTE 6
2 SEE NOTE 17
.000
.015
.000
.030
.000
.015
SEE NOTE 13
SEE NOTE 6
40 13 REQD
SEE NOTE 15
39 13 REQD
SEE NOTE 15
42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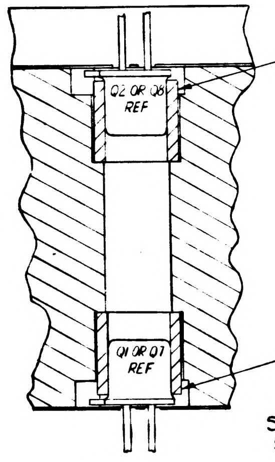
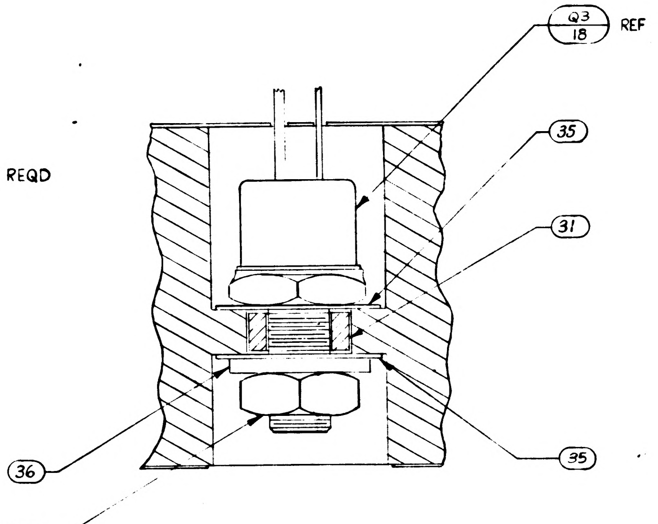
1.719 REF
Q9 21
Q8 53
Q4 19
Q2 17
Q5 44
G G
R19
CR7
R16
CR8
R18
CR14
FT12
FT14
FT17
FT15
R8
C1
C3
CR3
FT18
FT16
CR15
R23
R27
FT10
46 SEE NOTE 18
47 SEE NOTE 18
48 SEE NOTE 18
R2 R6 C3 C5 L1 CR1 CR4 L2 L3 R5 R13 FT1 FT2 R21 R22 C8 FT4 R26 R11 R28 L4 R13 CR11 R29 C2 R10 R20 R24 R25 C7 CR2 FT15 FT6 FT7 FT8 FT11 FT14

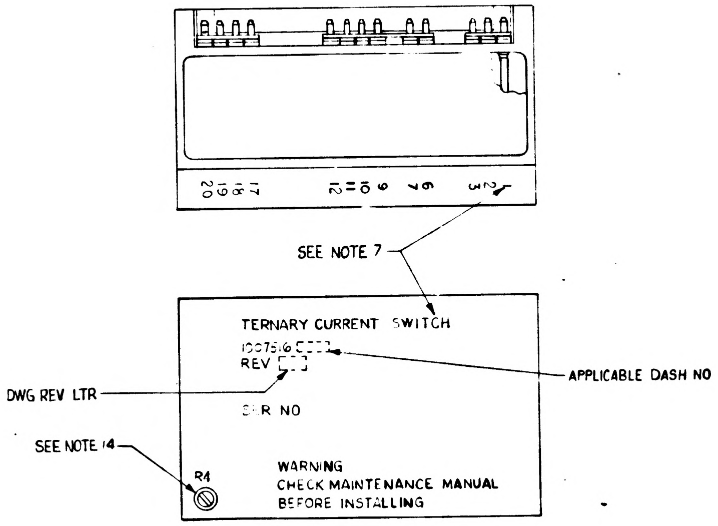

41 2 REQD
Q2 OR Q8 REF
Q1 OR Q1 REF
41 2 REQD
SEE NOTES 37
5 AND 11

SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. (20) & (17)


Q3 18 REF
35
31
36
35

SECTION A-A


20 19 18 17
12 11 10 9
7 6
3 2 1
SEE NOTE 7
DWG REV LTR
APPLICABLE DASH NO
SEE NOTE 14
R4

TERNARY CURRENT SWITCH
1007516 ☐☐☐
REV ☐☐
SER NO
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2:1

			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
					1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
			2		1010966-1	TRANSISTOR	53
							52
							51
			4		1010833-001	DIODE	50
			1		[illegible]	DIODE	49
			1		1008540-3	GASKET, CONNECTOR MINIATURE	48
			1		1008540-7	GASKET, CONNECTOR MINIATURE	47
			1		1008540-4	GASKET, CONNECTOR MINIATURE	46
			2		1006750-82	RESISTOR, FIXED MF, 120K 1/4W ±2%	45
			1		1010715-1	TRANSISTOR	44
			AR		1006776-22	INSULATION, SLEEVING	43
			AR		1006776-20	INSULATION, SLEEVING	42
			4		1008025-1	INSULATOR, BUSHING	41
			13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
			13		1006775	INSULATOR, WRAPOST MALE MINAT	39
			2		1000093-3	SCREW, BUTTON HEAD	38
			1		MS35650-104	NUT, PLAIN, HEX	37
			1		1008020-1	WASHER, FLAT	36
			2		1008024-1	WASHER, INSULATOR	35
			AR		1006767-2	WIRE, ELECTRICAL .020 DIA	34
			AR		1006757-1	WIRE, ELECTRICAL .010 X .020	33
			2		1008025-2	INSULATOR, BUSHING	32
			1		1008021-1	INSULATOR, BUSHING	31
			AR		1006776-21	INSULATION SLEEVING	30
			2		1006155-75	CAPACITOR, FIXED TANT, 2.2 UF 35V ± 10%	29
			4		1006777-13	CAPACITOR, FIXED CER. 100 UUF 100V ± 10%	28
			4		1006777-20	CAPACITOR, FIXED CER. 470 UUF 100V ± 10%	27
			3		1010394	DIODE	26
			2		1010384	DIODE	25
			~~4~~		~~1010262-6~~	~~DIODE~~	~~24~~
			3		1010385	DIODE	23
			4		1010388-39	INDUCTOR, .01H 75MA ± 5%	22
			2		1010386	TRANSISTOR	21
			~~2~~		~~1006752~~	~~TRANSISTOR~~	~~20~~
			2		1010376-4	TRANSISTOR	19
			1		1010369-3	TRANSISTOR	18
			2		1010357-1	TRANSISTOR	17
			2		1006760-56	RESISTOR, FIXED MF, 10K 1/2 W ± 2%	16
			1		1006750-62	RESISTOR, FIXED MF, 18K 1/4 W ± 2%	15
			2		1010369-148	RESISTOR, FIXED COMP 20, 1/3 W ±5%	14
			2		1006750-15	RESISTOR, FIXED MF, 200 1/4W ± 2%	13
			2		1006750-18	RESISTOR, FIXED MF, 270 1/4W ± 2%	12
			4		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ± 2%	11
			4		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ± 2%	10
			2		1010369-87	RESISTOR, FIXED MF, 180K 1/8W ± 5%	9
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ± 1%	8
			1		1010373-10	RESISTOR, VARIABLE, 10K 1W ± 5%	7
			1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ± 1%	6
			1		1010364-635	RESISTOR, FIXED MF, 100K 1/8W ± 1%	5
			1		1010364-683	RESISTOR, FIXED MF, 176K 1/8W ± 1%	4
			1		1008600	INSULATOR, TOP	3
			1		1008255	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1

QUANTITY REQUIRED
LIST OF PARTS AND MATERIALS

1007516 K

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN C. Knoblock DATE 20 Mar 64
CHECKED 25 AUG 64
J M P. 3 DEC 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

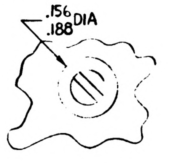
CODE IDENT NO 80230
SIZE J2
1007516
SCALE 5:1
SHEET 1 of 1

1007516 K

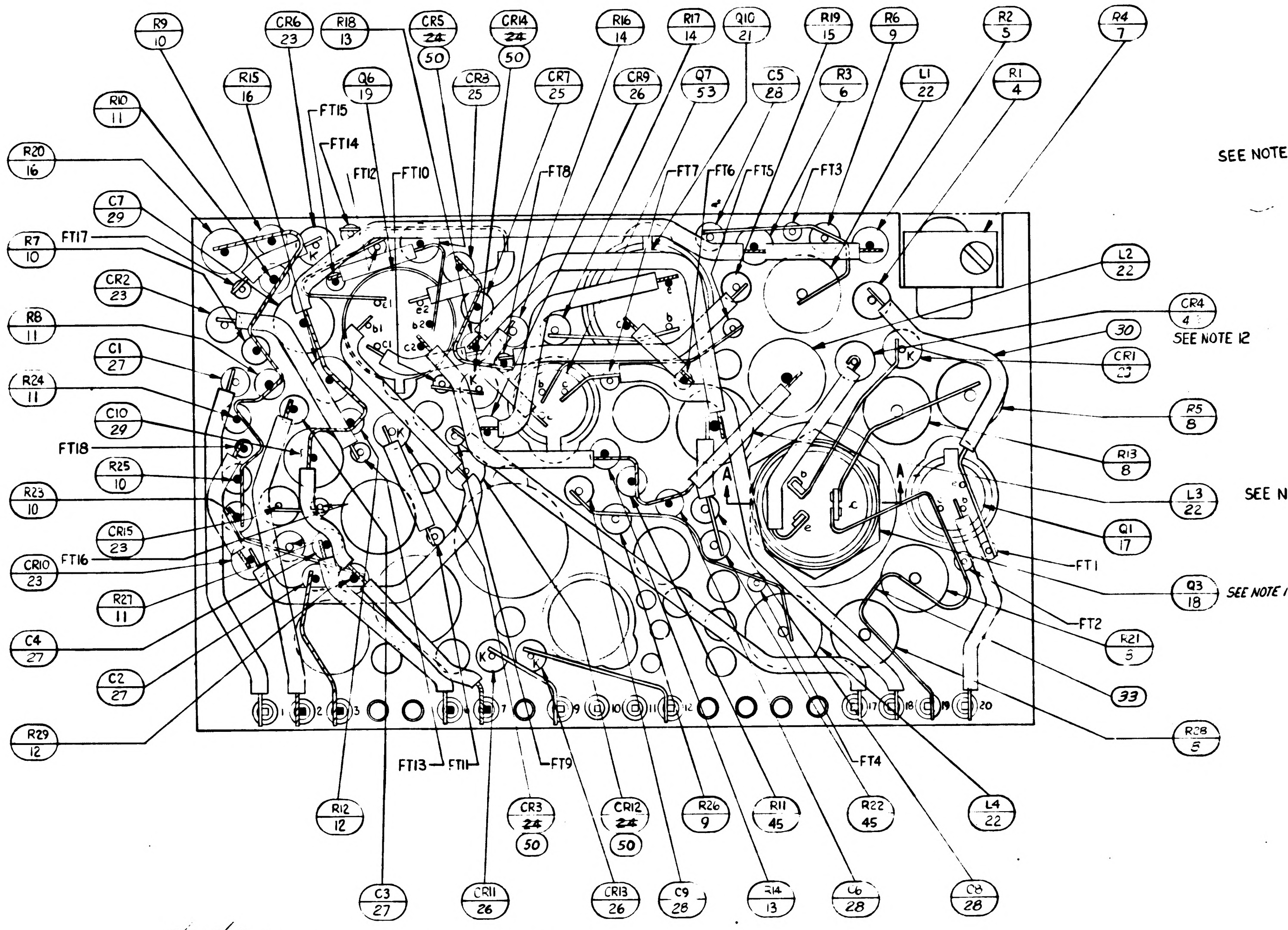
2/1007516

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO. 4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD H AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    - BROKEN PATHS INDICATE INSULATION SLEEVING
    - K INDICATES CATHODE SIDE OF DIODE
    - FT( ) INDICATES FEED THRU
    - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    - C INDICATES COLLECTOR LEAD OF TRANSISTOR
    - B INDICATES BASE LEAD OF TRANSISTOR
    - E INDICATES EMITTER LEAD OF TRANSISTOR
    - C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    - B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    - E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. ~~BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.~~
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
20. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
21. SEAL CALIBRATION POT R4 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007016 HAVE BEEN SATISFIED.
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS & APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL & COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.



VIEW A-A


R9 10
CR6 23
R18 13
CR5 24 50
CR14 24 50
R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
R4 7
R10 11
R15 16
Q6 19
CR8 25
CR7 25
CR9 26
Q7 53
C5 28
R3 6
L1 22
R1 4
R20 16
C7 29
R7 10
CR2 23
R8 11
C1 27
R24 11
C10 29
R25 10
R23 10
CR15 23
CR10 23
R27 11
C4 27
C2 27
R29 12
R12 12
C3 27
CR11 26
CR3 24 50
CR12 24 50
CR13 26
C9 28
R26 9
R11 45
R14 13
R22 45
C6 28
L4 22
C8 28
L2 22
CR4 4
SEE NOTE 12
30
CR1 23
R5 8
R13 8
L3 22
Q1 17
Q3 18
SEE NOTE 12
R21 5
33
R28 5
FT1
FT2
FT3
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FT14
FT15
FT16
FT17
FT18

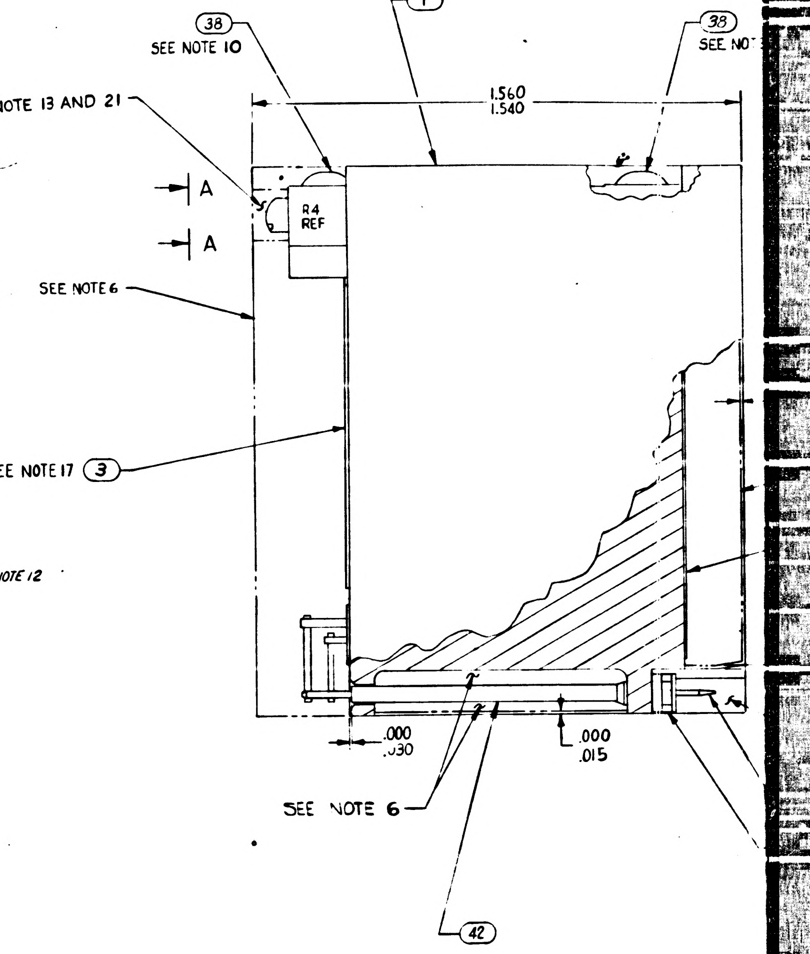
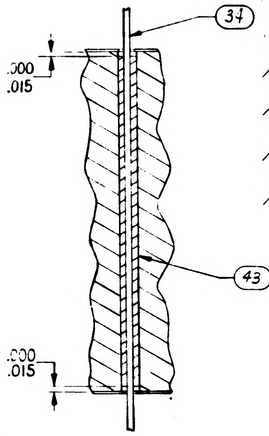
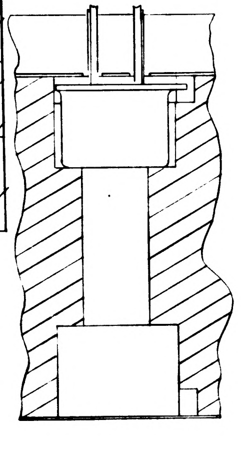

38
SEE NOTE 10
1
38
SEE NOTE 13 AND 21
1.560
1.540
A
A
R4 REF
SEE NOTE 6
SEE NOTE 17
3
.000
.030
.000
.015
SEE NOTE 6
42

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.

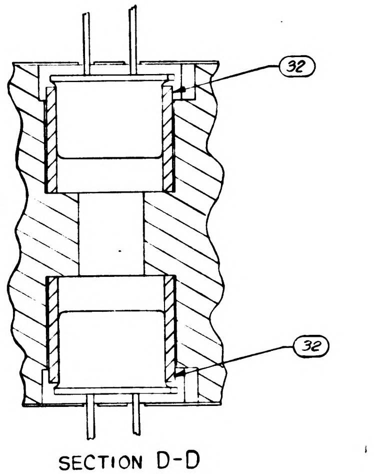

34
.000
.015
43
.000
.015

SECTION G-G

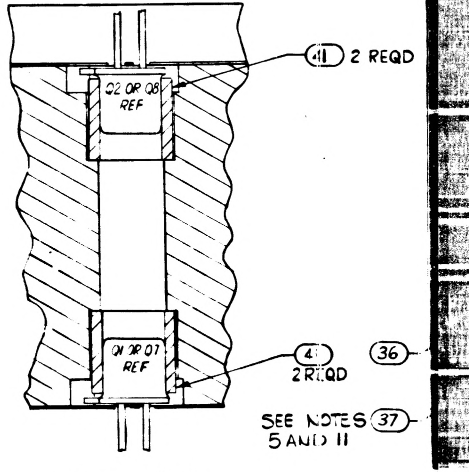


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO (19)



SECTION D-D

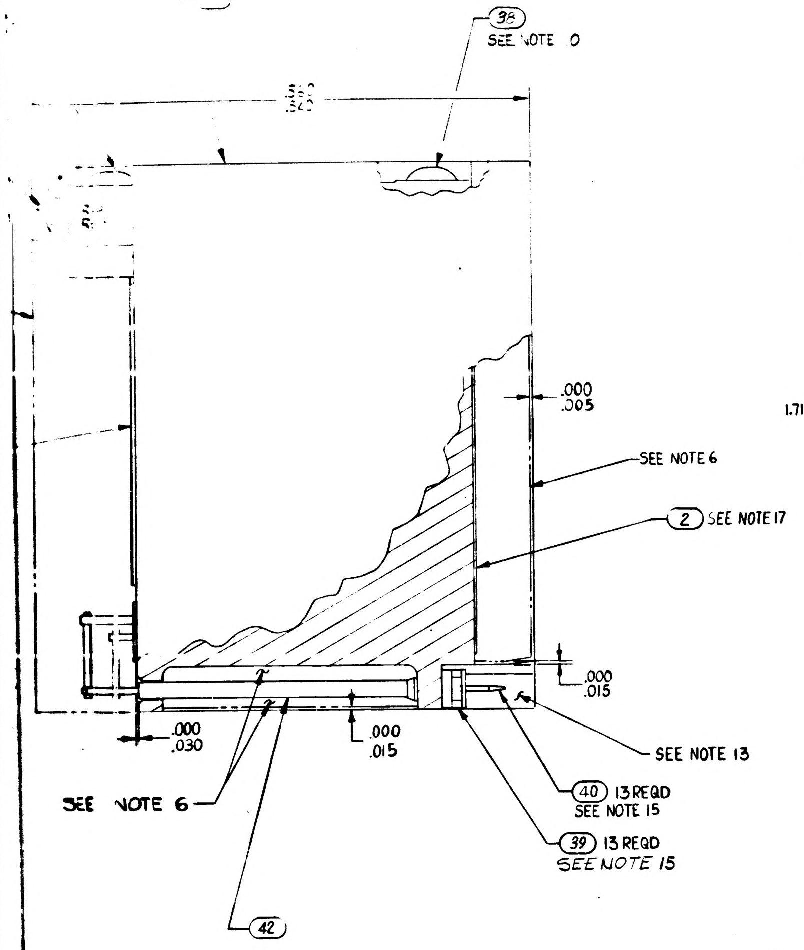

41 2 REQD
Q2 OR Q8 REF
Q4 OR Q7 REF
4 2 REQD
36
SEE NOTES 37
5 AND 11

SECTION C-C

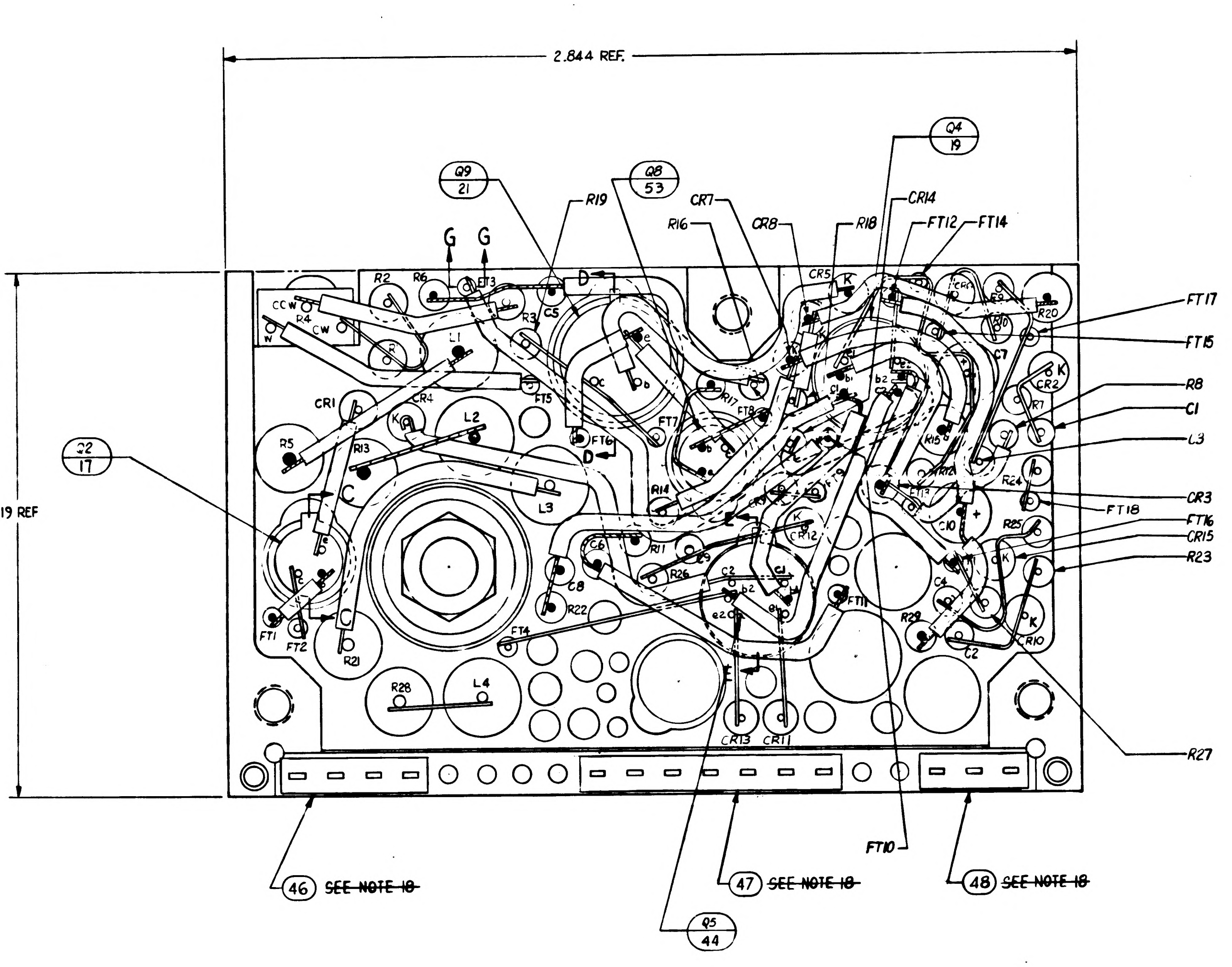
TYPICAL INSTALLATION FOR FIND NO. (20) & (17)

1007516	REV LTR K

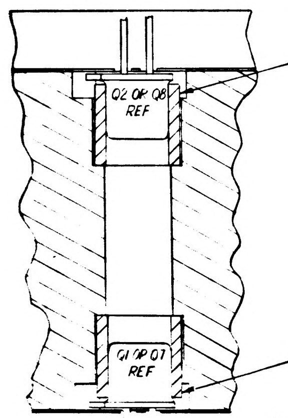
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
REVISIONS					
A1		A1 REVISED PER TDRR 16635		25 FEB 65	
B	—	REVISED PER TDRR 16854	—	4 MAR 65	
C		REVISED PER TDRR 7307		2 MAR 65	
D	—	REVISED PER TDRR 17627	—	24 MAR 65	
E	—	REVISED PER TDRR 18937	—	7 MAY 65	
F	–	REVISED PER TDRR 9288	—	1 JUNE 65	
G		REVISED PER TDRR 9289		65	
H		REVISED PER TDRR 9290		65	
J		REVISED PER TDRR 20.43		65	
K		REVISED PER TDRR 2 278		3 65	
L		REVISED PER TDRR 2.283		2 AUG 65	



38
SEE NOTE 10
.560
.540
.000
.005
SEE NOTE 6
2 SEE NOTE 17
.000
.015
.000
.030
.000
.015
SEE NOTE 13
40 13 REQD
SEE NOTE 15
39 13 REQD
SEE NOTE 15
SEE NOTE 6
42



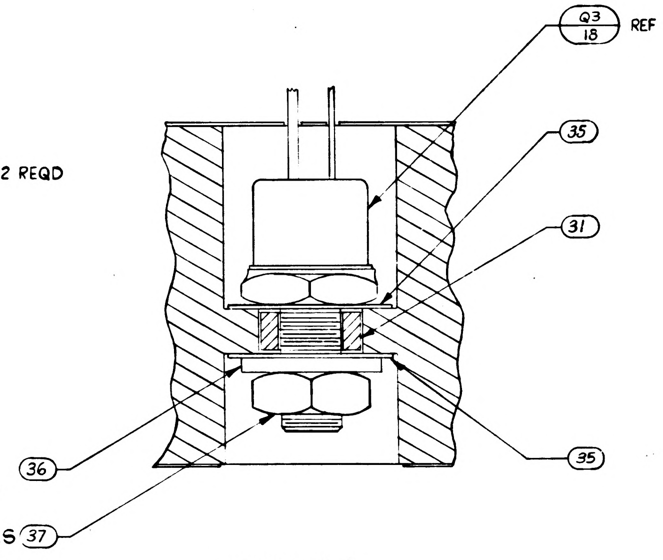
2.844 REF.
1.719 REF
Q9
21
Q8
53
Q4
19
R19
CR7
R16
CR8
R18
CR14
FT12
FT14
G
G
FT17
FT15
R8
C1
L3
CR3
FT18
FT16
CR15
R23
R27
Q2
17
L1
L2
L3
L4
R28
FT1
FT2
FT4
FT10
FT11
CR13
CR11
R4
CCW
CW
Q5
44
46 ~~SEE NOTE 18~~
47 ~~SEE NOTE 18~~
48 ~~SEE NOTE 18~~



41 2 REQD
Q2 OR Q8
REF
Q1 OR Q7
REF
41
2 REQD

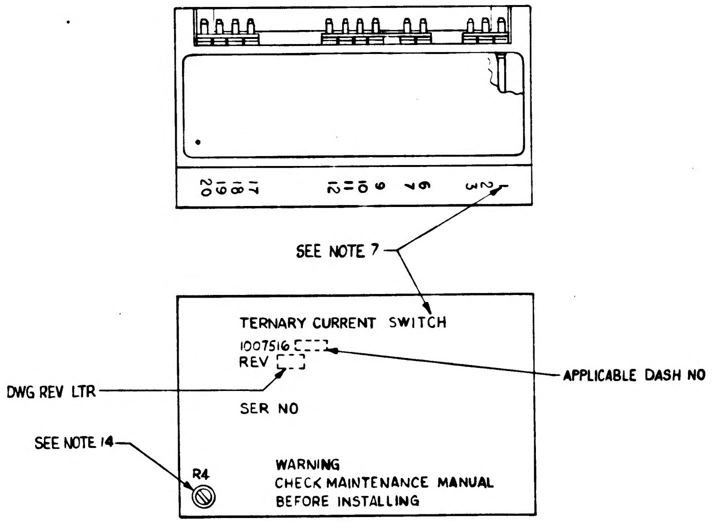
SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. 20 & 17



Q3
18
REF
35
31
36
35
SEE NOTES 37
5 AND 11

SECTION A-A



20 19 18 17
12 11 10 9
7 6
3 2 1
SEE NOTE 7
TERNARY CURRENT SWITCH
1007516
REV
APPLICABLE DASH NO
DWG REV LTR
SER NO
SEE NOTE 14
R4
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2:1

QUANTITY REQUIRED 011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
X		1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
2		1010966-1	TRANSISTOR	53
				52
				51
4		1010833-001	DIODE	50
1		1010497	DIODE	49
1		1008540-3	GASKET, CONNECTOR MINIATURE	48
1		1008540-7	GASKET, CONNECTOR MINIATURE	47
1		1008540-4	GASKET, CONNECTOR MINIATURE	46
2		1006750-82	RESISTOR, FIXED MF, 120K ¼W ±2%	45
1		1010715-2	TRANSISTOR	44
AR		1006776-22	INSULATION, SLEEVING	43
AR		1006776-20	INSULATION, SLEEVING	42
4		1008025-1	INSULATOR, BUSHING	41
13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
13		1006775	INSULATOR, WRAPOST MALE MINAT	39
2		1000093-3	SCREW, BUTTON HEAD	38
1		MS35650-104	NUT, PLAIN, HEX	37
1		1008020-1	WASHER, FLAT	36
2		1008024-1	WASHER, INSULATOR	35
AR		1006737-2	WIRE, ELECTRICAL .020 DIA	34
AR		1006757-1	WIRE, ELECTRICAL .010 X.020	33
2		1008025-2	INSULATOR, BUSHING	32
1		1008021-1	INSULATOR, BUSHING	31
AR		1006776-21	INSULATION SLEEVING	30
2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35V ±10%	29
4		1006777-13	CAPACITOR, FIXED CER, 100 UUF 100V ±10%	28
4		1006777-20	CAPACITOR, FIXED CER, 470 UUF 100V ±10%	27
3		1010394	DIODE	26
2		1010384	DIODE	25
~~4~~		~~1010462-6~~	~~DIODE~~	24
5		1010385	DIODE	23
4		1010388-39	INDUCTOR, .01H 75MA ±5%	22
2		1010386	TRANSISTOR	21
~~2~~		~~1006752~~	~~TRANSISTOR~~	20
2		1010376-4	TRANSISTOR	19
1		1010369-3	TRANSISTOR	18
2		1010357-1	TRANSISTOR	17
2		1006760-56	RESISTOR, FIXED MF, 10K ½W ±2%	16
1		1006750-62	RESISTOR, FIXED MF, 18K ¼W ±2%	15
2		1010369-148	RESISTOR, FIXED COMP 20, ⅛W ±5%	14
2		1006750-15	RESISTOR, FIXED MF, 200 ¼W ±2%	13
2		1006750-18	RESISTOR, FIXED MF, 270 ¼W ±2%	12
4		1006750-67	RESISTOR, FIXED MF, 30K ¼W ±2%	11
4		1006750-81	RESISTOR, FIXED MF, 110K ¼W ±2%	10
2		1010369-87	RESISTOR, FIXED MF, 180K ⅛W ±5%	9
4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	8
1		1010373-10	RESISTOR, VARIABLE, 10K 1W ±5%	7
1		1010364-557	RESISTOR, FIXED MF, 392K ⅛W ±1%	6
1		1010364-635	RESISTOR, FIXED MF, 100K ⅛W ±1%	5
1		1010364-683	RESISTOR, FIXED MF, 178K ⅛W ±1%	4
1		1008600	INSULATOR, TOP	3
1		1008255	INSULATOR, BOTTOM	2
1		1007008	HEATSINK	1

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN C. Knight DATE 20 JULY 64
CHECKED W. 25 AUG 64
APPROVAL J. W. 27 AUG 64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH, COMPUTER OUTPUT, ASSEMBLY

CODE IDENT NO. 80230
SIZE J2
1007516
SCALE 5:1
SHEET 1 of 1

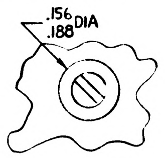
1007516 L

1007516

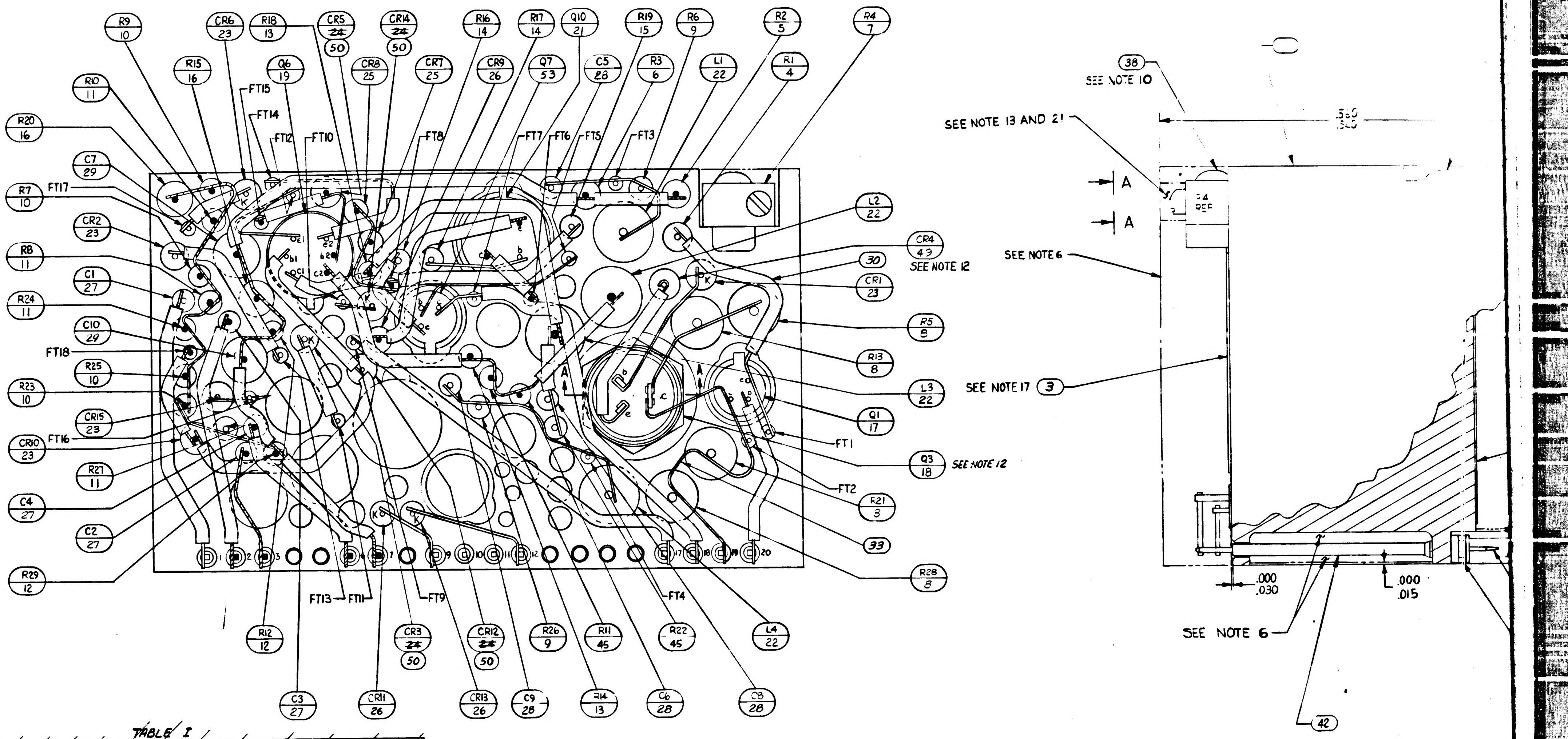
2/1007516

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. [illegible] TE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. [illegible] SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. [illegible] THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK P[illegible] NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO. 4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD H AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    BROKEN PATHS INDICATE INSULATION SLEEVING
    K INDICATES CATHODE SIDE OF DIODE
    FT( ) INDICATES FEED THRU
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    C INDICATES COLLECTOR LEAD OF TRANSISTOR
    B INDICATES BASE LEAD OF TRANSISTOR
    E INDICATES EMITTER LEAD OF TRANSISTOR
    C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. ~~BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.~~
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
20. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
21. SEAL CALIBRATION POT R4 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007016 HAVE BEEN SATISFIED.
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS & APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL & COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.



VIEW A-A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CR6 23
R18 13
CR5 ~~24~~ 50
CR14 ~~24~~ 50
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Q6 19
CR8 25
CR7 25
CR9 26
Q7 53
C5 28
R3 6
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FT10
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FT6
FT5
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C7 29
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R24 11
C10 29
FT18
R25 10
R23 10
CR15 23
CR10 23
FT16
R21 11
C4 27
C2 27
R29 12
L2 22
CR4 43
SEE NOTE 12
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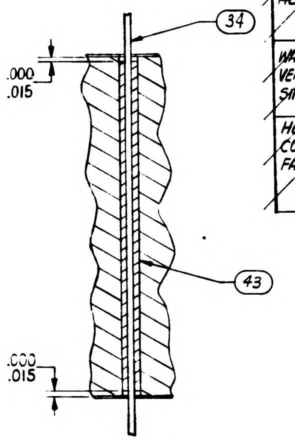
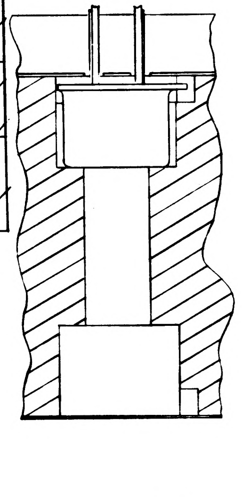
CR1 23
R5 8
R13 8
L3 22
Q1 17
FT1
Q3 18
SEE NOTE 12
FT2
R21 8
33
R28 8
L4 22
FT4
R22 45
R11 45
R26 9
CR12 ~~24~~ 50
CR3 ~~24~~ 50
FT9
FT13
FT11
R12 12
C3 27
CR11 26
CR13 26
C9 28
R14 13
C6 28
C8 28
K
A
1
12
13
17
18
19
20
38
SEE NOTE 10
SEE NOTE 13 AND 21
.560
.540
A
A
24 REF
SEE NOTE 6
SEE NOTE 17
3
.000
.030
.000
.015
SEE NOTE 6
42

TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.~~

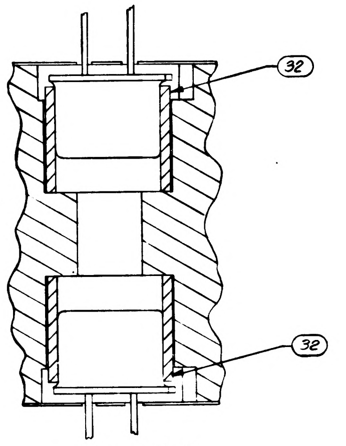

34
.000
.015
43
.000
.015

SECTION G-G

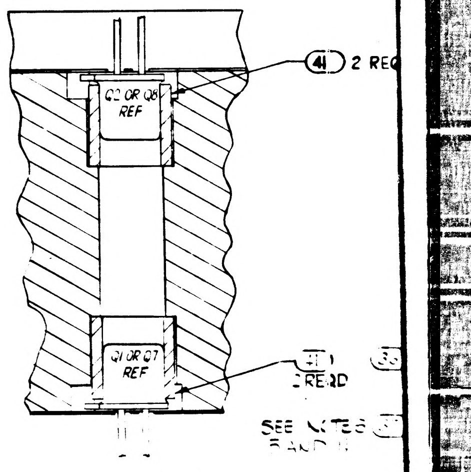


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO (19)



SECTION D-D


41 2 REQ
Q2 OR Q8 REF
Q1 OR Q7 REF
2 REQD
SEE NOTES

SECTION C-C

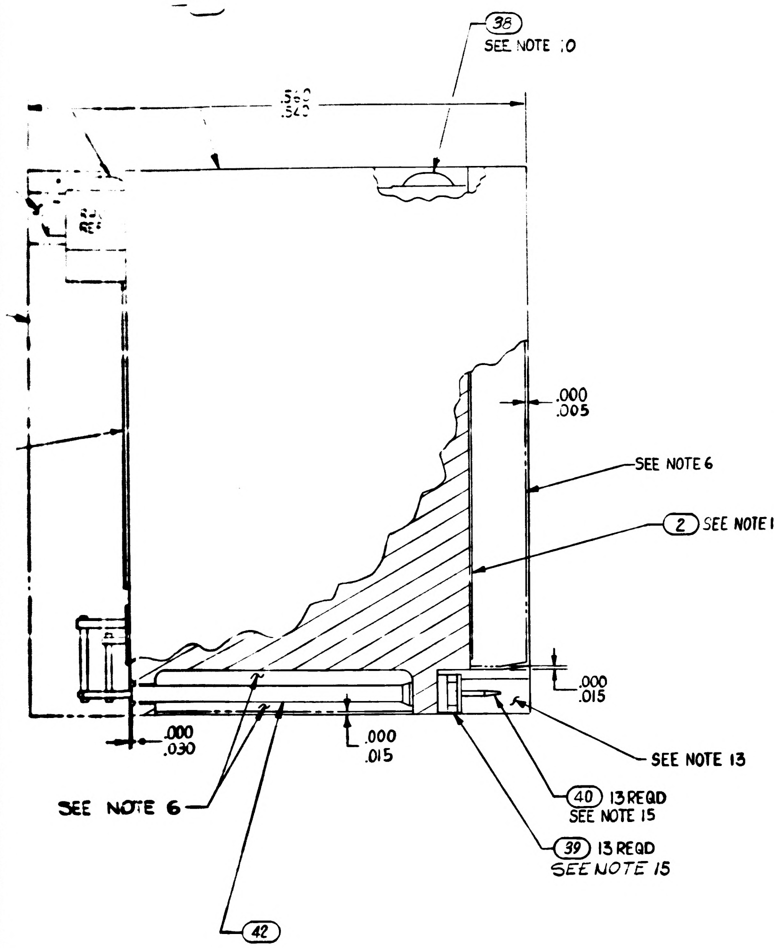
TYPICAL INSTALLATION FOR FIND NO. (20) & (17)

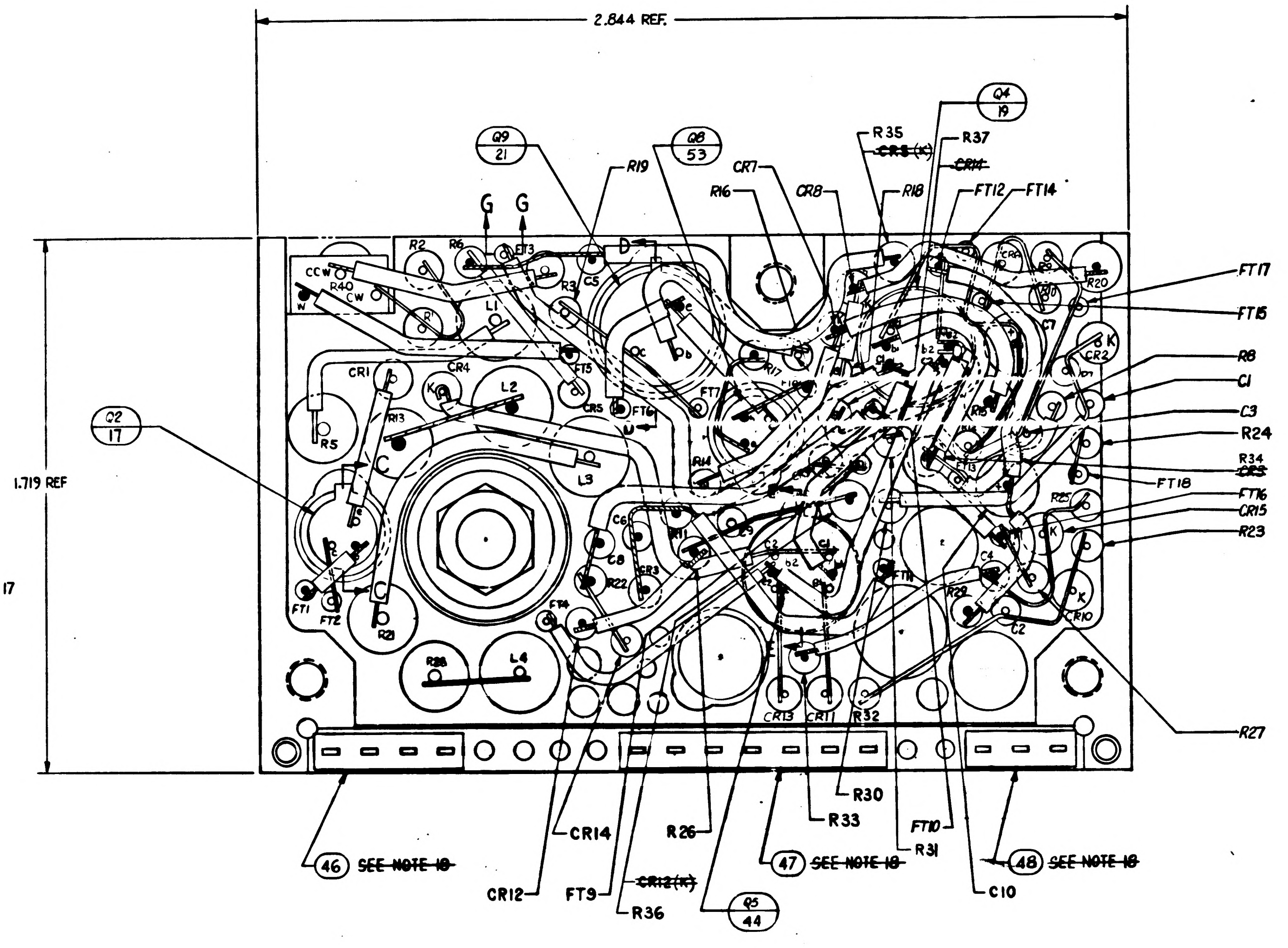
1007516

17/1007516

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A1		Ⓐ1 REVISED PER TDRR 16635		25-FEB-65	RS
B	—	REVISED PER TDRR 16854	—	4-MAR-65	B.
C		REVISED PER TDRR 17307		12 MAR 65	JHR
D	—	REVISED PER TDRR 17627	—	24 MAR 65	EM
E	—	REVISED PER TDRR 18937	—	17 MAY 65	AN
F	-	REVISED PER TDRR 19288	—	1 JUNE 65	
G		REVISED PER TDRR 19289		2 JUN 65	
H		REVISED PER TDRR 19290		9 JUN 65	
J		REVISED PER TDRR 20.43		9 JUN 65	
K		REVISED PER TDRR 2 278		3 JUN 65	
L		REVISED PER TDRR 2.283		2 AUG 65	
M		REVISED PER TDRR 22360		20 SEP 65	


38
SEE NOTE 10
.560
.540
.000
.005
SEE NOTE 6
2 SEE NOTE 17
.000
.015
.000
.030
.000
.015
SEE NOTE 13
SEE NOTE 6
40 13 REQD
SEE NOTE 15
39 13 REQD
SEE NOTE 15
42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1.719 REF
C2
17
Q9
21
Q8
53
Q4
19
G G
R19
CR7
R16
CR8
R35
~~CR5 (X)~~
R37
~~CR14~~
R18
FT12
FT14
FT17
FT15
R8
C1
C3
R24
R34
~~CR3~~
FT18
FT16
CR15
R23
R27
CR14
R26
R30
R33
FT10
R31
C10
46 ~~SEE NOTE 18~~
47 ~~SEE NOTE 18~~
48 ~~SEE NOTE 18~~
CR12
FT9
~~CR12(X)~~
R36
Q5
44
CCW
CW
R40
R2
R6
L1
FT3
C5
R3
D
CR1
CR4
L2
FT5
CR5
FT6
R13
R5
L3
C6
C8
R22
R21
FT1
FT2
R28
L4
R14
R11
CR3
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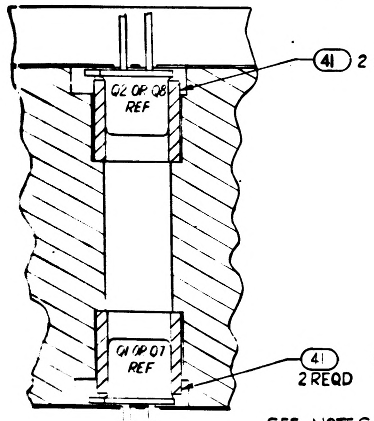
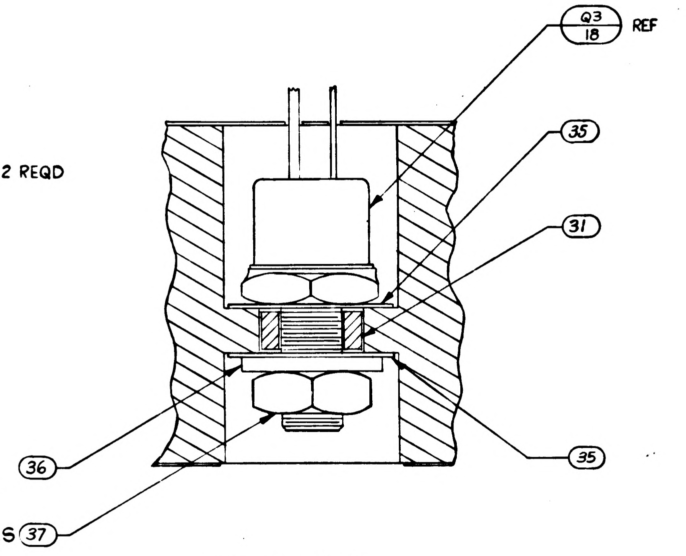
CR13
CR11
R32
K
E
B


41 2 REQD
Q2 OR Q8
REF
Q1 OR Q7
REF
41
2 REQD

SEE NOTES 37
5 AND 11

SECTION C-C

TYPICAL INSTALLATION FOR
FIND NO. ⑳ & ⑰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REF
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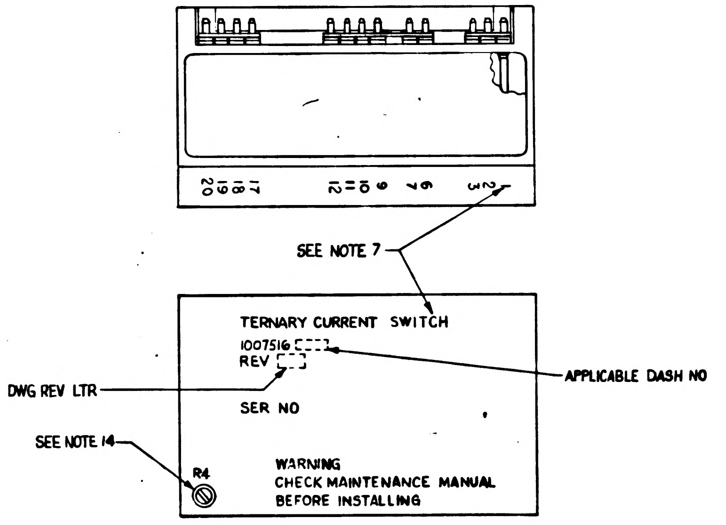
SECTION A-A


20
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12
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9
7
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3
2
1
SEE NOTE 7
TERNARY CURRENT SWITCH
1007516-
REV
APPLICABLE DASH NO
DWG REV LTR
SER NO
SEE NOTE 14
R4
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2:1

LIST OF PARTS AND MATERIALS

QUANTITY REQUIRED 011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
X		1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF.
2		1010966-1	TRANSISTOR	53
4		1006750-70	RESISTOR FIXED MF 3.9K, 1/4W, ±2%	52
4		1006750-48	RESISTOR FIXED MF 4.7K, 1/4W, ±2%	51
~~4~~		~~1010833-001~~	~~DIODE~~	~~50~~
1		1010497	DIODE	49
1		1008540-3	GASKET, CONNECTOR MINIATURE	48
1		1008540-7	GASKET, CONNECTOR MINIATURE	47
1		1008540-4	GASKET, CONNECTOR MINIATURE	46
2		1006750-82	RESISTOR, FIXED MF, 120K 1/4W ±2%	45
1		1010715-2	TRANSISTOR	44
AR		1006776-22	INSULATION, SLEEVING	43
AR		1006776-20	INSULATION, SLEEVING	42
4		1008025-1	INSULATOR, BUSHING	41
13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
13		1006775	INSULATOR, WRAPOST MALE MINAT	39
2		1000093-3	SCREW, BUTTON HEAD	38
1		MS35650-104	NUT, PLAIN, HEX	37
1		1008020-1	WASHER, FLAT	36
2		1008024-1	WASHER, INSULATOR	35
AR		1006787-2	WIRE, ELECTRICAL .020 DIA	34
AR		1006757-1	WIRE, ELECTRICAL .010 X.020	33
2		1008025-2	INSULATOR. BUSHING	32
1		1008021-1	INSULATOR, BUSHING	31
AR		1006776-21	INSULATION SLEEVING	30
2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35V ±10%	29
4		1006777-7	CAPACITOR, FIXED CER, 47UUF 100V ±10%	28
4		1006777-24	CAPACITOR, FIXED CER, 1000UUF 100V ±10%	27
3		1010394	DIODE	26
2		1010384	DIODE	25
~~4~~		~~1010462-6~~	~~DIODE~~	~~24~~
9		1010385	DIODE	23
4		1010388-39	INDUCTOR, .01H 75MA ±5%	22
2		1010386	TRANSISTOR	21
~~2~~		~~1006752~~	~~TRANSISTOR~~	~~20~~
2		1010376-4	TRANSISTOR	19
1		1010269-3	TRANSISTOR	18
2		1010357-1	TRANSISTOR	17
2		1006760-56	RESISTOR, FIXED MF, 10K 1/2 W ±2%	16
1		1006750-62	RESISTOR, FIXED MF. 18K 1/4 W ±2%	15
2		1010369-148	RESISTOR, FIXED COMP. 20, 1/8 W ±5%	14
2		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	13
2		1006750-1	RESISTOR, FIXED MF, 51 1/4W ±2%	12
4		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
4		1006750-80	RESISTOR, FIXED MF, 100K 1/4W ±2%	10
2		1010369-87	RESISTOR. FIXED MF. 180K 1/8W ±5%	9
4		1010389-80	RESISTOR, FIXED WW. 10K 3W ±1%	8
1		10373-10	RESISTOR, VARIABLE. 10K 1W ±5%	7
1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±1%	6
1		1010364-635	RESISTOR, FIXED MF, 100K 1/8W ±1%	5
1		1010364-683	RESISTOR, FIXED MF, 178K 1/8W ±1%	4
1		1008600	INSULATOR, TOP	3
1		1008255	INSULATOR, BOTTOM	2
1		1007008	HEATSINK	1

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN C. Kostka DATE 20 Jul 64
CHECKED W. Dight 25 Aug 64
J M BLYSHAK 3 DEC 64
APPROVAL 27 Aug 64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

CODE IDENT NO. 80230
SIZE J2
1007516
SCALE 5:1
SHEET 1 of 1

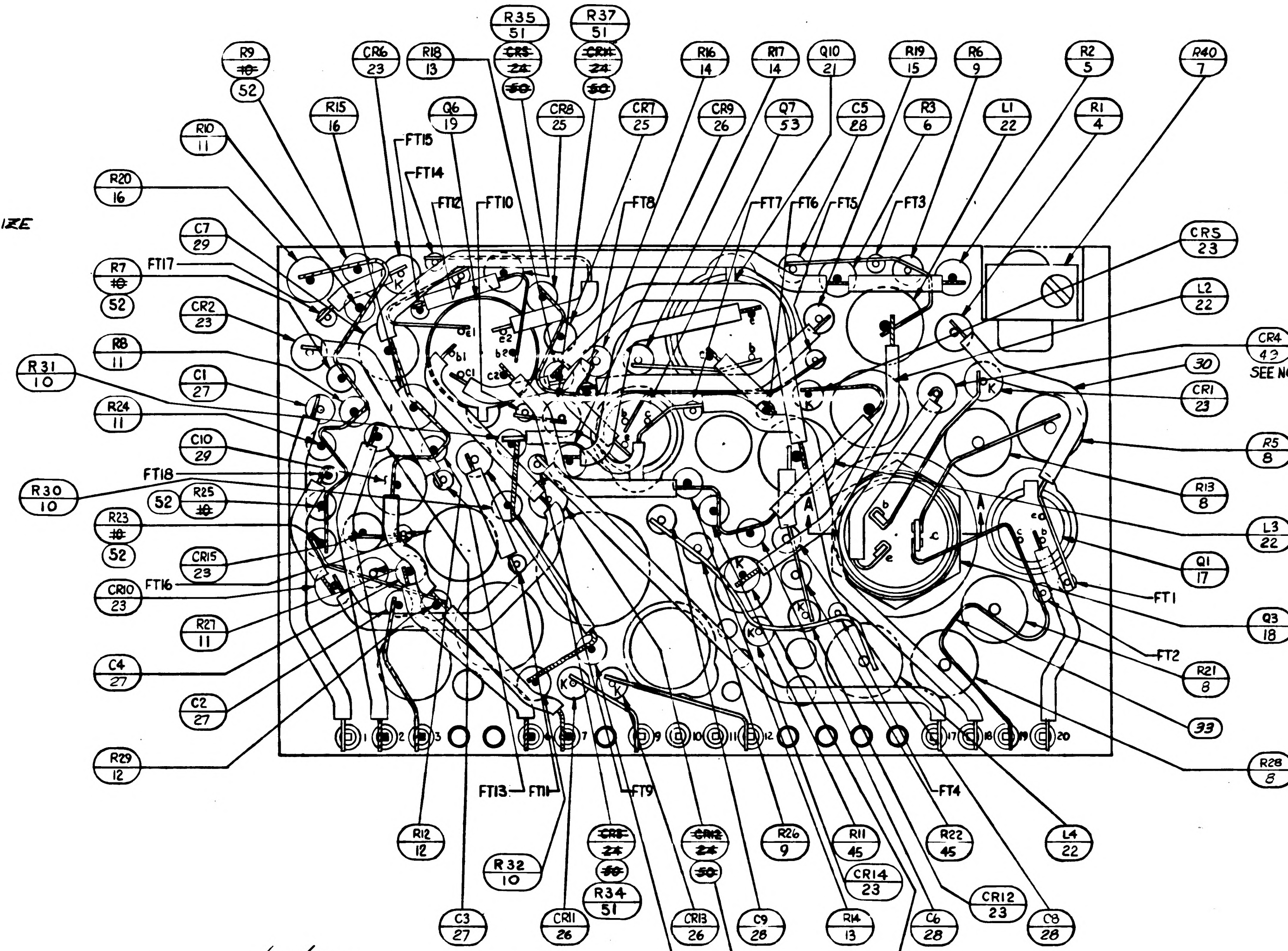
1007516 M

1007516 M

27 1007516

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO. 4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD H AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    BROKEN PATHS INDICATE INSULATION SLEEVING
    K INDICATES CATHODE SIDE OF DIODE
    FT( ) INDICATES FEED THRU
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    C INDICATES COLLECTOR LEAD OF TRANSISTOR
    B INDICATES BASE LEAD OF TRANSISTOR
    E INDICATES EMITTER LEAD OF TRANSISTOR
    C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. ~~BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.~~
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
20. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
21. SEAL CALIBRATION POT R4 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007016 HAVE BEEN SATISFIED.
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS & APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL & COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.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R18 13
R35 51 ~~CR5~~ ~~24~~ ~~50~~
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R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
R40 7
R15 16
Q6 19
CR8 25
CR7 25
CR9 26
Q7 53
C5 28
R3 6
L1 22
R1 4
R10 11
R20 16
C7 29
R7 ~~10~~ 52
CR2 23
R8 11
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L2 22
CR4 42 SEE NOTE 12
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CR1 23
R5 8
R13 8
L3 22
Q1 17
Q3 18 SEE NOTE 12
R21 8
33
R28 8
L4 22
R12 12
C3 27
R32 10
CR11 26
~~CR3~~ ~~24~~ ~~50~~
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CR13 26
C9 28
R26 9
R11 45
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CR3 23
R33 10
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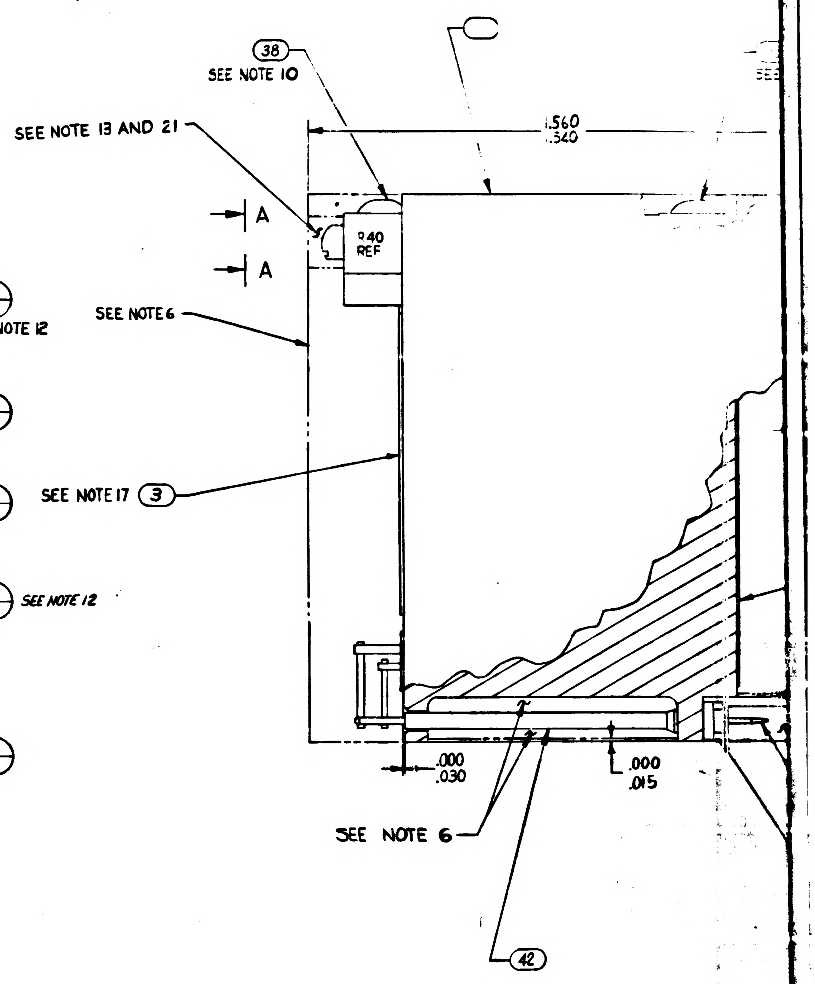
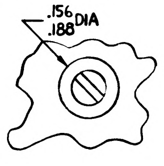
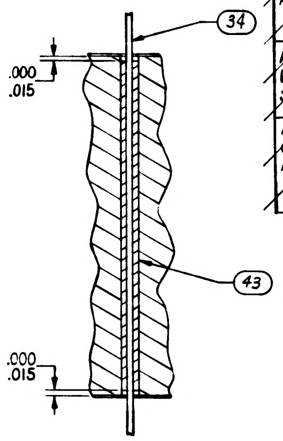

38
SEE NOTE 10
SEE NOTE 13 AND 21
A
A
R40 REF
.560
.540
SEE NOTE 6
SEE NOTE 17
3
.000
.030
.000
.015
SEE NOTE 6
42



VIEW A-A

TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE~~


34
.000
.015
43
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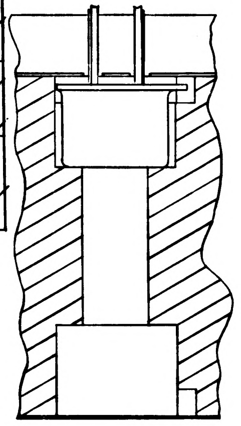
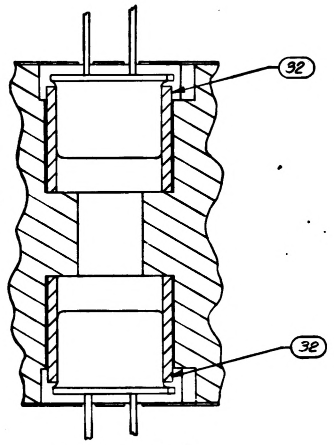
.015

SECTION G-G

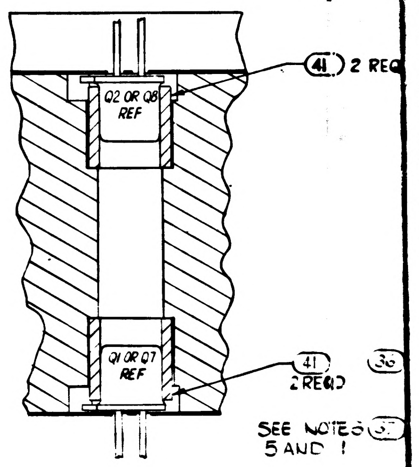


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO. (19)



SECTION D-D

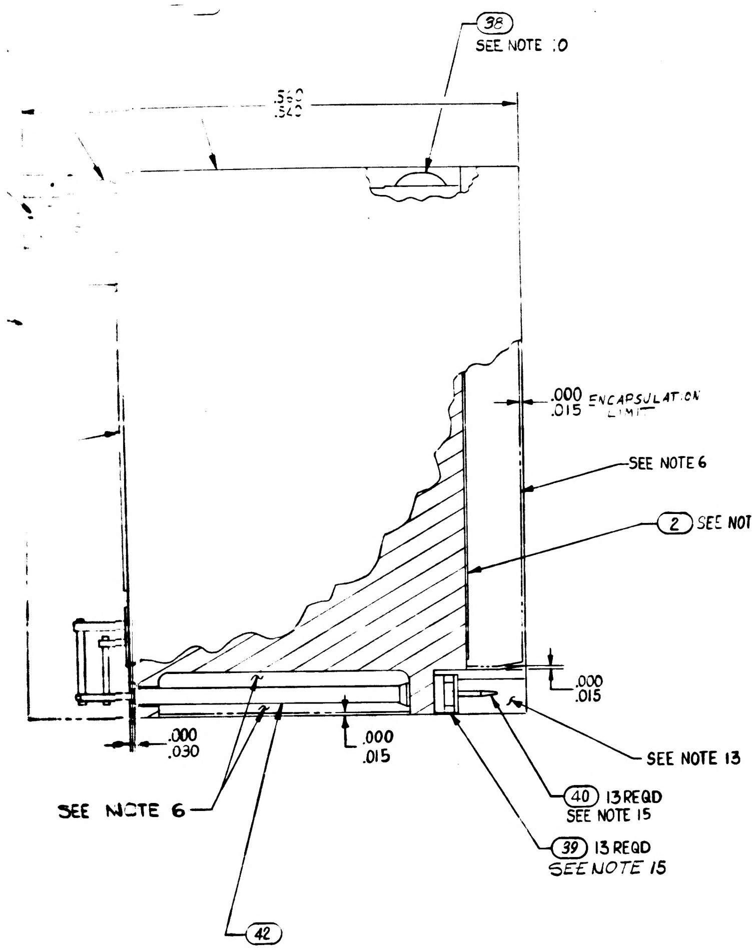

41 2 REQ
Q2 OR Q8 REF
Q1 OR Q7 REF
41 2 REQD
36
SEE NOTES 5 AND 1

SECTION C-C

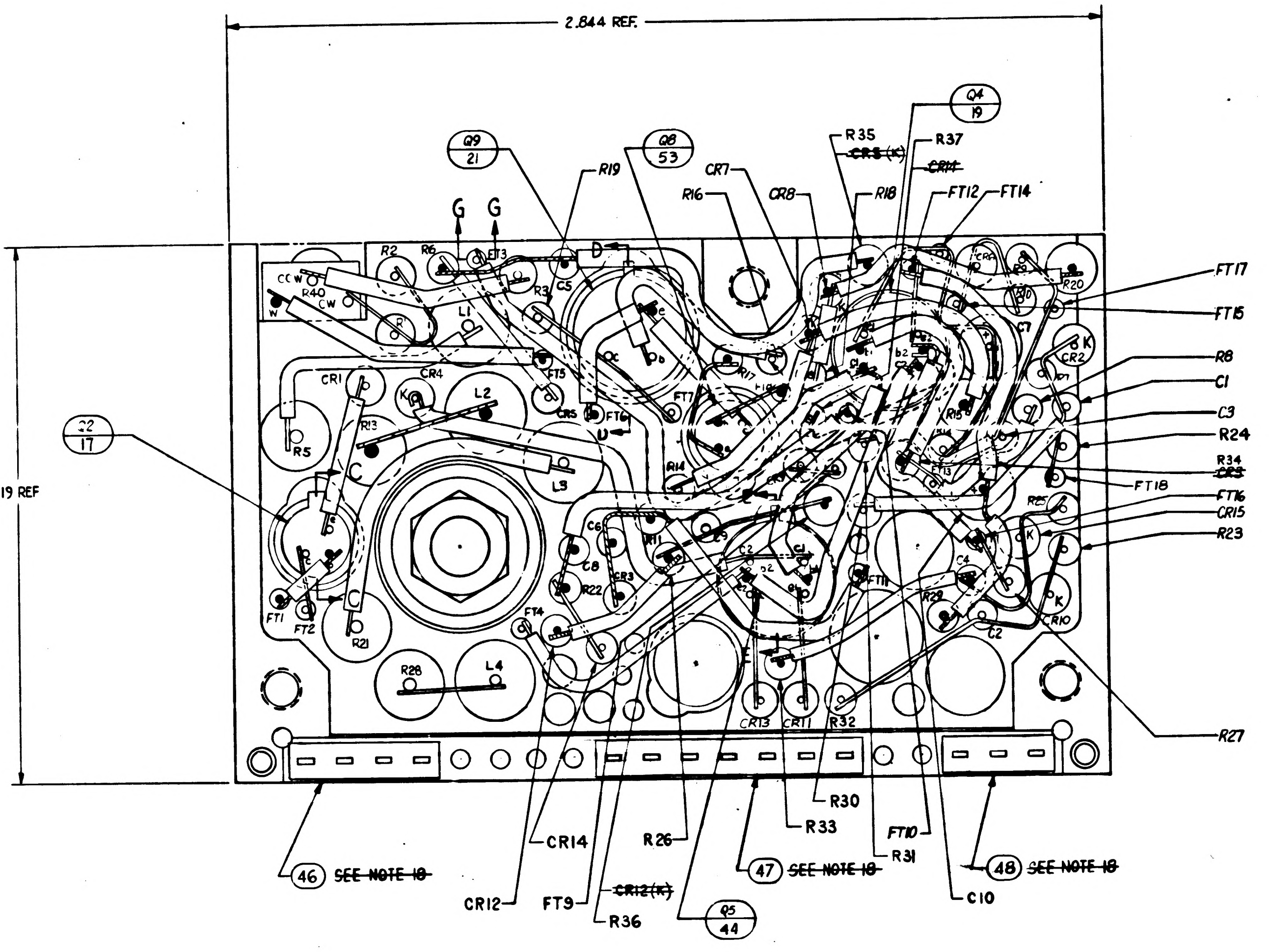
TYPICAL INSTALLATION FOR FIND NO. (20) & (17)

1007516 REV V

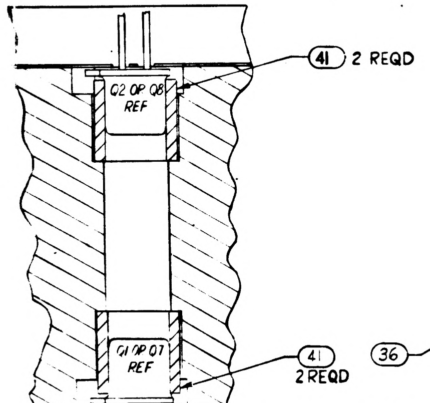
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A1		Ⓐ1 REVISED PER TDRR 16635		25-FEB-65	RS
B	—	REVISED PER TDRR 16854	—	4-MAR-65	
C		REVISED PER TDRR 17307		2 MAR 65	
D	—	REVISED PER TDRR 17627	—	24 MAR 65	EM
E	—	REVISED PER TDRR 18937	—	17 MAY 65	
F	-	REVISED PER TDRR 19288	—	1 JUNE 65	
G		REVISED PER TDRR 19289		JUN 65	
H		REVISED PER TDRR 19290		3 JUN 65	
J		REVISED PER TDRR 20143		65	
K		REVISED PER TDRR 21278		3 JUN 65	
L		REVISED PER TDRR 21283		2 AUG 65	
M		REVISED PER TDRR 22360		20 SEP 65	
N		REVISED PER TDRR 22956		2 DEC 65	



38
SEE NOTE 10
.562
.520
.000
.015
ENCAPSULATION LIMIT
SEE NOTE 6
2 SEE NOTE 17
.000
.015
SEE NOTE 13
40 13 REQD
SEE NOTE 15
39 13 REQD
SEE NOTE 15
.000
.030
.000
.015
SEE NOTE 6
42



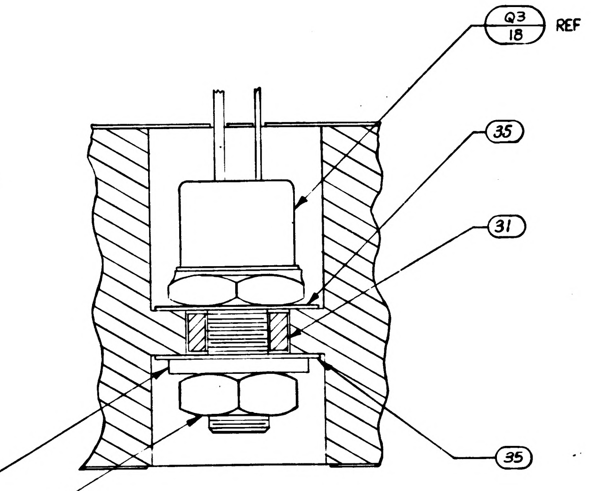
2.844 REF.
1.719 REF
22
17
Q9
21
Q8
53
R19
G
G
CR7
R16
CR8
R35
~~CR5(K)~~
R37
~~CR14~~
R18
FT12
FT14
Q4
19
FT17
FT15
R8
C1
C3
R24
R34
~~CR3~~
FT18
FT16
CR15
R23
R27
R2
R6
FT3
R40
CCW
CW
W
L1
R3
C5
D
CR1
CR4
L2
R13
R5
L3
CR5
FT6
FT5
FT7
R17
R14
C
L
FT1
FT2
R21
R28
L4
FT4
C6
C8
R22
CR3
R11
C9
C2
C1
FT11
R29
C4
C2
CR10
K
CR2
C7
R20
R9
R10
R15
FT13
R25
CR13
CR11
R32
46 ~~SEE NOTE 18~~
47 ~~SEE NOTE 18~~
48 ~~SEE NOTE 18~~
CR14
R26
R30
R33
FT10
R31
C10
CR12
FT9
~~CR12(K)~~
R36
Q5
44



41 2 REQD
Q2 OR Q8
REF
Q1 OR Q7
REF
41
2 REQD

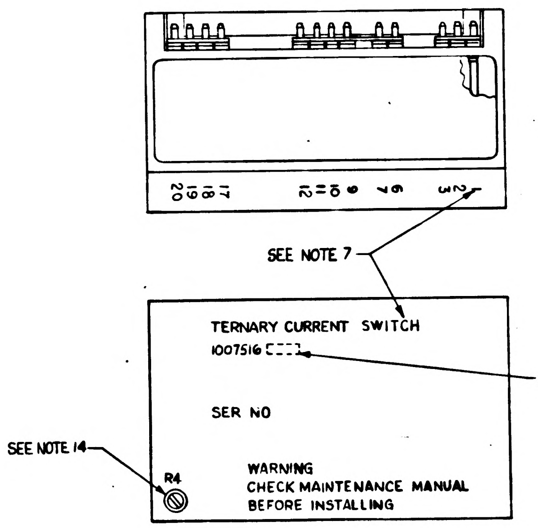
SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. ⑳ & ⑰



Q3
18
REF
35
31
35
36
SEE NOTES 37
5 AND 11

SECTION A-A



SEE NOTE 7
TERNARY CURRENT SWITCH
1007516
APPLICABLE DASH NO
SER NO
SEE NOTE 14
R4
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2:1

QUANTITY REQUIRED 011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒		1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
2		1010966-1	TRANSISTOR	53
4		1006750-70	RESISTOR FIXED MF 3.9K, 1/4W, ±2%	52
4		1006750-48	RESISTOR FIXED MF 4.7K, 1/4W, ±2%	51
~~4~~		~~1010833-001~~	~~DIODE~~	~~50~~
1		1010497	DIODE	49
1		1008540-3	GASKET, CONNECTOR MINIATURE	48
1		1008540-7	GASKET, CONNECTOR MINIATURE	47
1		1008540-4	GASKET, CONNECTOR MINIATURE	46
2		1006750-82	RESISTOR, FIXED MF, 120K 1/4W ±2%	45
1		1010715-2	TRANSISTOR	44
AR		1006776-22	INSULATION, SLEEVING	43
AR		1006776-20	INSULATION, SLEEVING	42
4		1008025-1	INSULATOR, BUSHING	41
13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
13		1006775	INSULATOR, WRAPOST MALE MINAT	39
2		1000093-3	SCREW, BUTTON HEAD	38
1		MS35650-104	NUT, PLAIN, HEX	37
1		1008020-1	WASHER, FLAT	36
2		1008024-1	WASHER, INSULATOR	35
AR		1006787-2	WIRE, ELECTRICAL .020 DIA	34
AR		1006757-1	WIRE, ELECTRICAL .010 X .020	33
2		1008025-2	INSULATOR, BUSHING	32
1		1008021-1	INSULATOR, BUSHING	31
AR		1006776-21	INSULATION SLEEVING	30
2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35V ±10%	29
4		1006777-7	CAPACITOR, FIXED CER, 47UUF 100V ±10%	28
4		1006777-24	CAPACITOR, FIXED CER, 1000UUF 100V ±10%	27
3		1010394	DIODE	26
2		1010384	DIODE	25
~~4~~		~~1010462-6~~	~~DIODE~~	~~24~~
9		1010385	DIODE	23
4		1010388-39	INDUCTOR, .01H 75MA ±5%	22
2		1010386	TRANSISTOR	21
~~2~~		~~1006752~~	~~TRANSISTOR~~	20
2		1010376-4	TRANSISTOR	19
1		1010269-3	TRANSISTOR	18
2		1010357-1	TRANSISTOR	17
2		1006760-56	RESISTOR, FIXED MF, 10K 1/2W ±2%	16
1		1006750-62	RESISTOR, FIXED MF, 18K 1/4W ±2%	15
2		1010369-148	RESISTOR, FIXED COMP 20, 1/8W ±5%	14
2		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	13
2		1006750-1	RESISTOR, FIXED MF, 51 1/4W ±2%	12
4		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
4		1006750-80	RESISTOR, FIXED MF, 100K 1/4W ±2%	10
2		1010369-87	RESISTOR, FIXED MF, 180K 1/8W ±5%	9
4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	8
1		1010373-10	RESISTOR, VARIABLE, 10K 1W ±5%	7
1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±1%	6
1		1010364-635	RESISTOR, FIXED MF, 100K 1/8W ±1%	5
1		1010364-683	RESISTOR, FIXED MF, 178K 1/8W ±1%	4
1		1008600	INSULATOR, TOP	3
1		1008255	INSULATOR, BOTTOM	2
1		1007008	HEATSINK	1

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE 20 Aug 64
CHECKED 25 Aug 64
J W ELTYSHAR 3 DEC 64
APPROVAL 27 Aug 64
APPROVAL 9/4/64
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

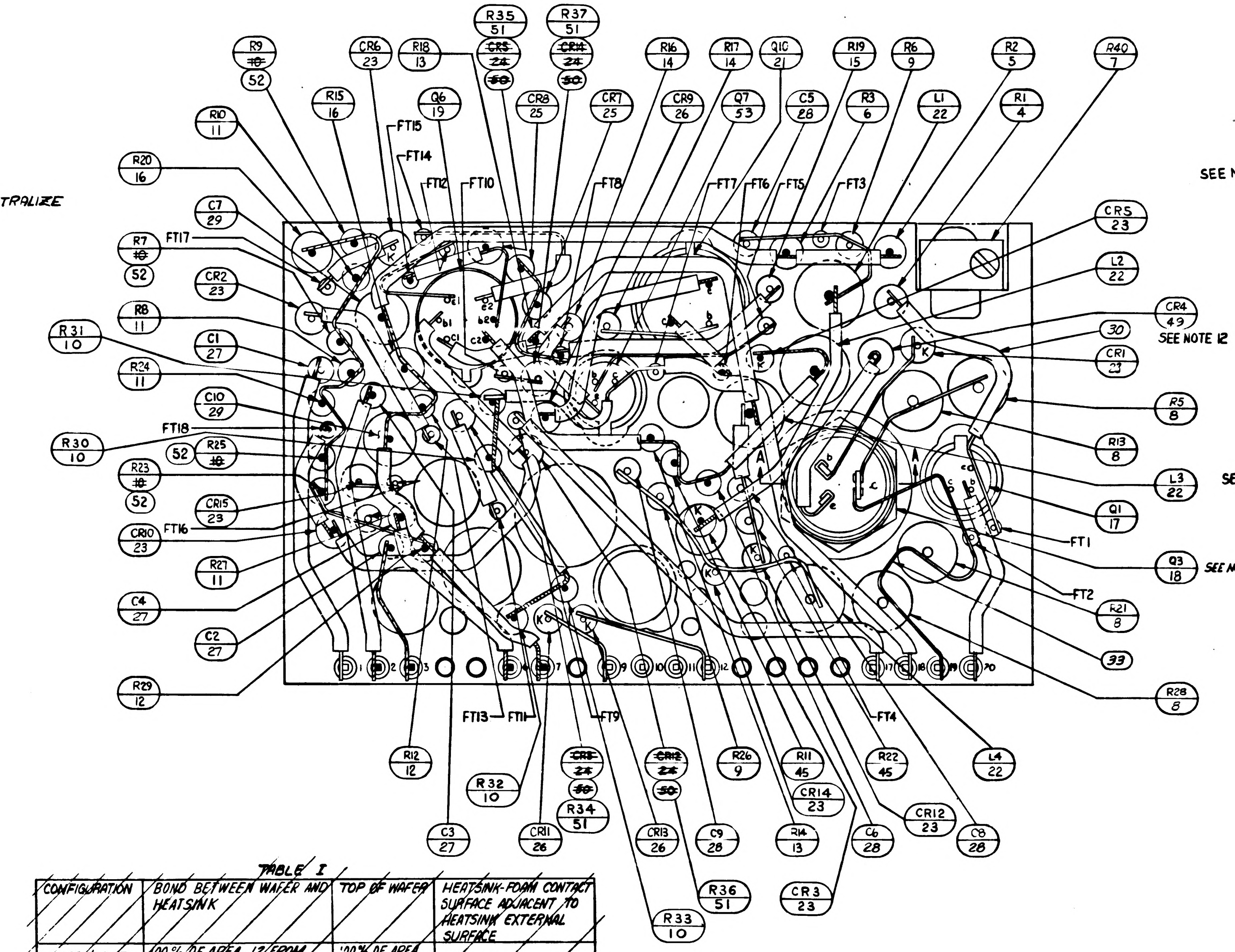
CODE IDENT NO. 80230
SIZE J2
1007516
SCALE 5:1
SHEET 1 of 1

1007516 N

2/1007516

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PN NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO. 4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD J AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD J
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    - BROKEN PATHS INDICATE INSULATION SLEEVING
    - K INDICATES CATHODE SIDE OF DIODE
    - FT( ) INDICATES FEED THRU
    - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    - C INDICATES COLLECTOR LEAD OF TRANSISTOR
    - B INDICATES BASE LEAD OF TRANSISTOR
    - E INDICATES EMITTER LEAD OF TRANSISTOR
    - C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    - B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    - E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. ~~BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.~~
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
20. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
21. SEAL CALIBRATION POT R4 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007016 HAVE BEEN SATISFIED.
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS & APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL & COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.



R35 51
R37 51
R9 10 52
CR6 23
R18 13
CR5 24 50
CR4 24 50
R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
R40 7
R10 11
R15 16
Q6 19
CR8 25
CR7 25
CR9 26
Q7 53
C5 28
R3 6
L1 22
R1 4
R20 16
FT15
FT14
FT12
FT10
FT8
FT7
FT6
FT5
FT3
C7 29
R7 10 52
FT17
CR2 23
CR5 23
L2 22
R8 11
CR4 49
SEE NOTE 12
R31 10
C1 27
30
CR1 23
R24 11
C10 29
R5 8
FT18
R30 10
R25 10
52
R13 8
R23 10
52
L3 22
CR15 23
Q1 17
CR10 23
FT16
FT1
R27 11
Q3 18
SEE NOTE 12
C4 27
FT2
R21 8
C2 27
33
R29 12
FT13
FT11
FT9
FT4
R28 8
R12 12
R32 10
CR5 24 50
R34 51
CR12 24 50
R26 9
R11 45
CR14 23
R22 45
L4 22
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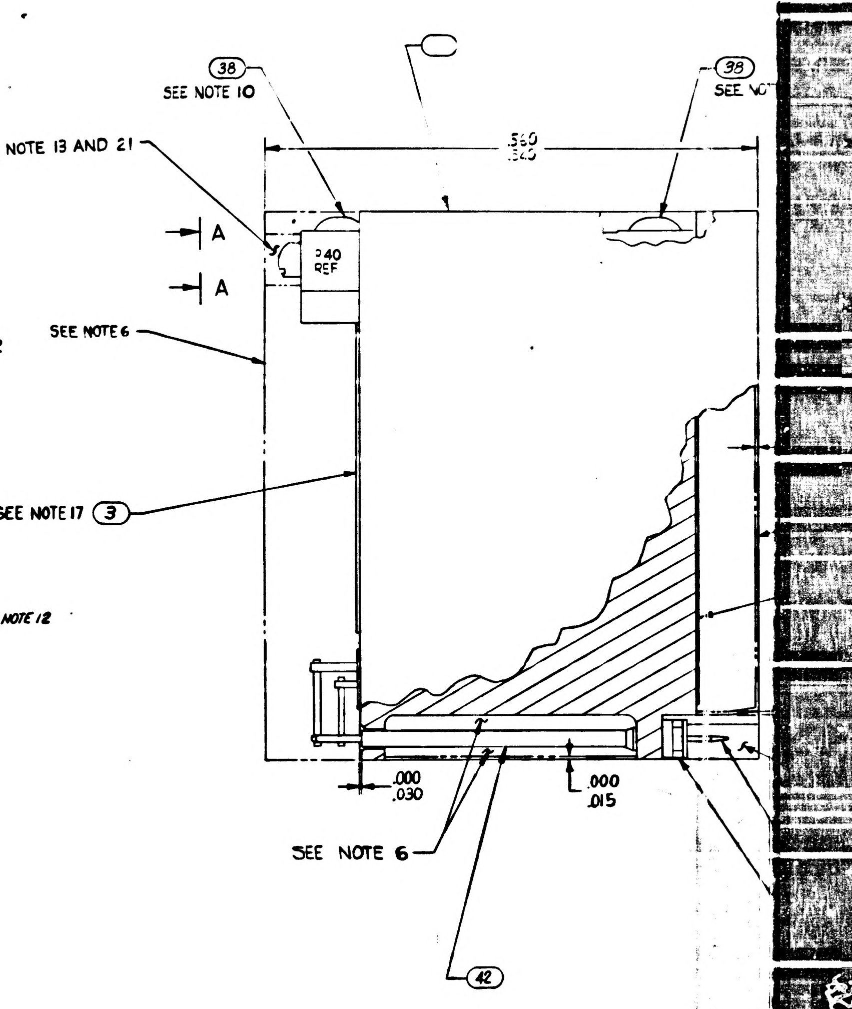
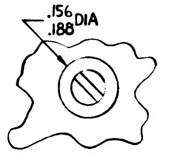
CR13 26
C9 28
R14 13
C6 28
CR12 23
C8 28
R36 51
CR3 23
R33 10



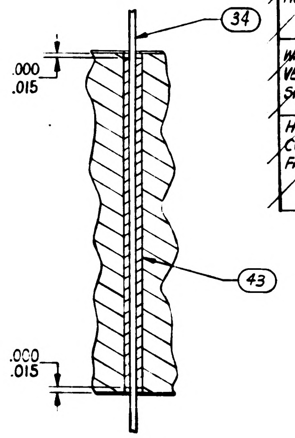
38
SEE NOTE 10
38
SEE NOTE
SEE NOTE 13 AND 21
.550
.530
A
A
R40 REF
SEE NOTE 6
SEE NOTE 17
3
.000
.030
.000
.015
SEE NOTE 6
42



VIEW A-A

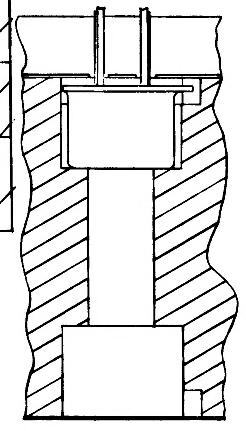
TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.~~



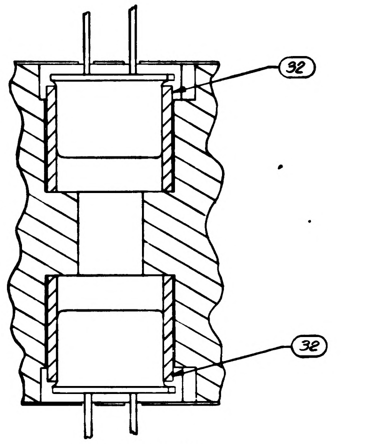
34
.000
.015
43
.000
.015

SECTION G-G

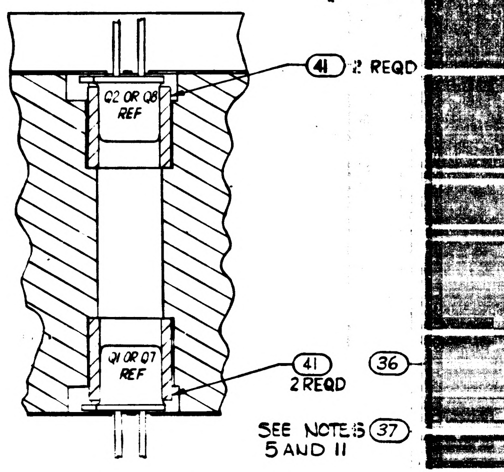


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO. (19)



SECTION D-D



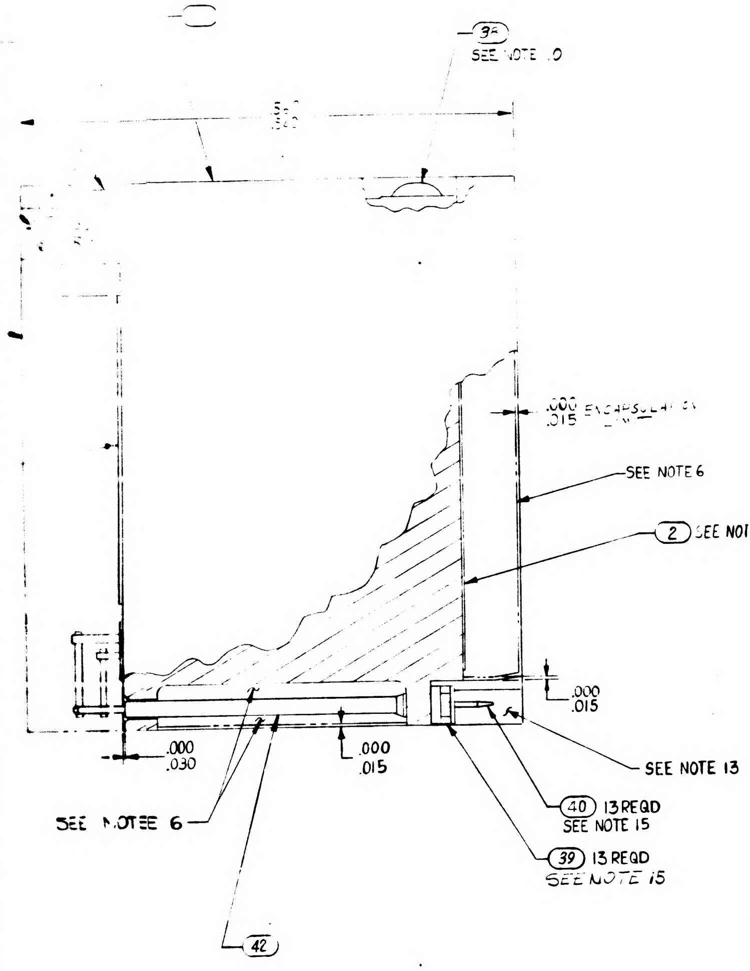
41
2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
41
2 REQD
36
SEE NOTES 5 AND 11
37

SECTION C-C

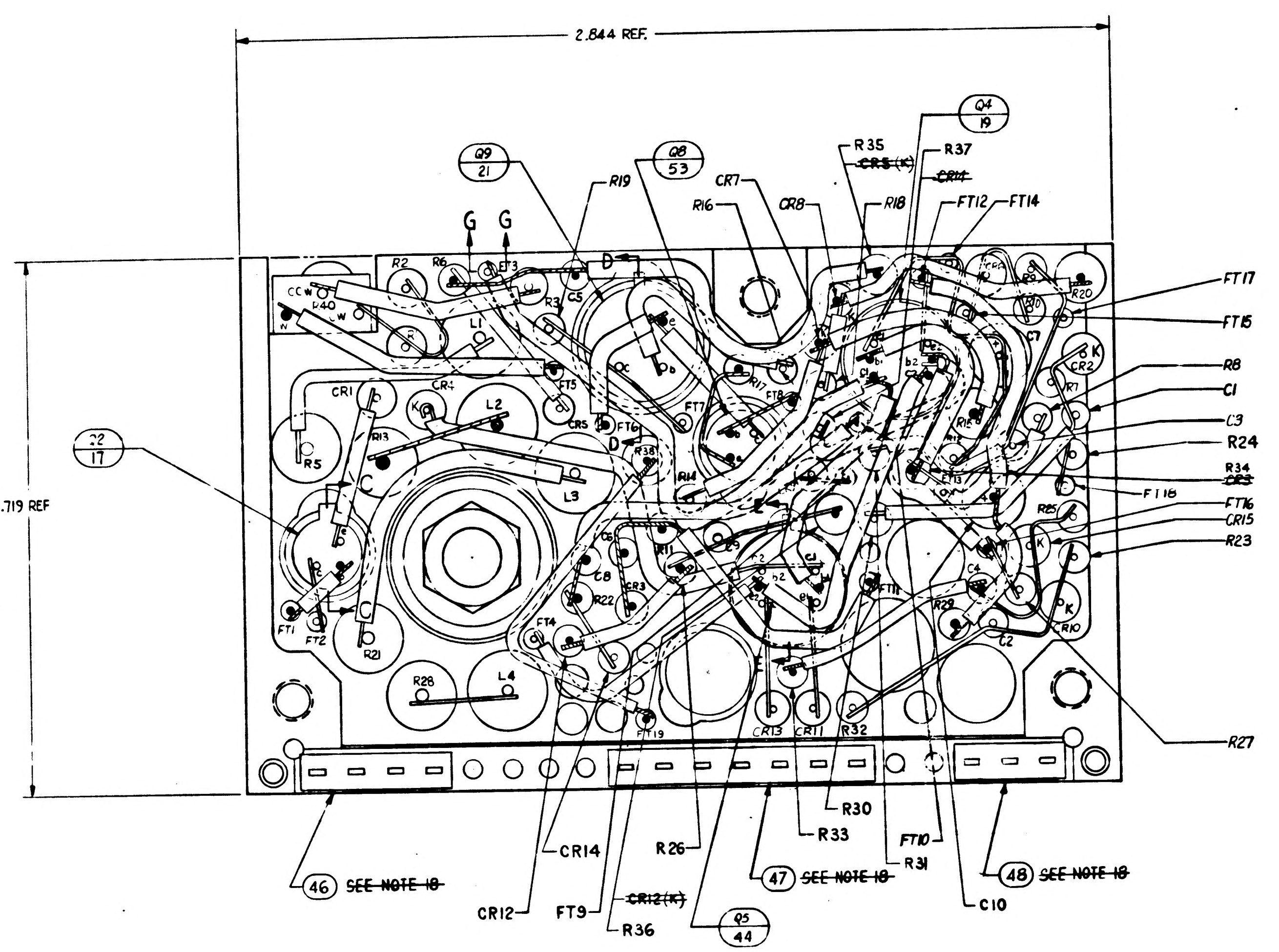
TYPICAL INSTALLATION FOR FIND NO. (20) & (17)

REVISIONS

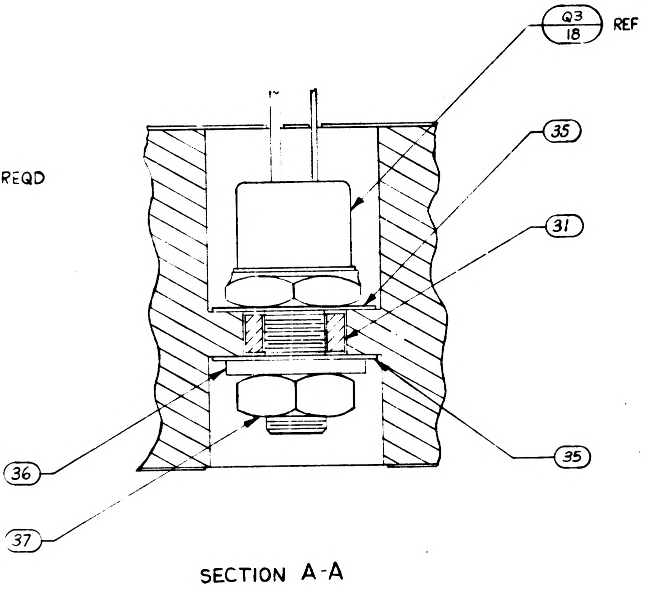
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A1		(A1) REVISED PER TDRR 16635			
B	—	REVISED PER TDRR 16854	—	4 MAR 65	
C		REVISED PER TDRR 7307			
D	—	REVISED PER TDRR 7627	—		
E	—	REVISED PER TDRR 18937	—	65	
F	-	REVISED PER TDRR 9288	—	65	
G		REVISED PER TDRR 9289		65	
H		REVISED PER TDRR 9290		65	
J		REVISED PER TDRR 20143		65	
K		REVISED PER TDRR 2 278		3 JUL 65	
L		REVISED PER TDRR 21283		2 AUG 65	
M		REVISED PER TDRR 22300		20 SEP 65	
N		REVISED PER TDRR 22956		65	
P		REVISED PER TDRR 235 8		4 NOV 65	



39
SEE NOTE 10
.000 ENCAPSULATION
.015
SEE NOTE 6
2 SEE NOTE 17
.000
.015
.000
.030
.000
.015
SEE NOTE 13
SEE NOTE 6
40 13 REQD
SEE NOTE 15
39 13 REQD
SEE NOTE 15
42

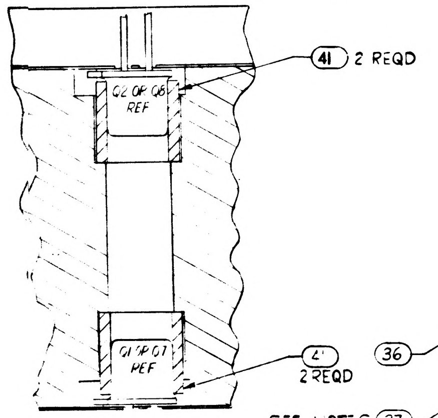


2.844 REF.
1.719 REF
Q9 21
R19
Q8 53
R16
CR7
CR8
R35
~~CR5(K)~~
R37
~~CR14~~
Q4 19
R18
FT12
FT14
FT17
FT15
R8
C1
C3
R24
R34
~~CR2~~
FT18
FT16
CR15
R23
R27
C2 17
G
G
CR1
CR4
L2
L1
L3
R5
R13
R14
R1
R2
R3
R6
C5
C6
C8
C4
C7
R22
R21
R28
L4
FT1
FT2
FT4
FT19
R20
R10
R25
CR13
CR11
R32
R40
46 ~~SEE NOTE 18~~
CR14
CR12
FT9
~~CR12(K)~~
R36
R26
Q5 44
47 ~~SEE NOTE 18~~
R33
R30
FT10
R31
C10
48 ~~SEE NOTE 18~~



Q3 18
REF
35
31
35
36
37
SEE NOTES 5 AND 11

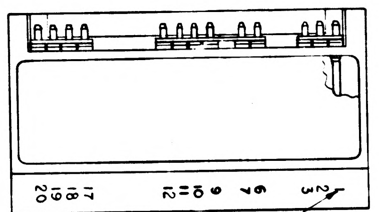
SECTION A-A



41 2 REQD
Q2 OR Q6 REF
41 2 REQD
Q1 OR Q7 REF

SECTION C-C

TYPICAL INSTALLATION FOR FIND NO 27 & 7



20 19 18 17
12 11 10 9
8 7 6 5
3 2

SEE NOTE 7

TERNARY CURRENT SWITCH
1007516-☐☐☐☐ APPLICABLE DASH NO

SER NO

SEE NOTE 14 R4

WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2:1

LIST OF PARTS AND MATERIALS

QUANTITY REQUIRED							
				011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
				☒		1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
				2		1010966-1	TRANSISTOR	53
				4		1006750-70	RESISTOR FIXED MF 3.9K, 1/4W, ±2%	52
				4		1006750-48	RESISTOR FIXED MF 4.7K, 1/4W, ±2%	51
				~~4~~		~~1010833-001~~	~~DIODE~~	~~50~~
				1		1010457	DIODE	49
				1		1008540-3	GASKET, CONNECTOR MINIATURE	48
				1		1008540-7	GASKET, CONNECTOR MINIATURE	47
				1		1008540-4	GASKET, CONNECTOR MINIATURE	46
				2		1006750-82	RESISTOR, FIXED MF, 120K 1/4W ±2%	45
				1		1010715-2	TRANSISTOR	44
				AR		1006776-22	INSULATION, SLEEVING	43
				AR		1006776-20	INSULATION, SLEEVING	42
				4		1008025-1	INSULATOR, BUSHING	41
				13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
				13		1006775	INSULATOR, WRAPOST MALE MINAT	39
				2		1000093-3	SCREW, BUTTON HEAD	38
				1		MS35650-104	NUT, PLAIN, HEX	37
				1		1008020-1	WASHER, FLAT	36
				2		1008024-1	WASHER, INSULATOR	35
				AR		1006767-2	WIRE, ELECTRICAL .020 DIA	34
				AR		1006757-1	WIRE, ELECTRICAL .010 X .020	33
				2		1008025-2	INSULATOR, BUSHING	32
				1		1008021-1	INSULATOR, BUSHING	31
				AR		1006776-21	INSULATION SLEEVING	30
				2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35V ±10%	29
				4		1006777-7	CAPACITOR, FIXED CER, 47UUF 100V ±10%	28
				4		1006777-24	CAPACITOR, FIXED CER. 1000UUF 100V ±10%	27
				3		1010394	DIODE	26
				2		1010384	DIODE	25
				~~4~~		~~1010462-6~~	~~DIODE~~	~~24~~
				9		1010385	DIODE	23
				4		1010388-39	INDUCTOR, .01H 75MA ±5%	22
				2		1010386	TRANSISTOR	21
				~~2~~		~~1006752~~	~~TRANSISTOR~~	20
				2		1010376-4	TRANSISTOR	19
				1		1010369-3	TRANSISTOR	18
				2		1010357-1	TRANSISTOR	17
				2		1006760-56	RESISTOR, FIXED MF, 10K 1/2W ±2%	16
				1		1006750-62	RESISTOR, FIXED MF. 18K 1/4W ±2%	15
				2		1010369-148	RESISTOR, FIXED COMP 20, 1/8W ±5%	14
				2		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	13
				2		1006750-1	RESISTOR, FIXED MF, 51 1/4W ±2%	12
				4		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
				5		1006750-80	RESISTOR, FIXED MF, 100K 1/4W ±2%	10
				2		1010369-87	RESISTOR, FIXED MF. 180K 1/8W ±5%	9
				4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	8
				1		1010373-10	RESISTOR, VARIABLE. 10K 1W ±5%	7
				1		1010364-557	RESISTOR, FIXED MF, 332K 1/8W ±1%	6
				1		1010364-635	RESISTOR, FIXED MF, 100K 1/8W ±1%	5
				1		1010364-683	RESISTOR, FIXED MF, 178K 1/8W ±1%	4
				1		1008600	INSULATOR, TOP	3
				1		1008255	INSULATOR, BOTTOM	2
				1		1007008	HEATSINK	1

1007516 P

1007574		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
Cambridge Mass
DRAWN DATE 20 JUL 64
CHECKED 25 AUG 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

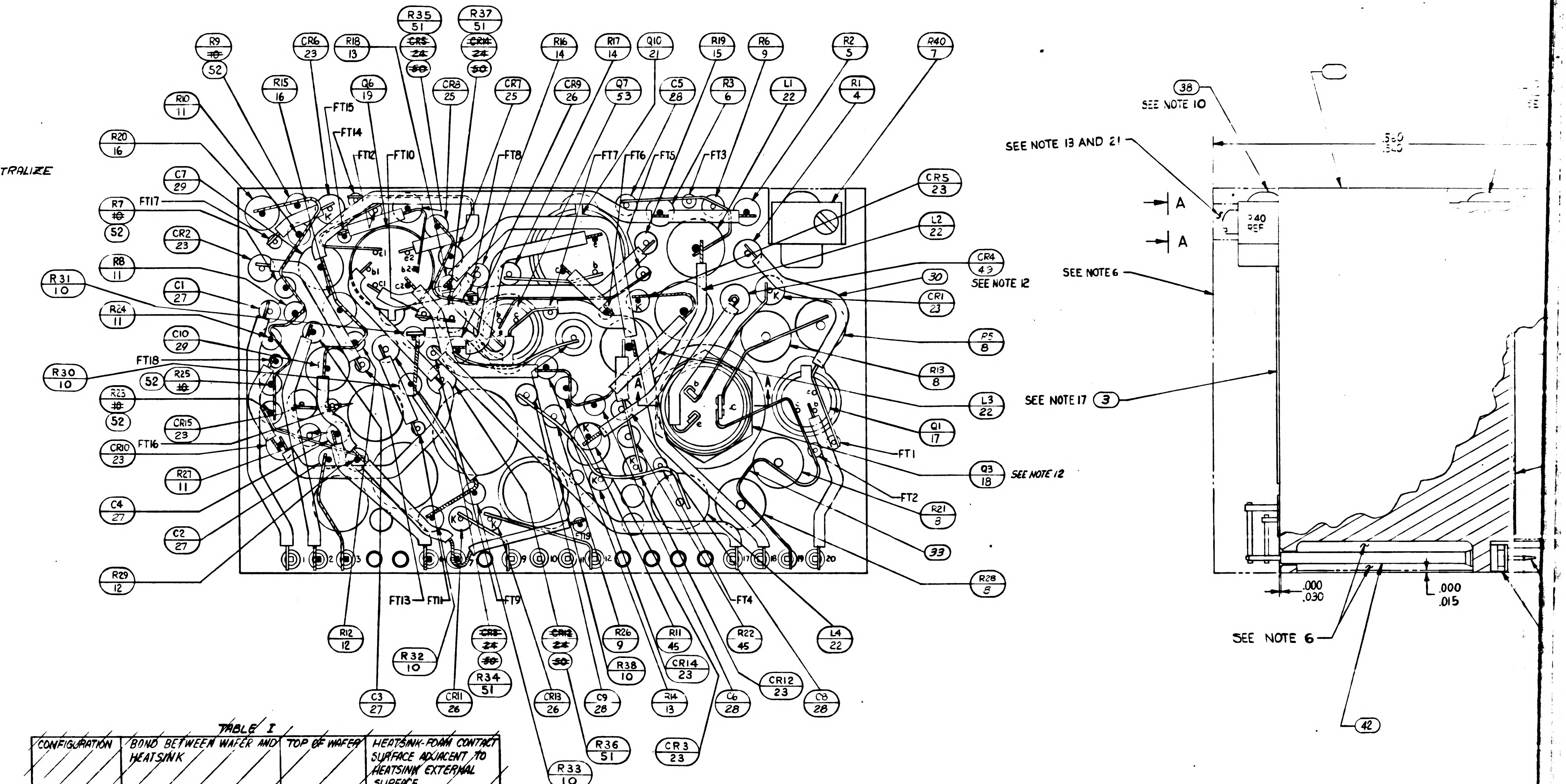
CODE IDENT NO. 80230
SIZE J2
1007516
SCALE 5:1
SHEET 1 OF 1

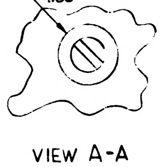
1007516

2/1007516

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK P/N NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO.4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD J AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD J
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    - BROKEN PATHS INDICATE INSULATION SLEEVING
    - K INDICATES CATHODE SIDE OF DIODE
    - FT( ) INDICATES FEED THRU
    - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    - C INDICATES COLLECTOR LEAD OF TRANSISTOR
    - B INDICATES BASE LEAD OF TRANSISTOR
    - E INDICATES EMITTER LEAD OF TRANSISTOR
    - C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    - B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    - E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. ~~BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.~~
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
20. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I~~
21. SEAL CALIBRATION POT R4 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007016 HAVE BEEN SATISFIED.
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS & APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II, APPLY MATERIAL & COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

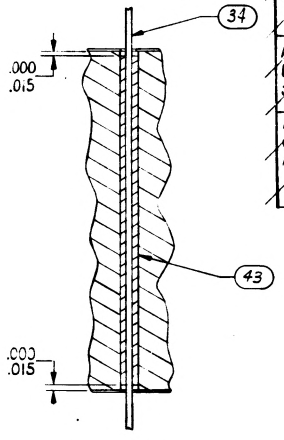

R35 51
R37 51
CR5 24 50
CR14 24 50
R9 10 52
CR6 23
R18 13
R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
R40 7
R15 16
Q6 19
CR8 25
CR7 25
CR9 26
Q7 53
C5 28
R3 6
L1 22
R1 4
R10 11
FT15
FT14
FT12
FT10
FT8
FT7
FT6
FT5
FT3
R20 16
C7 29
R7 10 52
FT17
CR2 23
R8 11
R31 10
C1 27
R24 11
C10 29
FT18
R30 10
R25 10 52
R23 10 52
CR15 23
FT16
CR10 23
R27 11
C4 27
C2 27
R29 12
CR5 23
L2 22
CR4 43
SEE NOTE 12
30
CR1 23
P5 8
R13 8
L3 22
Q1 17
FT1
Q3 18
SEE NOTE 12
FT2
R21 8
33
R28 8
e1 b1 c1 e2 b2 c2
K
A
b c e
1 2 3 9 10 11 12 17 18 19 20
FT19
FT13
FT11
FT9
FT4
R12 12
R32 10
CR5 24 50
R34 51
C3 27
CR11 26
CR12 24 50
CR13 26
R36 51
R33 10
R26 9
R38 10
C9 28
R11 45
CR14 23
R14 13
CR3 23
C6 28
R22 45
CR12 23
C8 28
L4 22
38
SEE NOTE 10
SEE NOTE 13 AND 21
.360
.340
A
A
R40 REF
SEE NOTE 6
SEE NOTE 17 3
.000
.030
.000
.015
SEE NOTE 6
42



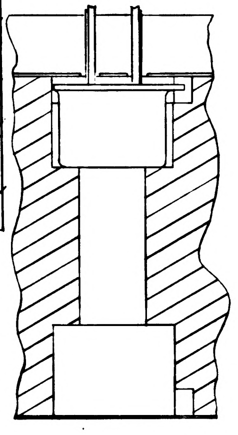
VIEW A-A

~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.~~

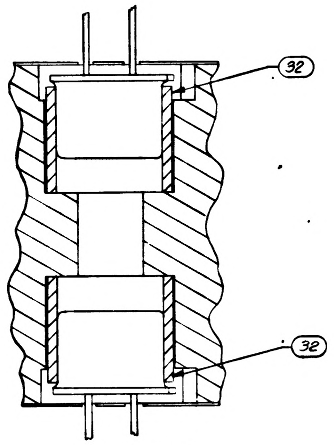

34
.000
.015
43
.000
.015

SECTION G-G

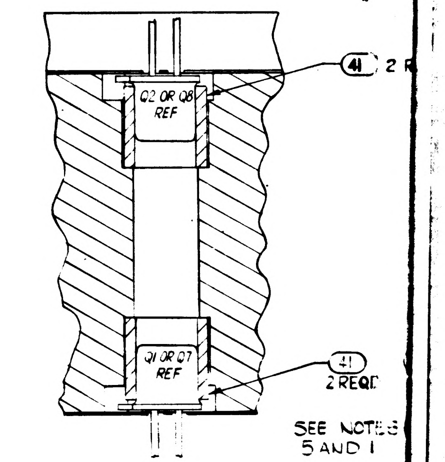


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO (19)

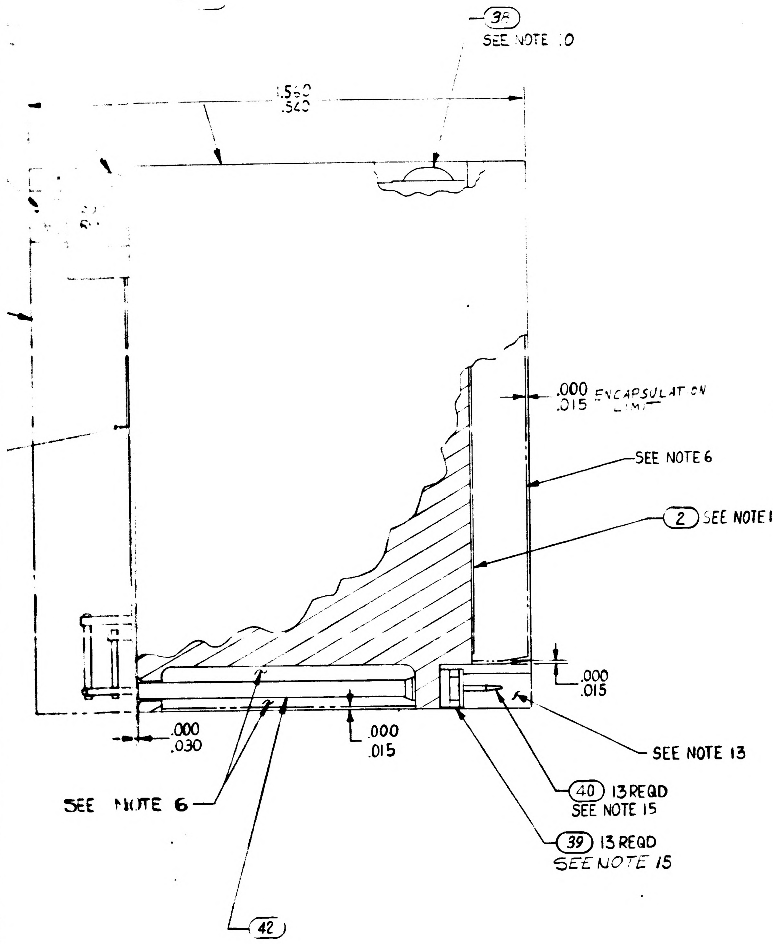


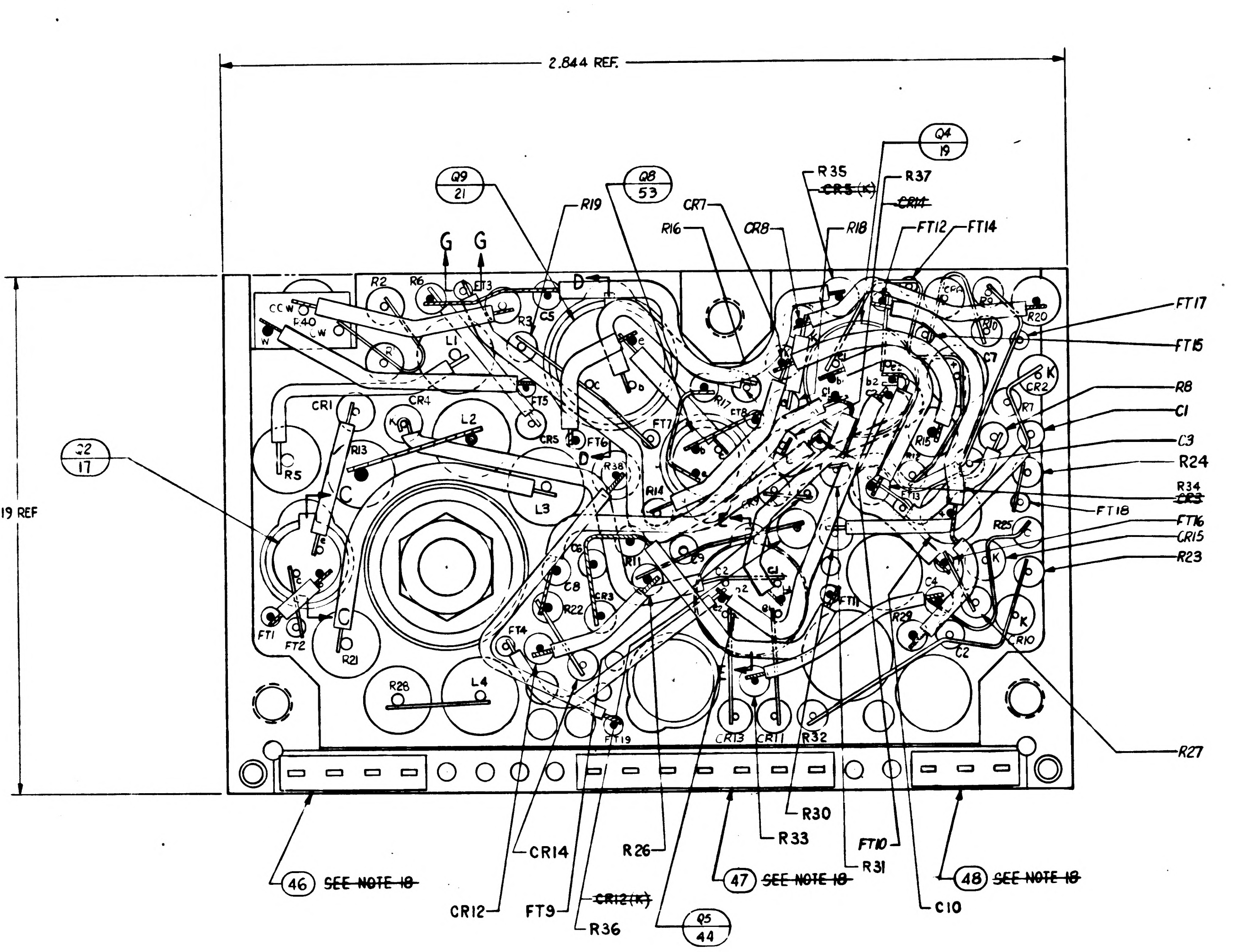
SECTION D-D

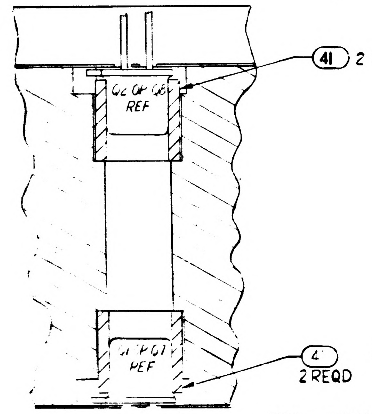

41 2 R
Q2 OR Q8 REF
Q1 OR Q7 REF
41 2 REQD
SEE NOTES 5 AND 1

SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. (20) & (17)

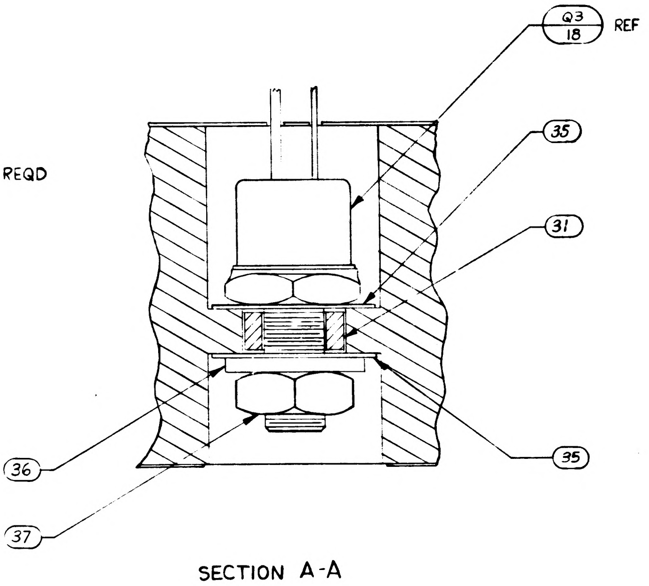

38
SEE NOTE 10
1.542
.540
.000 ENCAPSULATION
.015 LIMIT
SEE NOTE 6
2 SEE NOTE 17
.000
.015
.000
.030
.000
.015
SEE NOTE 13
40 13 REQD
SEE NOTE 15
39 13 REQD
SEE NOTE 15
SEE NOTE 6
42


2.844 REF.
1.719 REF
Q9 21
Q8 53
R19
G
G
D
CR7
R16
CR8
R18
R35
~~CR5 (K)~~
R37
~~CR14~~
Q4 19
FT12
FT14
FT17
FT15
R8
C1
C3
R24
R34
~~CR3~~
FT18
FT16
CR15
R23
R27
Q2 17
R2
R6
FT3
R3
C5
CCW
R40
CW
W
R1
L1
CR1
CR4
L2
R13
R5
CR5
FT5
FT6
FT7
R38
R17
R14
L3
C
K
R15
R7
CR2
C7
R9
R10
R20
R25
C6
C8
R22
CR3
R11
C9
C2
C4
FT11
R29
FT1
FT2
R21
FT4
R28
L4
FT19
CR13
CRT1
R32
R26
CR14
R30
R33
R31
FT10
C10
CR12
FT9
~~CR12 (K)~~
R36
Q5 44
46 ~~SEE NOTE 18~~
47 ~~SEE NOTE 18~~
48 ~~SEE NOTE 18~~

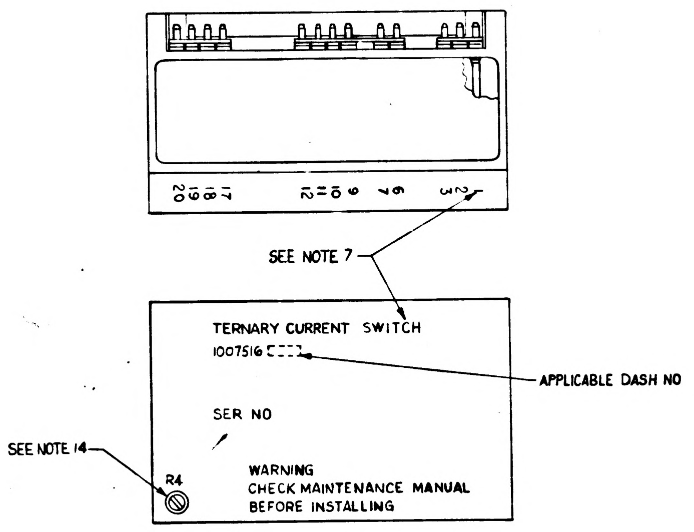

41 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
41 2 REQD

SECTION C-C

TYPICAL INSTALLATION FOR FIND NO 27 & 17


Q3 18 REF
35
31
36
95
SEE NOTES 37
5 AND 11

SECTION A-A


20 19 18 17
12 11 10 9
7 6
3 2 1
SEE NOTE 7
TERNARY CURRENT SWITCH
1007516 ----
APPLICABLE DASH NO
SER NO
SEE NOTE 14
R4
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2:1

REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A1		(A1) REVISED PER TDRR 16635		25 FEB 65	KS
B	—	REVISED PER TDRR 16854	—	4 MAR 65	B
C		REVISED PER TDRR 7307		12 MAR 65	
D	—	REVISED PER TDRR 7627	—	24 MAR 65	
E	—	REVISED PER TDRR 18937	—	1 MAY 65	
F	-	REVISED PER TDRR 9288	—	1 JUNE 65	
G		REVISED PER TDRR 9289		65	
H		REVISED PER TDRR 9290		3 JUN 65	
J		REVISED PER TDRR 20143		65	
K		REVISED PER TDRR 2 278		13 JUN 65	
L		REVISED PER TDRR 21283		2 AUG 65	
M		REVISED PER TDRR 22360		20 SEP 65	
N		REVISED PER TDRR 22956		2 OCT 65	
P		REVISED PER TDRR 23518		4 NOV 65	
R		REVISED PER TDRR 24542		5 DEC 65	

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
			011				
			☒		1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
			2		1010966-1	TRANSISTOR	53
			4		1006750-70	RESISTOR FIXED MF 3.9K, 1/4W, ±2%	52
			4		1006750-48	RESISTOR FIXED MF 4.7K, 1/4W, ±2%	51
			~~4~~		~~1010833-001~~	~~DIODE~~	~~50~~
			1		1010497	DIODE	49
			1		1008540-3	GASKET, CONNECTOR MINIATURE	48
			1		1008540-7	GASKET, CONNECTOR MINIATURE	47
			1		1008540-4	GASKET, CONNECTOR MINIATURE	46
			2		1006750-82	RESISTOR, FIXED MF, 120K 1/4W ±2%	45
			1		1010715-2	TRANSISTOR	44
			AR		1006776-22	INSULATION, SLEEVING	43
			AR		1006776-20	INSULATION, SLEEVING	42
			4		1008025-1	INSULATOR, BUSHING	41
			13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
			13		1006775	INSULATOR, WRAPOST MALE MINAT	39
			2		1000093-3	SCREW, BUTTON HEAD	38
			1		MS35650-104	NUT, PLAIN, HEX	37
			1		1008020-1	WASHER, FLAT	36
			2		1008024-1	WASHER, INSULATOR	35
			AR		1006787-2	WIRE, ELECTRICAL .020 DIA	34
			AR		1006757-1	WIRE, ELECTRICAL .010 X.020	33
			2		1008025-2	INSULATOR, BUSHING	32
			1		1008021-1	INSULATOR, BUSHING	31
			AR		1006776-21	INSULATION SLEEVING	30
			2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35V ±10%	29
			4		1006777-7	CAPACITOR, FIXED CER. 47UUF 100V ±10%	28
			4		1006777-24	CAPACITOR, FIXED CER. 1000UUF 100V ±10%	27
			3		1010394	DIODE	26
			2		1010384	DIODE	25
			~~4~~		~~1010462-6~~	~~DIODE~~	~~24~~
			9		1010385	DIODE	23
			4		1010388-39	INDUCTOR, .01H 75MA ±5%	22
			2		1010386	TRANSISTOR	21
			~~2~~		~~1006752~~	~~TRANSISTOR~~	20
			2		1010376-4	TRANSISTOR	19
			1		1010369-3	TRANSISTOR	18
			2		1010357-1	TRANSISTOR	17
			2		1006760-56	RESISTOR, FIXED MF, 10K 1/2 W ±2%	16
			1		1006750-62	RESISTOR, FIXED MF. 18K 1/4 W ±2%	15
			2		1010369-148	RESISTOR, FIXED COMP 20, 1/8 W ±5%	14
			2		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	13
			2		1006750-1	RESISTOR, FIXED MF, 51 1/4W ±2%	12
			4		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	[illegible]
			5		1006750-80	RESISTOR, FIXED MF, 100K 1/4W ±2%	[illegible]
			2		1010369-87	RESISTOR, FIXED MF. 180K 1/8W ±5%	[illegible]
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	[illegible]
			1		1010373-12	RESISTOR, VARIABLE 50K 1W ±5%	[illegible]
			1		1010364-557	RESISTOR, FIXED MF, 332K 1/8W	[illegible]
			1		1010364-619	RESISTOR, FIXED MF, 82.5K 1/8W	5
			1		1010364-683	RESISTOR, FIXED MF, 60K 1/8W	4
			1		1008600	INSULATOR, TOP	3
			1		1008255	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN C. Englehardt DATE 20 Mar 64
CHECKED 25 Aug 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
SPACECRAFT CENTER
HOUSTON TEXAS

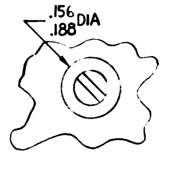
TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

CODE IDENT NO. 80230
SIZE J2
1007516
SCALE 5:1
SHEET 1 OF 1

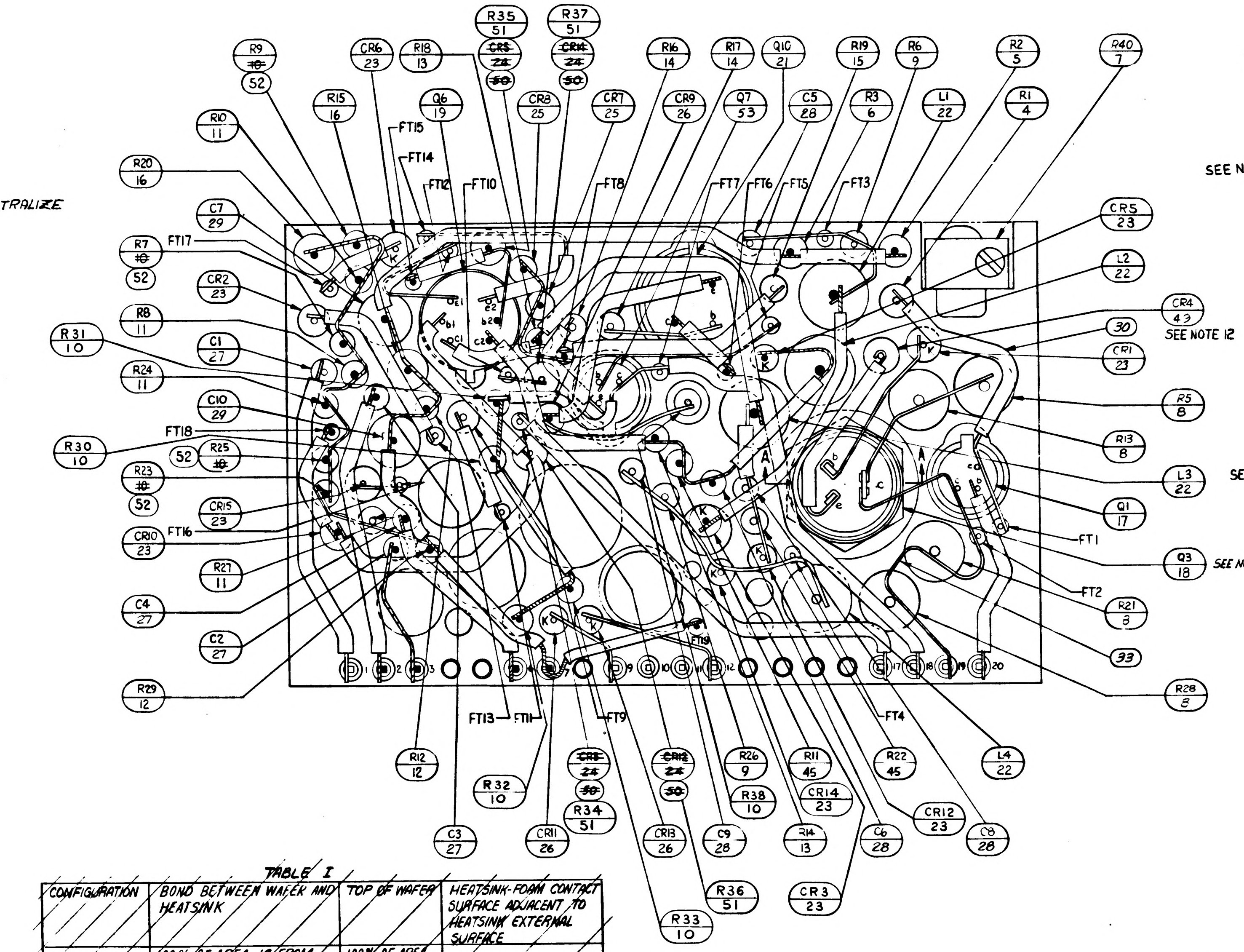
1007516 R

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK P/N NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO. 4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD J AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD J
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    - BROKEN PATHS INDICATE INSULATION SLEEVING
    - K INDICATES CATHODE SIDE OF DIODE
    - FT( ) INDICATES FEED THRU
    - PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    - C INDICATES COLLECTOR LEAD OF TRANSISTOR
    - B INDICATES BASE LEAD OF TRANSISTOR
    - E INDICATES EMITTER LEAD OF TRANSISTOR
    - C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    - B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    - E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. ~~BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.~~
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
20. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
21. SEAL CALIBRATION POT R4 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007016 HAVE BEEN SATISFIED.
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS & APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL & COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.



VIEW A-A


R9 ~~10~~ 52
R10 11
R20 16
C7 29
FT17
R7 ~~10~~ 52
CR2 23
R8 11
R31 10
C1 27
R24 11
C10 29
FT18
R30 10
R25 ~~10~~ 52
R23 ~~10~~ 52
CR15 23
CR10 23
FT16
R27 11
C4 27
C2 27
R29 12
CR6 23
R18 13
R35 51 ~~CR3 24 50~~
R37 51 ~~CR4 24 50~~
R15 16
Q6 19
CR8 25
CR7 25
R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
R40 7
CR9 26
Q7 53
C5 28
R3 6
L1 22
R1 4
FT15
FT14
FT12
FT10
FT8
FT7
FT6
FT5
FT3
CR5 23
L2 22
CR4 43 SEE NOTE 12
30
CP1 23
R5 8
R13 8
L3 22
Q1 17
FT1
Q3 18 SEE NOTE 12
FT2
R21 8
33
R28 8
FT13
FT11
FT9
FT4
R12 12
R32 10
C3 27
CR11 26
~~CR3 24 50~~
R34 51
CR13 26
R33 10
~~CR2 24 50~~
R26 9
R38 10
C9 28
R36 51
R11 45
CR14 23
R14 13
R22 45
C6 28
CR3 23
CR12 23
C8 28
L4 22

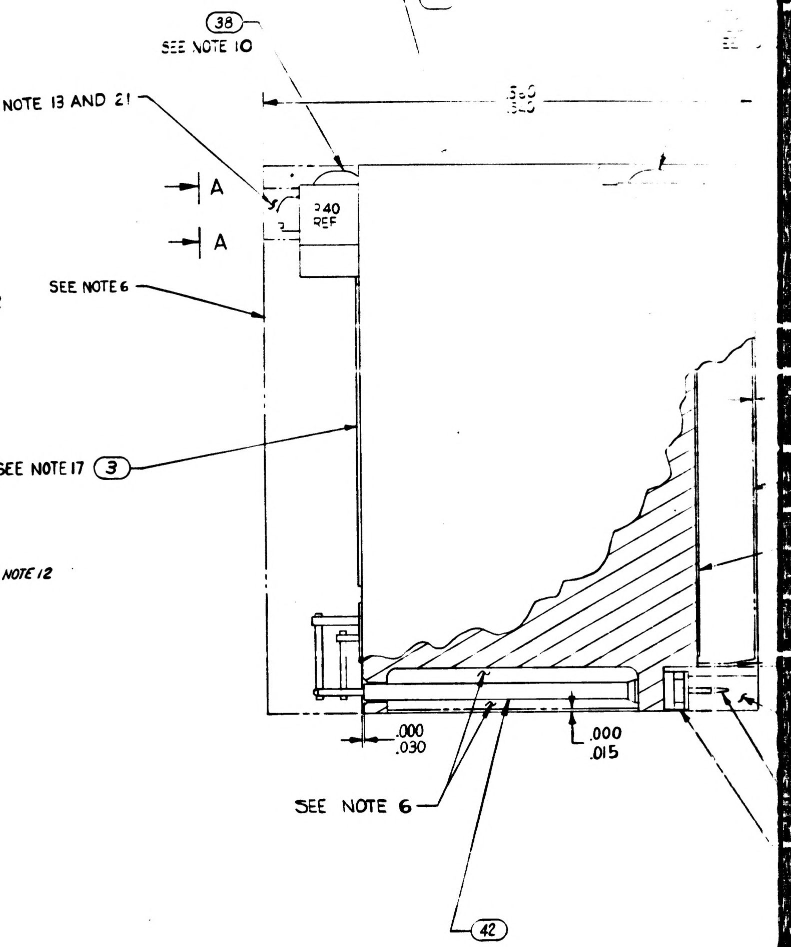
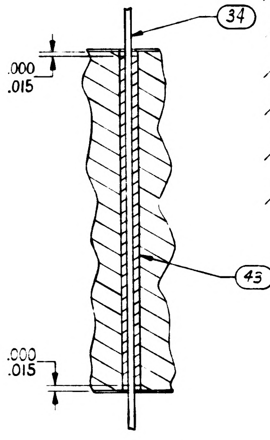
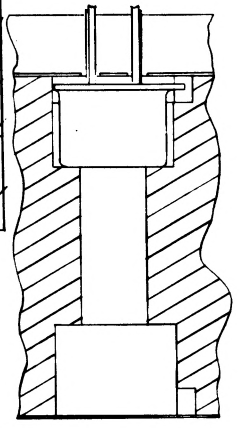

38
SEE NOTE 10
SEE NOTE 13 AND 21
A
A
R40 REF
SEE NOTE 6
SEE NOTE 17
3
.000
.030
.000
.015
SEE NOTE 6
42

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER & ADJACENT VERTICAL HEATSINK SURFACE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE

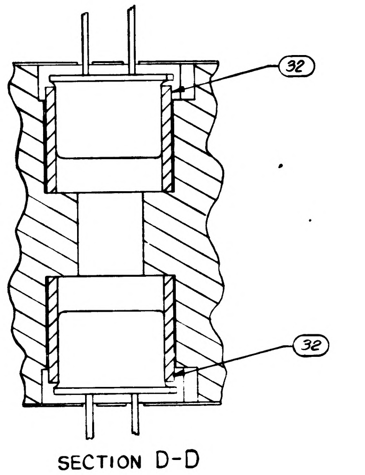

34
.000
.015
43
.000
.015

SECTION G-G

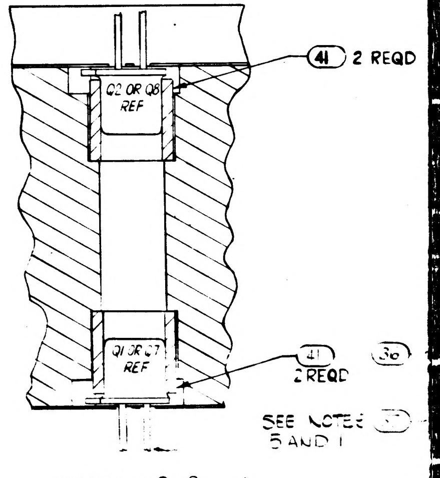


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO (19)

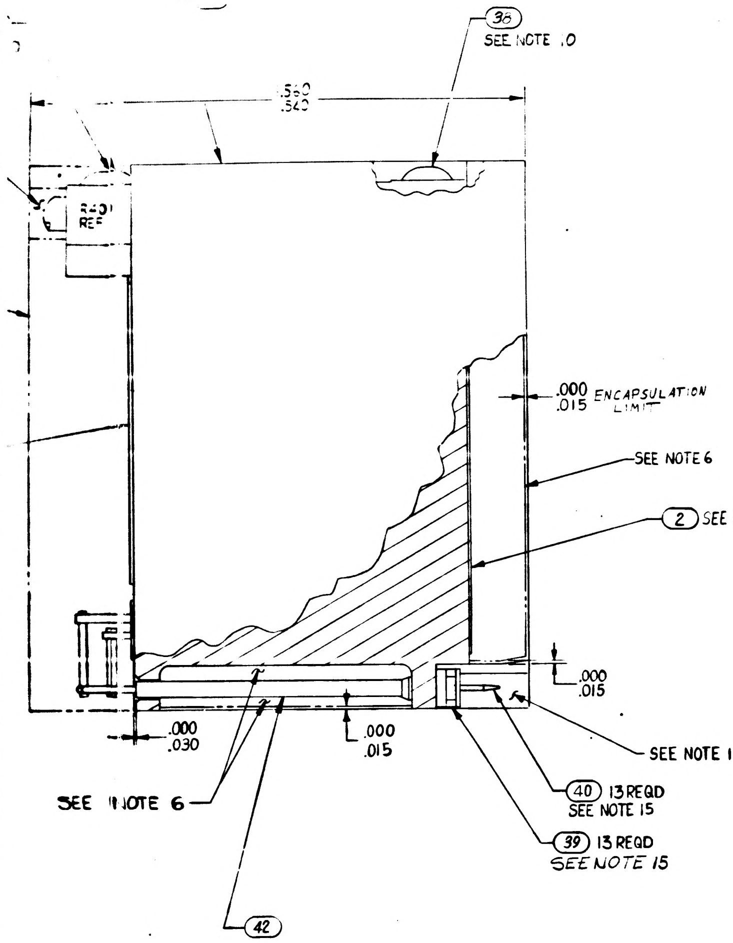


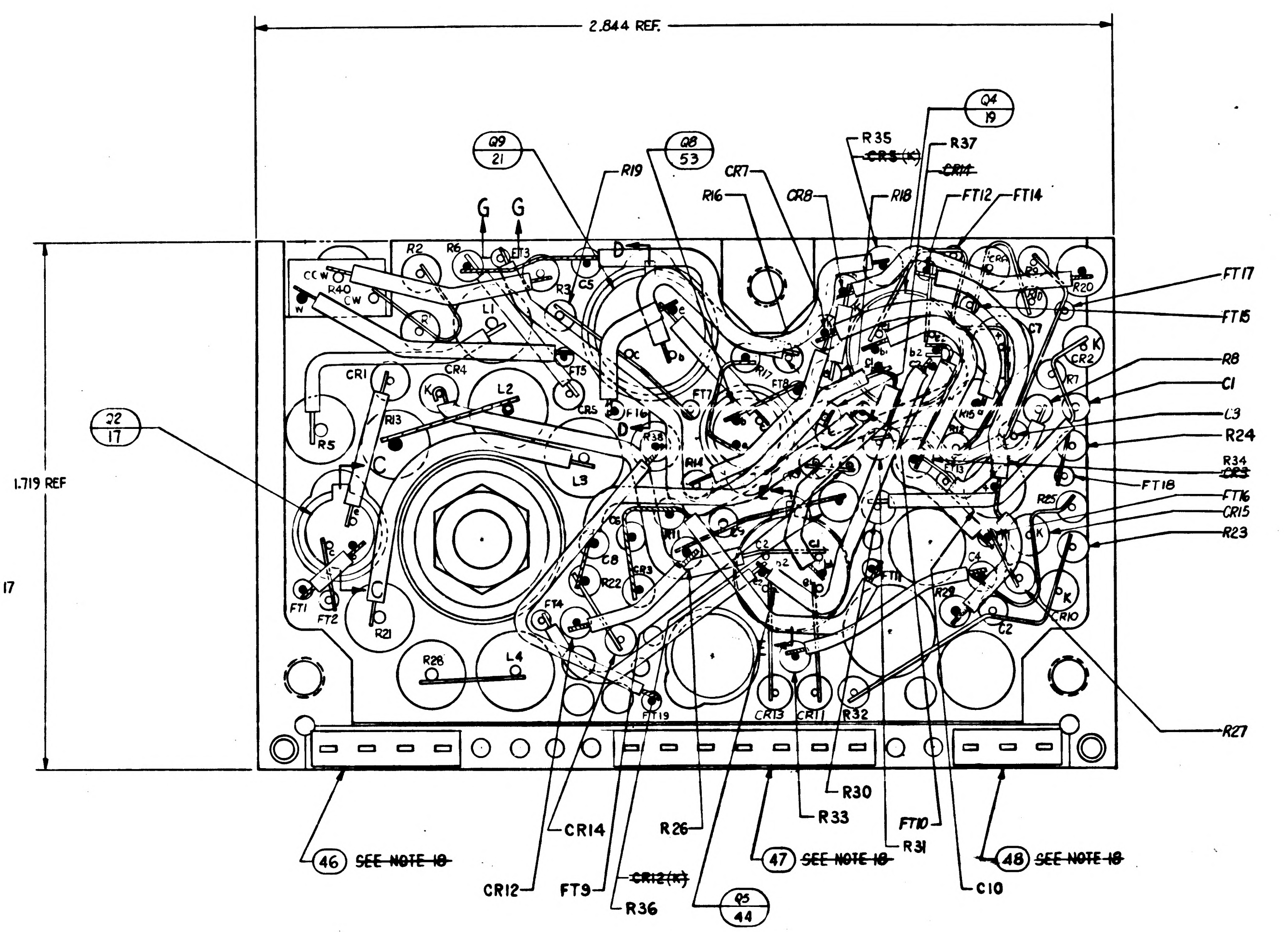
SECTION D-D

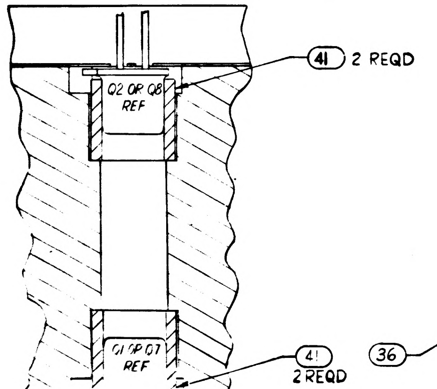

41 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
41
2 REQD
36
SEE NOTES
5 AND

SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. ( ) & ( )

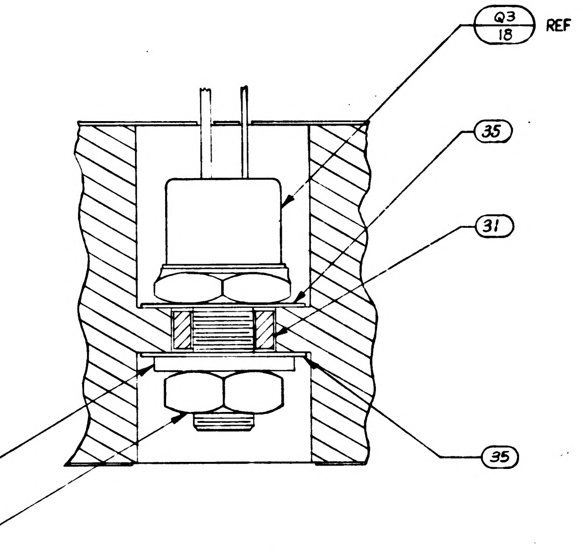

38
SEE NOTE 10
.560
.540
R40 REF
.000
.015 ENCAPSULATION LIMIT
SEE NOTE 6
2 SEE NOTE 17
.000
.015
.000
.030
.000
.015
SEE NOTE 13
40 13 REQD
SEE NOTE 15
39 13 REQD
SEE NOTE 15
SEE NOTE 6
42


2.844 REF.
1.719 REF
Q9 / 21
Q8 / 53
Q4 / 19
Q2 / 17
Q5 / 44
G
G
R19
CR7
R16
CR8
R35
~~CR5 (K)~~
R37
~~CR14~~
R18
FT12
FT14
FT17
FT15
R8
C1
L3
R24
R34
~~CR3~~
FT18
FT16
CR15
R23
R27
CCW
CW
W
R40
R2
R6
FT3
R3
C5
D
L1
CR1
CR4
L2
R13
FT5
CR5
FT16
R38
R5
C
L3
R14
FT7
R17
FT8
C7
CR2
R7
R20
R25
K
FT1
FT2
R21
C8
R22
CR3
R11
C9
FT4
C2
C1
FT11
R29
C4
CR10
R28
L4
FT19
CR13
CR11
R32
CR14
R26
R30
R33
FT10
R31
C10
CR12
FT9
~~CR12 (K)~~
R36
46 ~~SEE NOTE 18~~
47 ~~SEE NOTE 18~~
48 ~~SEE NOTE 18~~

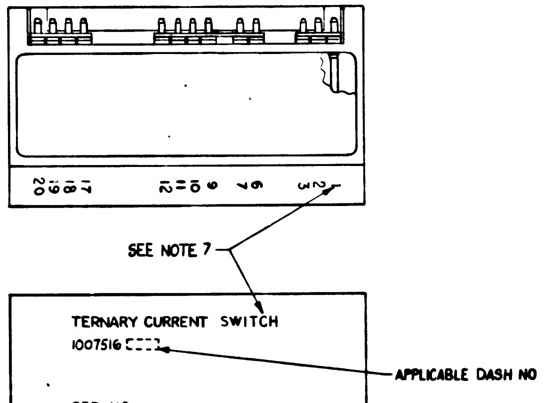

41 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
41 2 REQD

SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. 20 & 17


Q3 / 18 REF
35
31
35
36
SEE NOTES 5 AND 11 37

SECTION A-A


20 19 18 17
12 11 10 9
7 6
3 2
SEE NOTE 7
TERNARY CURRENT SWITCH
1007516 ☐☐☐
APPLICABLE DASH NO
SER NO
SEE NOTE 14
R4
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW

SCALE 2:1

REVISIONS

SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A1		Ⓐ1 REVISED PER TDRR 16635		25-FEB-65	RS
B	—	REVISED PER TDRR 16854	—	4-MAR-65	B
C		REVISED PER TDRR 17307		12 MAR 65	JHK
D	—	REVISED PER TDRR 17627	—	24 MAR 65	
E	—	REVISED PER TDRR 18937	—	17 MAY 65	
F	—	REVISED PER TDRR 19288	—	1 JUNE 65	
G		REVISED PER TDRR 19289		2 JUN 65	
H		REVISED PER TDRR 19290		9 [illegible] 65	
J		REVISED PER TDRR 20143		[illegible] 65	
K		REVISED PER TDRR 21278		3 JUL 65	
L		REVISED PER TDRR 21283		2 AUG 65	
M		REVISED PER TDRR 22360		20 SEP 65	
N		REVISED PER TDRR 22956		[illegible] 65	
P		REVISED PER TDRR 23518		4 NOV 65	
R		REVISED PER TDRR 24542		5 DEC 65	
S		REVISED PER TDRR-25513		3 FEB-66	

LIST OF PARTS AND MATERIALS

QUANTITY REQUIRED 011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
☒		1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
2		1010966-1	TRANSISTOR	53
4		1006750-70	RESISTOR FIXED MF 3.9K, 1/4W, ±2%	52
4		1006750-48	RESISTOR FIXED MF 4.7K, 1/4W, ±2%	51
~~#~~		~~1010833-001~~	~~DIODE~~	~~50~~
1		1010497	DIODE	49
1		1008540-3	GASKET, CONNECTOR MINIATURE	48
1		1008540-7	GASKET, CONNECTOR MINIATURE	47
1		1008540-4	GASKET, CONNECTOR MINIATURE	46
2		1006750-82	RESISTOR, FIXED MF, 120K 1/4W ±2%	45
1		1010715-2	TRANSISTOR	44
~~AR~~		~~1006776-22~~	~~INSULATION, SLEEVING~~	~~43~~
AR		1006776-20	INSULATION, SLEEVING	42
4		1008025-1	INSULATOR, BUSHING	41
13		1006782-4	CONTACT, WRAPOST MALE MINIAT	40
13		1006775	INSULATOR, WRAPOST MALE MINIAT	39
2		1000093-3	SCREW, BUTTON HEAD	38
1		MS35650-104	NUT, PLAIN, HEX	37
1		1008020-1	WASHER, FLAT	36
2		1008024-1	WASHER, INSULATOR	35
AR		1010848-2	WIRE, ELECTRICAL .020 DIA	34
AR		1006757-1	WIRE, ELECTRICAL .010 X .020	33
2		1008025-2	INSULATOR, BUSHING	32
1		1008021-1	INSULATOR, BUSHING	31
AR		1006776-21	INSULATION SLEEVING	30
2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35V ± 10%	29
4		1006777-7	CAPACITOR, FIXED CER, 47UUF 100V ±10%	28
4		1006777-24	CAPACITOR, FIXED CER, 1000UUF 100V ±10%	27
3		1010394	DIODE	26
2		1010384	DIODE	25
~~4~~		~~1010462-6~~	~~DIODE~~	~~24~~
9		1010385	DIODE	23
4		1010388-39	INDUCTOR, .01H 75MA ± 5%	22
2		1010386	TRANSISTOR	21
~~2~~		~~1006752~~	~~TRANSISTOR~~	~~20~~
2		1010376-4	TRANSISTOR	19
1		1010269-3	TRANSISTOR	18
2		1010357-1	TRANSISTOR	17
2		1006760-56	RESISTOR, FIXED MF, 10K 1/2 W ± 2%	16
1		1006750-62	RESISTOR, FIXED MF. 18K 1/4 W ± 2%	15
2		1010369-148	RESISTOR, FIXED COMP. 20, 1/8 W ±5%	14
2		1006750-15	RESISTOR, FIXED MF, 200 1/4 W ± 2%	13
2		1006750-1	RESISTOR, FIXED MF, 51 1/4 W ± 2%	[illegible]
4		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ± 2%	[illegible]
5		1006750-80	RESISTOR, FIXED MF, 100K 1/4W ± [illegible]	[illegible]
2		1010369-87	RESISTOR, FIXED MF. 180K 1/8W ±5 [illegible]	[illegible]
4		1010389-80	RESISTOR, FIXED WW, 10K 3W ± [illegible]	[illegible]
1		1010373-12	RESISTOR, VARIABLE, 50K 1W ±5[illegible]	[illegible]
1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ± [illegible]	[illegible]
1		1010364-619	RESISTOR, FIXED MF, 82.5K [illegible]	[illegible]
1		1010364-683	RESISTOR, FIXED MF, [illegible]K 1/8 W ± [illegible]	4
1		1008600	INSULATOR, TOP	3
1		1008255	INSULATOR, BOTTOM	2
1		1007008	HEATSINK	1

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN 20 JUL 64
CHECKED 25 AUG 64
3 DEC 64
APPROVAL 27 AUG 64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERNARY CURRENT SWITCH, COMPUTER OUTPUT, ASSEMBLY

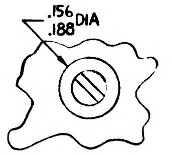
CODE IDENT NO. 80230
SIZE J2
1007516
SCALE 5:1
SHEET 1 OF 1

1007516

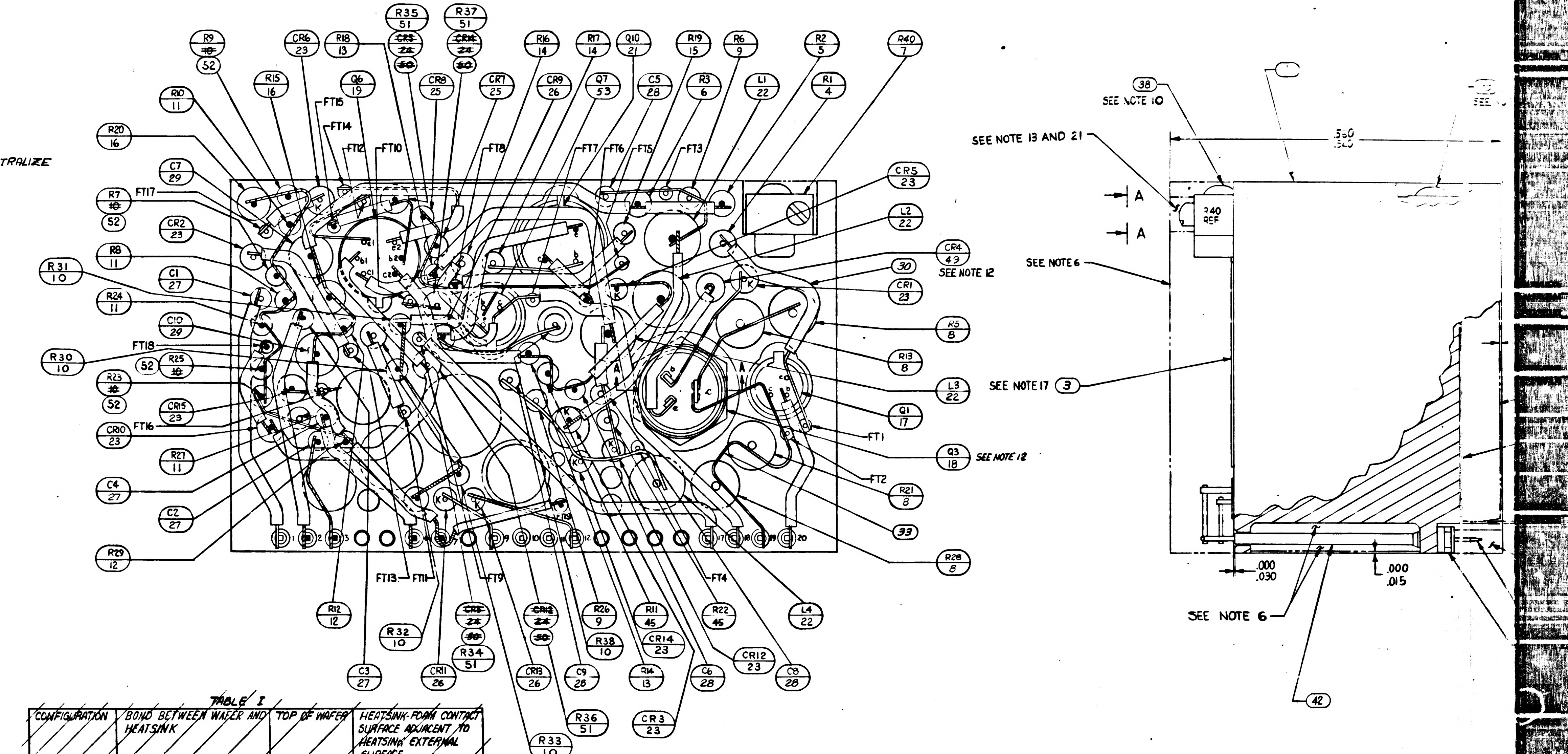
2Z1007516

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO. 4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD J AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD J
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    BROKEN PATHS INDICATE INSULATION SLEEVING
    K INDICATES CATHODE SIDE OF DIODE
    FT( ) INDICATES FEED THRU
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    C INDICATES COLLECTOR LEAD OF TRANSISTOR
    B INDICATES BASE LEAD OF TRANSISTOR
    E INDICATES EMITTER LEAD OF TRANSISTOR
    C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. ~~BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.~~
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
20. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
21. SEAL CALIBRATION POT R4 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007016 HAVE BEEN SATISFIED.
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS & APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL & COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

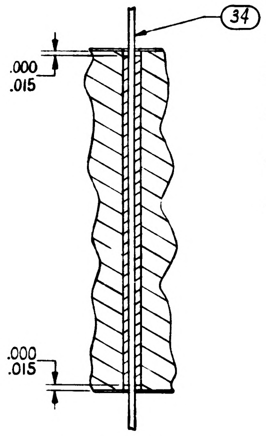


VIEW A-A

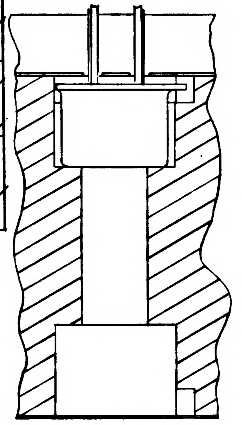

R35 51
R37 51
R9 10 52
CR6 23
R18 13
CR5 24 50
CR14 24 50
R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
R40 7
R10 11
R15 16
Q6 19
CR8 25
CR7 25
CR9 26
Q7 53
C5 28
R3 6
L1 22
R1 4
FT15
FT14
FT12
FT10
FT8
FT7
FT6
FT5
FT3
R20 16
C7 29
R7 10 52
FT17
CR2 23
R8 11
C1 27
R31 10
R24 11
C10 29
FT18
R30 10
R25 10
52
R23 10 52
CR15 23
CR10 23
FT16
R27 11
C4 27
C2 27
R29 12
CR5 23
L2 22
CR4 49 SEE NOTE 12
30
CR1 23
R5 8
R13 8
L3 22
Q1 17
FT1
Q3 18 SEE NOTE 12
FT2
R21 8
33
R28 8
FT13
FT11
FT9
FT4
R12 12
CR3 24 50
CR12 24 50
R26 9
R11 45
R22 45
L4 22
R32 10
R34 51
R38 10
CR14 23
CR12 23
C3 27
CR11 26
CR13 26
C9 28
R14 13
C6 28
C8 28
R36 51
CR3 23
R33 10
38 SEE NOTE 10
SEE NOTE 13 AND 21
A
A
R40 REF
SEE NOTE 6
SEE NOTE 17 (3)
.000
.030
.000
.015
SEE NOTE 6
42

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE.~~

~~TABLE I~~

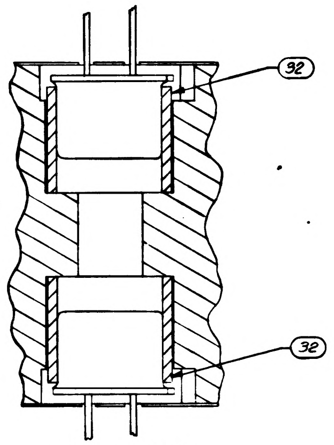

34
.000
.015
.000
.015

SECTION G-G

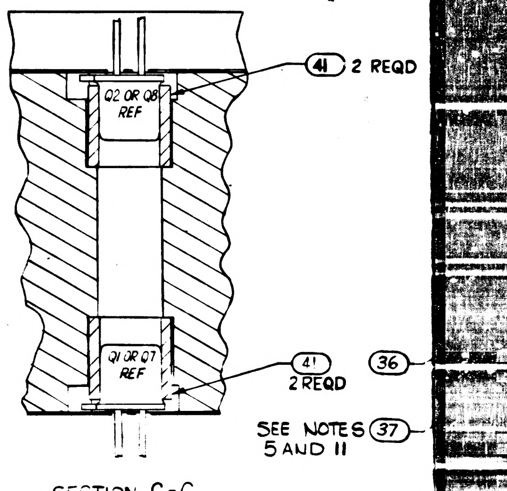


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO. (19)



SECTION D-D

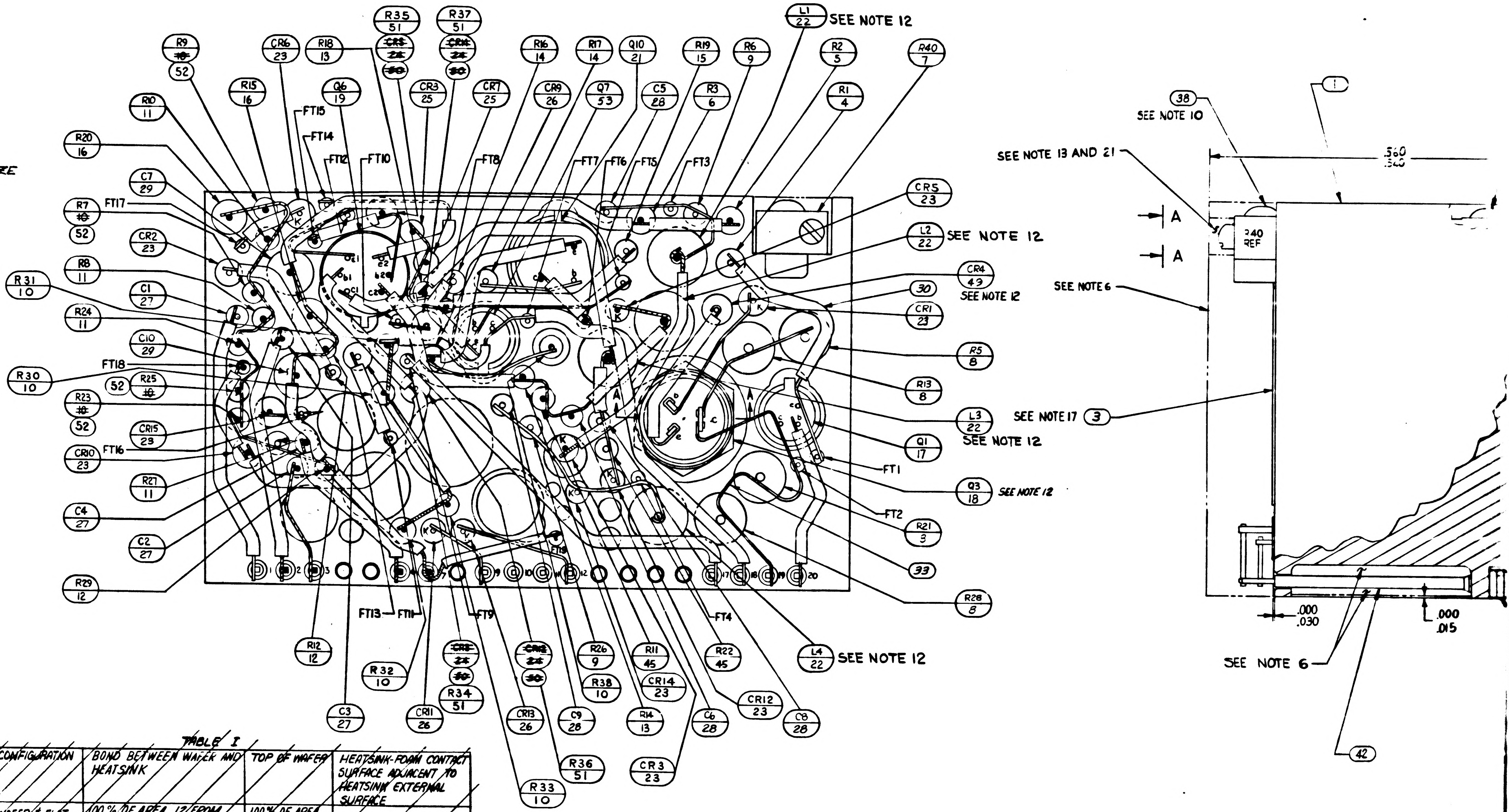

Q2 OR Q6 REF
41 2 REQD
Q1 OR Q7 REF
41 2 REQD
36
SEE NOTES (37) 5 AND 11

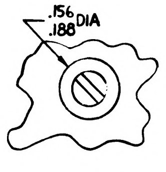
SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. (20) & (17)

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO. 4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD J AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD J
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    BROKEN PATHS INDICATE INSULATION SLEEVING
    K INDICATES CATHODE SIDE OF DIODE
    FT( ) INDICATES FEED THRU
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    C INDICATES COLLECTOR LEAD OF TRANSISTOR
    B INDICATES BASE LEAD OF TRANSISTOR
    E INDICATES EMITTER LEAD OF TRANSISTOR
    C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. ~~BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.~~
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.
20. ~~BOND A .25 MIN WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND1002187 TYPE I.~~
21. SEAL CALIBRATION POT R4 PER ND1002009 METHOD C AFTER ALL THE REQUIREMENTS OF FTM 1007016 HAVE BEEN SATISFIED.
22. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS & APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL & COATING AS INDICATED IN TABLE I.~~
23. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
24. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.
25. MOISTUREPROOF PER ND1002292 AS REQUIRED BY FIND NO. (54) USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD 1008867 AFTER PAINTING AND STENCILLING.

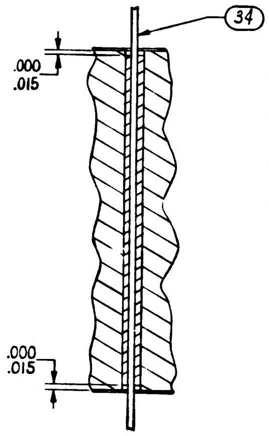

R35 51
R37 51
L1 22 SEE NOTE 12
R9 52
CR6 23
R18 13
CR2 23
CR1 26
R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
R40 7
R10 11
R15 16
Q6 19
CR3 25
CR7 25
CR9 26
Q7 53
C5 28
R3 6
R1 4
FT15
FT14
FT12
FT10
FT8
FT7
FT6
FT5
FT3
R20 16
C7 29
R7 52
FT17
CR2 23
R8 11
R31 10
C1 27
R24 11
C10 29
FT18
R30 10
R25 52
R23 52
CR15 29
CR10 23
FT16
R27 11
C4 27
C2 27
R29 12
CR5 23
L2 22 SEE NOTE 12
CR4 49 SEE NOTE 12
30
CR1 23
R5 8
R13 8
L3 22 SEE NOTE 12
Q1 17
FT1
Q3 18 SEE NOTE 12
FT2
R21 3
33
R28 8
FT13
FT11
FT9
FT4
R12 12
R32 10
C3 27
CR11 26
R34 51
CR13 26
C9 28
R26 9
R38 10
R11 45
CR14 23
R14 13
R22 45
C6 28
CR12 23
C8 28
L4 22 SEE NOTE 12
R36 51
R33 10
CR3 23
38
SEE NOTE 10
1
SEE NOTE 13 AND 21
A
A
240 REF
.560 .540
SEE NOTE 6
SEE NOTE 17
3
.000 .030
.000 .015
SEE NOTE 6
42



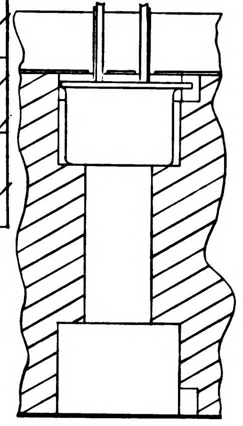
VIEW A-A

~~TABLE I~~

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER & FLAT HEATSINK~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER & ADJACENT VERTICAL HEATSINK SURFACE~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE~~

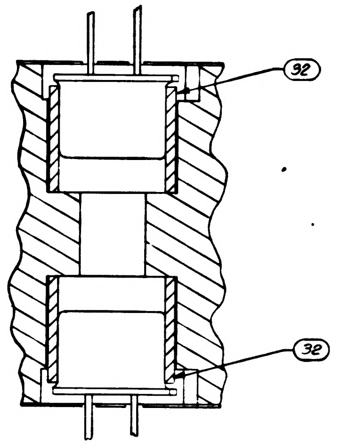

34
.000 .015
.000 .015

SECTION G-G

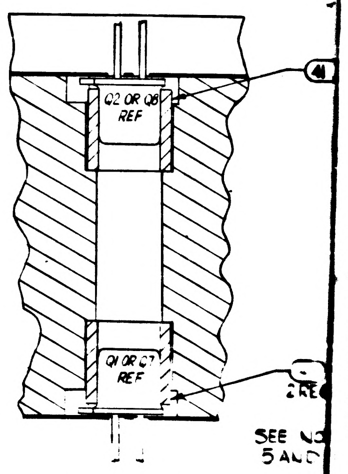


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO. (19)



SECTION D-D

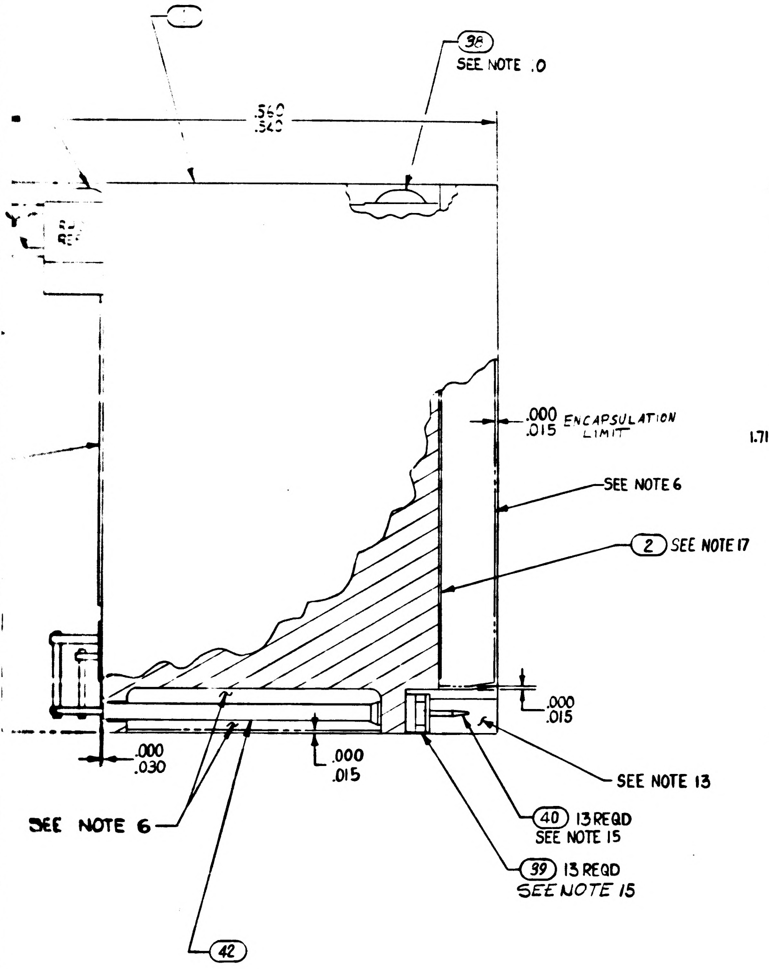

41
Q2 OR Q8 REF
Q1 OR Q7 REF
SEE NO 5 AND

SECTION C-C

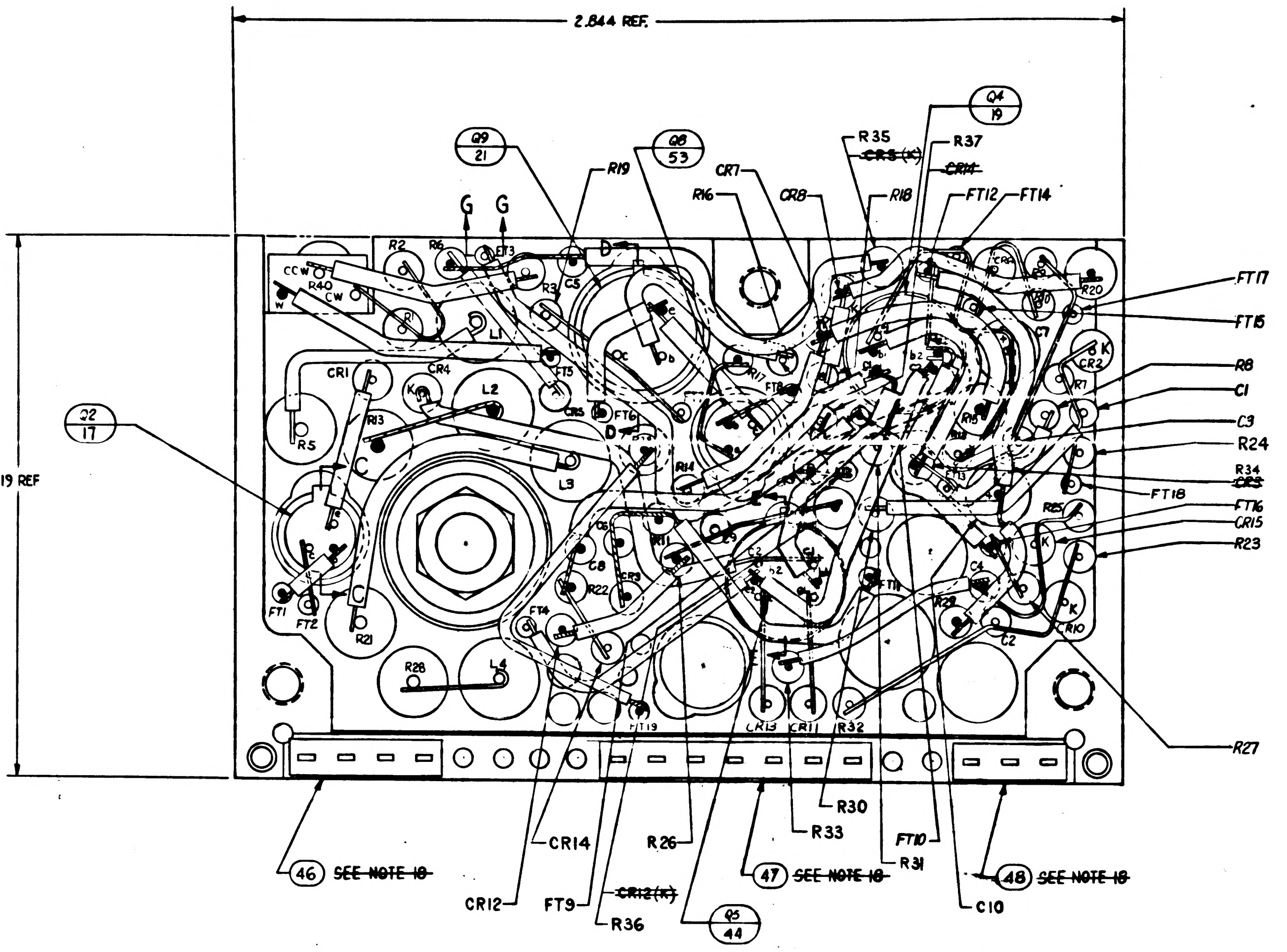
TYPICAL INSTALLATION FOR FIND NO. (20) & (17)

1007516 U

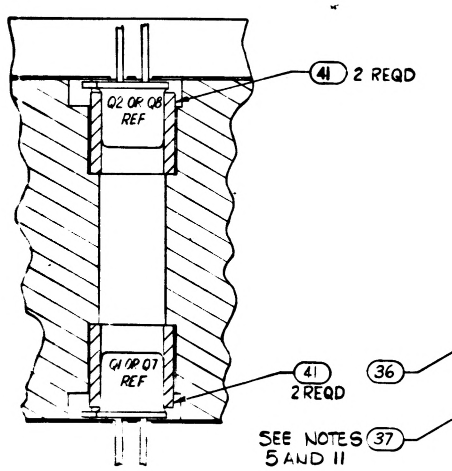
REVISIONS					
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
A1		(A1) REVISED PER TDRR 16635		25-FEB-65	RS
B	—	REVISED PER TDRR 16854	—	4-MAR-65	B.
C		REVISED PER TDRR 17307		12 MAR 65	JHR
D	—	REVISED PER TDRR 17627	—	24 MAR 65	EM
E	—	REVISED PER TDRR 18937	—	17 MAY 65	AN
F	—	REVISED PER TDRR 19288	—	1 JUNE 65	
G		REVISED PER TDRR 19289		2 JUN 65	
H		REVISED PER TDRR 19290		3 JUN 65	
J		REVISED PER TDRR 20143		JUN 65	
K		REVISED PER TDRR 21278		3 JUL 65	
L		REVISED PER TDRR 21283		2 AUG 65	RLP
M		REVISED PER TDRR 22360		20 SEP 65	AN
N		REVISED PER TDRR 22956		2 OCT 65	
P		REVISED PER TDRR 23518		6 NOV 65	AN
R		REVISED PER TDRR 24542		5 DEC 65	RLP
S		REVISED PER TDRR 25513		3 FEB 66	B.
T		REVISED PER TDRR 26397		25 FEB 66	RLP
U		REVISED PER TDRR 33916			



.540
.520
(38) SEE NOTE 10
.000 .015 ENCAPSULATION LIMIT
SEE NOTE 6
(2) SEE NOTE 17
.000 .015
.000 .030
.000 .015
SEE NOTE 13
(40) 13 REQD SEE NOTE 15
(39) 13 REQD SEE NOTE 15
SEE NOTE 6
(42)



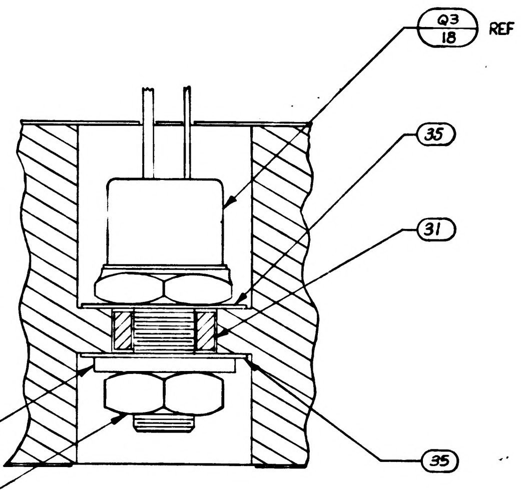
2.844 REF.
1.719 REF
(Q9 21)
(Q8 53)
(Q4 19)
(22 17)
G G
R19 CR7 R16 CR8 R18 R35 ~~CR5 (X)~~ R37 ~~CR14~~ FT12 FT14
R2 R6 FT3 R3 C5 R40 CW L1
CR1 CR4 L2 FT5 R13 R5 L3 FT6 R14
FT17 FT15 R8 C1 C3 R24 R34 ~~CR3~~ FT18 FT16 CR15 R23
R20 CR2 R7 R25
C8 CR9 R22 R11 FT4 FT1 FT2 R21 R28 L4 FT19 CR6 CR11 R32
C4 C2 CR10 R29 FT11 R27
CR14 R26 R33 R30 FT10 R31 C10
(46) ~~SEE NOTE 18~~
(47) ~~SEE NOTE 18~~
(48) ~~SEE NOTE 18~~
CR12 FT9 ~~CR12 (X)~~ R36
(Q5 44)



(41) 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
(41) 2 REQD

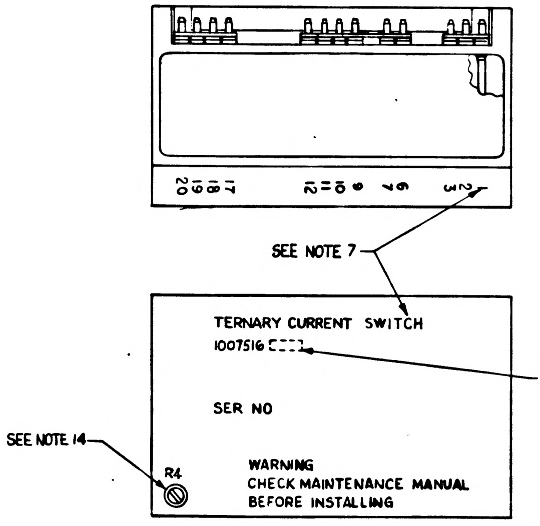
SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. (20) & (17)



(Q3 18) REF
(35)
(31)
(36)
(35)
SEE NOTES (37) 5 AND 11

SECTION A-A



SEE NOTE 7
TERNARY CURRENT SWITCH
1007516 ----
APPLICABLE DASH NO
SER NO
SEE NOTE 14
R4
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2:1

		021	011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
		☒	☒		1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
		AR	—		SEE NOTE 25	MOISTUREPROOFING	54
		2	2		1010966-1	TRANSISTOR	53
		4	4		1006750-70	RESISTOR FIXED MF 3.9K, 1/4W, ±2%	52
		4	4		1006750-48	RESISTOR FIXED MF 4.7K, 1/4W, ±2%	51
			~~#~~		~~1010833-001~~	~~DIODE~~	~~50~~
		1	1		1010497	DIODE	49
		1	1		1008540-3	GASKET, CONNECTOR MINIATURE	48
		1	1		1008540-7	GASKET, CONNECTOR MINIATURE	47
		1	1		1008540-4	GASKET, CONNECTOR MINIATURE	46
		2	2		1006750-82	RESISTOR, FIXED MF, 120K 1/4W ±2%	45
		1	1		1010715-2	TRANSISTOR	44
			~~AR~~		~~1006776-22~~	~~INSULATION, SLEEVING~~	~~43~~
		AR	AR		1006776-20	INSULATION, SLEEVING	42
		4	4		1008025-1	INSULATOR, BUSHING	41
		13	13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
		13	13		1006775	INSULATOR, WRAPOST MALE MINAT	39
		2	2		1000093-3	SCREW, BUTTON HEAD	38
		1	1		MS35650-104	NUT, PLAIN, HEX	37
		1	1		1008020-1	WASHER, FLAT	36
		2	2		1008024-1	WASHER, INSULATOR	35
		AR	AR		1010848-2	WIRE, ELECTRICAL .020 DIA	34
		AR	AR		1006757-1	WIRE, ELECTRICAL .010 X .020	33
		2	2		1008025-2	INSULATOR, BUSHING	32
		1	1		1008021-1	INSULATOR, BUSHING	31
		AR	AR		1006776-21	INSULATION SLEEVING	30
		2	2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35V ±10%	29
		4	4		1006777-7	CAPACITOR, FIXED CER, 47UUF 100V ±10%	28
		4	4		1006777-24	CAPACITOR, FIXED CER, 1000UUF 100V ±10%	27
		3	3		1010394	DIODE	26
		2	2		1010384	DIODE	25
			~~4~~		~~1010462-6~~	~~DIODE~~	~~24~~
		9	9		1010385	DIODE	23
		4	4		1010388-39	INDUCTOR, .01H 75MA ±5%	22
		2	2		1010386	TRANSISTOR	21
			~~2~~		~~1006758~~	~~TRANSISTOR~~	~~20~~
		2	2		1010376-4	TRANSISTOR	19
		1	1		1010269-3	TRANSISTOR	18
		2	2		1010357-1	TRANSISTOR	17
		2	2		1006760-56	RESISTOR, FIXED MF, 10K 1/2W ±2%	16
		1	1		1006750-62	RESISTOR, FIXED MF, 18K 1/4W ±2%	15
		2	2		1010369-148	RESISTOR, FIXED COMP 20, 1/3 W ±5%	14
		2	2		1006750-15	RESISTOR, FIXED MF, 200 1/4W ±2%	13
		2	2		1006750-1	RESISTOR, FIXED MF, 51 1/4W ±2%	12
		4	4		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	11
		5	5		1006750-80	RESISTOR, FIXED MF, 100K 1/4W ±2%	10
		2	2		1010369-87	RESISTOR, FIXED MF, 180K 1/8W ±5%	9
		4	4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±1%	8
		1	1		1010373-12	RESISTOR, VARIABLE 50K 1W ±5%	7
		1	1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±1%	6
		1	1		1010364-619	RESISTOR, FIXED MF, 82.5K 1/8W ±1%	5
		1	1		1010364-683	RESISTOR, FIXED MF, 178K 1/8W ±1%	4
		1	1		1008600	INSULATOR, TOP	3
		1	1		1008255	INSULATOR, BOTTOM	2
		1	1		1007008	HEATSINK	1
QUANTITY REQUIRED							

LIST OF PARTS AND MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN
DATE
CHECKED 25 Aug 64
J M BLYSHAK 3 DEC 64
APPROVAL 27 Aug 64
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

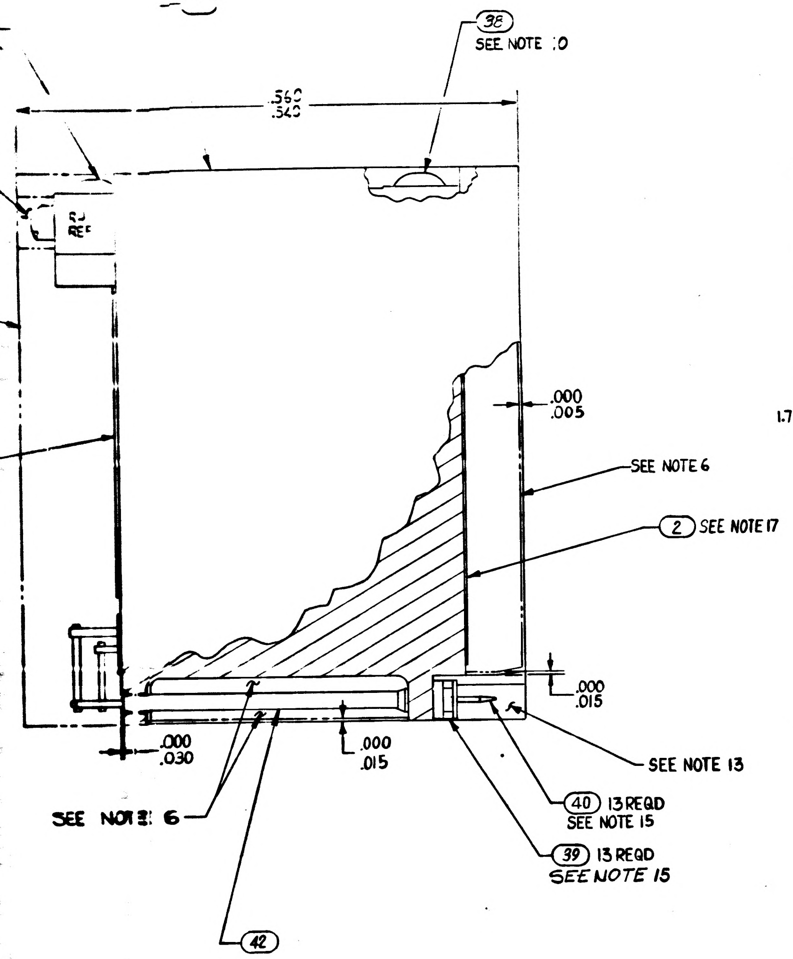
TERNARY CURRENT SWITCH, COMPUTER OUTPUT, ASSEMBLY

CODE IDENT NO. 80230
SIZE J2
1007516
SCALE 5:1
SHEET 1 of 1

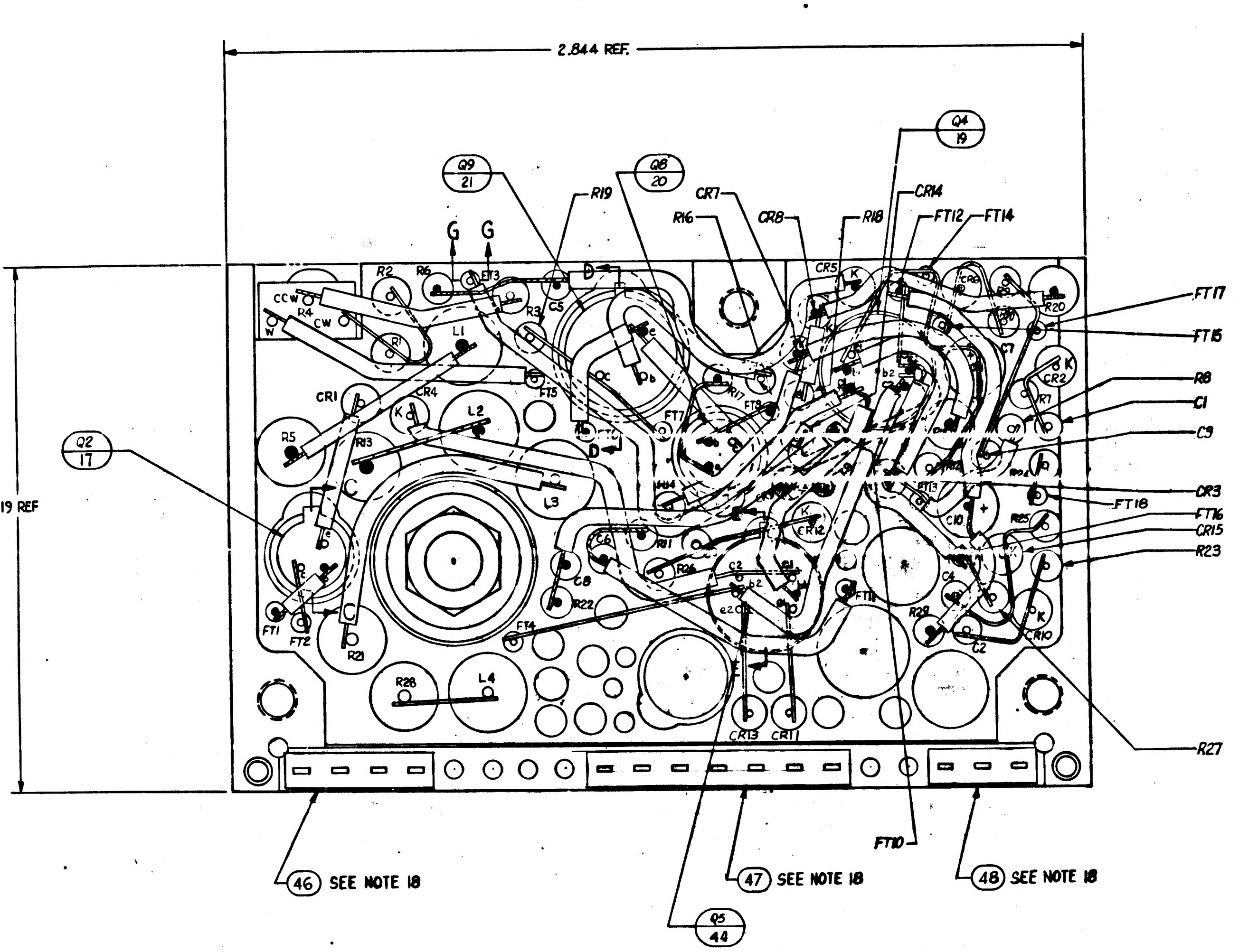
1007516 U

2-1007516

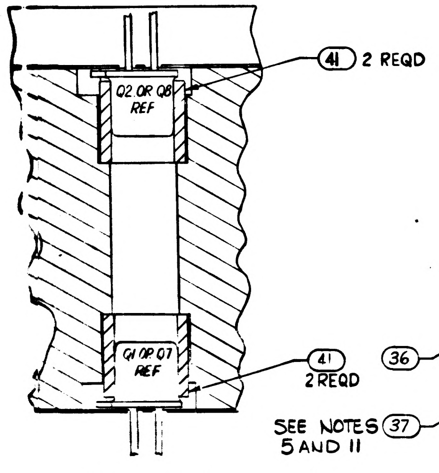
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD



38
SEE NOTE 10
.560
.540
R4 REF
.000
.005
SEE NOTE 6
2 SEE NOTE 17
.000
.015
.000
.030
.000
.015
SEE NOTE 13
40 13 REQD
SEE NOTE 15
39 13 REQD
SEE NOTE 15
SEE NOTE 6
42



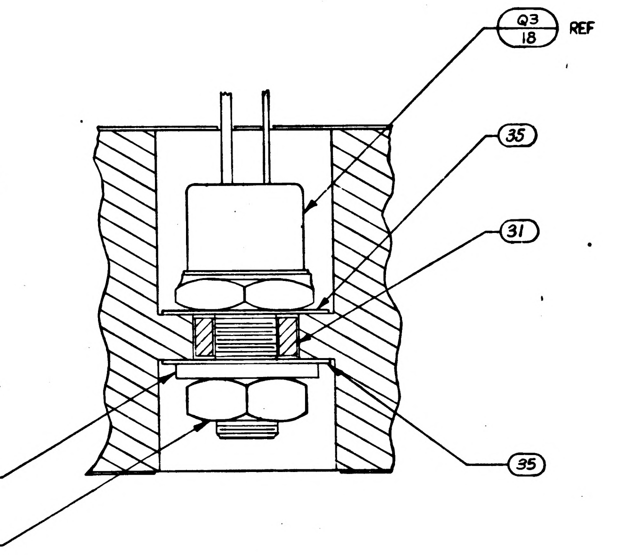
2.844 REF.
1.719 REF
Q9 21
Q8 20
Q4 19
Q2 17
Q5 44
G
G
R19
R16
CR7
CR8
R18
CR14
FT12
FT14
FT17
FT15
R8
C1
C9
CR3
FT18
FT16
CR15
R23
R27
FT10
46 SEE NOTE 18
47 SEE NOTE 18
48 SEE NOTE 18
R2
R6
R4
CCW
CW
R1
L1
R3
C5
CR1
CR4
L2
R5
R13
L3
FT1
FT2
R21
R22
R28
L4
C8
R11
R26
FT4
CR13
CR11
CR12
R29
C2
R10
R20
CR2
R7
C7
C10
R25



41 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
41 2 REQD

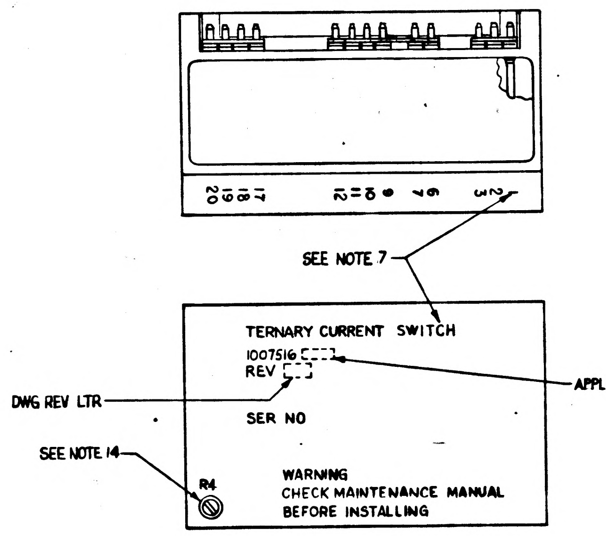
SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. 20 & 17



Q3 18 REF
35
31
35
36
SEE NOTES 37 5 AND 11

SECTION A-A



20 19 18 17
12 11 10 9 8 7 6
3 2 1
SEE NOTE 7
TERNARY CURRENT SWITCH
1007516 -
REV
APPLICABLE DASH NO
DWG REV LTR
SER NO
SEE NOTE 14
R4
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2:1

					PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
				☒	1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
			1		1010497	DIODE	49
			1		1008540-3	GASKET, CONNECTOR MINIATURE	48
			1		1008540-7	GASKET, CONNECTOR MINIATURE	47
			1		1008540-4	GASKET, CONNECTOR MINIATURE	46
			2		1006750-82	RESISTOR, FIXED MF, 120K 1/4 W ±2%	45
			1		1010715-1	TRANSISTOR	44
			AR		1006776-22	INSULATION, SLEEVING	43
			AR		1006776-20	INSULATION, SLEEVING	42
			4		1008025-1	INSULATOR, BUSHING	41
			13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
			13		1006775	INSULATOR, WRAPOST MALE MINAT	39
			2		1000093-3	SCREW, BUTTON HEAD	38
			1		MS35650-104	NUT, PLAIN, HEX	37
			1		1008020-1	WASHER, FLAT	36
			2		1008024-1	WASHER, INSULATOR	35
			AR		1006787-2	WIRE, ELECTRICAL .020 DIA	34
			AR		1006757-1	WIRE, ELECTRICAL .010 X.020	33
			2		1008025-2	INSULATOR, BUSHING	32
			1		1008021-1	INSULATOR, BUSHING	31
			AR		1006776-21	INSULATION SLEEVING	30
			2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35 V ± 10%	29
			4		1006777-13	CAPACITOR, FIXED CER, 100 UUF 100 V ±10%	28
			4		1006777-20	CAPACITOR, FIXED CER, 470 UUF 100 V ±10%	27
			3		1010394	DIODE	26
			2		1010384	DIODE	25
			4		1010462-6	DIODE	24
			5		1010385	DIODE	23
			4		1010388-39	INDUCTOR, .01H 75MA ± 5%	22
			2		1010386	TRANSISTOR	21
			2		1006752	TRANSISTOR	20
			2		1010376-4	TRANSISTOR	19
			1		1010269-3	TRANSISTOR	18
			2		1010357-1	TRANSISTOR	17
			2		1006760-56	RESISTOR, FIXED MF, 10K 1/2 W ± 2%	16
			1		1006750-62	RESISTOR, FIXED MF, 18K 1/4 W ± 2%	15
			2		1010369-148	RESISTOR, FIXED COMP 20, 1/8 W ±5%	14
			2		1006750-15	RESISTOR, FIXED MF, 200 1/4 W ± 2%	13
			2		1006750-18	RESISTOR, FIXED MF, 270 1/4 W ± 2%	12
			4		1006750-67	RESISTOR, FIXED MF, 30K 1/4 W ± 2%	11
			4		1006750-81	RESISTOR, FIXED MF, 110K 1/4 W ± 2%	10
			2		1010369-87	RESISTOR, FIXED MF, 180K 1/8 W ± 5%	9
			4		1010389-80	RESISTOR, FIXED WW, 10K 3W ± 1%	8
			1		1010373-10	RESISTOR, VARIABLE, 0K 1W ±5%	7
			1		1010364-557	RESISTOR, FIXED MF, 392K 1/8 W ± 1%	6
			1		1010364-711	RESISTOR, FIXED MF, 100K 1/8 W ± 1%	5
			1		1010364-683	RESISTOR, FIXED MF, 178K 1/8 W ± 1%	4
			1		1008600	INSULATOR, TOP	3
			1		1008255	INSULATOR, BOTTOM	2
			1		1007008	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	FIND NO
QUANTITY REQUIRED					LIST OF PARTS AND MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

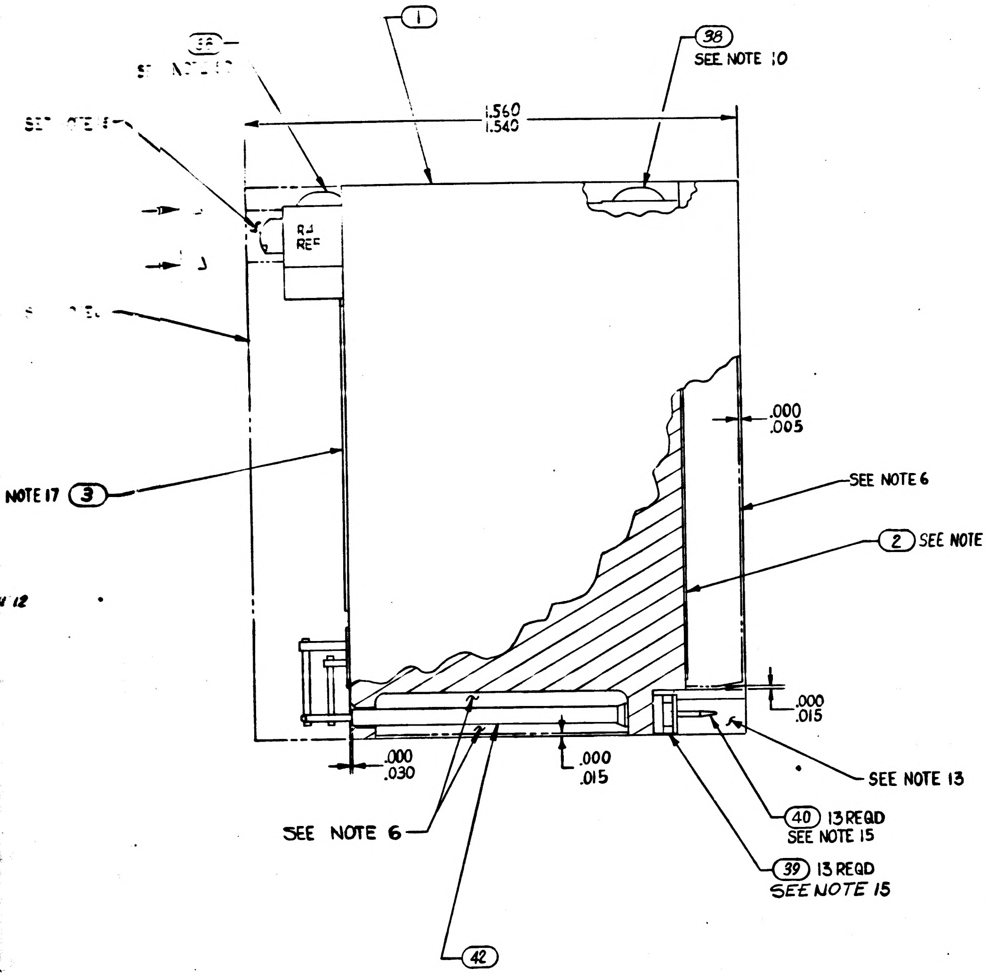
AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN C. Knuth DATE 20 Aug 64
CHECKED W. Gall 25 Aug. 64
J. M. BLYSHAK 3 DEC 64
APPROVAL J. W. Best 27 Aug '64
APPROVAL 12/4/64
NASA APPROVAL 12-7-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

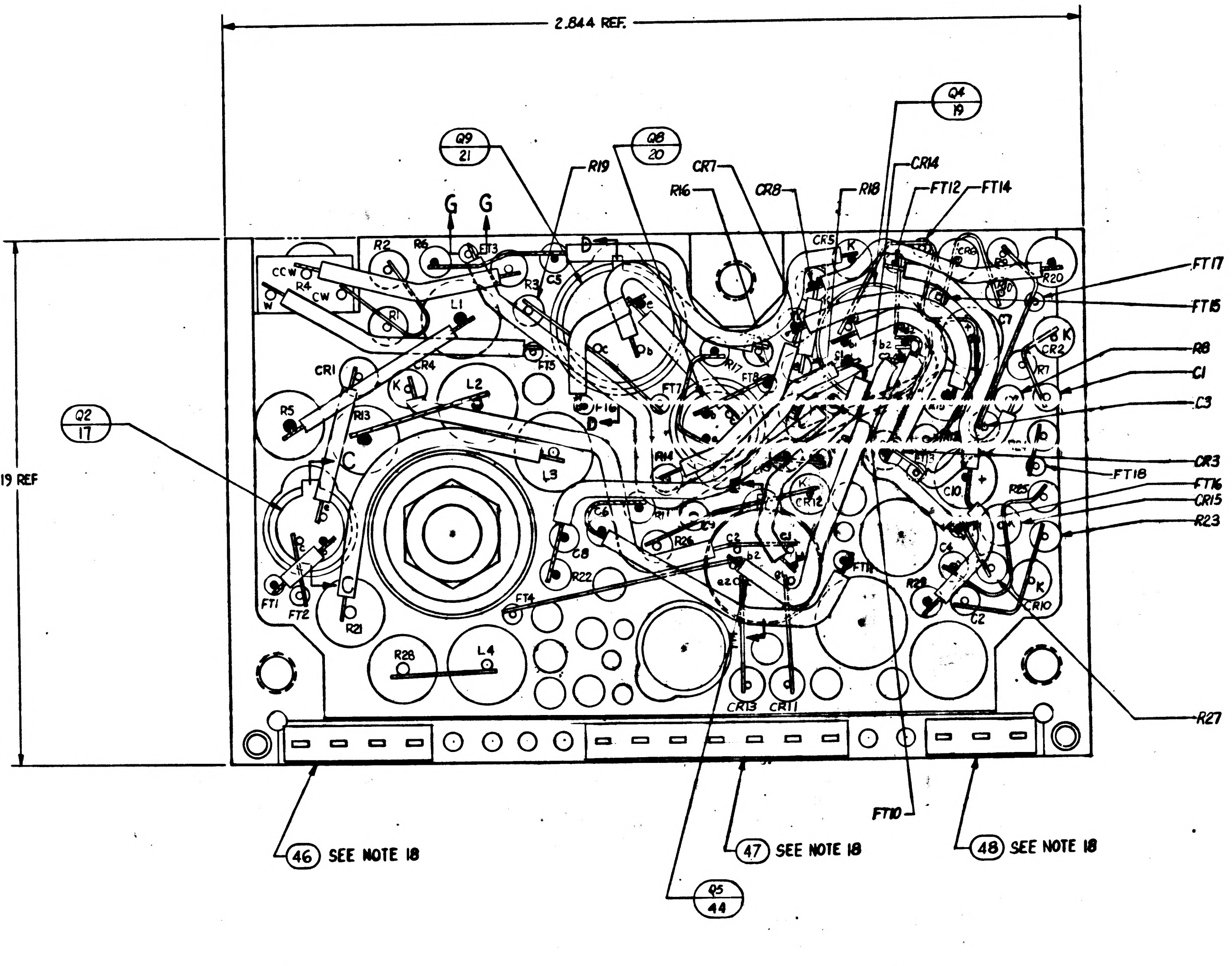
TERNARY CURRENT SWITCH, COMPUTER OUTPUT, ASSEMBLY

CODE IDENT NO.
SIZE J2
1007516
SCALE 5:1
SHEET 1 of 1

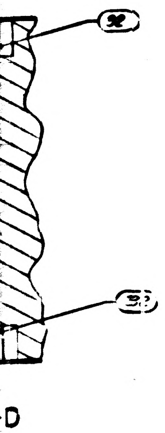
SYM	ZONE	DESCRIPTION	CHG NO	DATE	APPD
		REVISIONS			

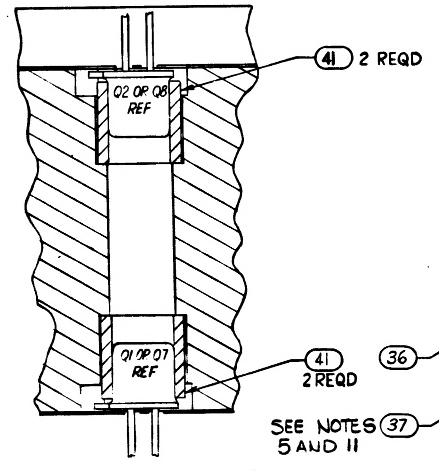


(1)
(38) SEE NOTE 10
1.560
1.540
R4 REF
.000
.005
SEE NOTE 6
(2) SEE NOTE 17
NOTE 17 (3)
.000
.015
.000
.030
.000
.015
SEE NOTE 13
(40) 13 REQD SEE NOTE 15
(39) 13 REQD SEE NOTE 15
SEE NOTE 6
(42)



2.844 REF.
1.719 REF
Q9 21
Q8 20
Q4 19
Q2 17
G G
R19
CR7
R16
CR8
R18
CR14
FT12
FT14
FT17
FT15
R8
C1
C3
CR3
FT18
FT16
CR15
R23
R27
FT10
Q5 44
(46) SEE NOTE 18
(47) SEE NOTE 18
(48) SEE NOTE 18
FT1
FT2
R21
R28
L4
CR13
CR11
L1
L2
L3
R5
CR1
CR4
R13
R2
R6
R1
R4
CCW
CW
C5
R20
CR2
R7
R25
R10
C2
R22

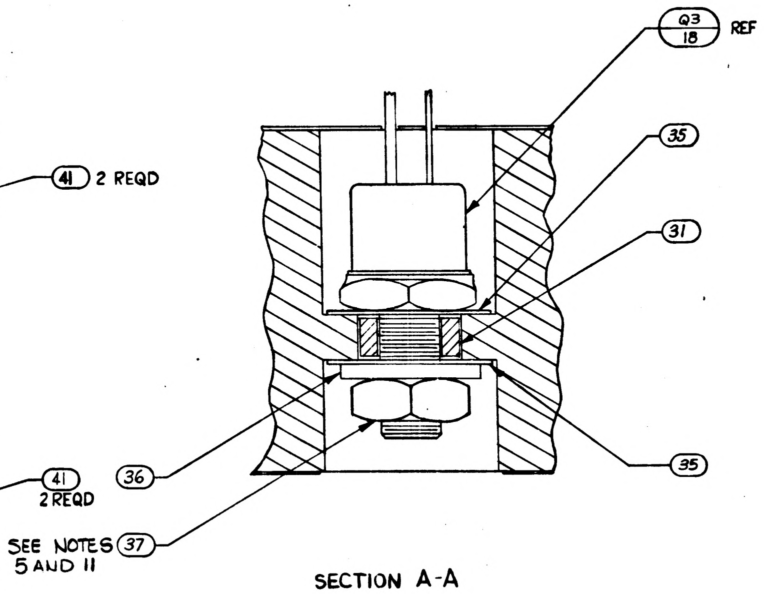




(41) 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
(41) 2 REQD

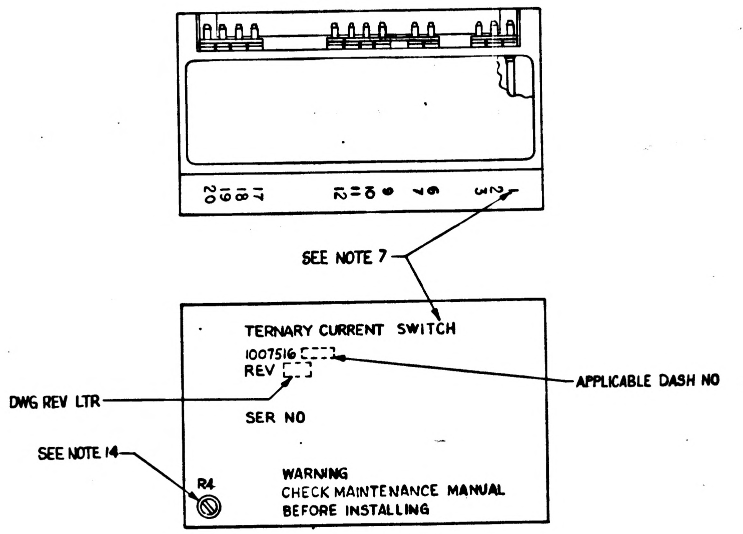
SECTION C-C

TYPICAL INSTALLATION FOR FIND NO. (20) & (17)



(Q3 18) REF
(35)
(31)
(36)
(35)
SEE NOTES (37) 5 AND 11

SECTION A-A



20 19 18 17
12 11 10 9
6 7 8
3 2 1
SEE NOTE 7
APPLICABLE DASH NO
DWG REV LTR
SEE NOTE 14
R4

TERNARY CURRENT SWITCH
1007516-
REV
SER NO
WARNING
CHECK MAINTENANCE MANUAL
BEFORE INSTALLING

MARKING VIEW
SCALE 2:1

QUANTITY REQUIRED								LIST OF PARTS AND MATERIALS	
				011	EFFECTIVITY	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	
						1009531	SCHEMATIC DIAGRAM ELECTRICAL	REF
				1		1010497	DIODE	49
				1		1008540-3	GASKET, CONNECTOR MINIATURE	48
				1		1008540-7	GASKET, CONNECTOR MINIATURE	47
				1		1008540-4	GASKET, CONNECTOR MINIATURE	46
				2		1006750-82	RESISTOR, FIXED MF, 120K 1/4W ±2%	45
				1		1010715-1	TRANSISTOR	44
				AR		1006776-22	INSULATION, SLEEVING	43
				AR		1006776-20	INSULATION, SLEEVING	42
				4		1008025-1	INSULATOR, BUSHING	41
				13		1006782-4	CONTACT, WRAPOST MALE MINAT	40
				13		1006775	INSULATOR, WRAPOST MALE MINAT	39
				2		1000093-3	SCREW, BUTTON HEAD	38
				1		MS35650-104	NUT, PLAIN, HEX	37
				1		1008020-1	WASHER, FLAT	36
				2		1008024-1	WASHER, INSULATOR	35
				AR		1006787-2	WIRE, ELECTRICAL .020 DIA	34
				AR		1006757-1	WIRE, ELECTRICAL .010 X.020	33
				2		1008025-2	INSULATOR, BUSHING	32
				1		1008021-1	INSULATOR, BUSHING	3
				AR		1006776-21	INSULATION SLEEVING	30
				2		1006755-73	CAPACITOR, FIXED TANT, 2.2 UF 35V ±10%	29
				4		1006777-13	CAPACITOR, FIXED CER, 100 UUF 100V ±10%	28
				4		1006777-20	CAPACITOR, FIXED CER, 470 UUF 100V ±10%	27
				3		1010394	DIODE	26
				2		1010384	DIODE	2
				4		1010462-6	DIODE	2
				5		1010385	DIODE	2
				4		1010388-39	INDUCTOR, .01H 75MA ±5%	2
				2		1010386	TRANSISTOR	2
				2		1006752	TRANSISTOR	2
				2		1010376-4	TRANSISTOR	1
				1		1010269-3	TRANSISTOR	1
				2		1010357-1	TRANSISTOR	1
				2		1006760-56	RESISTOR, FIXED MF, 10K 1/2 W ±2%	1
				1		1006750-62	RESISTOR, FIXED MF, 18K 1/4 W ±2%	1
				2		1010369-148	RESISTOR, FIXED MR 20, 1/8 W ±5%	1
				2		1006750-15	RESISTOR, FIXED MF, 200 1/4 W ±2%	1
				2		1006750-18	RESISTOR, FIXED MF, 270 1/4 W ±2%	1
				4		1006750-67	RESISTOR, FIXED MF, 30K 1/4W ±2%	1
				4		1006750-81	RESISTOR, FIXED MF, 110K 1/4W ±2%	
				2		1010369-87	RESISTOR, FIXED MF, 180K 1/8W ±5%	
				4		1010389-80	RESISTOR, FIXED WW, 10K 3W ±%	
				1		1010373-10	RESISTOR, VARIABLE, 1K 1W ±5%	
				1		1010364-557	RESISTOR, FIXED MF, 392K 1/8W ±%	
				1		1010364-711	RESISTOR, FIXED MF, [illegible] 1/8W ±%	
				1		1010364-683	RESISTOR, FIXED MF, 72K 1/8W ±1%	
				1		1008600	INSULATOR, TOP	
				1		1008255	INSULATOR, BOTTOM	
				1		1007008	HEATSINK	

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
CONTRACT NAS9-497

AC SPARK PLUG DIVISION, GMC
MILWAUKEE, WISCONSIN
ACSP PN
DRAWN C. Kurtzke DATE 20 Apr 64
CHECKED W. [illegible] 25 Aug 64
J M BLYSHAK 3 DEC 64
APPROVAL J. W. Bast 27 Aug '64
APPROVAL [illegible] 9/4/64
NASA APPROVAL [illegible] 12-[illegible]-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

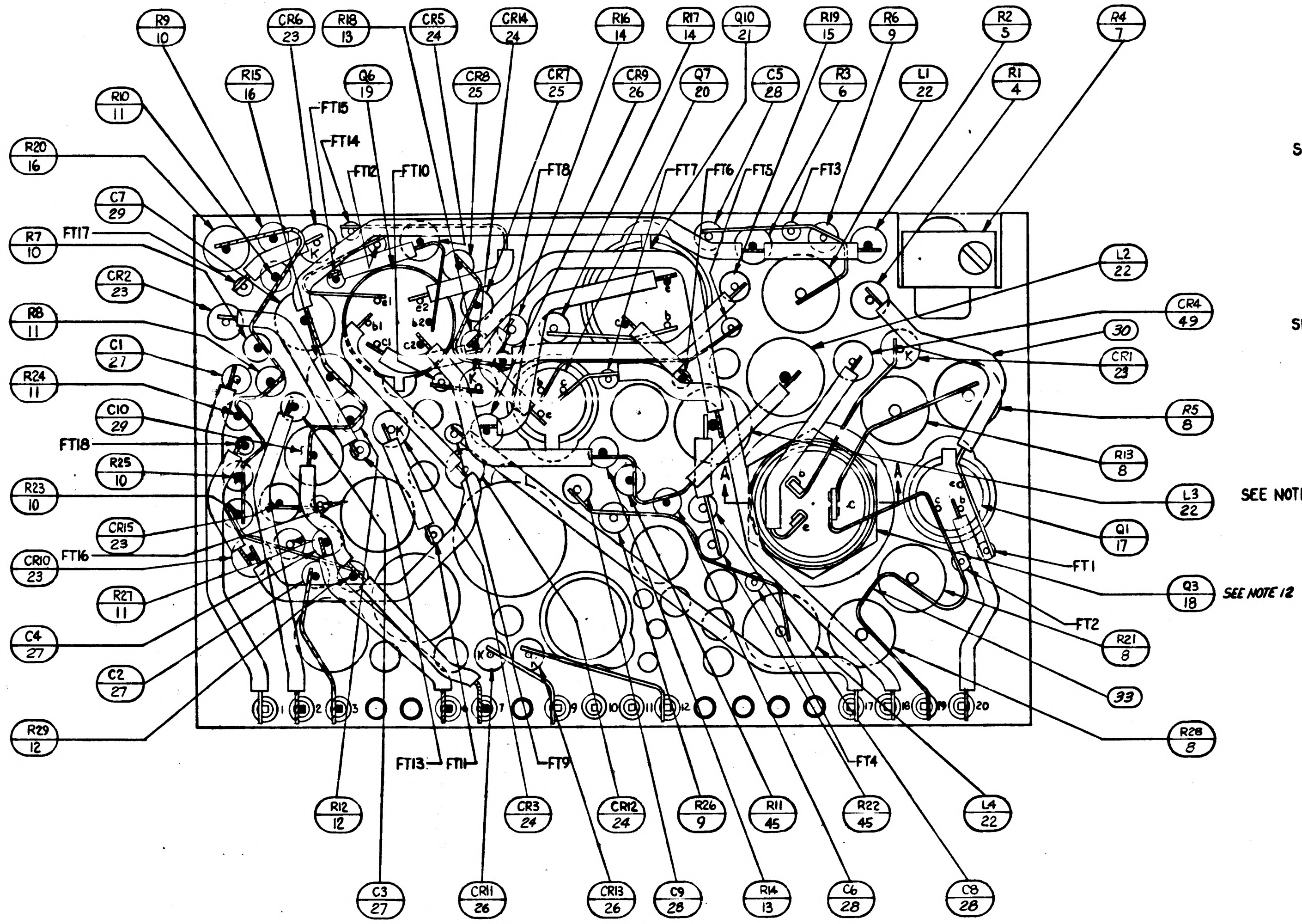
TERNARY CURRENT SWITCH,
COMPUTER OUTPUT,
ASSEMBLY

CODE IDENT NO. SIZE J2 1007516
SCALE 5:1 SHEET 1

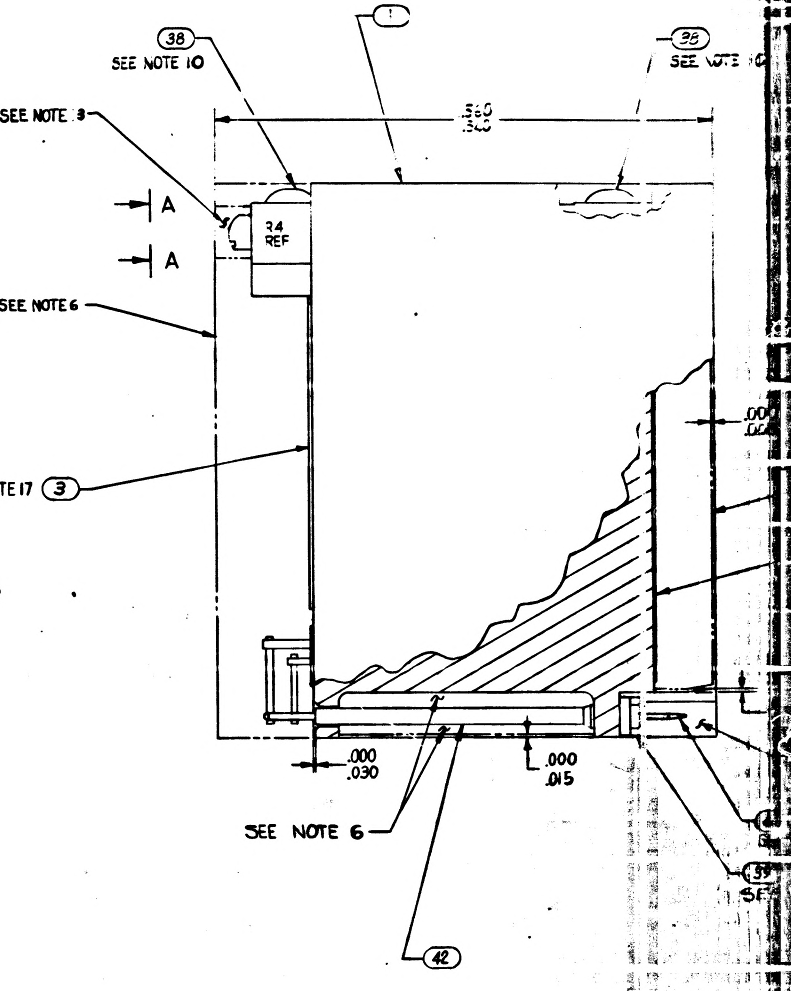
1007516

NOTES:

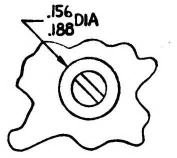
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND1002005. (EXCEPT AS NOTED).
3. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING.
4. BLACK DOT & CROSS-HATCHED WIRING INDICATES UPPER LEVEL WIRING.
5. APPLY SEALING COMPOUND MIL-S-40083 CLASS 31 TO FIND (37).
6. ENCAPSULATE MODULE PER ND1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. MARK PIN NUMBER .100/.060 (WHITE) AND ALL OTHER CHARACTERS .140/.100 (WHITE) PER ND1002019 & SERIALIZE PER ND1002023. CENTRALIZE AS SHOWN. ABBREVIATIONS PERMISSIBLE.
8. STAKE FIND NO.4 THRU 29 & FIND NO'S 31, 32, 41, 44 & 45 PER ND1002009 METHOD C AND CENTRALIZE
9. AR DENOTES AS REQUIRED.
10. APPLY ZINC CHROMATE PRIMER MIL-P-6808 TO THREADS OF FIND NO 38.
11. MOUNTING TORQUE FOR FIND NO 37 10 TO 15 INCH POUNDS.
12. SOLDER PER ND1002071.
13. INDICATES AREA TO BE FREE OF ENCAPSULATING COMPOUND.
14. AFTER FINAL ADJUSTMENT SEAL ADJUSTMENT SCREW PER ND1002009 METHOD C
15. INSTALL FIND NO 39 AND FIND NO 40 PER ND1002136.
16. PROCURE PER PS 1007016.
17. ON FIND NO'S 2 AND 3
    BROKEN PATHS INDICATE INSULATION SLEEVING
    K INDICATES CATHODE SIDE OF DIODE
    FT( ) INDICATES FEED THRU
    PLUS (+) INDICATES POSITIVE END OF CAPACITOR
    C INDICATES COLLECTOR LEAD OF TRANSISTOR
    B INDICATES BASE LEAD OF TRANSISTOR
    E INDICATES EMITTER LEAD OF TRANSISTOR
    C( ) INDICATES COLLECTOR LEAD OF MULTISTAGE TRANSISTOR
    B( ) INDICATES BASE LEAD OF MULTISTAGE TRANSISTOR
    E( ) INDICATES EMITTER LEAD OF MULTISTAGE TRANSISTOR
18. BOND FIND NO'S 46, 47 & 48 TO FIND NO 39 PER ND1002237.
19. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND1002069.



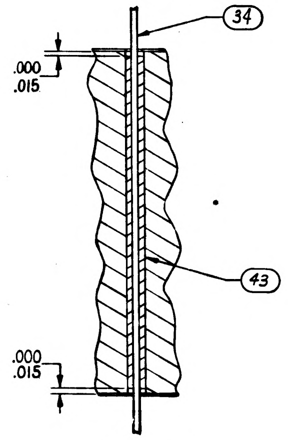
R9 10
CR6 23
R18 13
CR5 24
CR14 24
R16 14
R17 14
Q10 21
R19 15
R6 9
R2 5
R4 7
R15 16
Q6 19
CR8 25
CR7 25
CR9 26
Q7 20
C5 28
R3 6
L1 22
R1 4
R10 11
R20 16
C7 29
R7 10
CR2 23
R8 11
C1 27
R24 11
C10 29
FT18
R25 10
R23 10
CR15 23
CR10 23
FT16
R27 11
C4 27
C2 27
R29 12
FT17
FT15
FT14
FT12
FT10
FT8
FT7
FT6
FT5
FT13
L2 22
CR4 49
30
CR1 23
R5 8
R13 8
L3 22
Q1 17
Q3 18
SEE NOTE 12
FT1
FT2
R21 8
33
R28 8
FT13
FT11
FT9
FT4
R12 12
CR3 24
CR12 24
R26 9
R11 45
R22 45
L4 22
C3 27
CR11 26
CR13 26
C9 28
R14 13
C6 28
C8 28
1
2
3
7
9
10
11
12
17
18
19
20



38
SEE NOTE 10
1
38
SEE NOTE 10
SEE NOTE 13
A
A
R4 REF
.560
.540
SEE NOTE 6
SEE NOTE 17
3
.000
.030
.000
.015
SEE NOTE 6
42

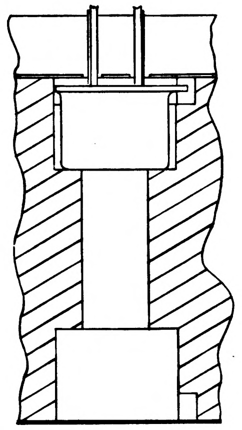


VIEW A-A



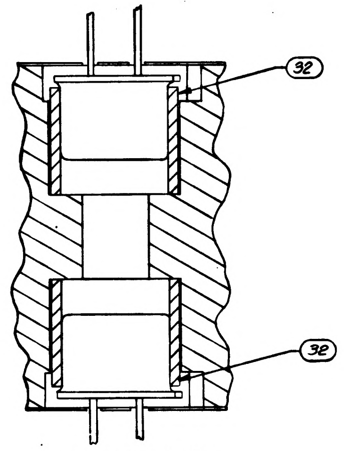
34
.000
.015
43
.000
.015

SECTION G-G

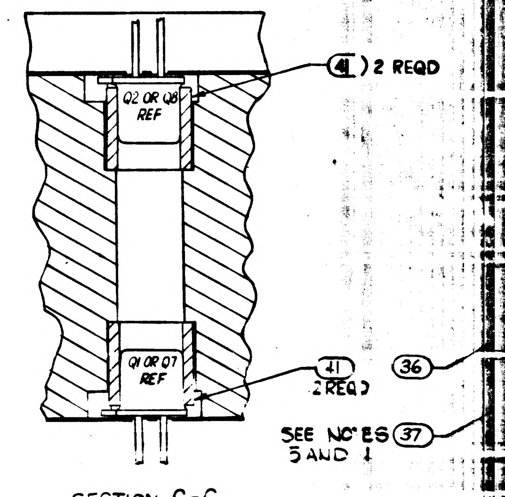


SECTION E-E

TYPICAL INSTALLATION FOR FIND NO. (19)



SECTION D-D



41 2 REQD
Q2 OR Q8 REF
Q1 OR Q7 REF
41 2 REQD
36
SEE NOTES 5 AND 11
37

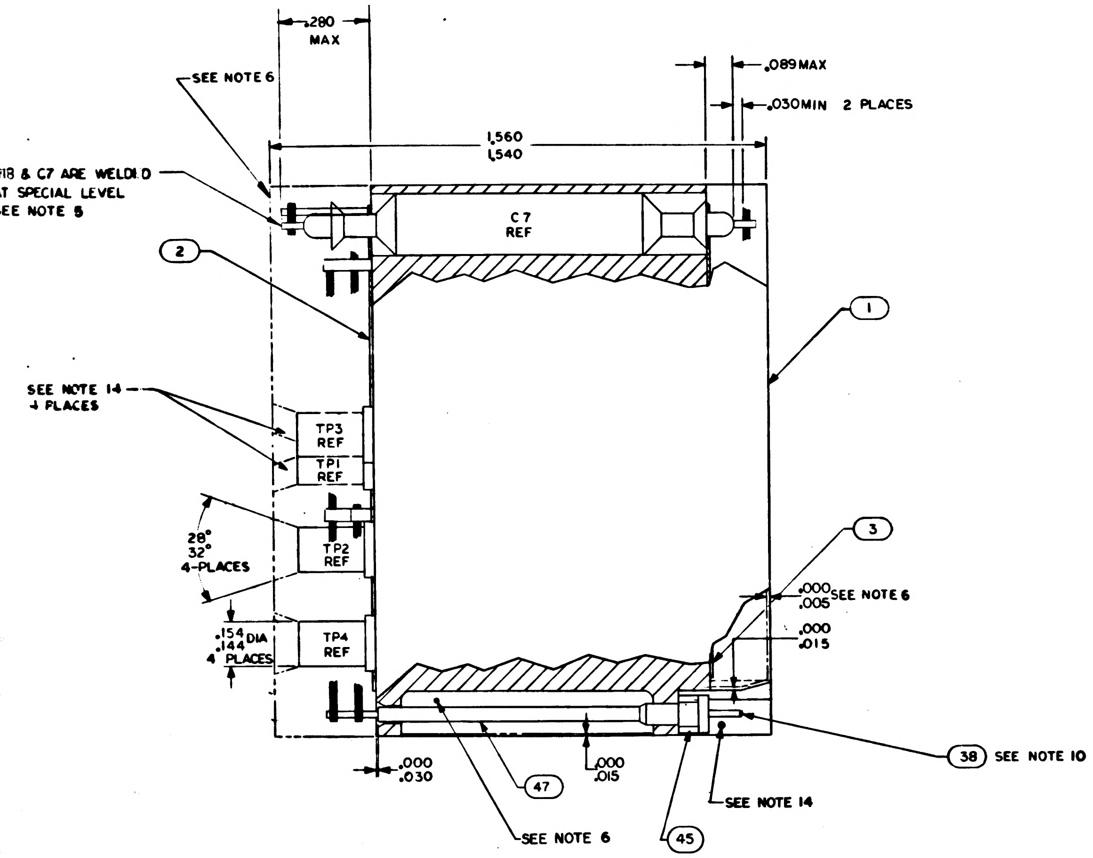
SECTION C-C

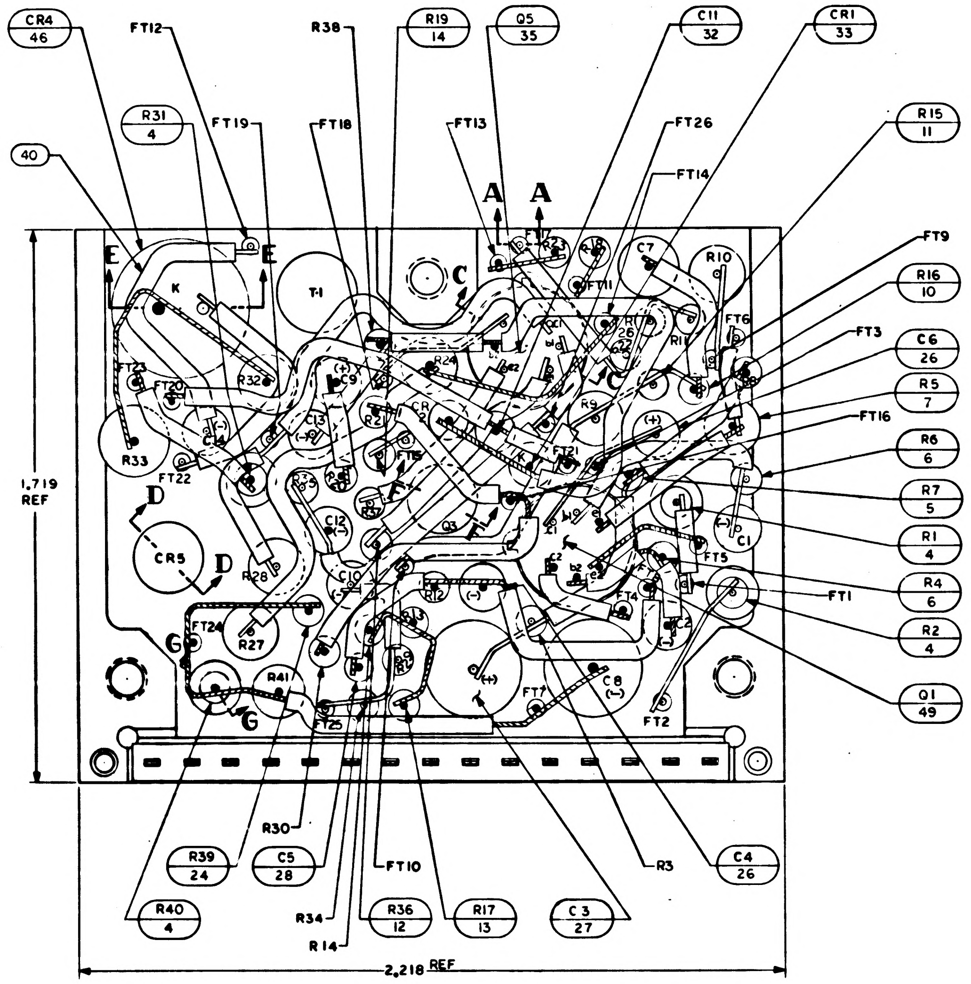
TYPICAL INSTALLATION FOR FIND NO. (20) & (17)

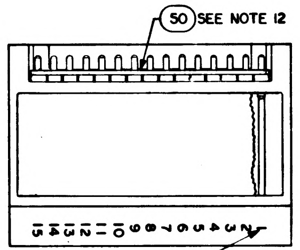
1007516

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR		
B	REVISED PER TDRR		

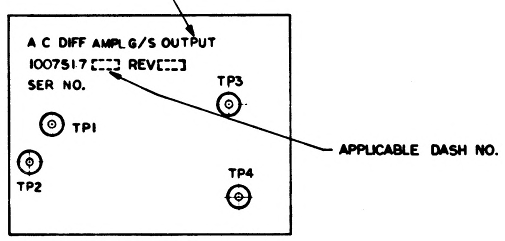
TP	COMPONENT
1	R1
2	R2
3	R31
4	R40


.280 MAX
SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
1.560
1.540
C18 & C7 ARE WELDED AT SPECIAL LEVEL SEE NOTE 5
C7 REF
2
1
SEE NOTE 14 4 PLACES
TP3 REF
TP1 REF
28°
32°
4-PLACES
TP2 REF
.000
.005 SEE NOTE 6
.000
.015
.154
.144 DIA 4 PLACES
TP4 REF
3
38 SEE NOTE 10
.000
.030
47
.000
.015
SEE NOTE 14
SEE NOTE 6
45


CR4 46
FT12
R38
R19 14
Q5 35
C11 32
CR1 33
R31 4
FT19
FT18
FT13
FT26
R15 11
40
FT14
A A
FT9
E E
T-1
C
K
R10
R16 10
FT6
FT3
C6 26
R5 7
FT16
R6 6
R7 5
R1 4
R4 6
FT1
R2 4
Q1 49
FT23
FT20
R32
R33
FT22
1.719 REF
D
CR5
D
R28
C12
C10
Q3
C1
FT5
FT4
FT24
R27
G
G
R41
FT25
FT7
C8
FT2
R39 24
C5 28
R30
FT10
R3
C4 26
R40 4
R34
R14
R36 12
R17 13
C3 27
2.218 REF


50 SEE NOTE 12

SEE NOTE 8

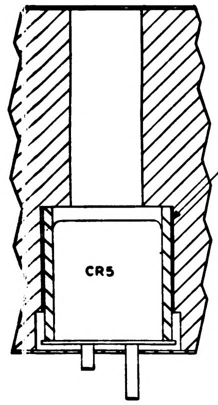

A C DIFF AMPL G/S OUTPUT

1007517 REV

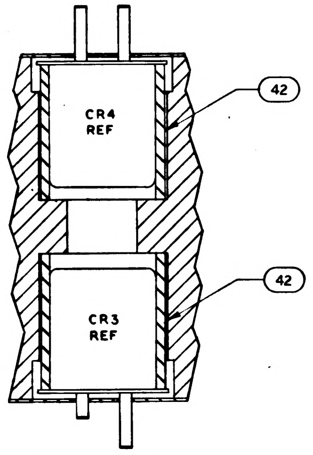
SER NO.

TP1
TP2
TP3
TP4
APPLICABLE DASH NO.

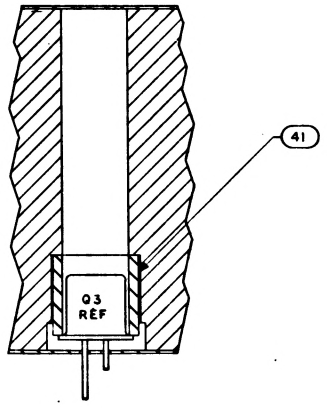
MARKING VIEW
SCALE 2/1



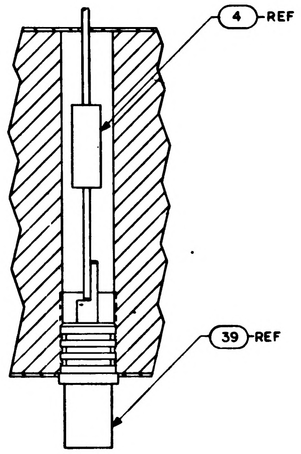
SECTION D-D


CR4 REF
42
CR3 REF
42

SECTION E-E



SECTION F-F



SECTION G-G
4-PLACES
TYP INSTALLATION
FOR FIND NO.39 & FIND NO.4

			1		1008540-15	GASKET, CONNECTOR MINIATURE	50
			2		1010376-2	TRANSISTOR	49
			X		1010032	SCHEMATIC	REF
			AR		1006776-22	INSULATION SLEEVING	48
			AR		1006776-20	INSULATION SLEEVING	47
			1		1010290-2	DIODE	46
			15		1006775	INSULATOR, WRAPOST MALE MINAT	45
			AR		1006757-8	WIRE ELEC .020 DIA	44
			AR		1006757-1	WIRE ELEC .010 X .020	43
			3		1008025-3	INSULATOR BUSHING	42
			1		1008025-1	INSULATOR BUSHING	41
			AR		1006776-21	INSULATION SLEEVING	40
			4		1010292-2	TEST POINT	39
			15		1006782-4	CONTACT, WRAPOST MALE MINAT	38
			1		1010335	TRANSFORMER	37
			1		1010357-1	TRANSISTOR	36
			2		1010376-1	TRANSISTOR	35
			2		1010290-1	DIODE	34
			2		1010385	DIODE	33
			1		1006777-27	CAPACITOR	32
			2		1006755-69	CAPACITOR	31
			1		1006775-57	CAPACITOR	30
			1		1010264-13	CAPACITOR	29
			1		1006777-16	CAPACITOR	28
			2		1006755-83	CAPACITOR	27
			6		1006755-65	CAPACITOR	26
			1		1006760-27	RESISTOR, FIXED	25
			1		1006750-40	RESISTOR, FIXED	24
			2		1010369-96	RESISTOR, FIXED, COMP., INS	23
			1		1010312-16	RESISTOR	22
			1		1010312-14	RESISTOR, FIXED	21
			1		1006750-32	RESISTOR, FIXED	20
			1		1006750-73	RESISTOR, FIXED	19
			2		1010377-51	RESISTOR, FIXED	18
			1		1010377-108	RESISTOR, FIXED	17
			1		1006750-49	RESISTOR, FIXED	16
			1		1006750-60	RESISTOR, FIXED	15
			2		1010369-92	RESISTOR, FIXED COMP., INS.	14
			2		1006750-50	RESISTOR, FIXED	13
			4		1006750-8	RESISTOR, FIXED	12
			2		1010369-90	RESISTOR, FIXED, COMP., INS.	11
			4		1006750-66	RESISTOR, FIXED	10
			2		1010377-109	RESISTOR, FIXED	9
			1		1006750-70	RESISTOR, FIXED	8
			1		1010377-107	RESISTOR, FIXED	7
			2		1010369-97	RESISTOR, FIXED, COMP., INS.	6
			2		1006750-67	RESISTOR, FIXED	5
			5		1006750-56	RESISTOR, FIXED	4
			1		1008029-2	INSULATOR, BOTTOM	3
			1		1008029-1	INSULATOR, TOP	2
			1		1008035	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

B 1007517

1007574		
1007573		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS .XX ±.02 .XXX .005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING
MATERIAL //
HEAT TREATMENT //
FINAL FINISH //

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN DATE 17 Aug 64
CHECKED 4 SEP 64
APPROVAL
APPROVAL 10/19/64
NASA APPROVAL 10-20-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

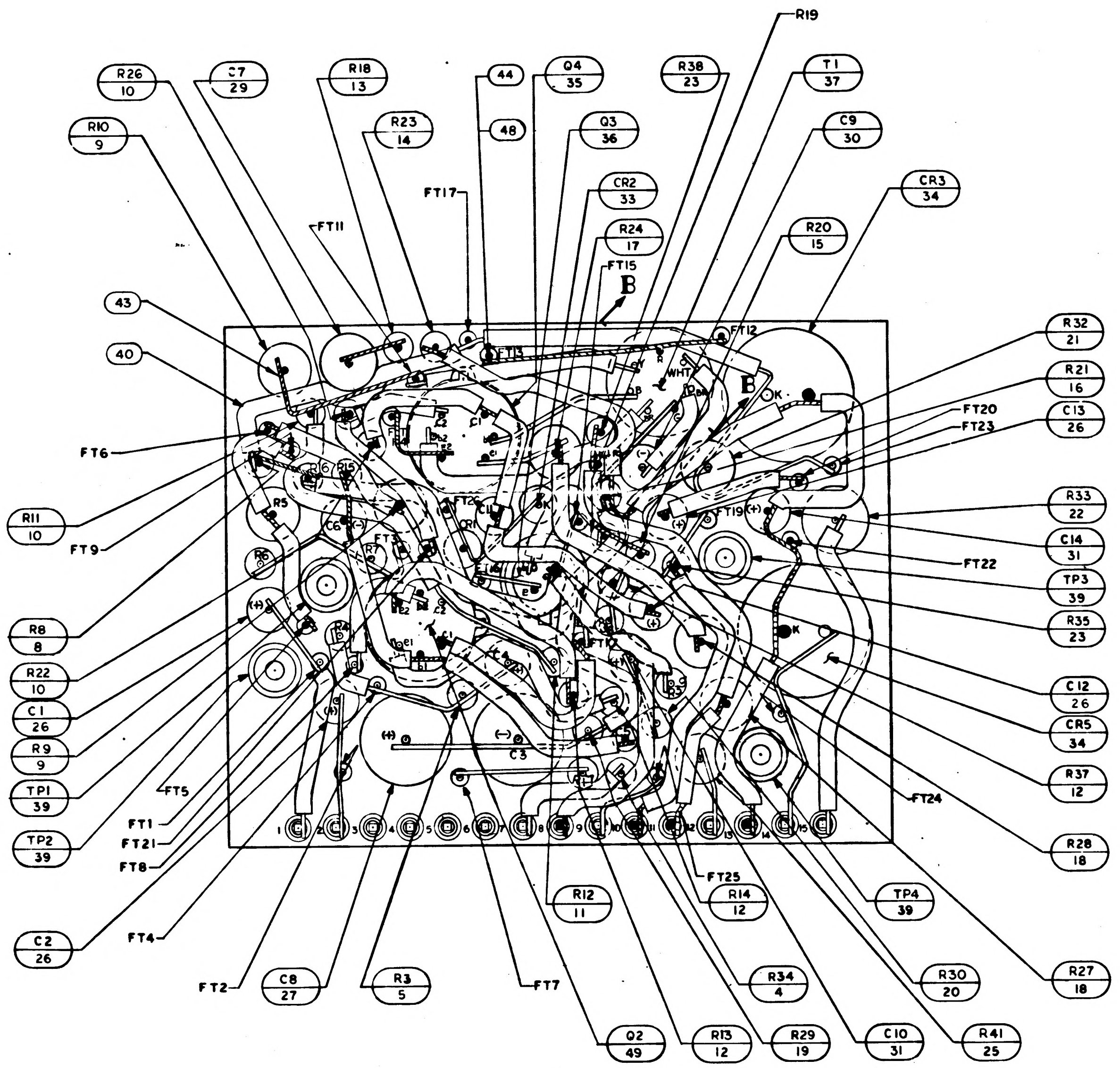
AC DIFFERENTIAL AMPLIFIER
G/S OUTPUT
ASSEMBLY

CODE IDENT NO. | SIZE J | NASA DRAWING NO. 1007517
SCALE 5/1 | WT | SHEET 1 OF 1

2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

D


R26 10
C7 29
R18 13
44
Q4 35
R38 23
T1 37
R19
R10 9
R23 14
48
Q3 36
C9 30
CR2 33
CR3 34
FT17
FT11
R24 17
R20 15
FT15
B
43
40
R32 21
R21 16
C13 26
FT20
FT23
FT6
R11 10
FT9
R33 22
C14 31
FT22
TP3 39
R35 23
R8 8
R22 10
C1 26
R9 9
TP1 39
TP2 39
C12 26
CR5 34
R37 12
FT24
R28 18
FT5
FT1
FT21
FT8
FT4
C2 26
FT25
R12 11
R14 12
TP4 39
R34 4
R30 20
R27 18
FT2
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Q2 49
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R41 25
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K
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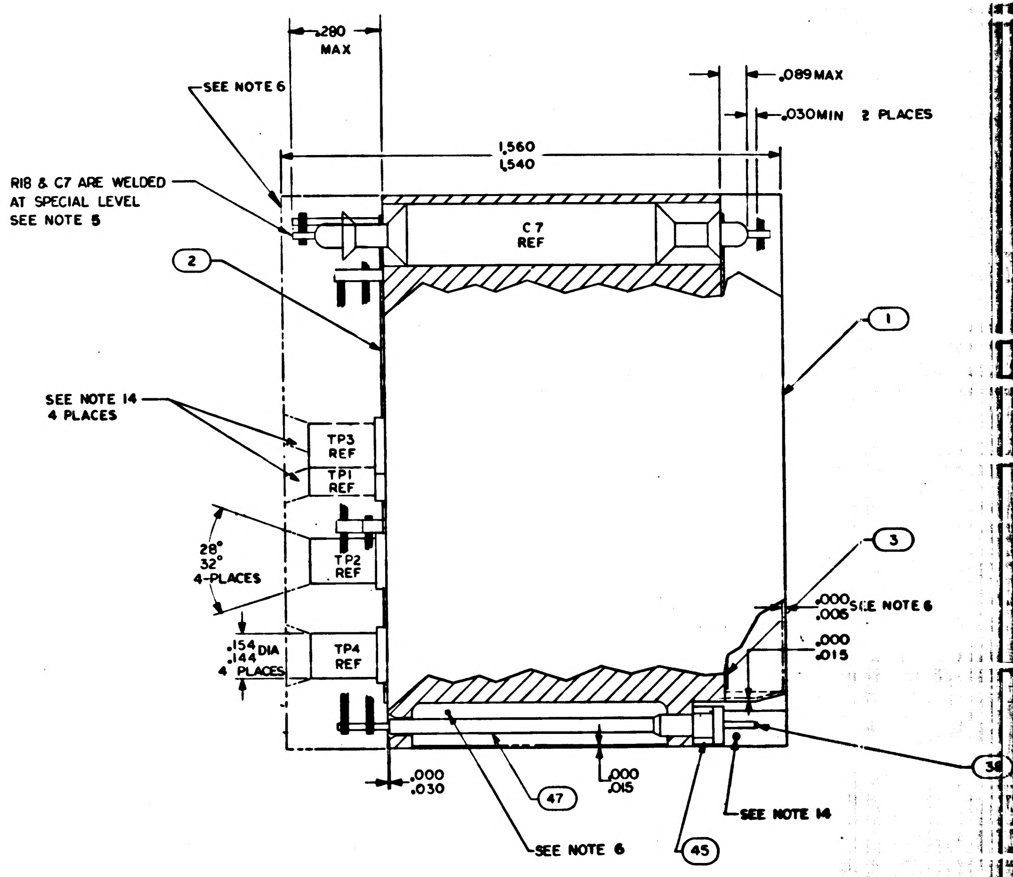
C3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SEE NOTE 6
.089MAX
.030MIN 2 PLACES
1.560
1.540
R18 & C7 ARE WELDED AT SPECIAL LEVEL SEE NOTE 5
C7 REF
2
1
SEE NOTE 14 4 PLACES
TP3 REF
TP1 REF
TP2 REF
TP4 REF
28°
32°
4-PLACES
.154
.144 DIA
4 PLACES
3
.000
.005 SEE NOTE 6
.000
.015
.000
.030
.000
.015
47
SEE NOTE 6
45
SEE NOTE 14
38

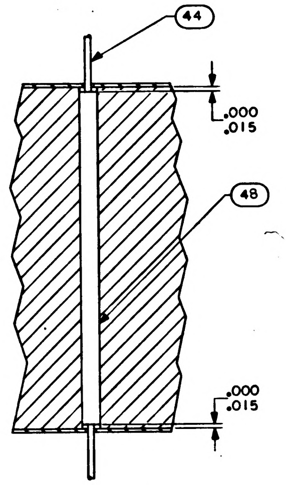
C

B

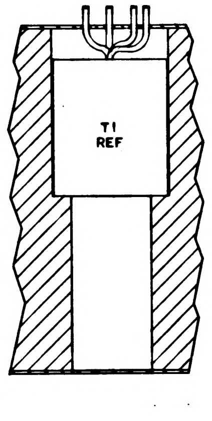
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ◐ DENOTES SPECIAL LEVEL
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSIONS BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. STAKE FIND NO. 4 THRU FIND NO. 37, FIND NO. 39, FIND NO. 41, FIND NO. 42 AND FIND NO. 46 PER ND 1002009, METHOD C
8. MARK PIN NUMBERS .1[illegible]/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.060 PER ND 1002009 (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023, CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATING SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR,
   C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR
   B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR
   E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR
10. MUST MEET REQUIREMENTS OF ND 1002136
11. PROCURE PER PS 1007017
12. BOND FIND NO. 50 TO FIND NO. 45 PER ND1002237.

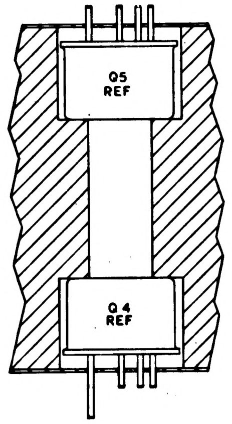
13. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND


44
48
.000
.015
.000
.015

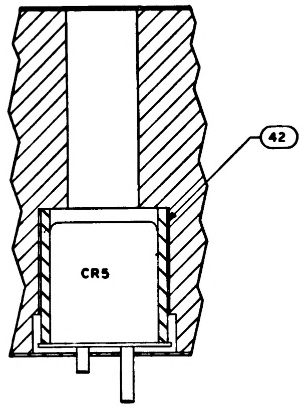
SECTION A-A



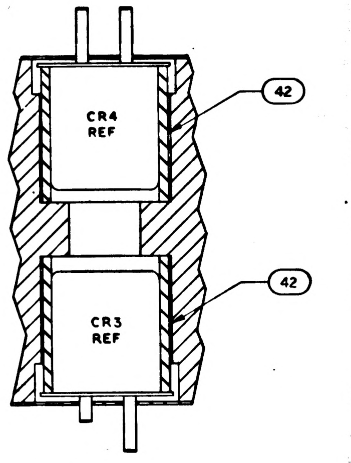
SECTION B-B


Q5 REF
Q4 REF

SECTION C-C
2-PLACES
TYP INSTALLATION
FOR FIND NO. 35



SECTION D-D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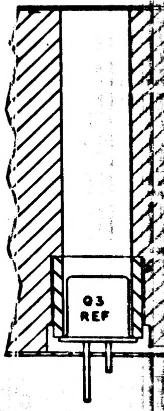
CR3 REF
42

SECTION E-E

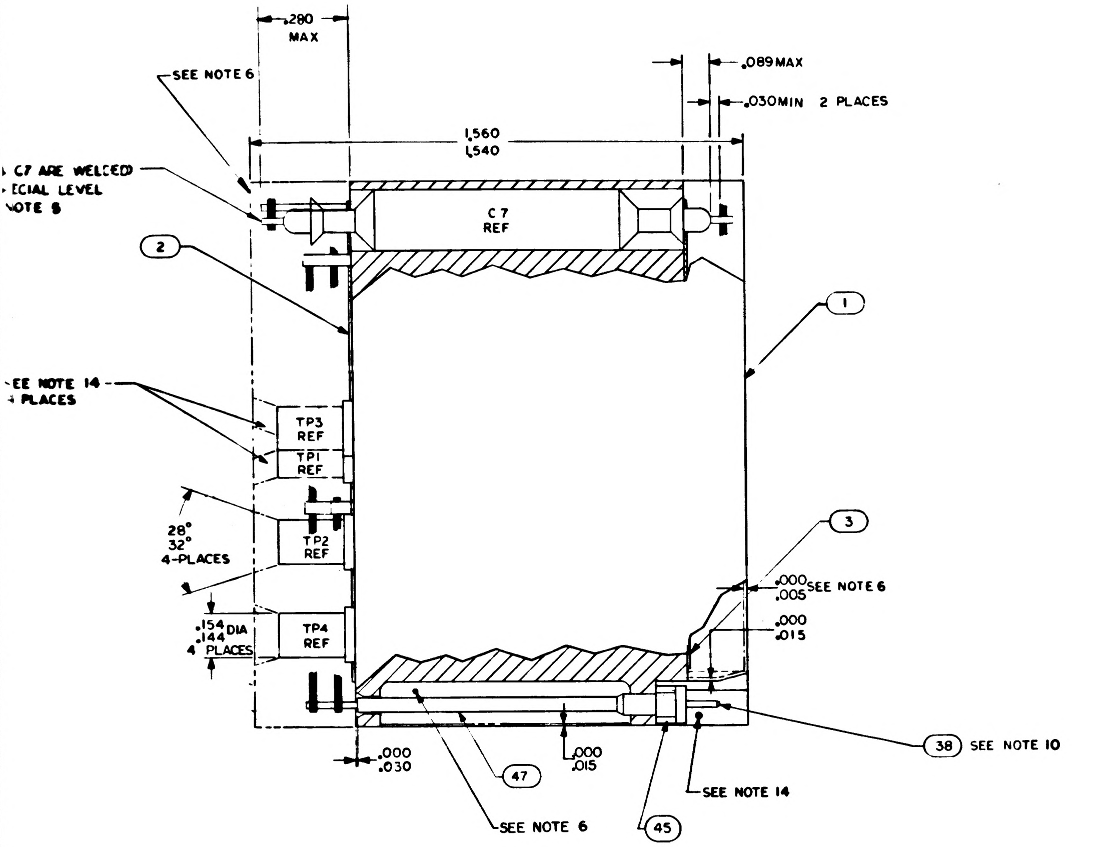


SECTION F-F

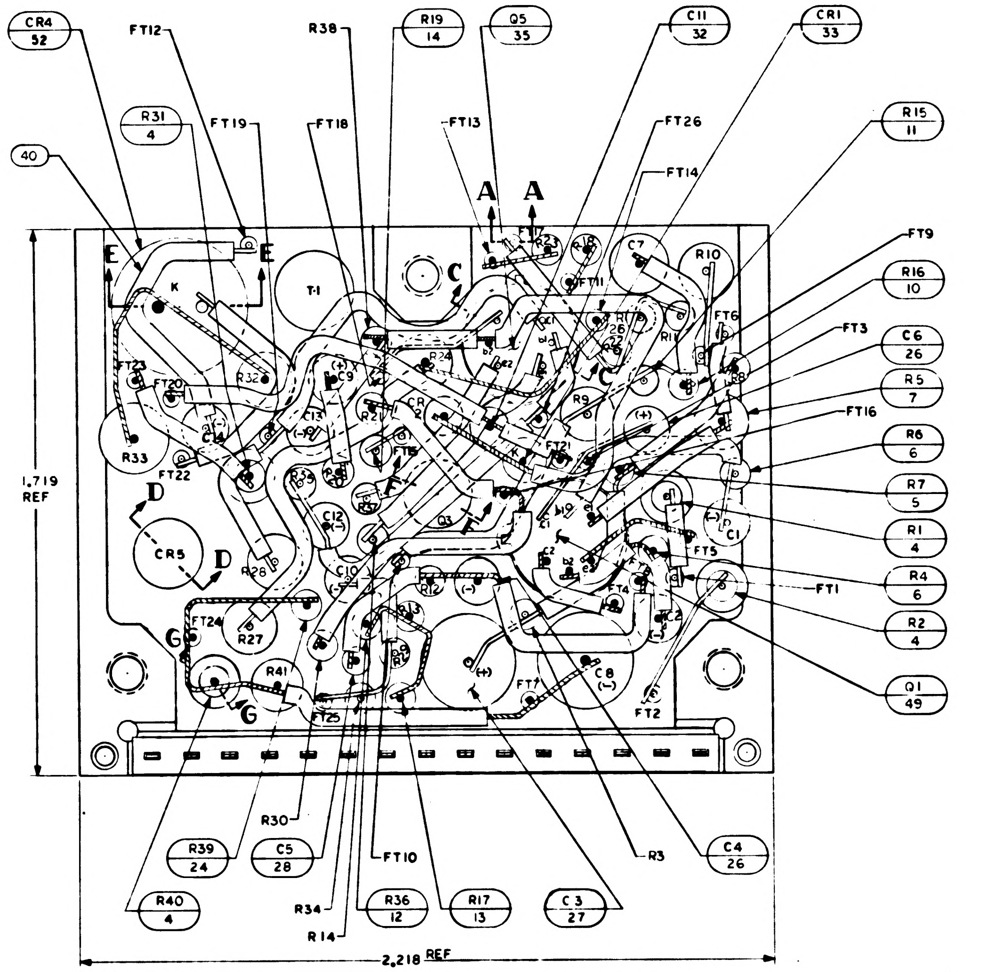
A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR		
B	REVISED PER TDRR		
C	REVISED PER TDRR 6832	4 MAR 65	

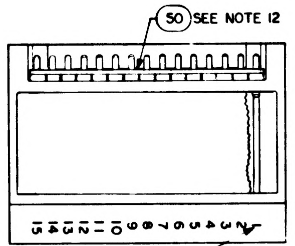
TP	COMPONENT
1	R1
2	R2
3	R31
4	R40



.280 MAX
SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
1.560
1.540
C7 ARE WELDED
ECIAL LEVEL
NOTE 8
C7 REF
2
1
SEE NOTE 14
4 PLACES
TP3 REF
TP1 REF
TP2 REF
TP4 REF
28°
32°
4-PLACES
.154
.144 DIA
4 PLACES
3
.000
.005 SEE NOTE 6
.000
.015
38 SEE NOTE 10
.000
.030
47
.000
.015
SEE NOTE 14
SEE NOTE 6
45

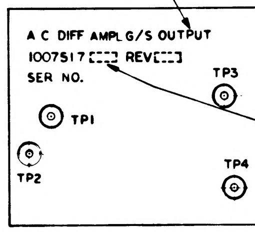


CR4 52
FT12
R38
R19 14
Q5 35
C11 32
CR1 33
R31 4
FT19
FT18
FT13
FT26
R15 11
40
FT14
A
A
E
E
C
FT9
R16 10
FT3
C6 26
R5 7
FT16
R6 6
R7 5
R1 4
R4 6
FT1
R2 4
Q1 49
1.719 REF
D
D
CR5
R33
FT22
R28
R27
G
G
FT24
R41
FT25
C8
FT7
FT2
R30
R39 24
C5 28
FT10
R3
C4 26
R40 4
R34
R14
R36 12
R17 13
C3 27
2.218 REF
T-1
C7
R10
FT6
FT5
FT4
C1
K
C12
C10
C9
C13
R12
R32
R9
R8



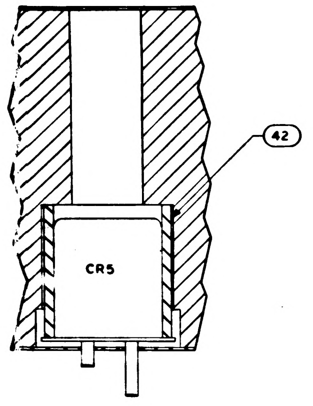
50 SEE NOTE 12

SEE NOTE 8

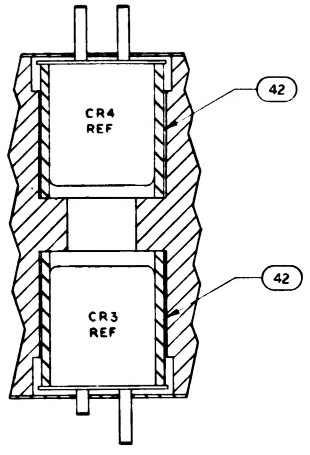


A C DIFF AMPL G/S OUTPUT
1007517 REV
SER NO.
TP3
TP1
TP2
TP4
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1



SECTION D-D



CR4 REF
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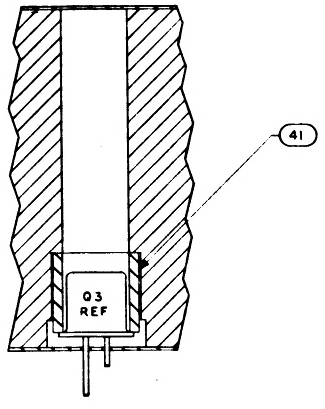
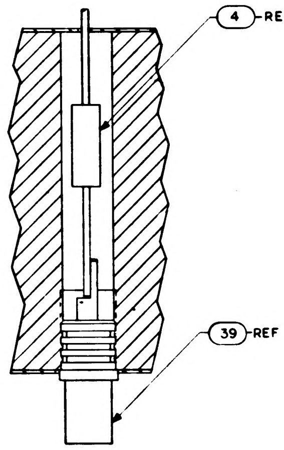
CR3 REF
42

SECTION E-E



SECTION F-F



SECTION G-G
4-PLACES
TYP INSTALLATION
FOR FIND NO.39 & FIND NO.4

			1		1010831-002	ZENER DIODE	52
			2		1010831-001	ZENER DIODE	51
			1		1008540-15	GASKET, CONNECTOR MINIATURE	50
			2		1010376-2	TRANSISTOR	49
			X		1010032	SCHEMATIC	REF
			AR		1006776-22	INSULATION SLEEVING	48
			AR		1006776-20	INSULATION SLEEVING	47
			~~1~~		~~1010290-2~~	~~DIODE~~	~~46~~
			15		1006775	INSULATOR, WRAPOST MALE MINAT	45
			AR		1006757-8	WIRE ELEC .020 DIA	44
			AR		1006757-1	WIRE ELEC .010 X .020	43
			3		1008025-3	INSULATOR BUSHING	42
			1		1008025-1	INSULATOR BUSHING	41
			AR		1006776-21	INSULATION SLEEVING	40
			4		1010292-2	TEST POINT	39
			15		1006782-4	CONTACT, WRAPOST MALE MINAT	38
			1		1010335	TRANSFORMER	37
			1		1010357-1	TRANSISTOR	36
			2		1010376-1	TRANSISTOR	35
			~~2~~		~~1010290-1~~	~~DIODE~~	~~34~~
			2		1010385	DIODE	33
			1		1006777-27	CAPACITOR	32
			2		1006755-69	CAPACITOR	31
			1		1006775-57	CAPACITOR	30
			1		1010264-13	CAPACITOR	29
			1		1006777-16	CAPACITOR	28
			2		1006755-83	CAPACITOR	27
			6		1006755-65	CAPACITOR	26
			1		1006760-27	RESISTOR, FIXED	25
			1		1006750-40	RESISTOR, FIXED	24
			2		1010369-96	RESISTOR, FIXED, COMP., INS	23
			1		1010312-16	RESISTOR	22
			1		1010312-14	RESISTOR, FIXED	21
			1		1006750-32	RESISTOR, FIXED	20
			1		1006750-73	RESISTOR, FIXED	19
			2		1010377-51	RESISTOR, FIXED	18
			1		1010377-108	RESISTOR, FIXED	17
			1		1006750-49	RESISTOR, FIXED	16
			1		1006750-60	RESISTOR, FIXED	15
			2		1010369-92	RESISTOR, FIXED COMP., INS.	14
			2		1006750-50	RESISTOR, FIXED	13
			4		1006750-8	RESISTOR, FIXED	12
			2		1010369-90	RESISTOR, FIXED, COMP., INS.	11
			4		1006750-66	RESISTOR, FIXED	10
			2		1010377-109	RESISTOR, FIXED	9
			1		1006750-70	RESISTOR, FIXED	8
			1		1010377-107	RESISTOR, FIXED	7
			2		1010369-97	RESISTOR, FIXED, COMP., INS.	6
			2		1006750-67	RESISTOR, FIXED	5
			5		1006750-56	RESISTOR, FIXED	4
			1		1008029-2	INSULATOR, BOTTOM	3
			1		1008029-1	INSULATOR, TOP	2
			1		1008035	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

1007517

2H

1007574		
1007573		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ±.02 .XXX ±.005 ANGLES ±1/2°
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN DATE 17 Aug 64
CHECKED 4 SEP 64
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AC DIFFERENTIAL AMPLIFIER G/S OUTPUT ASSEMBLY

CODE IDENT NO.
SIZE J
NASA DRAWING NO 1007517
SCALE 5/1
WT
SHEET 1 OF 1

1007517	C	SH. NO. 1

27 1007517

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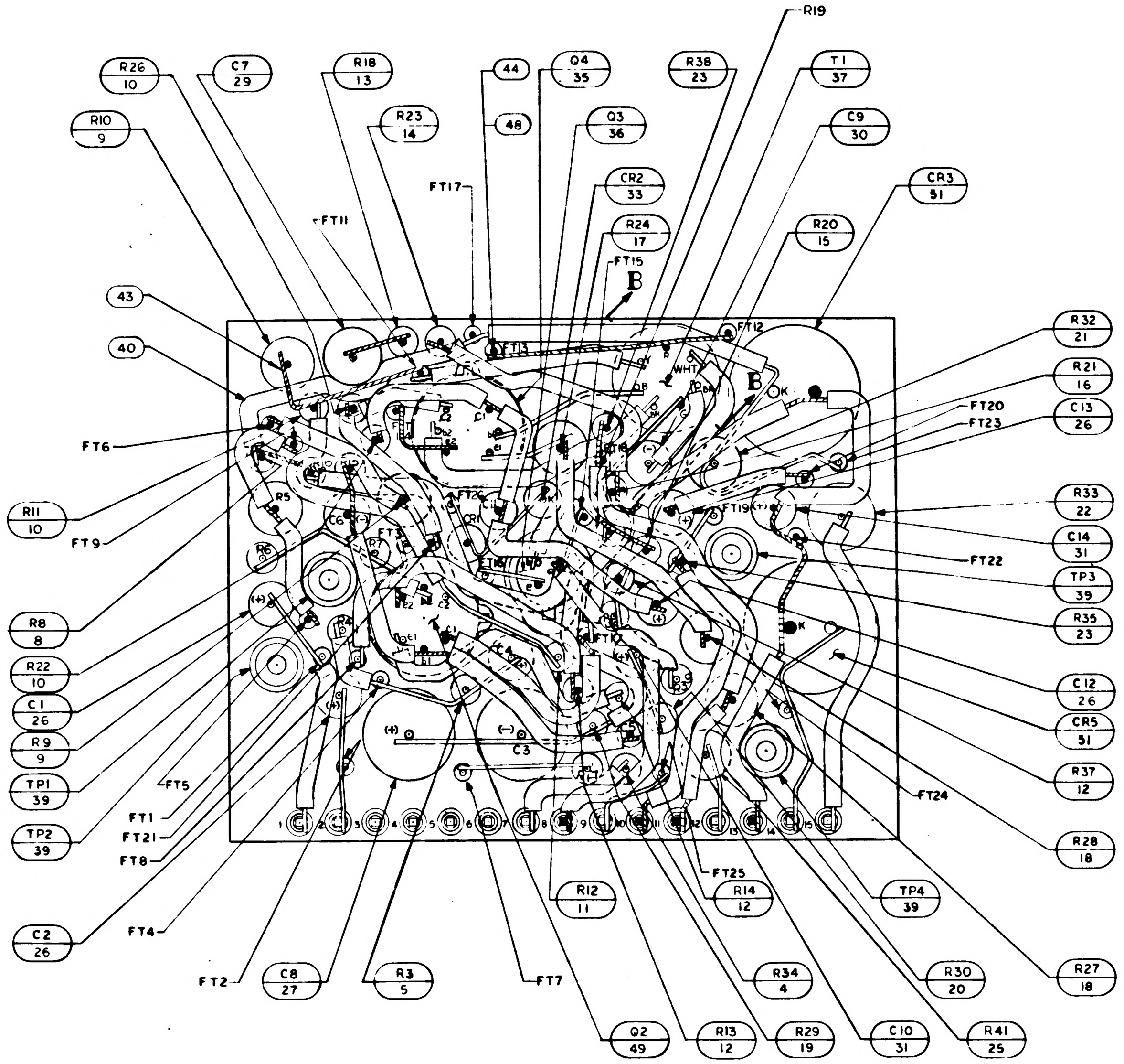
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C7 29
R18 13
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Q4 35
R38 23
T1 37
R19
R10 9
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Q3 36
C9 30
FT17
CR2 33
CR3 31
FT11
R24 17
FT15
B
R20 15
43
40
FT12
R32 21
R21 16
FT20
FT23
C13 26
FT6
R11 10
FT9
R33 22
C14 31
FT22
TP3 39
R35 23
R8 8
R22 10
C1 26
R9 9
TP1 39
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FT2
C8 27
R3 5
FT7
R34 4
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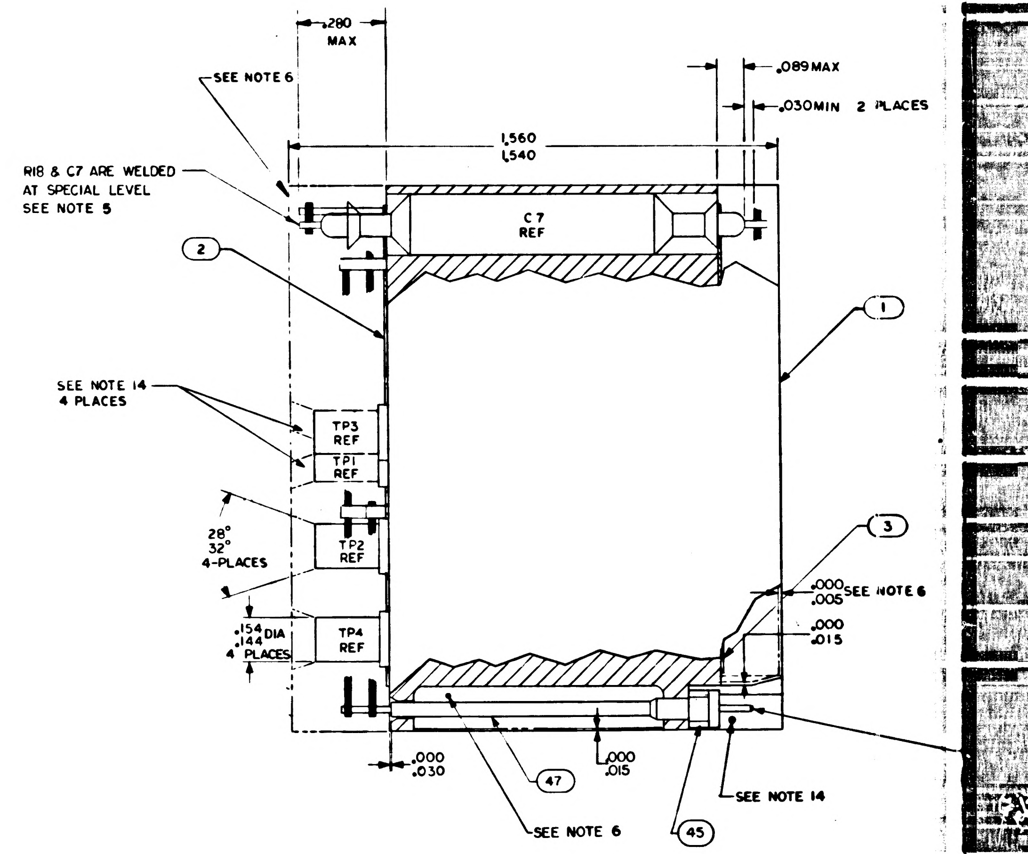
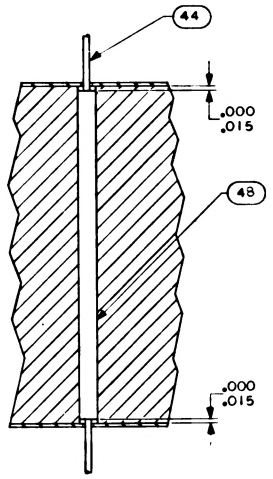

.280 MAX
SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
1.560
1.540
R18 & C7 ARE WELDED AT SPECIAL LEVEL SEE NOTE 5
C7 REF
2
1
SEE NOTE 14 4 PLACES
TP3 REF
TP1 REF
28°
32°
4-PLACES
TP2 REF
3
.000 .005 SEE NOTE 6
.000 .015
.154 .144 DIA 4 PLACES
TP4 REF
.000 .030
47
.000 .015
SEE NOTE 14
SEE NOTE 6
45

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ◕ DENOTES SPECIAL LEVEL
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSIONS BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. STAKE FIND NO. 4 THRU FIND NO. 37, FIND NO. 39, FIND NO. 41, FIND NO. 42 AND FIND NO. 46 PER ND 1002009, METHOD C
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.060 PER ND 1002009 (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023, CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATING SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR,
   C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR
   B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR
   E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR
10. MUST MEET REQUIREMENTS OF ND 1002136
11. PROCURE PER PS 1007017
12. BOND FIND NO. 50 TO FIND NO. 45 PER ND1002237.

13. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND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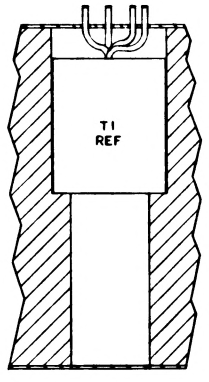
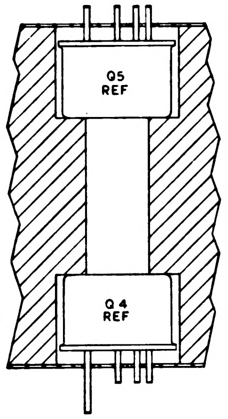
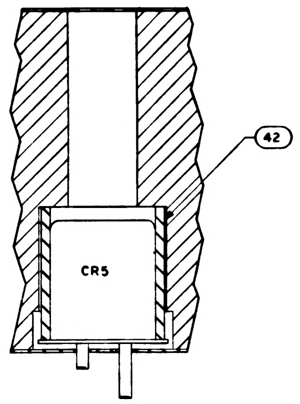
SECTION A-A



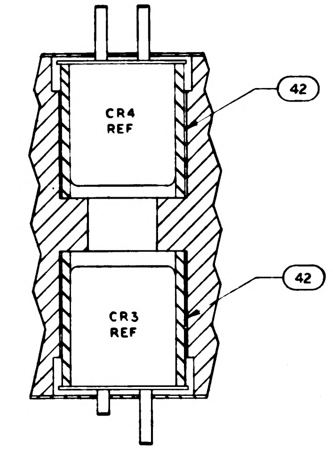
SECTION B-B


Q5 REF
Q4 REF

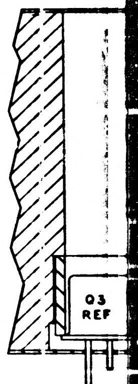
SECTION C-C
2-PLACES
TYP INSTALLATION
FOR FIND NO. 35



SECTION D-D

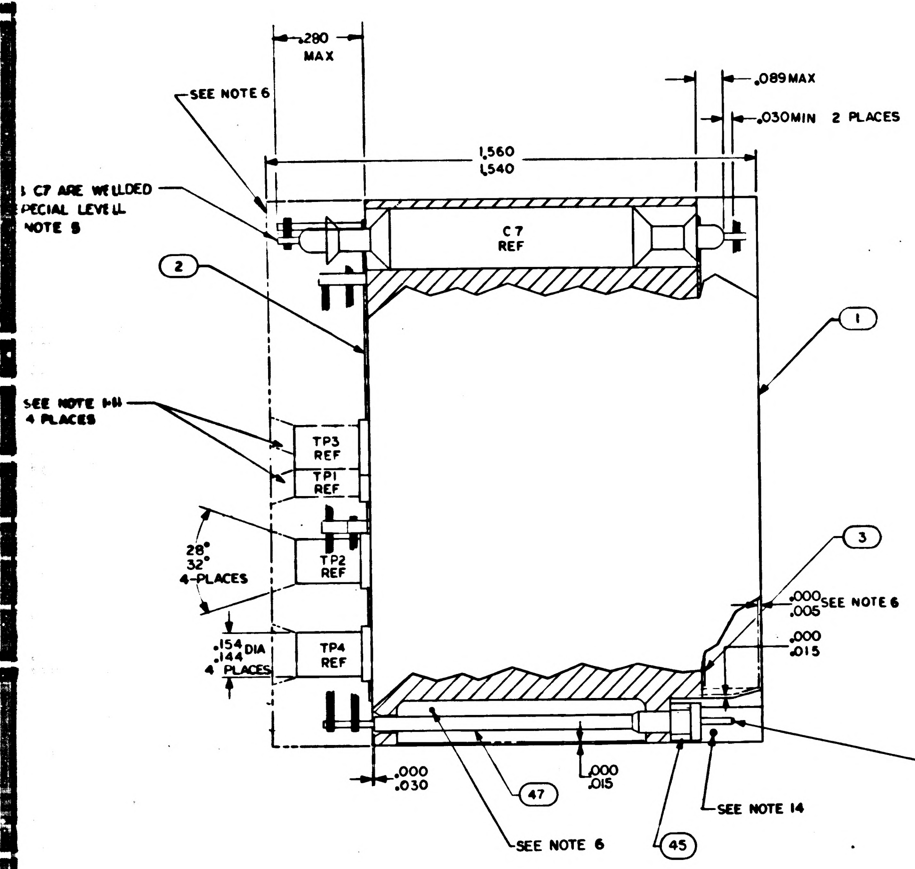

42
CR4 REF
CR3 REF
42

SECTION E-E

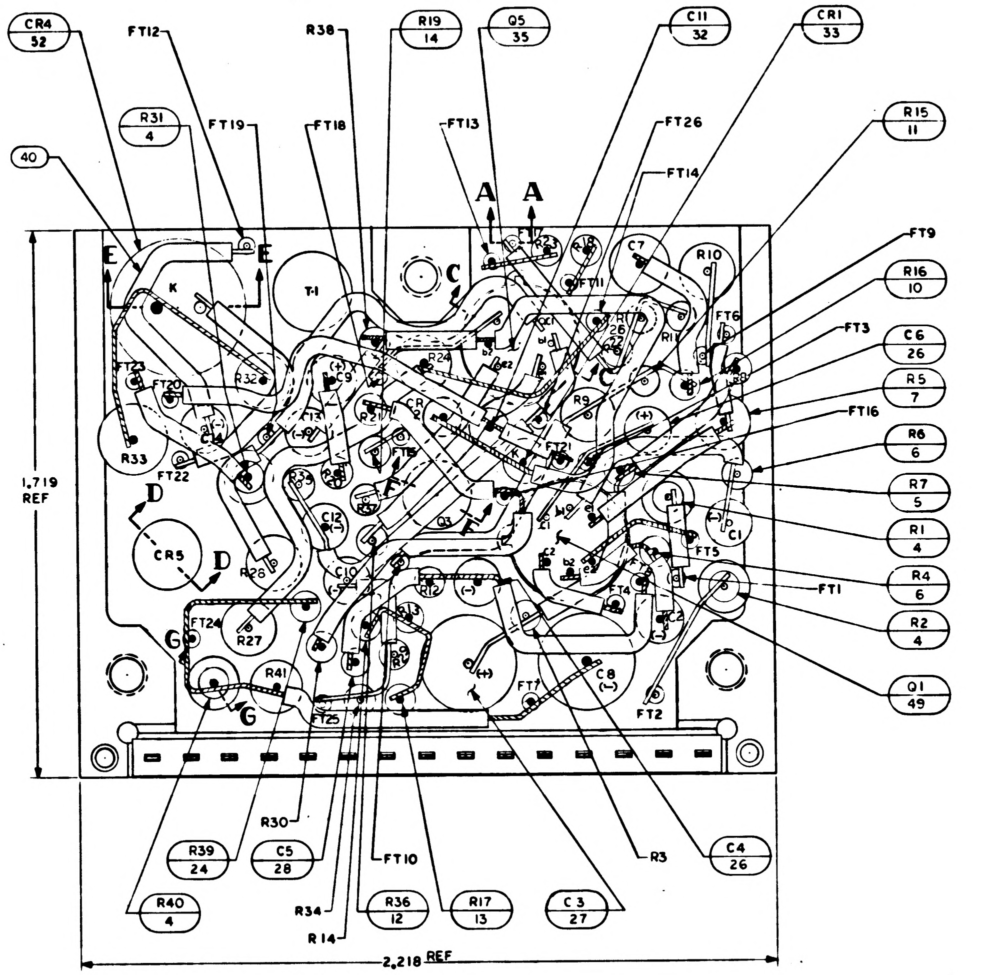


SECTION F

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 14[illegible]	12[illegible]	[illegible]
B	REVISED PER TDRR [illegible]5	[illegible]	[illegible]
C	REVISED PER TDRR 16832	4 MAR 65	JJJ EF
D	REVISED PER TDRR 7326	12 MAR 65	RS EF

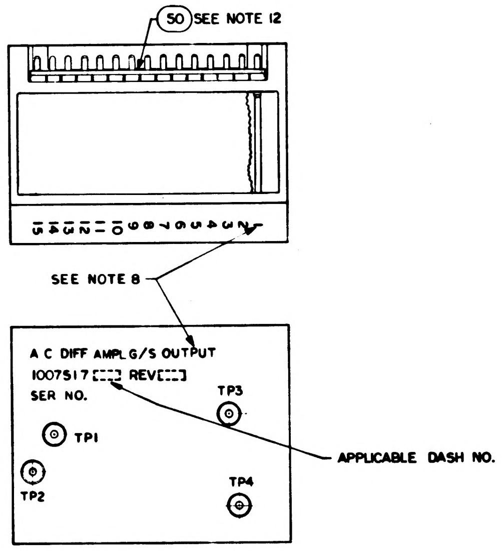


.280 MAX
SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
1.560
1.540
& C7 ARE WELDED
PECIAL LEVEL
NOTE 8
C7 REF
2
1
SEE NOTE 1-11 4 PLACES
TP3 REF
TP1 REF
TP2 REF
28°
32°
4-PLACES
.154 DIA
.144
4 PLACES
TP4 REF
3
.000
.005 SEE NOTE 6
.000
.015
38 SEE NOTE 10
SEE NOTE 14
45
47
SEE NOTE 6
.000
.030
.000
.015



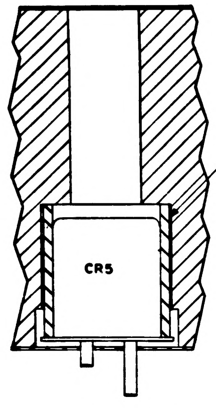
CR4 52
FT12
R38
R19 14
Q5 35
C11 32
CR1 33
R31 4
FT19
FT18
FT13
FT26
R15 11
40
FT14
A
A
FT9
E
E
C
T-1
C7
R10
R16 10
FT3
C6 26
R5 7
FT16
R6 6
R7 5
R1 4
R4 6
FT1
R2 4
Q1 49
1.719 REF
R33
FT22
D
CR5
D
R28
R27
FT24
G
R41
G
FT25
FT7
C8
FT2
FT5
C12
C10
R30
R39 24
C5 28
R40 4
R34
R14
FT10
R36 12
R17 13
C3 27
R3
C4 26
2.218 REF

TP	COMPONENT
1	R 1
2	R 2
3	R 31
4	R40

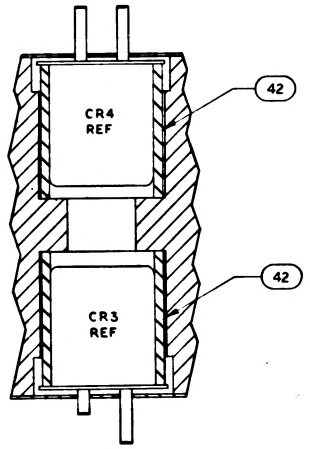


50 SEE NOTE 12
SEE NOTE 8
A C DIFF AMPL G/S OUTPUT
1007517 REV
SER NO.
TP1
TP2
TP3
TP4
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

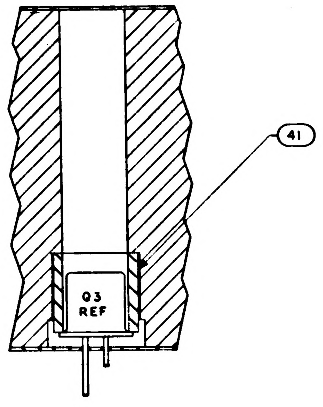


SECTION D-D

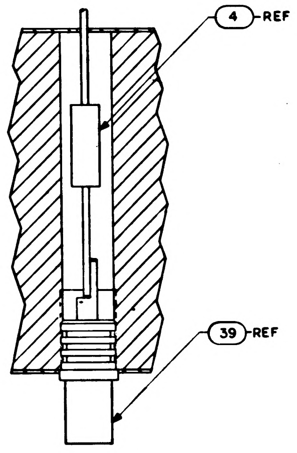


42
CR4 REF
42
CR3 REF

SECTION E-E



SECTION F-F



SECTION G-G
4-PLACES
TYP INSTALLATION
FOR FIND NO.39 & FIND NO.4

			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			1		1010831-002	ZENER DIODE	52
			2		1010831-001	ZENER DIODE	51
			1		1008540-15	GASKET, CONNECTOR MINIATURE	50
			2		1010376-2	TRANSISTOR	49
			X		1010032	SCHEMATIC	REF
			AR		1006776-22	INSULATION SLEEVING	48
			AR		1006776-20	INSULATION SLEEVING	47
			~~1~~		~~1010290-2~~	~~DIODE~~	~~46~~
			15		1006775	INSULATOR, WRAPOST MALE MINAT	45
			AR		1006757-8	WIRE ELEC .020 DIA	44
			AR		1006757-1	WIRE ELEC .010 X .020	43
			3		1008025-3	INSULATOR BUSHING	42
			1		1008025-1	INSULATOR BUSHING	41
			AR		1006776-21	INSULATION SLEEVING	40
			4		1010292-2	TEST POINT	39
			15		1006782-4	CONTACT, WRAPOST MALE MINAT	38
			1		1010335	TRANSFORMER	37
			1		1010357-1	TRANSISTOR	36
			2		1010376-1	TRANSISTOR	35
			~~2~~		~~1010290-1~~	~~DIODE~~	~~34~~
			2		1010385	DIODE	33
			1		1006777-27	CAPACITOR	32
			2		1006755-69	CAPACITOR	31
			1		1006775-57	CAPACITOR	30
			1		1010264-13	CAPACITOR	29
			1		1006777-16	CAPACITOR	28
			2		1006755-83	CAPACITOR	27
			6		1006755-65	CAPACITOR	26
			1		1006760-27	RESISTOR, FIXED	25
			1		1006750-40	RESISTOR, FIXED	24
			2		1010369-96	RESISTOR, FIXED, COMP., INS	23
			1		1010312-16	RESISTOR	22
			1		1010312-14	RESISTOR, FIXED	21
			1		1006750-32	RESISTOR, FIXED	20
			1		1006750-73	RESISTOR, FIXED	19
			2		1010377-51	RESISTOR, FIXED	18
			1		1010377-108	RESISTOR, FIXED	17
			1		1006750-49	RESISTOR, FIXED	16
			1		1006750-60	RESISTOR, FIXED	15
			2		1010369-92	RESISTOR, FIXED COMP., INS.	14
			2		1006750-50	RESISTOR, FIXED	13
			4		1006750-8	RESISTOR, FIXED	12
			2		1010369-90	RESISTOR, FIXED, COMP., INS.	11
			4		1006750-66	RESISTOR, FIXED	10
			2		1010377-109	RESISTOR, FIXED	9
			1		1006750-70	RESISTOR, FIXED	8
			1		1010377-107	RESISTOR, FIXED	7
			2		1010369-97	RESISTOR, FIXED, COMP., INS.	6
			2		1006750-67	RESISTOR, FIXED	5
			5		1006750-56	RESISTOR, FIXED	4
			1		1008029-2	INSULATOR, BOTTOM	3
			1		1008029-1	INSULATOR, TOP	2
			1		1008035	HEATSINK	1

QUANTITY REQUIRED
LIST OF MATERIALS

1007517 D

2H

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —//— DECIMALS .XX ±.02 .XXX .005 ANGLES ± ½°
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

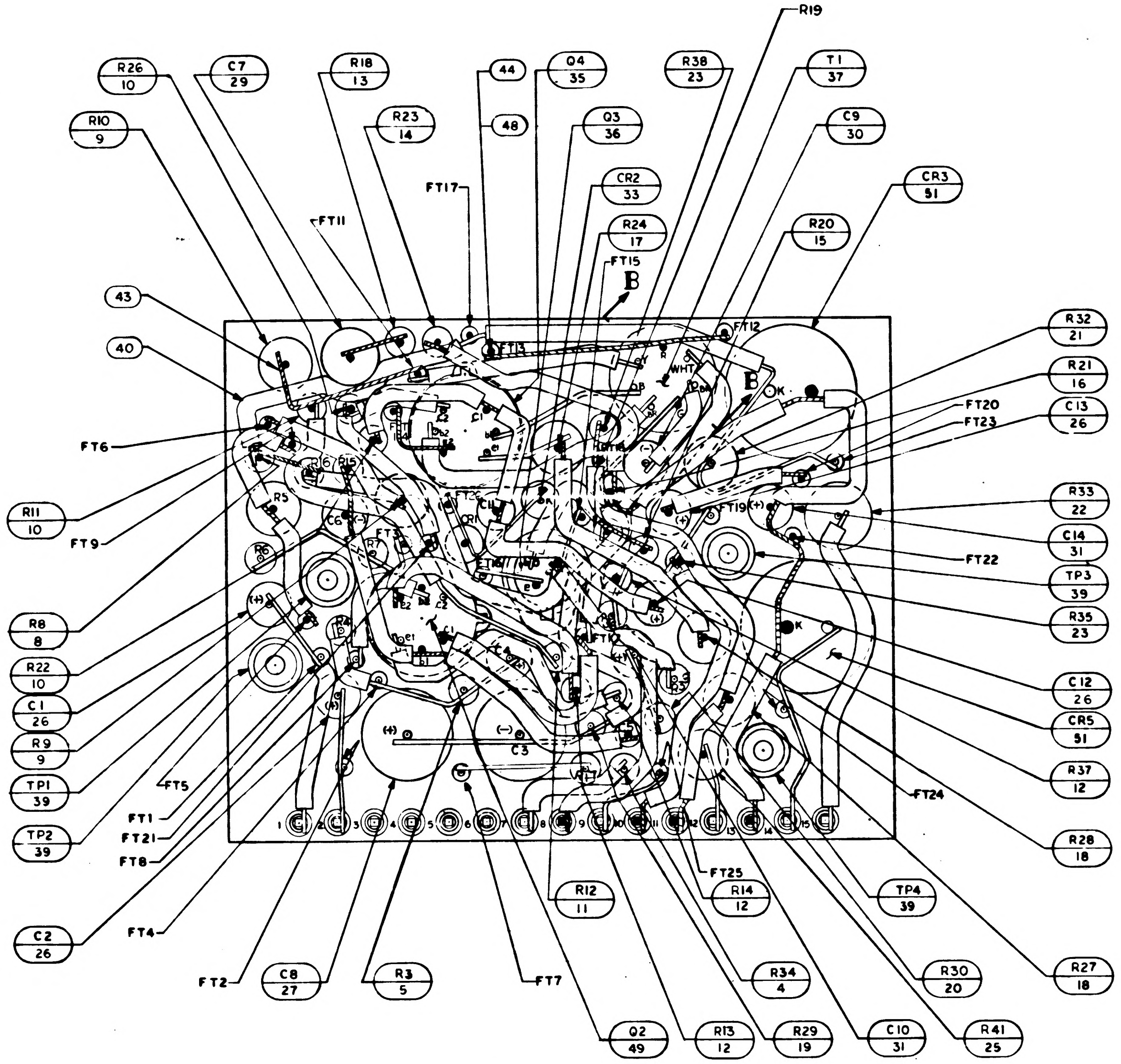
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN [illegible] DATE 17 Aug 64
CHECKED [illegible] 4 SEP 64
APPROVAL [illegible]
APPROVAL [illegible] [illegible]/64
NASA APPROVAL [illegible] 10-20-64
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AC DIFFERENTIAL AMPLIFIER
G/S OUTPUT
ASSEMBLY

CODE IDENT NO. | SIZE J | NASA DRAWING NO. 1007517
SCALE 5/1 | WT | SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO



R26 10
C7 29
R18 13
44
Q4 35
R38 23
T1 37
R19
R10 9
R23 14
48
Q3 36
C9 30
FT17
CR2 33
CR3 51
FT11
R24 17
R20 15
FT15
B
43
FT14
FT12
40
R32 21
R21 16
C13 26
FT20
FT23
FT6
R11 10
FT9
R33 22
FT19
C14 31
FT22
TP3 39
R35 23
R8 8
R22 10
C1 26
C12 26
CR5 51
R9 9
TP1 39
R37 12
FT5
FT1
FT21
FT24
TP2 39
FT8
R28 18
FT25
R12 11
R14 12
TP4 39
C2 26
FT4
R27 18
FT2
C8 27
R3 5
FT7
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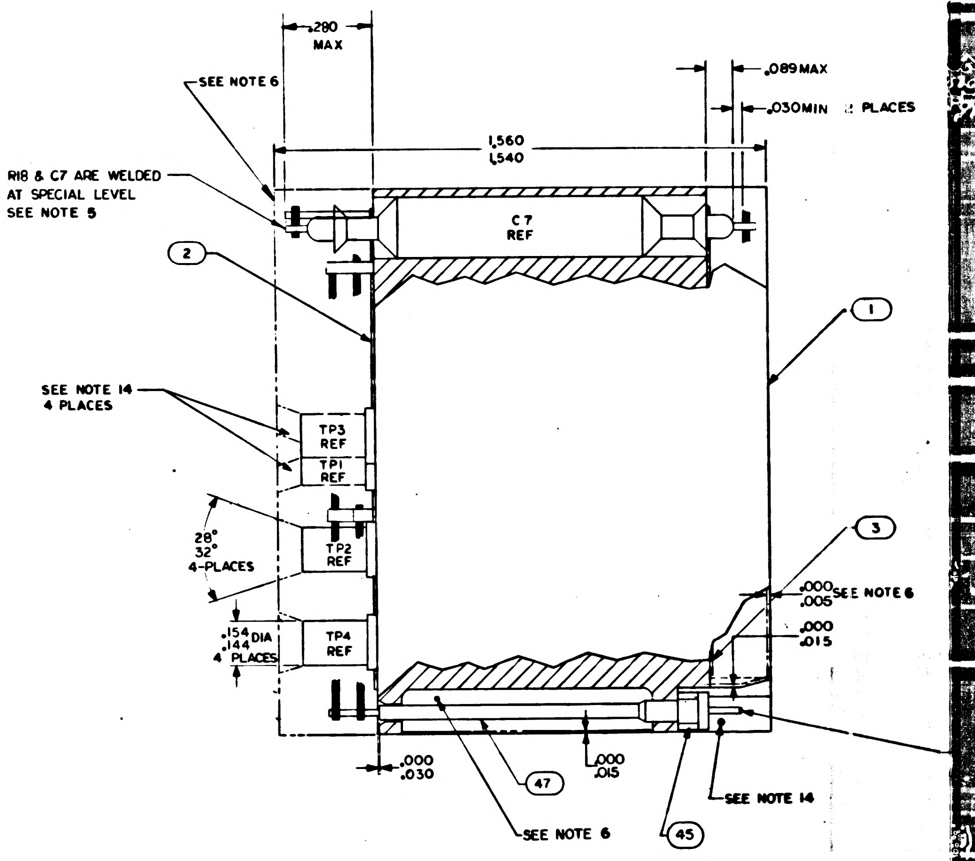
R41 25
WHT
K
(+)
(−)
C3

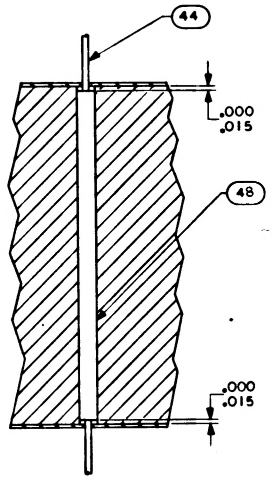


.280 MAX
SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
1.560
1.540
R18 & C7 ARE WELDED AT SPECIAL LEVEL SEE NOTE 5
C7 REF
2
1
SEE NOTE 14 4 PLACES
TP3 REF
TP1 REF
28°
32°
4-PLACES
TP2 REF
3
.000 .005 SEE NOTE 6
.154 .144 DIA 4 PLACES
TP4 REF
.000 .015
.000 .030
47
.000 .015
SEE NOTE 14
SEE NOTE 6
45

NOTES:

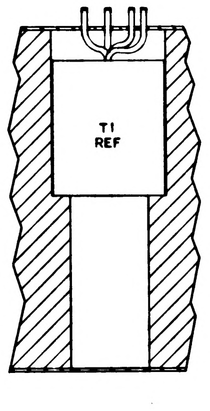
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ◐ DENOTES SPECIAL LEVEL
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSIONS BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. STAKE FIND NO. 4 THRU FIND NO. 37, FIND NO. 39, FIND NO. 41, FIND NO. 42 AND FIND NO. 46 PER ND 1002009, METHOD C
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.060 PER ND 1002009 (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023, CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   - BROKEN PATHS INDICATE INSULATING SLEEVING,
   - K INDICATES CATHODE SIDE OF DIODE,
   - FT ( ) INDICATES FEED THRU
   - PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   - C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   - B INDICATES BASE LEAD OF TRANSISTOR,
   - E INDICATES EMITTER LEAD OF TRANSISTOR,
   - C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR
   - B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR
   - E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR
10. MUST MEET REQUIREMENTS OF ND 1002136
11. PROCURE PER PS 1007017
12. BOND FIND NO. 50 TO FIND NO. 45 PER ND1002237.

13. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.

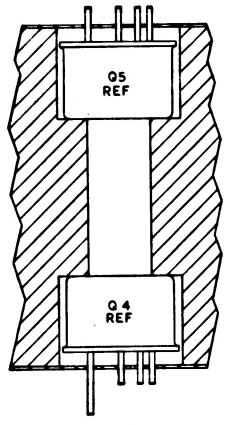


44
.000 .015
48
.000 .015

SECTION A-A

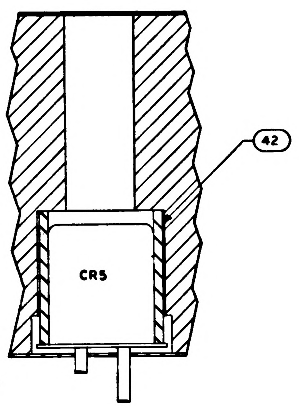


SECTION B-B

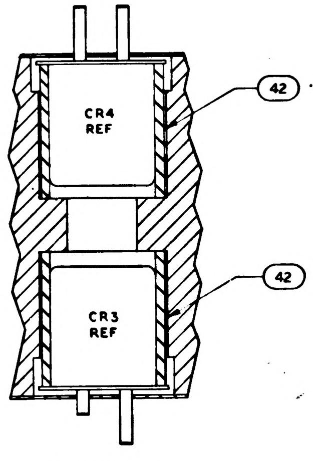


Q5 REF
Q4 REF

SECTION C-C
2-PLACES
TYP INSTALLATION
FOR FIND NO. 35

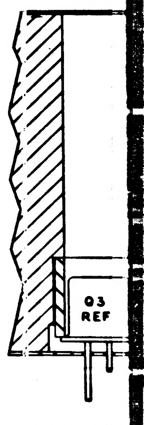


SECTION D-D



CR4 REF
42
42
CR3 REF

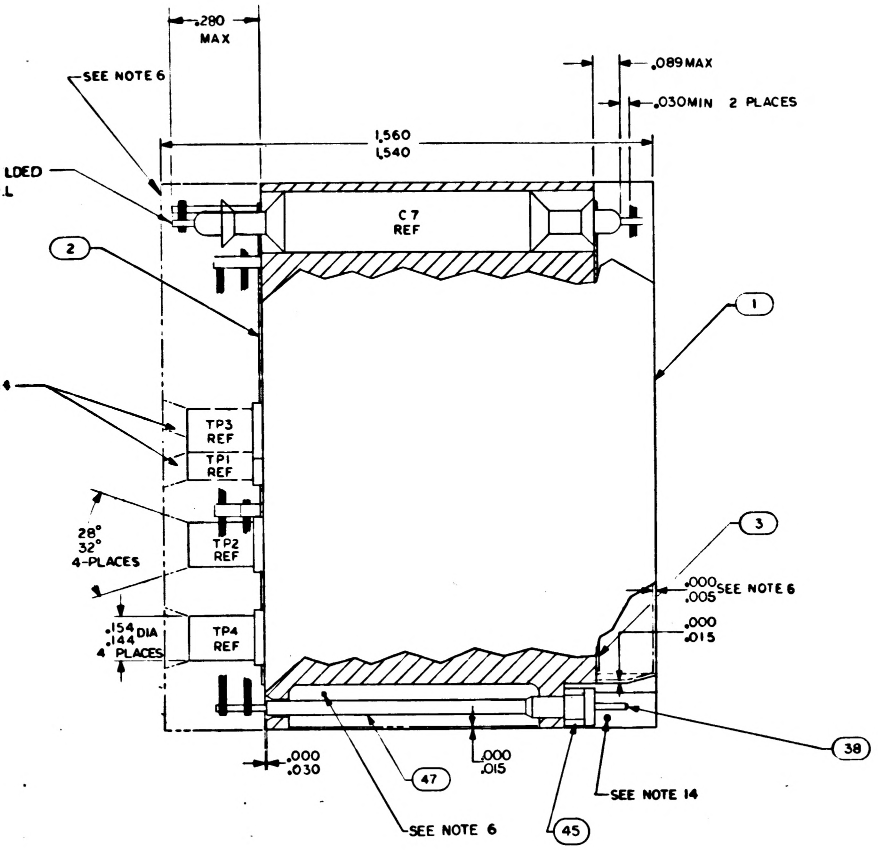
SECTION E-E



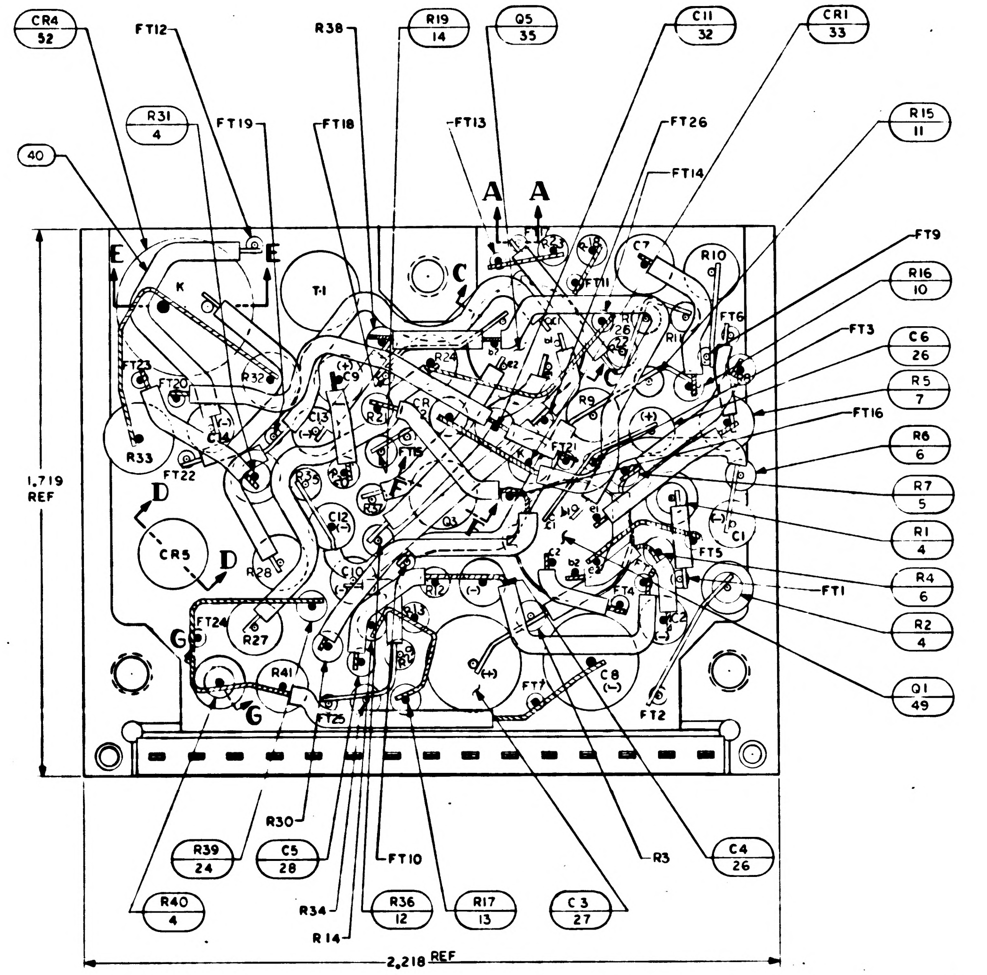
SECTION F

REVISIONS 13644			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 14771	12/1/64	WR
B	REVISED PER TDRR 14805	1/4/64	WR
C	REVISED PER TDRR 16832	4 MAR 65	JJJ CF
D	REVISED PER TDRR 17326	12 MAR 65	RS CF
E	REVISED PER TDRR 19402	2 JUN 65	JWP CF

TP	COMPONENT
1	R1
2	R2
3	R31
4	R40



.280 MAX
SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
1.560
1.540
C7 ARE WELDED SPECIAL LEVEL NOTE 6
C7 REF
2
1
SEE NOTE 14 4 PLACES
TP3 REF
TP1 REF
28° 32° 4-PLACES
TP2 REF
3
.000 .005 SEE NOTE 6
.154 .144 DIA 4 PLACES
TP4 REF
.000 .015
.000 .030
47
.000 .015
38 SEE NOTE 10
SEE NOTE 14
SEE NOTE 6
45



CR4 52
FT12
R38
R19 14
Q5 35
C11 32
CR1 33
R31 4
FT19
FT18
FT13
FT26
R15 11
40
A A
FT14
FT9
E E
C
R10
R16 10
T-1
FT6
FT3
C6 26
R5 7
FT16
FT23
R33
FT22
R6 6
1.719 REF
R7 5
D
CR5
D
R1 4
FT5
FT1
R4 6
R2 4
FT24
G
R27
R41
G
FT25
FT7
C8
FT2
Q1 49
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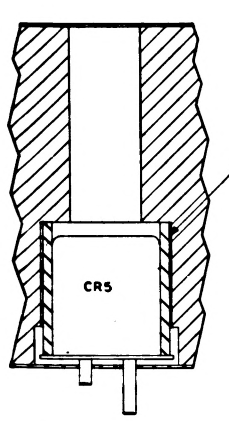
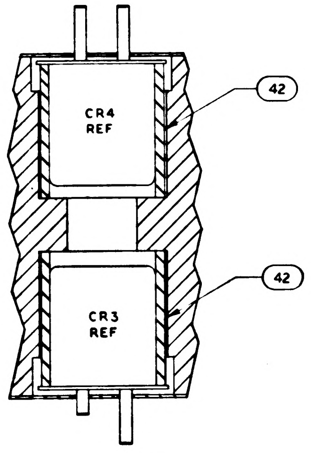
R17 13
C3 27
R14
2.218 REF

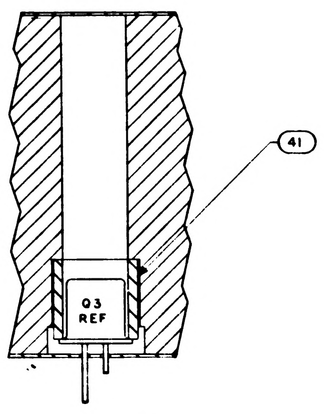


SECTION D-D

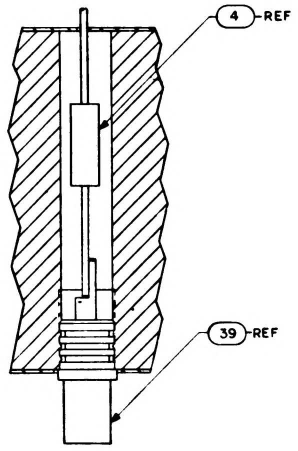


CR4 REF
42
CR3 REF
42

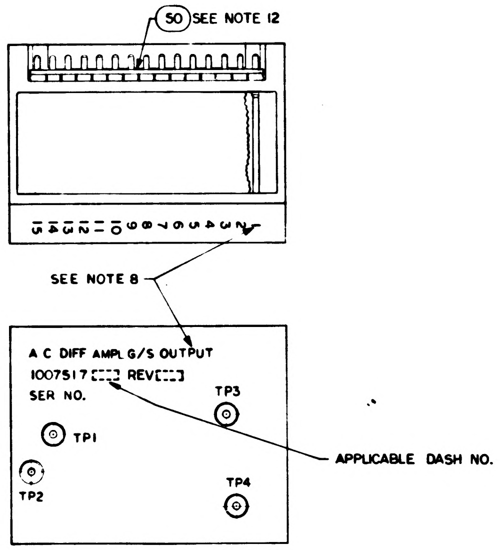
SECTION E-E



SECTION F-F



SECTION G-G
4-PLACES
TYP INSTALLATION
FOR FIND NO. 39 & FIND NO. 4



50 SEE NOTE 12
SEE NOTE 8
A C DIFF AMPL G/S OUTPUT
1007517 REV
SER NO.
TP3
TP1
TP2
TP4
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

			1		1010831-002	ZENER DIODE	52
			2		1010831-001	ZENER DIODE	51
			1		1008540-15	GASKET, CONNECTOR MINIATURE	50
			2		1010376-2	TRANSISTOR	49
			X		1010032	SCHEMATIC	REF
			AR		1006776-22	INSULATION SLEEVING	48
			AR		1006776-20	INSULATION SLEEVING	47
			~~1~~		~~1010290-2~~	~~DIODE~~	~~46~~
			15		1006775	INSULATOR, WRAPOST MALE MINAT	45
			AR		1006757-8	WIRE ELEC .020 DIA	44
			AR		1006757-1	WIRE ELEC .010 X .020	43
			3		1008025-3	INSULATOR BUSHING	42
			1		1008025-1	INSULATOR BUSHING	41
			AR		1006776-21	INSULATION SLEEVING	40
			4		1010292-2	TEST POINT	39
			15		1006782-4	CONTACT, WRAPOST MALE MINAT	38
			1		1010335	TRANSFORMER	37
			1		1010357-1	TRANSISTOR	36
			2		1010376-1	TRANSISTOR	35
			~~2~~		~~1010290-1~~	~~DIODE~~	~~34~~
			2		1010385	DIODE	33
			1		1006777-27	CAPACITOR	32
			2		1006755-69	CAPACITOR	31
			1		1006775-57	CAPACITOR	30
			1		1010264-13	CAPACITOR	29
			1		1006777-16	CAPACITOR	28
			2		1006755-83	CAPACITOR	27
			6		1006755-65	CAPACITOR	26
			1		1006760-27	RESISTOR, FIXED	25
			1		1006750-40	RESISTOR, FIXED	24
			2		1010369-96	RESISTOR, FIXED, COMP., INS	23
			1		1010312-16	RESISTOR	22
			1		1010312-14	RESISTOR, FIXED	21
			1		1006750-32	RESISTOR, FIXED	20
			1		1006750-73	RESISTOR, FIXED	19
			2		1010377-51	RESISTOR, FIXED	18
			1		1010377-108	RESISTOR, FIXED	17
			1		1006750-49	RESISTOR, FIXED	16
			1		1006750-60	RESISTOR, FIXED	15
			2		1010369-92	RESISTOR, FIXED COMP., INS.	14
			2		1006750-50	RESISTOR, FIXED	13
			4		1006750-8	RESISTOR, FIXED	12
			2		1010369-90	RESISTOR, FIXED, COMP., INS.	11
			4		1006750-66	RESISTOR, FIXED	10
			2		1010377-109	RESISTOR, FIXED	9
			1		1006750-70	RESISTOR, FIXED	8
			1		1010377-107	RESISTOR, FIXED	7
			2		1010369-97	RESISTOR, FIXED, COMP., INS.	6
			2		1006750-67	RESISTOR, FIXED	5
			5		1006750-56	RESISTOR, FIXED	4
			1		1008029-2	INSULATOR, BOTTOM	3
			1		1008029-1	INSULATOR, TOP	2
			1		1008035	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± //
DECIMALS .XX ±.02 .XXX ±.005
ANGLES ±1/2°
DO NOT SCALE THIS DRAWING
MATERIAL //
HEAT TREATMENT //
FINAL FINISH //

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN DATE 17 Aug 64
CHECKED A. Adonch 4 SEP 64
APPROVAL
APPROVAL
NASA APPROVAL 10-20-64
MIT APPROVAL 10/20/64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AC DIFFERENTIAL AMPLIFIER G/S OUTPUT ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007517
SCALE 5/1
WT
SHEET 1 OF 1

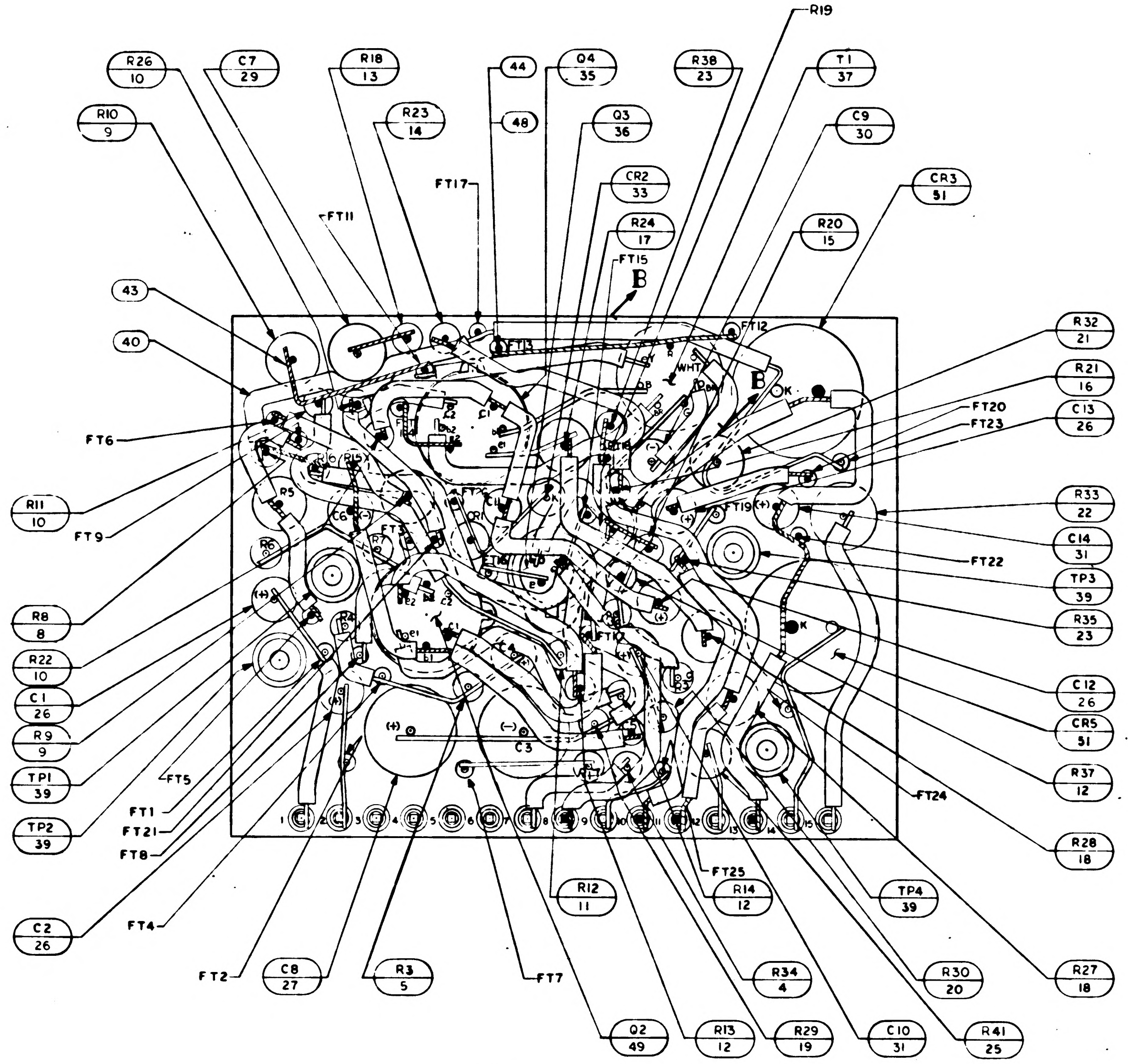
1007517 E

1007517 E SH. NO. 1

(2H)

2/1007517

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO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C7 29
R18 13
44
Q4 35
R38 23
R19
T1 37
R10 9
R23 14
48
Q3 36
C9 30
FT17
CR2 33
CR3 51
FT11
R24 17
R20 15
FT15
B
43
40
FT13
FT12
B
R32 21
R21 16
C13 26
FT20
FT23
FT6
R11 10
FT9
FT19
R33 22
C14 31
FT22
TP3 39
R35 23
R8 8
R22 10
C1 26
R9 9
TP1 39
TP2 39
C12 26
CR5 51
R37 12
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FT1
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FT24
R28 18
C3
FT25
R12 11
R14 12
TP4 39
C2 26
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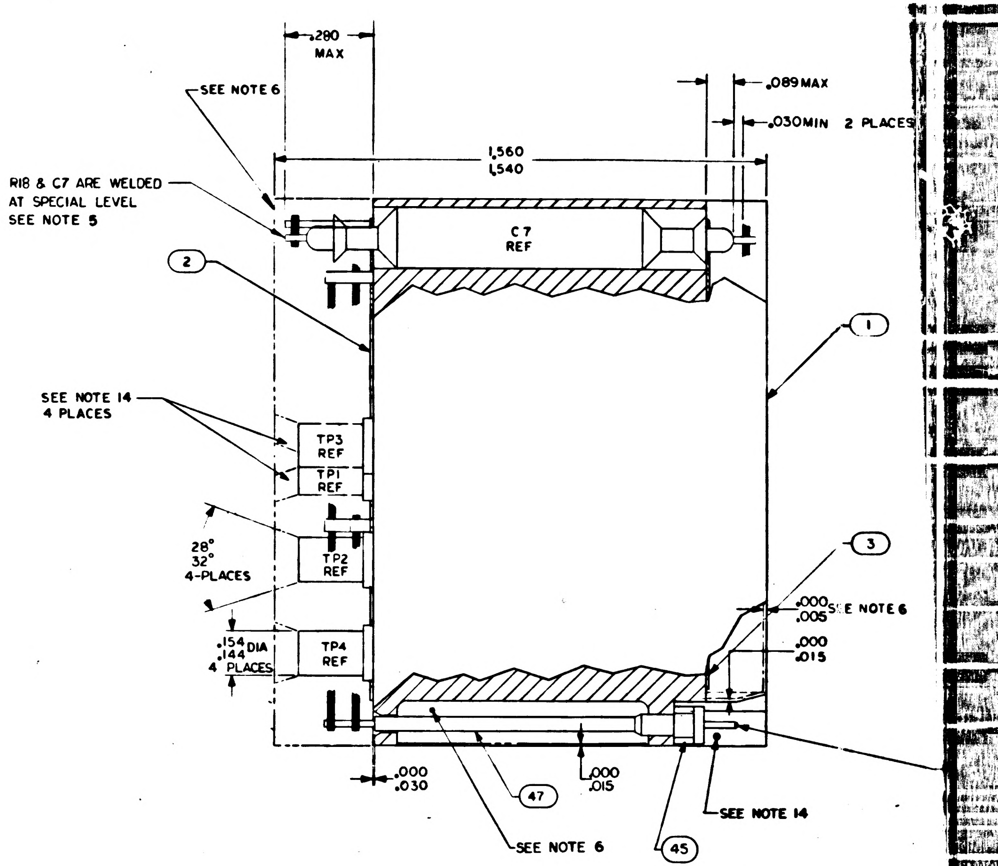
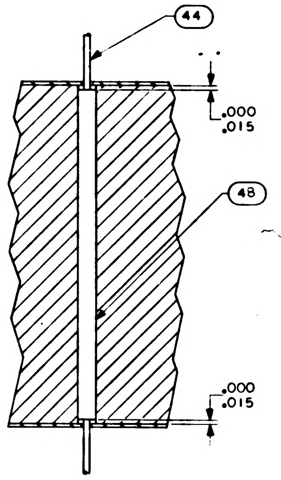
R29 19
C10 31
R41 25


.280 MAX
SEE NOTE 6
.089MAX
.030MIN 2 PLACES
1.560
1.540
R18 & C7 ARE WELDED AT SPECIAL LEVEL SEE NOTE 5
C7 REF
2
1
SEE NOTE 14 4 PLACES
TP3 REF
TP1 REF
TP2 REF
TP4 REF
28°
32°
4-PLACES
.154
.144
DIA
4 PLACES
3
.000
.005
SEE NOTE 6
.000
.015
.000
.030
47
.000
.015
SEE NOTE 14
SEE NOTE 6
45

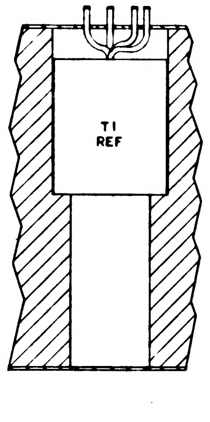
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ⊕ DENOTES SPECIAL LEVEL
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM)
UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSIONS BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. STAKE FIND NO. 4 THRU FIND NO. 37, FIND NO. 39, FIND NO. 41, FIND NO. 42 AND FIND NO. 46 PER ND 1002009, METHOD C
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.060 PER ND 1002009 (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023, CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATING SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR,
   C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR
   B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR
   E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR
10. MUST MEET REQUIREMENTS OF ND 1002136
11. PROCURE PER PS 1007017
12. BOND FIND NO. 50 TO FIND NO. 45 PER ND1002237.

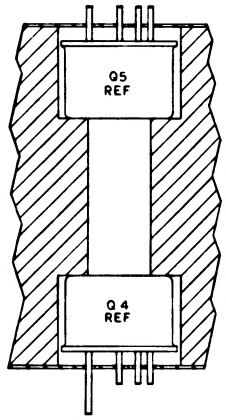
13. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
16. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF PRIMER BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE I. PRIMER TO CONSIST OF SIX PARTS BY VOLUME OF 1012504-1 AND ONE PART BY VOLUME OF 1012504-2. APPLY MATERIAL AND PRIMER AS INDICATED IN TABLE I.


44
.000
.015
48
.000
.015

SECTION A-A



SECTION B-B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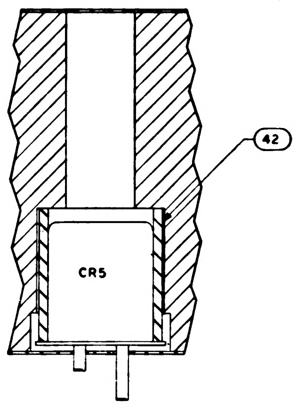
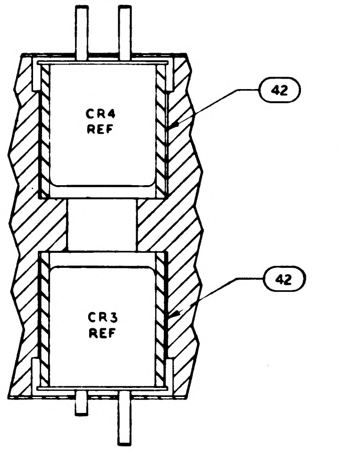
REF
Q4
REF

SECTION C-C
2-PLACES
TYP INSTALLATION
FOR FIND NO. 35



SECTION D-D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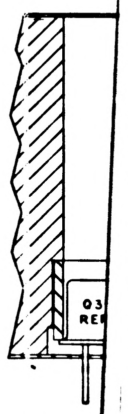
CR4
REF
42
CR3
REF

SECTION E-E



SECTION

TABLE I

CONFIGURATION	MAT	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER AT PERIMETER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK.	ADHESIVE	.12 MIN 100% OF PERIMETER .25 MIN 80% OF PERIMETER	.25 MIN 100% OF PERIMETER	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE.	ADHESIVE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	.25 MIN 100% OF PERIMETER	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER.	PRIMER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 TO .06 OF EXTERNAL EDGE

1007517 E SH NO. 1

1/1007517

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 14771	12/..	WR
B	REVISED PER TDRR 14805	1/4/..	WR
C	REVISED PER TDRR 16832	4 MAR 65	EF
D	REVISED PER TDRR 7326	12 MAR 65	RS EF
E	REVISED PER TDRR 19402	2 JUN 65	JWP EF
F	REVISED PER TDRR 19433	3 JUN 65	JWP

TP	COMPONENT
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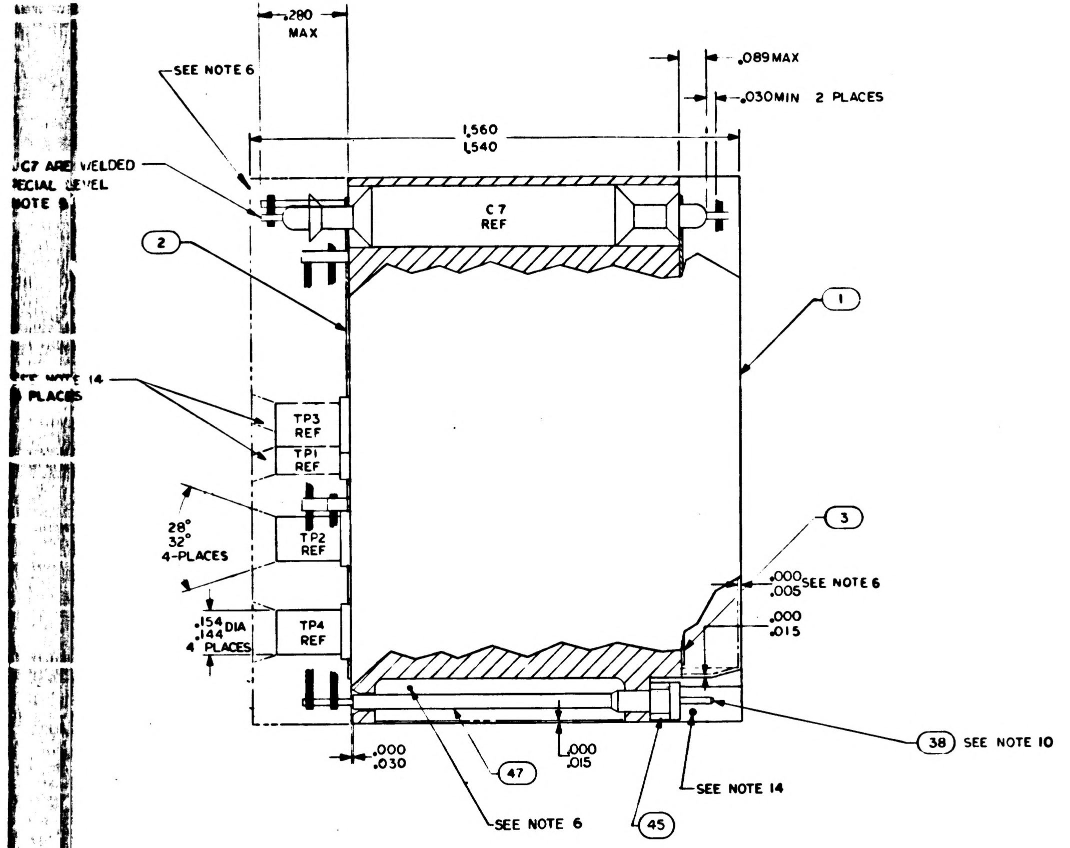
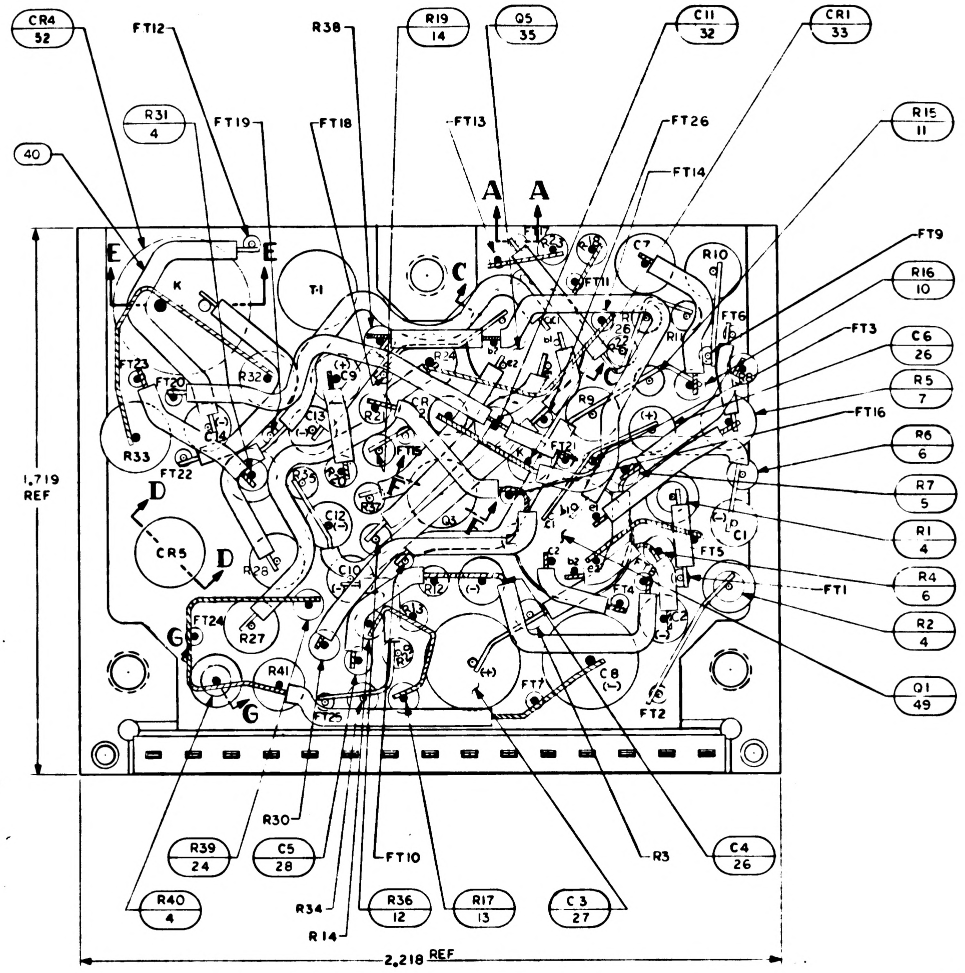
2	R2
3	R31
4	R40


.280 MAX
SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
1.560
1.540
C7 ARE WELDED
SPECIAL LEVEL
NOTE 5
C7 REF
2
1
SEE NOTE 14
4 PLACES
TP3 REF
TP1 REF
28°
32°
4-PLACES
TP2 REF
3
.000
.005 SEE NOTE 6
.154
.144 DIA
4 PLACES
TP4 REF
.000
.015
.000
.030
.000
.015
47
SEE NOTE 6
45
SEE NOTE 14
38 SEE NOTE 10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FT12
R38
R19 14
Q5 35
C11 32
CR1 33
R31 4
FT19
FT18
FT13
FT26
R15 11
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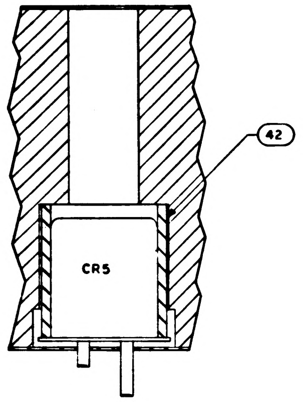
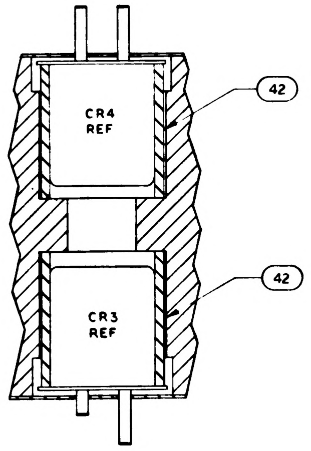
A A
FT14
E E
T-1
C7
R10
FT11
FT9
R16 10
FT6
FT3
C6 26
R5 7
FT23
FT20
R32
C13
C9
R9
FT16
R33
FT22
C
C
R8 6
1.719 REF
D
CR5
D
R28
C12
C10
FT5
R7 5
R1 4
R4 6
FT1
FT24
R27
G
G
R41
FT25
FT7
C8
FT2
FT4
R2 4
Q1 49
R30
R39 24
C5 28
FT10
R3
C4 26
R40 4
R34
R14
R36 12
R17 13
C3 27
2.218 REF



SECTION D-D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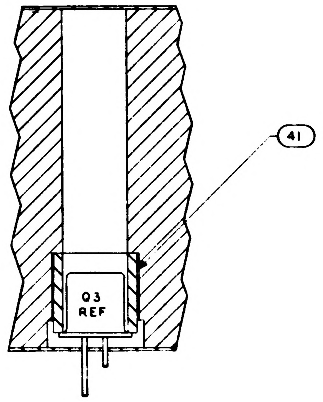
CR3 REF
42

SECTION E-E



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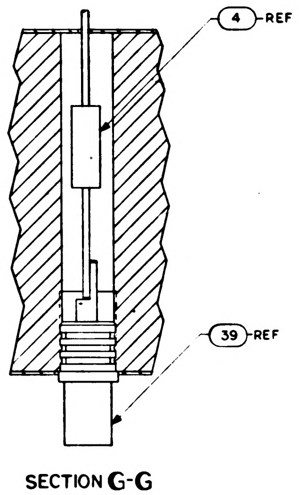
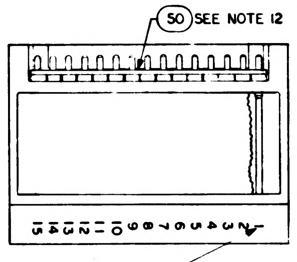


SECTION G-G
4-PLACES
TYP INSTALLATION
FOR FIND NO.39 & FIND NO.4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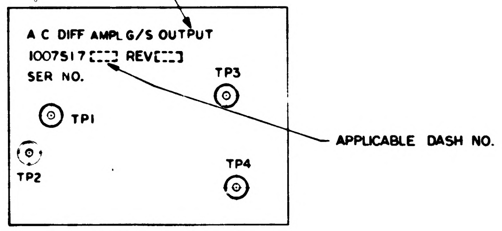
SEE NOTE 8


A C DIFF AMPL G/S OUTPUT
1007517-[ ] REV[ ]
SER NO.
TP3
TP1
TP2
TP4
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

			1		1010831-002	ZENER DIODE	52
			2		1010831-001	ZENER DIODE	51
			1		1008540-15	GASKET, CONNECTOR MINIATURE	50
			2		1010376-2	TRANSISTOR	49
			X		1010032	SCHEMATIC	REF
			AR		1006776-22	INSULATION SLEEVING	48
			AR		1006776-20	INSULATION SLEEVING	47
			~~1~~		~~1010290-2~~	~~DIODE~~	~~46~~
			15		1006775	INSULATOR, WRAPOST MALE MINAT	45
			AR		1006757-8	WIRE ELEC .020 DIA	44
			AR		1006757-1	WIRE ELEC .010 X .020	43
			3		1008025-3	INSULATOR BUSHING	42
			1		1008025-1	INSULATOR BUSHING	41
			AR		1006776-21	INSULATION SLEEVING	40
			4		1010292-2	TEST POINT	39
			15		1006782-4	CONTACT, WRAPOST MALE MINAT	38
			1		1010335	TRANSFORMER	37
			1		1010357-1	TRANSISTOR	36
			2		1010376-1	TRANSISTOR	35
			~~2~~		~~1010290-1~~	~~DIODE~~	~~34~~
			2		1010385	DIODE	33
			1		1006777-27	CAPACITOR	32
			2		1006755-69	CAPACITOR	31
			1		1006775-57	CAPACITOR	30
			1		1010264-13	CAPACITOR	29
			1		1006777-16	CAPACITOR	28
			2		1006755-83	CAPACITOR	27
			6		1006755-65	CAPACITOR	26
			1		1006760-27	RESISTOR, FIXED	25
			1		1006750-40	RESISTOR, FIXED	24
			2		1010369-96	RESISTOR, FIXED, COMP., INS	23
			1		1010312-16	RESISTOR	22
			1		1010312-14	RESISTOR, FIXED	21
			1		1006750-32	RESISTOR, FIXED	20
			1		1006750-73	RESISTOR, FIXED	19
			2		1010377-51	RESISTOR, FIXED	18
			1		1010377-108	RESISTOR, FIXED	17
			1		1006750-49	RESISTOR, FIXED	16
			1		1006750-60	RESISTOR, FIXED	15
			2		1010369-92	RESISTOR, FIXED COMP., INS.	14
			2		1006750-50	RESISTOR, FIXED	13
			4		1006750-8	RESISTOR, FIXED	12
			2		1010369-90	RESISTOR, FIXED, COMP., INS.	11
			4		1006750-66	RESISTOR, FIXED	10
			2		1010377-109	RESISTOR, FIXED	9
			1		1006750-70	RESISTOR, FIXED	8
			1		1010377-107	RESISTOR, FIXED	7
			2		1010369-97	RESISTOR, FIXED, COMP., INS.	6
			2		1006750-67	RESISTOR, FIXED	5
			5		1006750-56	RESISTOR, FIXED	4
			1		1008029-2	INSULATOR, BOTTOM	3
			1		1008029-1	INSULATOR, TOP	2
			1		1008035	HEATSINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO
1007574		
1007573		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —//— DECIMALS XX ±.02 XXX .005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN DATE 17 Aug 64
CHECKED A. Adamcik 4 SEP 64
APPROVAL
APPROVAL
NASA APPROVAL 10-20-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AC DIFFERENTIAL AMPLIFIER G/S OUTPUT ASSEMBLY

CODE IDENT NO 80230 | SIZE J | NASA DRAWING NO 1007517
SCALE 5/1 | WT | SHEET 1 OF 1

1007517 F SH. NO. 1

2H

27 1007517

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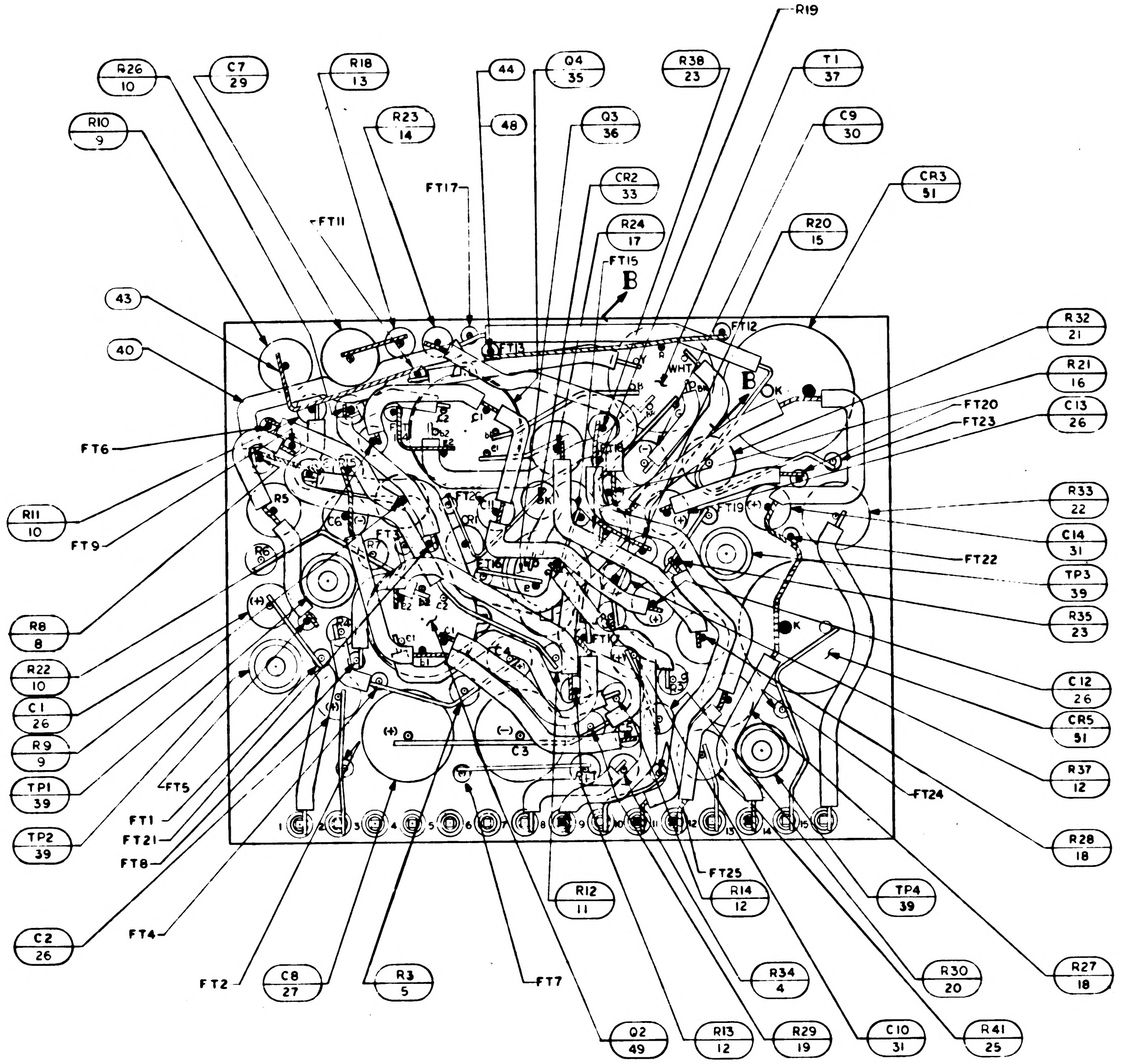
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R19
T1 37
R10 9
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CR2 33
CR3 51
FT11
R24 17
R20 15
FT15
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FT6
R33 22
R11 10
C14 31
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R35 23
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CR5 51
R37 12
FT24
R28 18
FT5
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FT21
FT8
FT4
C2 26
C3
R12 11
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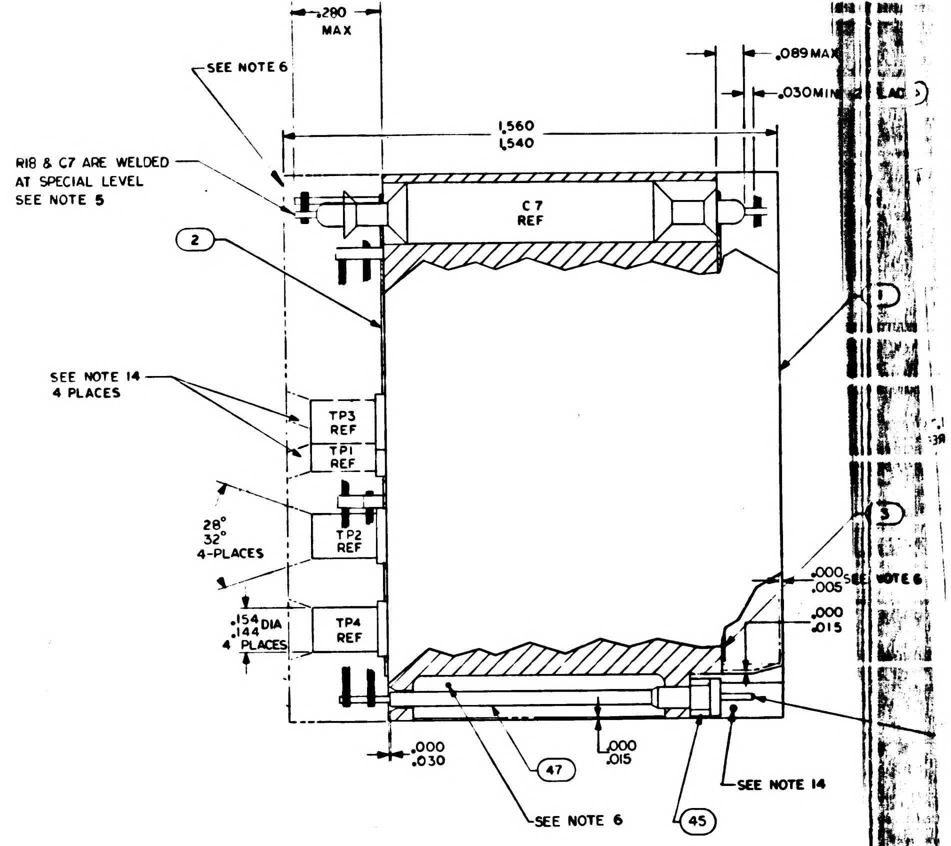
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SEE NOTE 6
.089 MAX
.030 MIN
1.560
1.540
R18 & C7 ARE WELDED AT SPECIAL LEVEL SEE NOTE 5
C7 REF
2
SEE NOTE 14 4 PLACES
TP3 REF
TP1 REF
28°
32°
4-PLACES
TP2 REF
.000
.005
SEE NOTE 6
.000
.015
.154
.144
DIA 4 PLACES
TP4 REF
.000
.030
47
.000
.015
SEE NOTE 14
SEE NOTE 6
45

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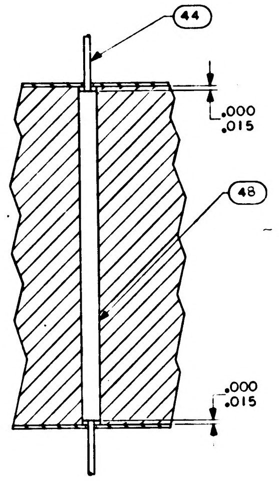
7. STAKE FIND NO. 4 THRU FIND NO. 37, FIND NO. 39, FIND NO. 41, FIND NO. 42 AND FIND NO. 46 PER ND 1002009, METHOD C
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.060 PER ND 1002009 (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023, CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATING SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR,
   C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR
   B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR
   E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR
10. MUST MEET REQUIREMENTS OF ND 1002136
11. PROCURE PER PS 1007017
12. BOND FIND NO. 50 TO FIND NO. 45 PER ND1002237.
13. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
16. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.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48
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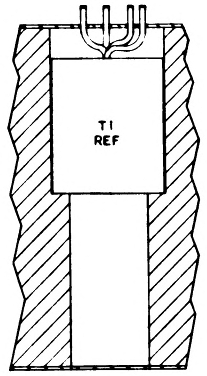
.015

SECTION A-A



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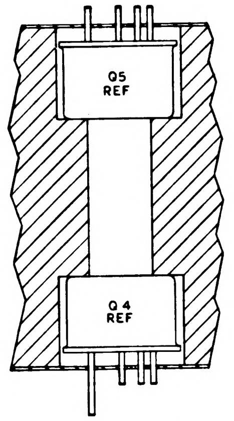
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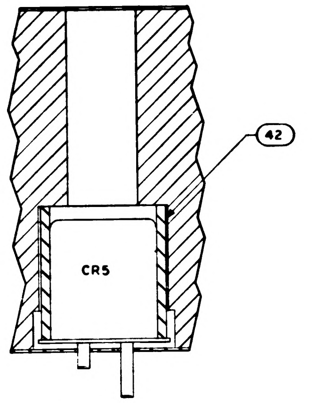
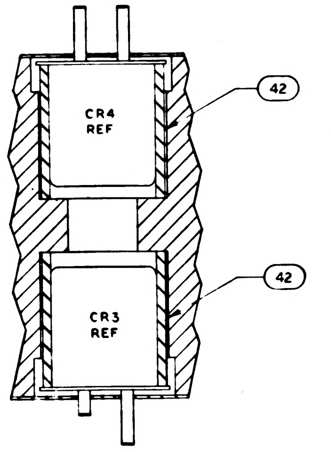
Q4 REF

SECTION C-C

2-PLACES
TYP INSTALLATION
FOR FIND NO. 35



SECTION D-D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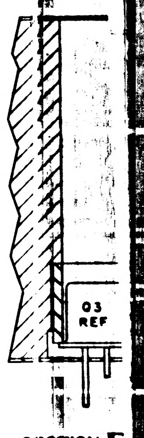
42
CR3 REF

SECTION E-E



SECTION F

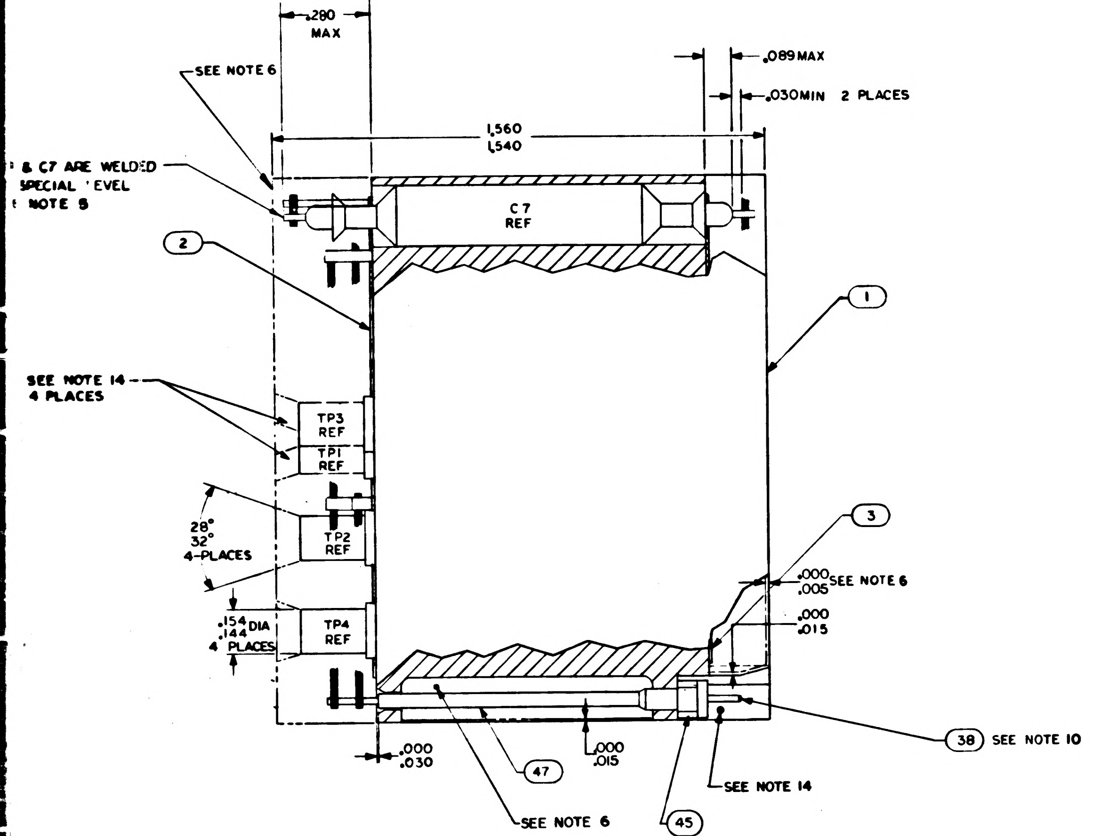
TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK.	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE.	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER.	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE

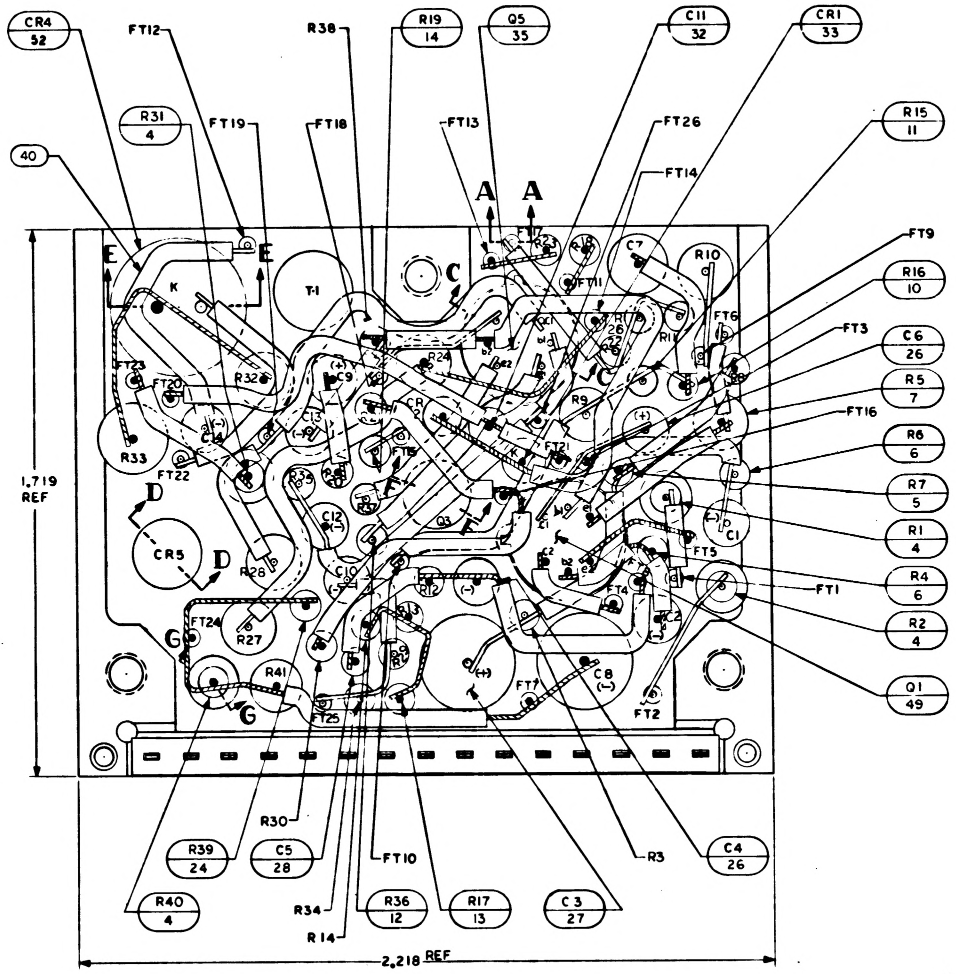
1007517	F	SH. NO. 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 14[illegible]	12[illegible]	[illegible]
B	REVISED PER TDRR [illegible]05	[illegible]	WR
C	REVISED PER TDRR 16832	4 MAR 65	JJJ / EF
D	REVISED PER TDRR 17326	12 MAR 65	RS / EF
E	REVISED PER TDRR 19402	2 JUN 65	JWP / EF
F	REVISED PER TDRR 19433	3 JUN 65	JWP / [illegible]
G	REVISED PER TDRR 19500	8 JUN 65	[illegible] / EF

TP	COMPONENT
1	R1
2	R2
3	R31
4	R40



.280 MAX
SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
1.560
1.540
& C7 ARE WELDED
SPECIAL LEVEL
NOTE 5
C7 REF
2
1
SEE NOTE 14 4 PLACES
TP3 REF
TP1 REF
TP2 REF
TP4 REF
28°
32°
4-PLACES
.154 DIA
.144
4 PLACES
3
.000
.005
SEE NOTE 6
.000
.015
.000
.030
.000
.015
47
SEE NOTE 6
45
SEE NOTE 14
38 SEE NOTE 10



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R38
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FT18
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FT14
A
A
FT9
R16 10
FT3
C6 26
R5 7
FT16
R6 6
R7 5
R1 4
R4 6
FT1
R2 4
Q1 49
1.719 REF
E
E
C
D
D
CR5
G
G
T-1
R33
FT22
FT23
FT20
R32
R28
FT24
R27
R41
FT25
FT7
FT2
FT5
FT4
FT10
C8
C12
C10
R10
C7
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R14
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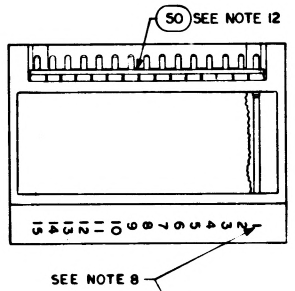
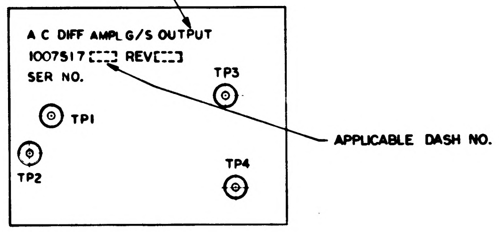
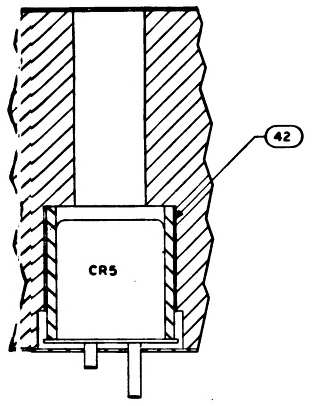


50 SEE NOTE 12
SEE NOTE 8

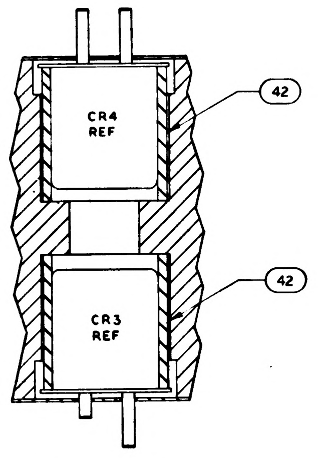


A C DIFF AMPL G/S OUTPUT
1007517 REV
SER NO.
TP3
TP1
TP2
TP4
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1



SECTION D-D



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CR3 REF
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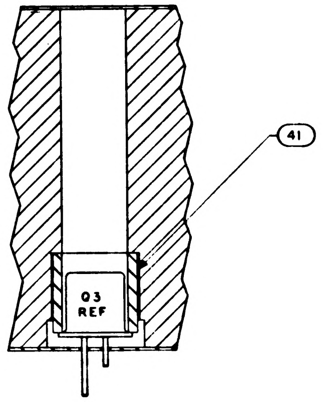
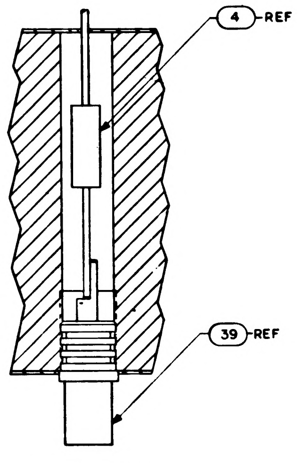
SECTION E-E



SECTION F-F



SECTION G-G
4-PLACES
TYP INSTALLATION
FOR FIND NO.39 & FIND NO.4

			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			1		1010831-002	ZENER DIODE	52
			2		1010831-001	ZENER DIODE	51
			1		1008540-15	GASKET, CONNECTOR MINIATURE	50
			2		1010376-2	TRANSISTOR	49
			X		1010032	SCHEMATIC	REF
			AR		1006776-22	INSULATION SLEEVING	48
			AR		1006776-20	INSULATION SLEEVING	47
			~~1~~		~~1010290-2~~	~~DIODE~~	~~46~~
			15		1006775	INSULATOR, WRAPOST MALE MINAT	45
			AR		1006757-8	WIRE ELEC .020 DIA	44
			AR		1006757-1	WIRE ELEC .010 X .020	43
			3		1008025-3	INSULATOR BUSHING	42
			1		1008025-1	INSULATOR BUSHING	41
			AR		1006776-21	INSULATION SLEEVING	40
			4		1010292-2	TEST POINT	39
			15		1006782-4	CONTACT, WRAPOST MALE MINAT	38
			1		1010335	TRANSFORMER	37
			1		1010357-1	TRANSISTOR	36
			2		1010376-1	TRANSISTOR	35
			~~2~~		~~1010290-1~~	~~DIODE~~	~~34~~
			2		1010385	DIODE	33
			1		1006777-27	CAPACITOR	32
			2		1006755-69	CAPACITOR	31
			1		1006775-57	CAPACITOR	30
			1		1010264-13	CAPACITOR	29
			1		1006777-16	CAPACITOR	28
			2		1006755-83	CAPACITOR	27
			6		1006755-65	CAPACITOR	26
			1		1006760-27	RESISTOR, FIXED	25
			1		1006750-40	RESISTOR, FIXED	24
			2		1010369-96	RESISTOR, FIXED, COMP., INS	23
			1		1010312-16	RESISTOR	22
			1		1010312-14	RESISTOR, FIXED	21
			1		1006750-32	RESISTOR, FIXED	20
			1		1006750-73	RESISTOR, FIXED	19
			2		1010377-51	RESISTOR, FIXED	18
			1		1010377-108	RESISTOR, FIXED	17
			1		1006750-49	RESISTOR, FIXED	16
			1		1006750-60	RESISTOR, FIXED	15
			2		1010369-92	RESISTOR, FIXED COMP., INS.	14
			2		1006750-50	RESISTOR, FIXED	13
			4		1006750-8	RESISTOR, FIXED	12
			2		1010369-90	RESISTOR, FIXED, COMP., INS.	11
			4		1006750-66	RESISTOR, FIXED	10
			2		1010377-109	RESISTOR, FIXED	9
			1		1006750-70	RESISTOR, FIXED	8
			1		1010377-107	RESISTOR, FIXED	7
			2		1010369-97	RESISTOR, FIXED, COMP., INS.	6
			2		1006750-67	RESISTOR, FIXED	5
			5		1006750-56	RESISTOR, FIXED	4
			1		1008029-2	INSULATOR, BOTTOM	3
			1		1008029-1	INSULATOR, TOP	2
			1		1008035	HEATSINK	1

QUANTITY REQUIRED — LIST OF MATERIALS

G
1007517

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —//— DECIMALS .XX ±.02 .XXX .005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN [illegible] DATE 17 Aug 64
CHECKED A. Udmick 4 SEP 64
APPROVAL [illegible]
APPROVAL D. A. Test [illegible]
NASA APPROVAL W. J. [illegible] 10-20-64
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AC DIFFERENTIAL AMPLIFIER G/S OUTPUT ASSEMBLY

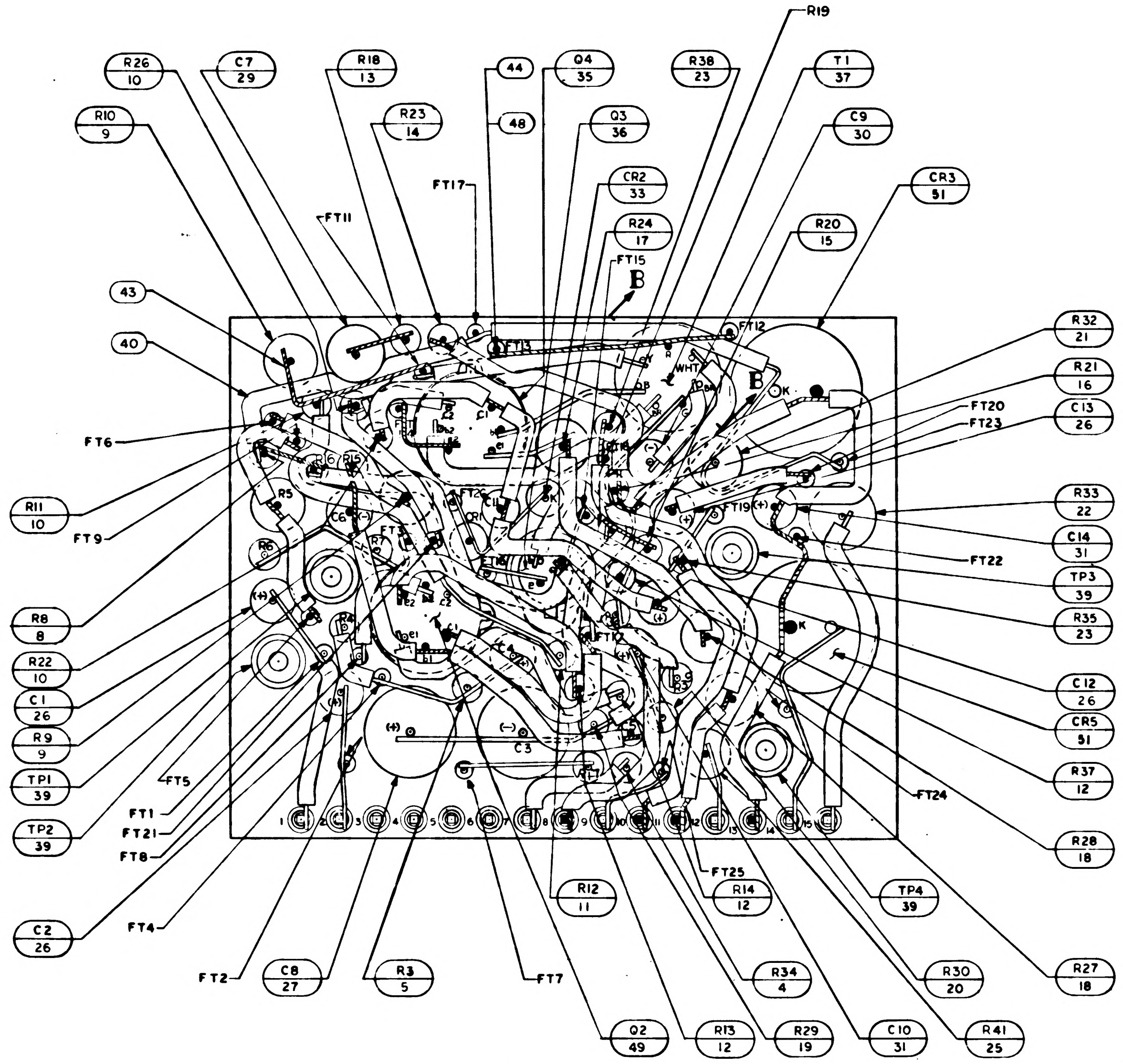
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO 1007517
SCALE 5/1
WT
SHEET 1 OF 1

(2H)

1007517	G	SH NO. 1

2-1007517

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO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CR2 33
CR3 31
FT11
R24 17
R20 15
FT15
B
43
40
FT12
FT13
WHT
B
R32 21
R21 16
C13 26
FT20
FT23
FT6
R5
R11 10
FT9
FT19
R33 22
C14 31
FT22
TP3 39
R35 23
R8 8
R22 10
C1 26
R9 9
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FT5
FT1
FT21
FT8
FT24
R28 18
FT25
FT4
R12 11
R14 12
TP4 39
C2 26
R34 4
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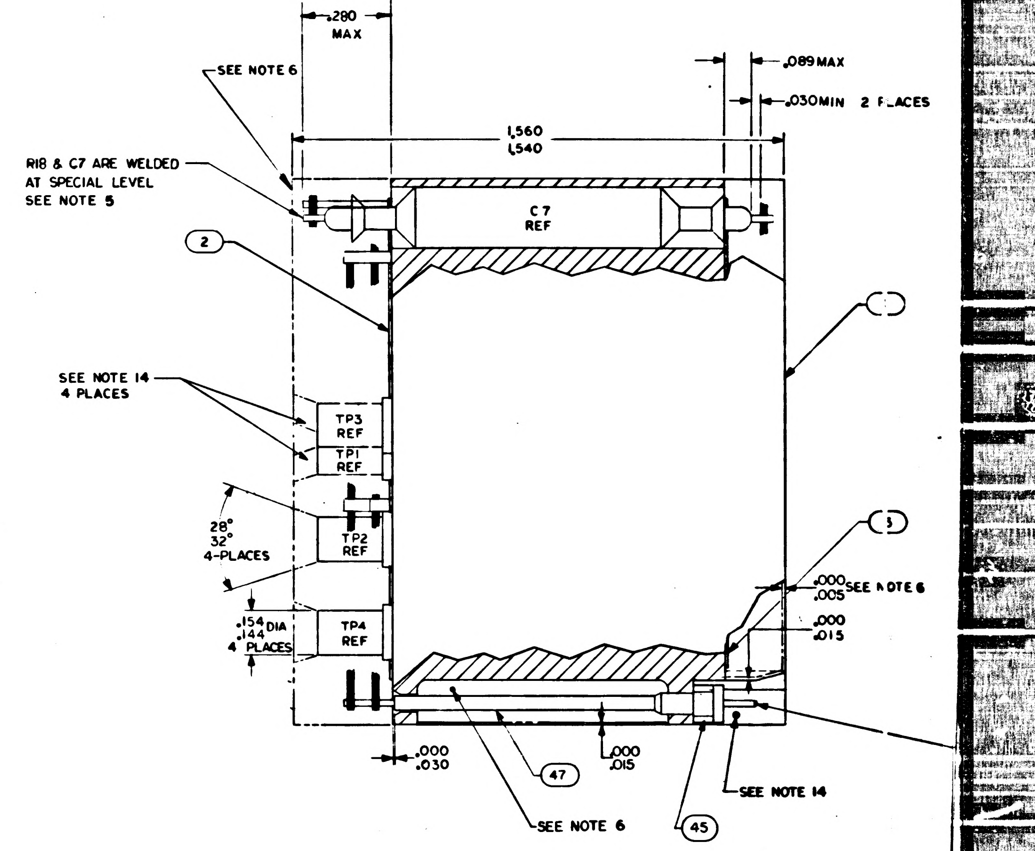
R27 18
FT2
C8 27
R3 5
FT7
Q2 49
R13 12
R29 19
C10 31
R41 25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SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
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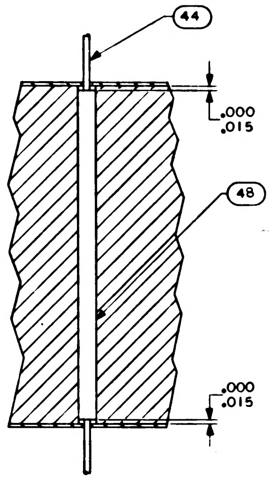
1.540
R18 & C7 ARE WELDED AT SPECIAL LEVEL SEE NOTE 5
C7 REF
2
SEE NOTE 14 4 PLACES
TP3 REF
TP1 REF
28°
32°
4-PLACES
TP2 REF
.154
.144 DIA
4 PLACES
TP4 REF
.000
.005 SEE NOTE 6
.000
.015
.000
.030
47
.000
.015
SEE NOTE 6
45
SEE NOTE 14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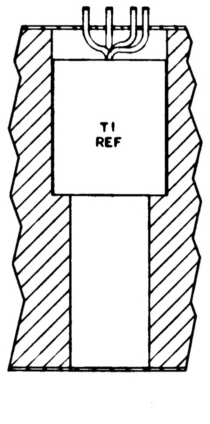
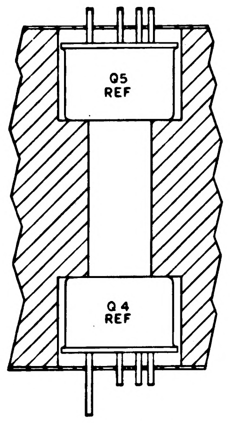
SECTION A-A



SECTION B-B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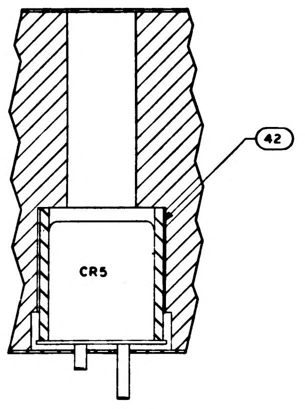
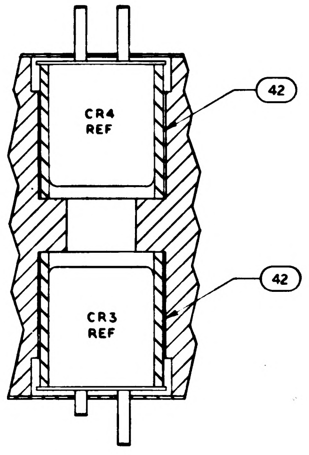
Q4 REF

SECTION C-C
2-PLACES
TYP INSTALLATION
FOR FIND NO. 35



SECTION D-D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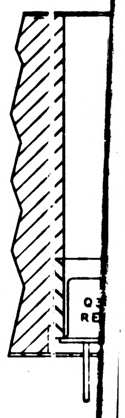
42
CR3 REF

SECTION E-E



SECTION

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ◐ DENOTES SPECIAL LEVEL
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSIONS BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. STAKE FIND NO. 4 THRU FIND NO. 37, FIND NO. 39, FIND NO. 41, FIND NO. 42 AND FIND NO. 46 PER ND 1002009, METHOD H.
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.060 PER ND 1002009 (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023, CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATING SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR,
   C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR
   B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR
   E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR
10. MUST MEET REQUIREMENTS OF ND 1002136
11. PROCURE PER PS 1007017
12. BOND FIND NO. 50 TO FIND NO. 45 PER ND1002237.

13. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
16. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.

TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK.~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEATSINK SURFACE.~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER.~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE~~

1007517

1/1007517

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 1477	[illegible]	[illegible]
B	REVISED PER TDRR 1705	[illegible]	[illegible]
C	REVISED PER TDRR 6832	4 MAR 65	[illegible]
D	REVISED PER TDRR 7326	2 MAR 65	RS
E	REVISED PER TDRR 19402	2 JUN 65	WP
F	REVISED PER TDRR 19433	3 JUN 65	NP
G	REVISED PER TDRR 9500	8 JUN 65	[illegible]
H	REVISED PER TDRR 20143	9 JUN 65	Y.W.

TP	COMPONENT
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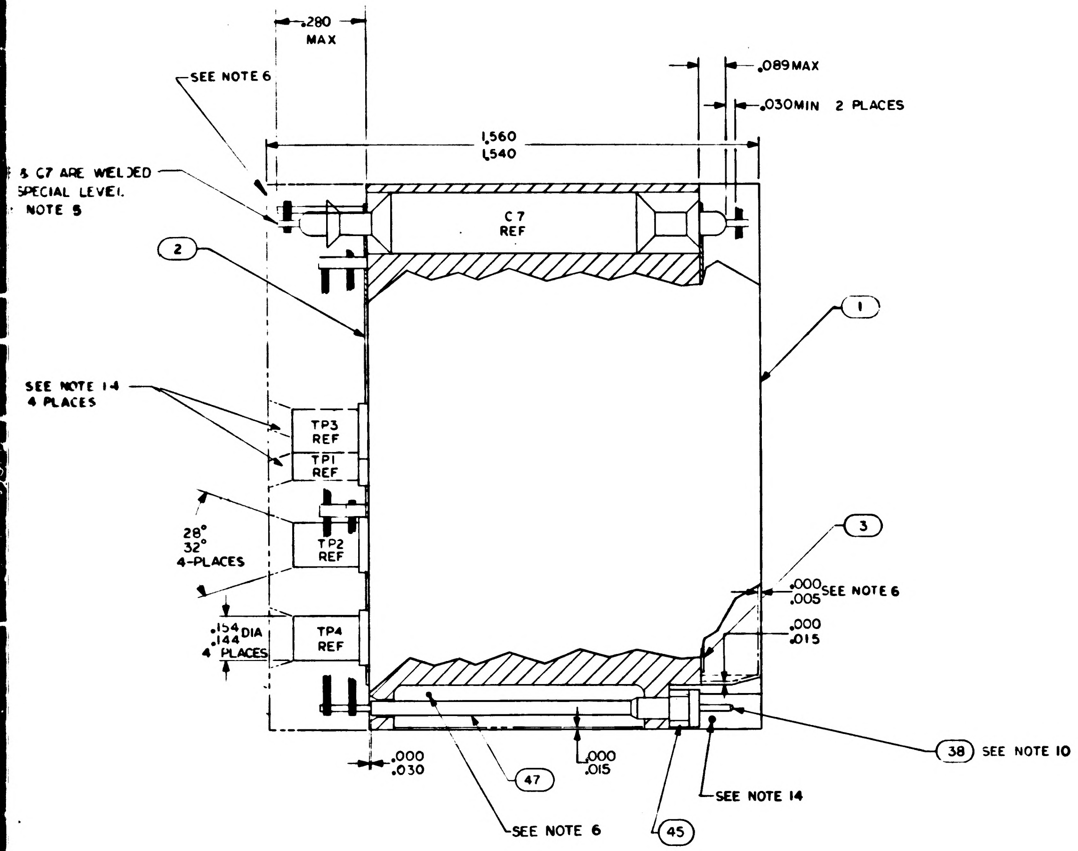
2	R2
3	R31
4	R40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SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
1.560
1.540
& C7 ARE WELDED
SPECIAL LEVEL
NOTE 5
C7 REF
2
1
SEE NOTE 14
4 PLACES
TP3 REF
TP1 REF
28°
32°
4-PLACES
TP2 REF
.154
.144 DIA
4 PLACES
TP4 REF
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.000
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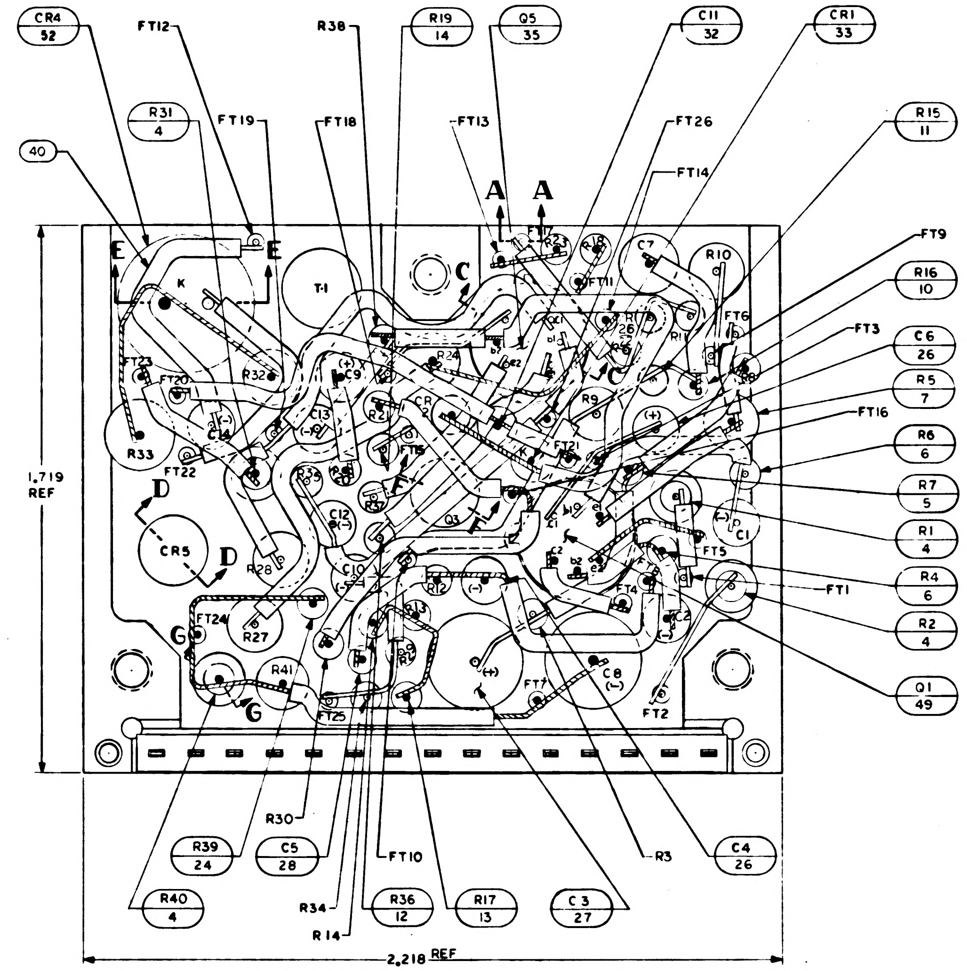
.000
.015
38 SEE NOTE 10
.000
.030
47
.000
.015
SEE NOTE 14
SEE NOTE 6
45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T1
C
C7
R10
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FT6
FT3
C6 26
R5 7
FT16
R6 6
R7 5
R1 4
R4 6
FT1
R2 4
Q1 49
FT23
FT20
R32
R33
FT22
C9
C13
C14
C12
C10
Q3
R9
FT21
1,719 REF
D
D
CR5
R28
FT5
C1
FT4
G
G
FT24
R27
R41
FT25
FT7
C8
FT2
R30
R39 24
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FT10
R3
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R40 4
R34
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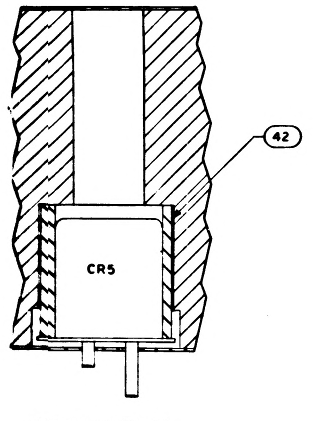
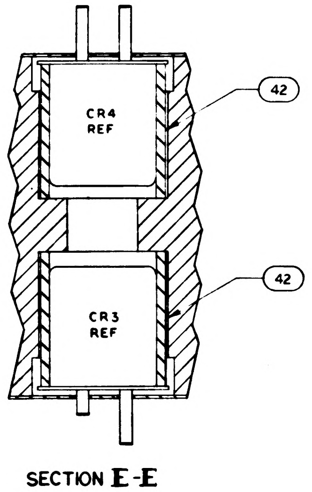
C3 27
R14
2,218 REF



SECTION D-D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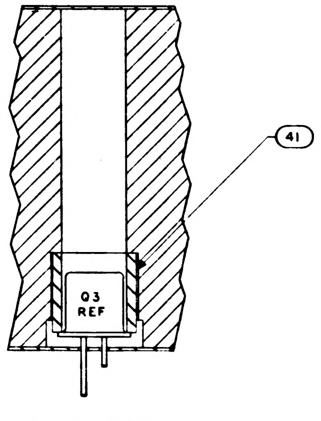
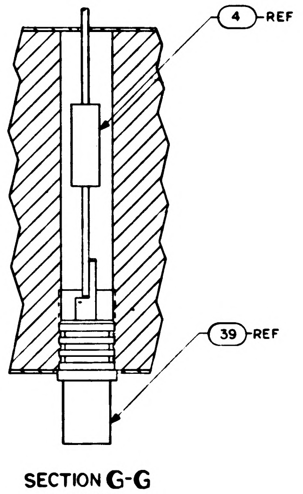
CR3 REF

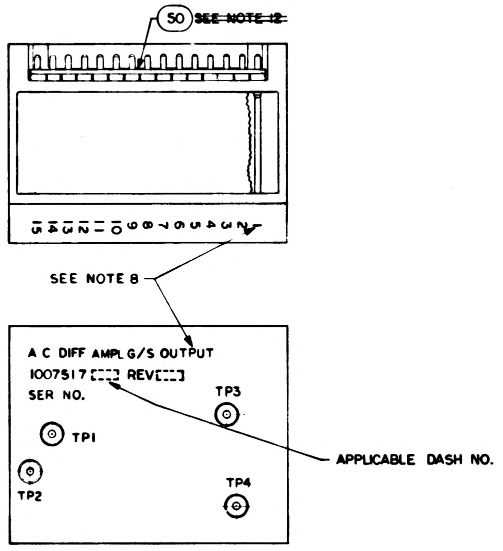
SECTION E-E



SECTION F-F



SECTION G-G
4-PLACES
TYP INSTALLATION
FOR FIND NO.39 & FIND NO.4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15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 8
A C DIFF AMPL G/S OUTPUT
1007517 [ ] REV[ ]
SER NO.
TP3
TP1
TP2
TP4
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			1		1010831-002	ZENER DIODE	52
			2		1010831-001	ZENER DIODE	51
			1		1008540-15	GASKET, CONNECTOR MINIATURE	50
			2		1010376-2	TRANSISTOR	49
			X		1010032	SCHEMATIC	REF
			AR		1006776-22	INSULATION SLEEVING	48
			AR		1006776-20	INSULATION SLEEVING	47
			~~1~~		~~1010290-2~~	~~DIODE~~	~~46~~
			15		1006775	INSULATOR, WRAPOST MALE MINAT	45
			AR		1006757-8	WIRE ELEC .020 DIA	44
			AR		1006757-1	WIRE ELEC .010 X .020	43
			3		1008025-3	INSULATOR BUSHING	42
			1		1008025-1	INSULATOR BUSHING	41
			AR		1006776-21	INSULATION SLEEVING	40
			4		1010292-2	TEST POINT	39
			15		1006782-4	CONTACT, WRAPOST MALE MINAT	38
			1		1010335	TRANSFORMER	37
			1		1010357-1	TRANSISTOR	36
			2		1010376-1	TRANSISTOR	35
			~~2~~		~~1010290-1~~	~~DIODE~~	~~34~~
			2		1010385	DIODE	33
			1		1006777-27	CAPACITOR	32
			2		1006755-69	CAPACITOR	31
			1		1006775-57	CAPACITOR	30
			1		1010264-13	CAPACITOR	29
			1		1006777-16	CAPACITOR	28
			2		1006755-83	CAFACITOR	27
			6		1006755-65	CAPACITOR	26
			1		1006760-27	RESISTOR, FIXED	25
			1		1006750-40	RESISTOR, FIXED	24
			2		1010369-96	RESISTOR, FIXED, COMP., INS	23
			1		1010312-16	RESISTOR	22
			1		1010312-14	RESISTOR, FIXED	21
			1		1006750-32	RESISTOR, FIXED	20
			1		1006750-73	RESISTOR, FIXED	19
			2		1010377-51	RESISTOR, FIXED	18
			1		1010377-108	RESISTOR, FIXED	17
			1		1006750-49	RESISTOR, FIXED	16
			1		1006750-60	RESISTOR, FIXED	15
			2		1010369-92	RESISTOR, FIXED COMP., INS.	14
			2		1006750-50	RESISTOR, FIXED	13
			4		1006750-8	RESISTOR, FIXED	12
			2		1010369-90	RESISTOR, FIXED, COMP., INS.	11
			4		1006750-66	RESISTOR, FIXED	10
			2		1010377-109	RESISTOR, FIXED	9
			1		1006750-70	RESISTOR, FIXED	8
			1		1010377-107	RESISTOR, FIXED	7
			2		1010369-97	RESISTOR, FIXED, COMP., INS.	6
			2		1006750-67	RESISTOR, FIXED	5
			5		1006750-56	RESISTOR, FIXED	4
			1		1008029-2	INSULATOR, BOTTOM	3
			1		1008029-1	INSULATOR, TOP	2
			1		1008035	HEATSINK	1
QUANTITY REQUIRED					LIST OF MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS .XX ±.02 .XXX .005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN DATE 17 Aug 64
CHECKED 4 SEP 64
APPROVAL
APPROVAL
NASA APPROVAL 10-20-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

A C DIFFERENTIAL AMPLIFIER G/S OUTPUT ASSEMBLY

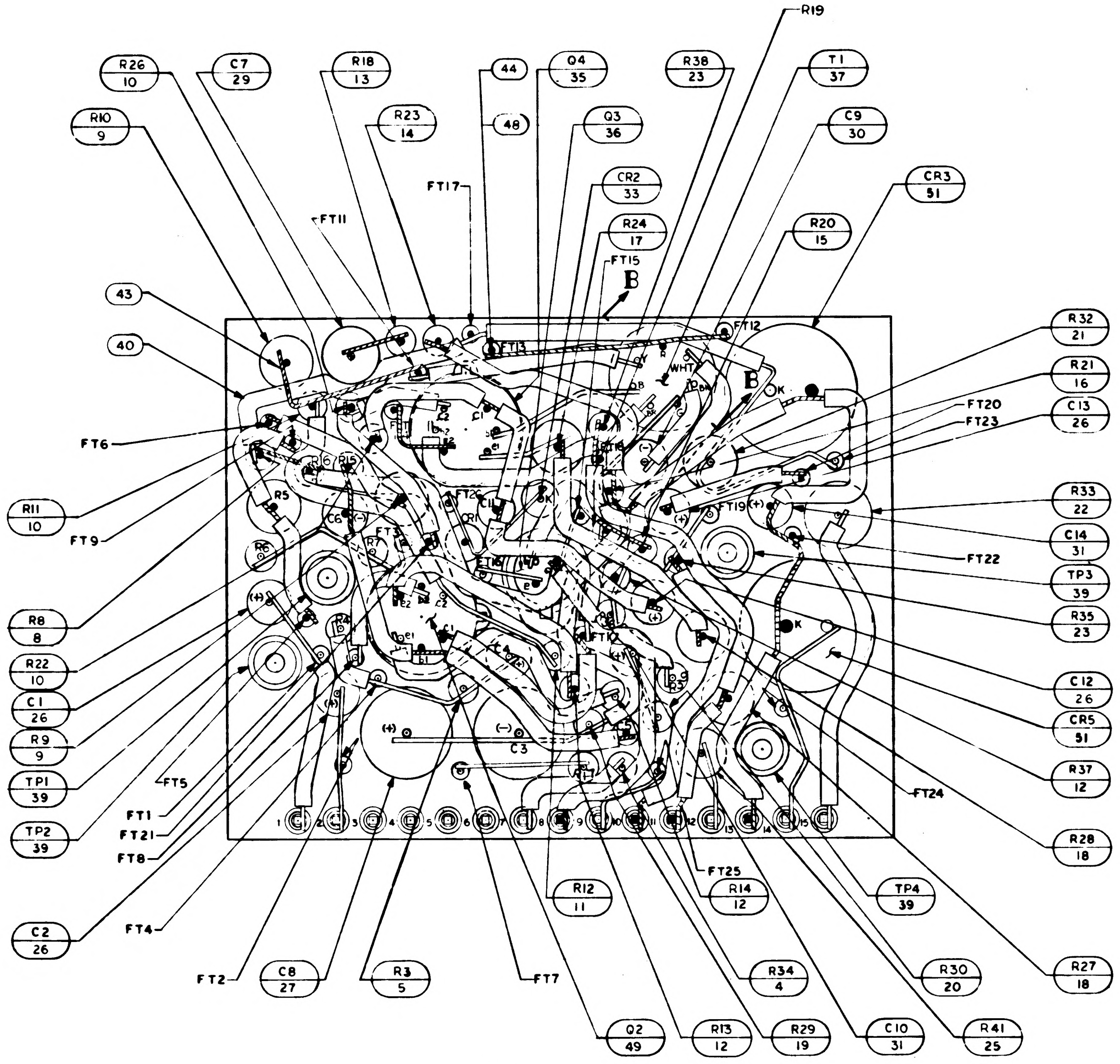
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO 1007517
SCALE 5/1
WT
SHEET 1 OF 1

1007517 H

(2H)

2/1007517

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO


R26 10
C7 29
R18 13
44
Q4 35
R38 23
T1 37
R19
R10 9
R23 14
48
Q3 36
C9 30
FT17
CR2 33
CR3 51
FT11
R24 17
R20 15
FT15
B
43
40
FT12
E
R32 21
R21 16
C13 26
FT20
FT23
FT6
R5
R33 22
R11 10
FT9
C14 31
TP3 39
FT22
R8 8
R35 23
R22 10
C1 26
R9 9
C12 26
CR5 51
TP1 39
FT5
C3
R37 12
FT1
FT21
FT24
TP2 39
FT8
R28 18
FT25
R12 11
R14 12
TP4 39
C2 26
FT4
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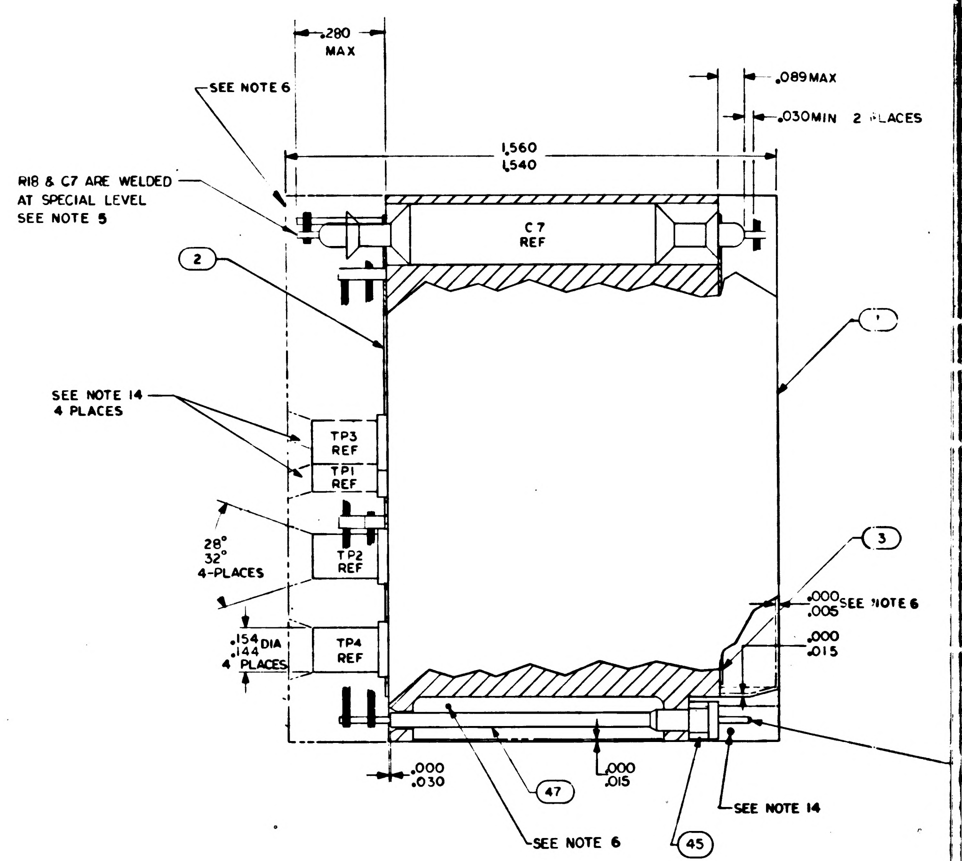
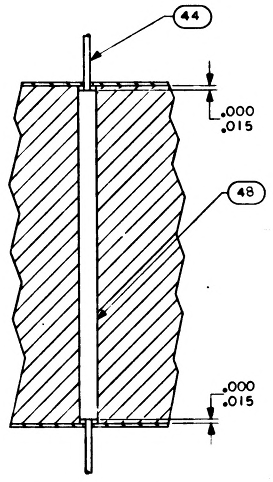
R13 12
R29 19
C10 31
R41 25


.280 MAX
SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
1.560
1.540
R18 & C7 ARE WELDED AT SPECIAL LEVEL SEE NOTE 5
C7 REF
2
1
SEE NOTE 14 4 PLACES
TP3 REF
TP1 REF
28°
32°
4-PLACES
TP2 REF
3
.000 .005 SEE NOTE 6
.000 .015
.154 .144 DIA 4 PLACES
TP4 REF
.000 .030
47
.000 .015
SEE NOTE 14
SEE NOTE 6
45

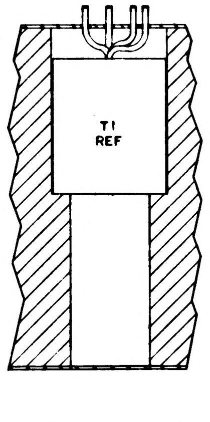
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ◐ DENOTES SPECIAL LEVEL
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM)
   UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSIONS BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. STAKE FIND NO. 4 THRU FIND NO. 37, FIND NO. 39, FIND NO. 41, FIND NO. 42 AND FIND NO. 46 PER ND 1002009, METHOD H.
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.060 PER ND 1002009 (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023, CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATING SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR,
   C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR
   B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR
   E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR
10. MUST MEET REQUIREMENTS OF ND 1002136
11. PROCURE PER PS 1007017
12. ~~BOND FIND NO. 50 TO FIND NO. 45 PER ND1002237.~~

13. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK & 2 COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
16. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR THE HELICOIL MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002110 TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.


44
.000 .015
48
.000 .015

SECTION A-A



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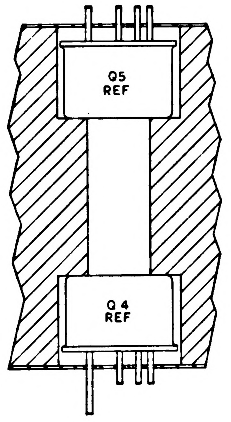
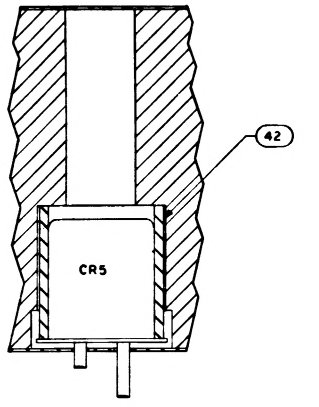
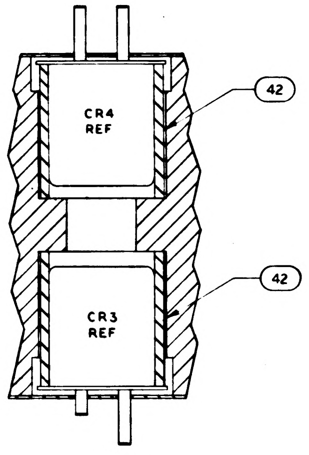

Q5 REF
Q4 REF

SECTION C-C
2-PLACES
TYP INSTALLATION
FOR FIND NO. 35



SECTION D-D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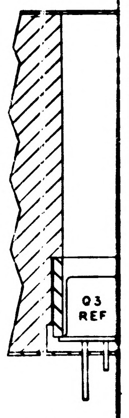
42
CR3 REF
42

SECTION E-E



SECTION F

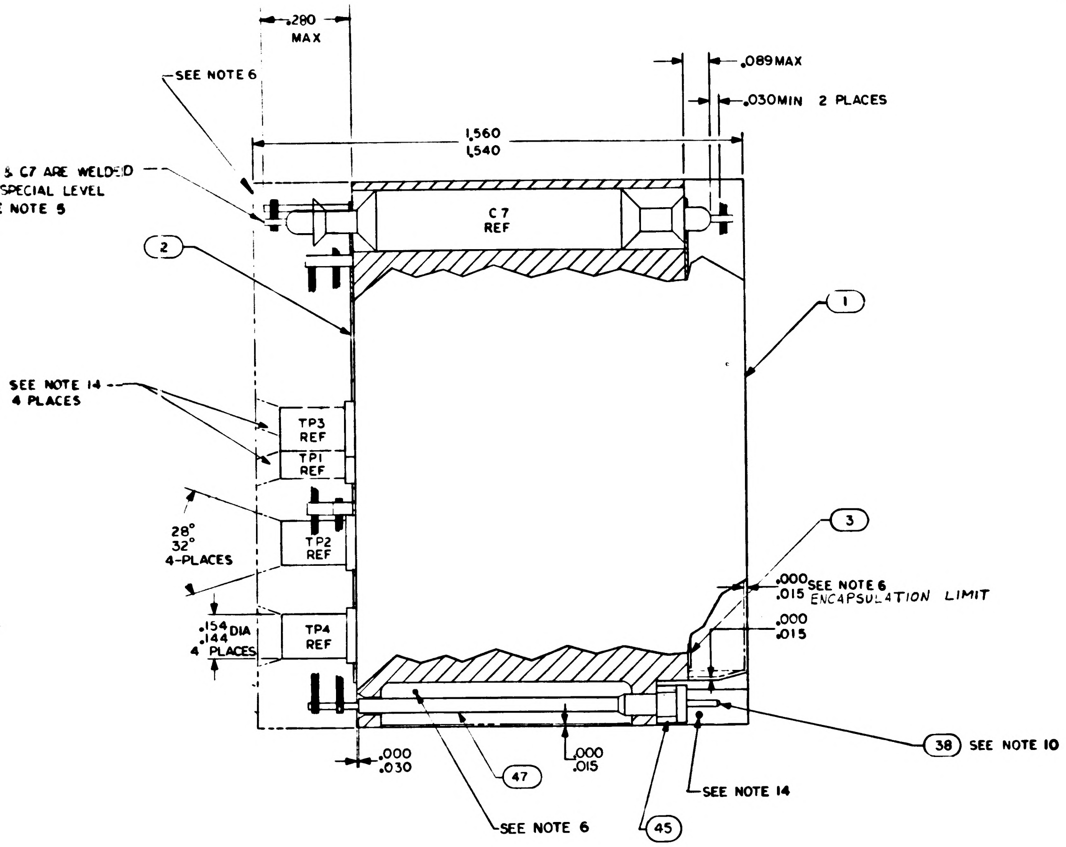
TABLE I

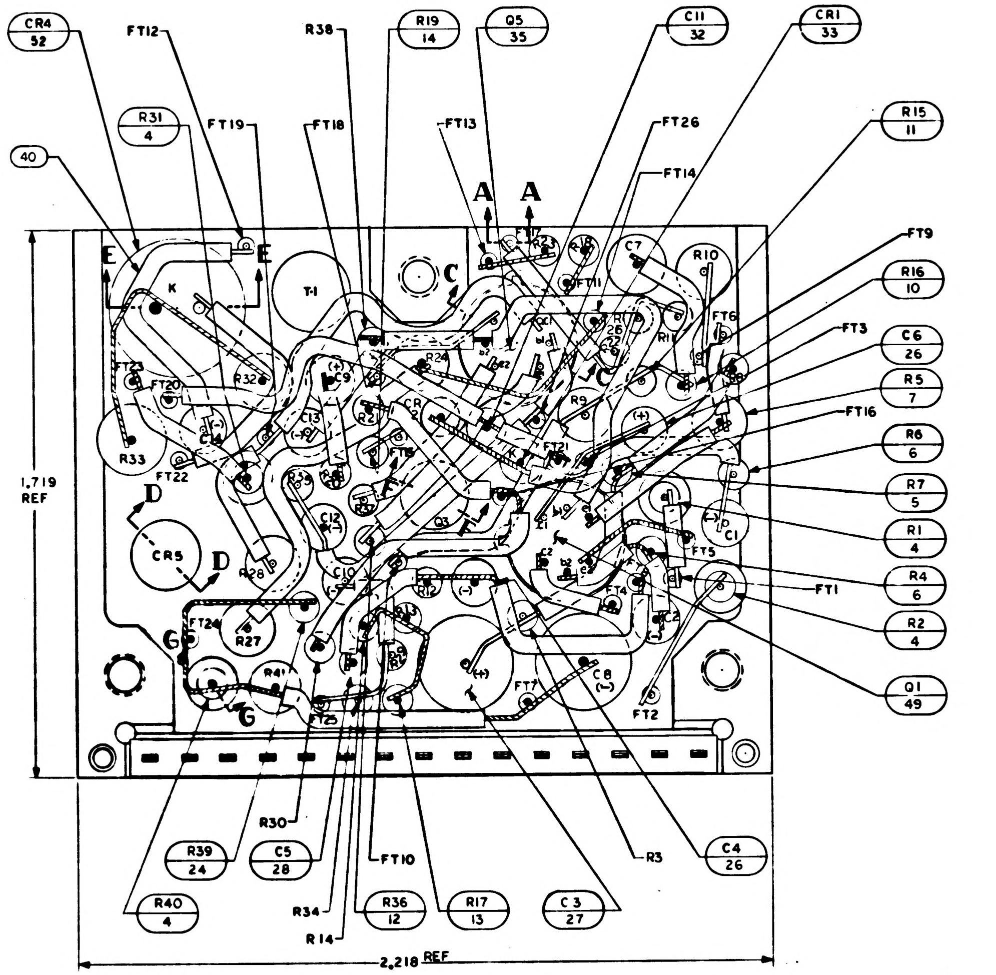
~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK.~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEATSINK SURFACE.~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER.~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE.~~

1007517

SYM	REVISIONS DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 1497	12	
B	REVISED PER TDRR 4605		
C	REVISED PER TDRR 6832	4 MAR 65	
D	REVISED PER TDRR 7326	2 MAR 65	RS
E	REVISED PER TDRR 19402	2 JUN 65	WP
F	REVISED PER TDRR 19433	3 JUN 65	WP
G	REVISED PER TDRR 9500		
H	REVISED PER TDRR 20143	9 65	
J	REVISED PER TDRR 22939	12 OCT 65	RGB

TP	COMPONENT
1	R1
2	R2
3	R31
4	R40


.280 MAX
SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
1.560
1.540
& C7 ARE WELDED
SPECIAL LEVEL
NOTE 5
C7 REF
2
1
SEE NOTE 14
4 PLACES
TP3 REF
TP1 REF
28°
32°
4-PLACES
TP2 REF
.154
.144 DIA
4 PLACES
TP4 REF
3
.000
.015 SEE NOTE 6
ENCAPSULATION LIMIT
.000
.015
38 SEE NOTE 10
.000
.030
47
.000
.015
SEE NOTE 14
SEE NOTE 6
45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FT12
R38
R19 14
Q5 35
C11 32
CR1 33
R31 4
FT19
FT18
FT13
FT26
R15 11
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A
A
FT14
FT9
R16 10
E
E
T-1
C
C7
R10
FT6
FT3
C6 26
R5 7
FT16
R6 6
R7 5
R1 4
R4 6
R2 4
Q1 49
FT1
FT5
1.719 REF
CR5
D
D
R33
FT22
FT20
FT23
R32
R28
R27
FT24
G
G
R41
FT25
C8
FT7
FT2
R30
R39 24
C5 28
FT10
R3
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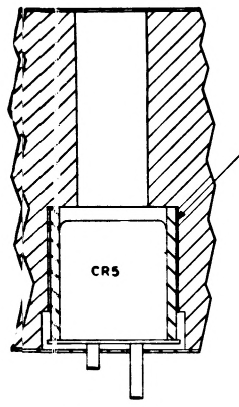
R17 13
C3 27
2.218 REF



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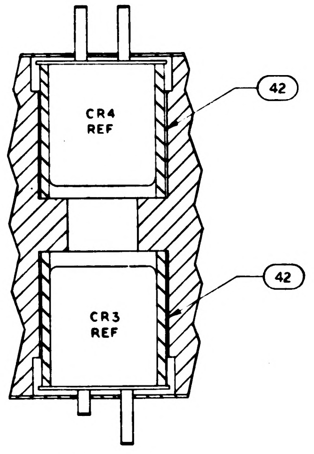
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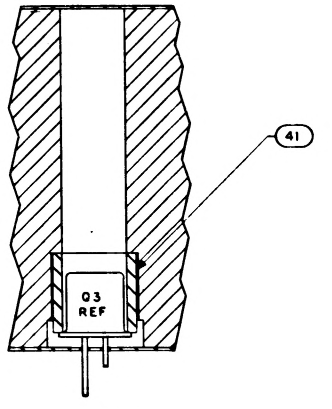
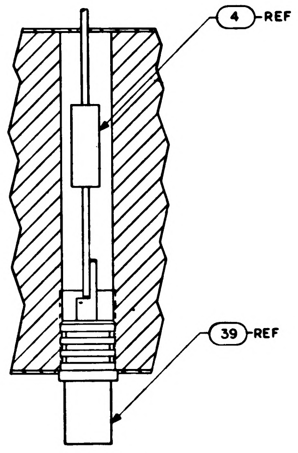
42
CR3 REF
42

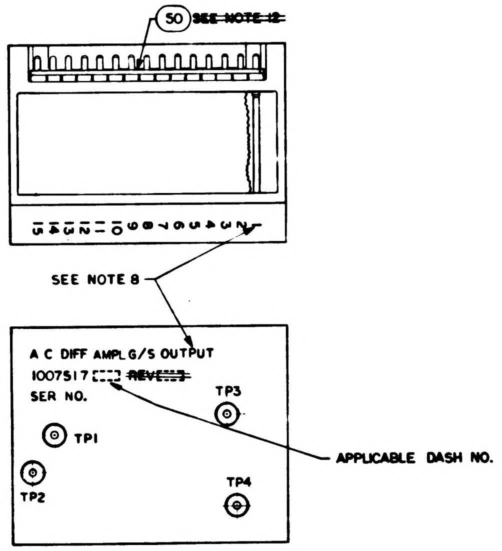
SECTION E-E



SECTION F-F



SECTION G-G
4-PLACES
TYP INSTALLATION
FOR FIND NO.39 & FIND NO.4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15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 8
A C DIFF AMPL G/S OUTPUT
1007517 ~~REV~~
SER NO.
TP3
TP1
TP2
TP4
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			1		1010831-002	ZENER DIODE	52
			2		1010831-001	ZENER DIODE	51
			1		1008540-15	GASKET, CONNECTOR MINIATURE	50
			2		1010376-2	TRANSISTOR	49
			X		1010032	SCHEMATIC	REF
			AR		1006776-22	INSULATION SLEEVING	48
			AR		1006776-20	INSULATION SLEEVING	47
			~~1~~		~~1010290-2~~	~~DIODE~~	~~46~~
			15		1006775	INSULATOR, WRAPOST MALE MINAT	45
			AR		1006757-8	WIRE ELEC .020 DIA	44
			AR		1006757-1	WIRE ELEC .010 X .020	43
			3		1008025-3	INSULATOR BUSHING	42
			1		1008025-1	INSULATOR BUSHING	41
			AR		1006776-21	INSULATION SLEEVING	40
			4		1010292-2	TEST POINT	39
			15		1006782-4	CONTACT, WRAPOST MALE MINAT	38
			1		1010335	TRANSFORMER	37
			1		1010357-1	TRANSISTOR	36
			2		1010376-1	TRANSISTOR	35
			~~2~~		~~1010290-1~~	~~DIODE~~	~~34~~
			2		1010385	DIODE	33
			1		1006777-27	CAPACITOR	32
			2		1006755-69	CAPACITOR	31
			1		1006775-57	CAPACITOR	30
			1		1010264-13	CAPACITOR	29
			1		1006777-16	CAPACITOR	28
			2		1006755-83	CAPACITOR	27
			6		1006755-65	CAPACITOR	26
			1		1006760-27	RESISTOR, FIXED	25
			1		1006750-40	RESISTOR, FIXED	24
			2		1010369-96	RESISTOR, FIXED, COMP., INS	23
			1		1010312-16	RESISTOR	22
			1		1010312-14	RESISTOR, FIXED	21
			1		1006750-32	RESISTOR, FIXED	20
			1		1006750-73	RESISTOR, FIXED	19
			2		1010377-51	RESISTOR, FIXED	18
			1		1010377-108	RESISTOR, FIXED	17
			1		1006750-49	RESISTOR, FIXED	16
			1		1006750-60	RESISTOR, FIXED	15
			2		1010369-92	RESISTOR, FIXED COMP., INS.	14
			2		1006750-50	RESISTOR, FIXED	13
			4		1006750-8	RESISTOR, FIXED	12
			2		1010369-90	RESISTOR, FIXED, COMP., INS.	11
			4		1006750-66	RESISTOR, FIXED	10
			2		1010377-109	RESISTOR, FIXED	9
			1		1006750-70	RESISTOR, FIXED	8
			1		1010377-107	RESISTOR, FIXED	7
			2		1010369-97	RESISTOR, FIXED, COMP., INS.	6
			2		1006750-67	RESISTOR, FIXED	5
			5		1006750-56	RESISTOR, FIXED	4
			1		1008029-2	INSULATOR, BOTTOM	3
			1		1008029-1	INSULATOR, TOP	2
			1		1008035	HEATSINK	1

LIST OF MATERIALS

J
1007517

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —//— DECIMALS .XX ±.02 .XXX .005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN Jansen DATE 11 Aug 64
CHECKED 4 SEP 64
APPROVAL
APPROVAL 11/19/64
NASA APPROVAL 10-20-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AC DIFFERENTIAL AMPLIFIER G/S OUTPUT ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007517
SCALE 5/1
WT
SHEET 1 OF 1

2H

1007517 J SH. NO. 1

2-1007517

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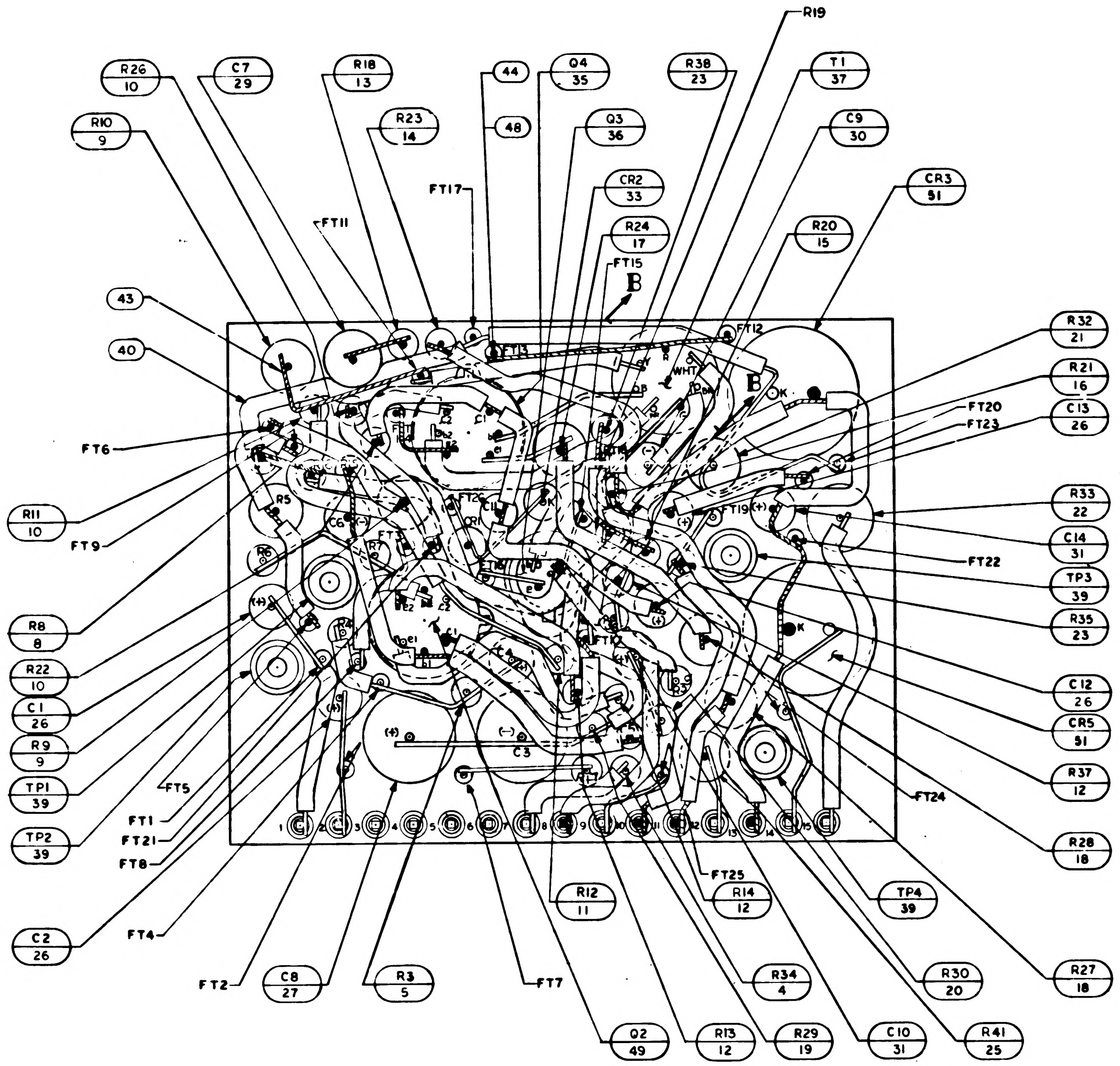
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R26 10
C7 29
R18 13
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Q4 35
R38 23
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R10 9
R23 14
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Q3 36
C9 30
CR2 33
CR3 51
FT17
FT11
R24 17
R20 15
FT15
B
43
40
FT12
WHT
K
R32 21
R21 16
C13 26
FT20
FT23
FT6
R11 10
FT9
R33 22
C14 31
FT22
TP3 39
R35 23
R8 8
R22 10
C1 26
R9 9
TP1 39
TP2 39
C12 26
CR5 51
R37 12
FT5
FT1
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FT24
C3
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C2 26
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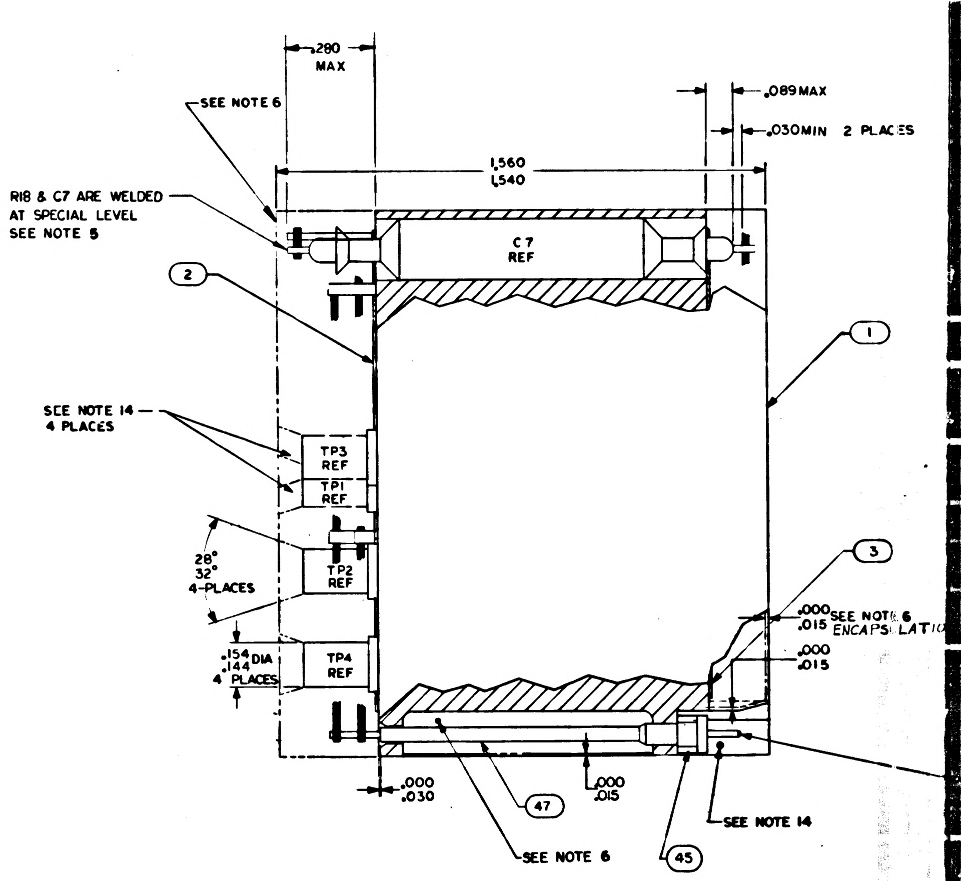
R41 25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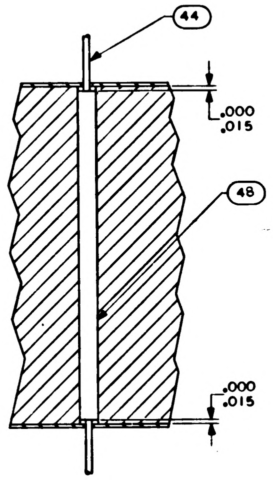
SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
1.560
1.540
R18 & C7 ARE WELDED AT SPECIAL LEVEL SEE NOTE 5
C7 REF
2
1
SEE NOTE 14 4 PLACES
TP3 REF
TP1 REF
28°
32°
4-PLACES
TP2 REF
.154
.144 DIA
4 PLACES
TP4 REF
3
.000
.015 SEE NOTE 6 ENCAPSULATI
.000
.015
.000
.030
47
.000
.015
SEE NOTE 6
45
SEE NOTE 14

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ◐ DENOTES SPECIAL LEVEL
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSIONS BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. STAKE FIND NO. 4 THRU FIND NO. 37, FIND NO. 39, FIND NO. 41, FIND NO. 42 AND FIND NO. 46 PER ND 1002009, METHOD ~~H.~~ J.
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.060 PER ND 1002009 (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023, CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
    - BROKEN PATHS INDICATE INSULATING SLEEVING,
    - K INDICATES CATHODE SIDE OF DIODE,
    - FT ( ) INDICATES FEED THRU
    - PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
    - C INDICATES COLLECTOR LEAD OF TRANSISTOR,
    - B INDICATES BASE LEAD OF TRANSISTOR,
    - E INDICATES EMITTER LEAD OF TRANSISTOR,
    - C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR
    - B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR
    - E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR
10. MUST MEET REQUIREMENTS OF ND 1002136
11. PROCURE PER PS 1007017
12. ~~BOND FIND NO. 50 TO FIND NO. 45 PER ND1002237.~~
13. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
16. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, ~~TYPE II, AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.~~ USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.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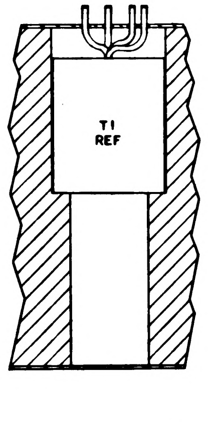
.000
.015
48
.000
.015

SECTION A-A



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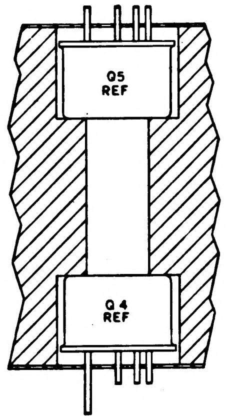
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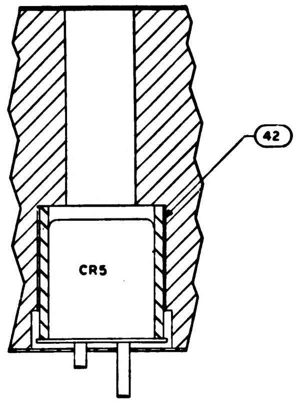
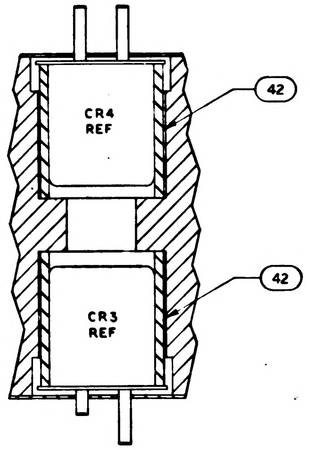
Q4 REF

SECTION C-C
2-PLACES
TYP INSTALLATION
FOR FIND NO. 35



SECTION D-D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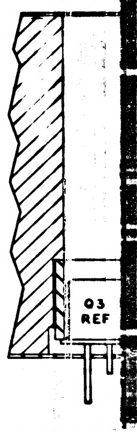
CR4 REF
42
CR3 REF

SECTION E-E



SECTION

TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK.	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE.	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER.	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE

1007517 J SH. NO. 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR [illegible]	12 [illegible]	[illegible]
B	REVISED PER TDRR [illegible]	[illegible]	[illegible]
C	REVISED PER TDRR 6832	4 MAR 65	EF
D	REVISED PER TDRR 7326	2 MAR 65	RS EF
E	REVISED PER TDRR 19402	2 JUN 65	WP
F	REVISED PER TDRR 19433	3 JUN 65	WP
G	REVISED PER TDRR 9500	8 JUN 65	EF
H	REVISED PER TDRR 20143	9 JUN 65	DKD T.M.
J	REVISED PER TDRR 22939	12 OCT 65	RGB
K	REVISED PER TDRR 23888	[illegible] 65	[illegible]

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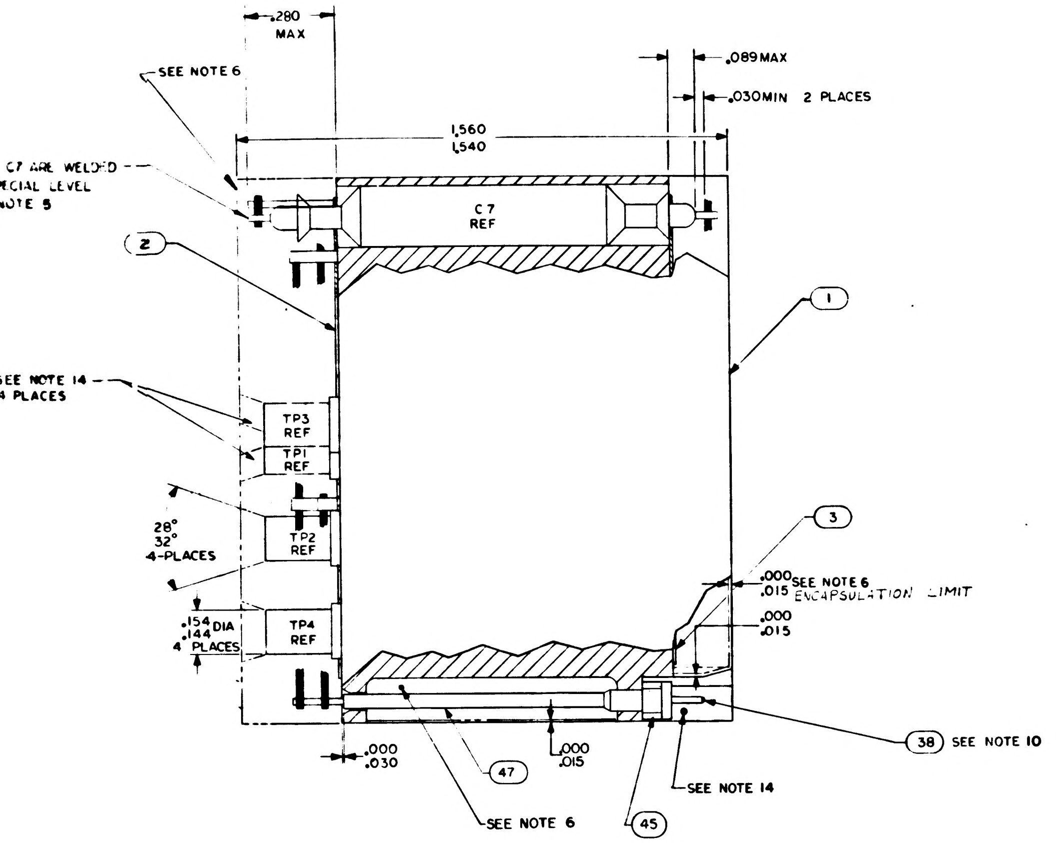
2	R2
3	R31
4	R40



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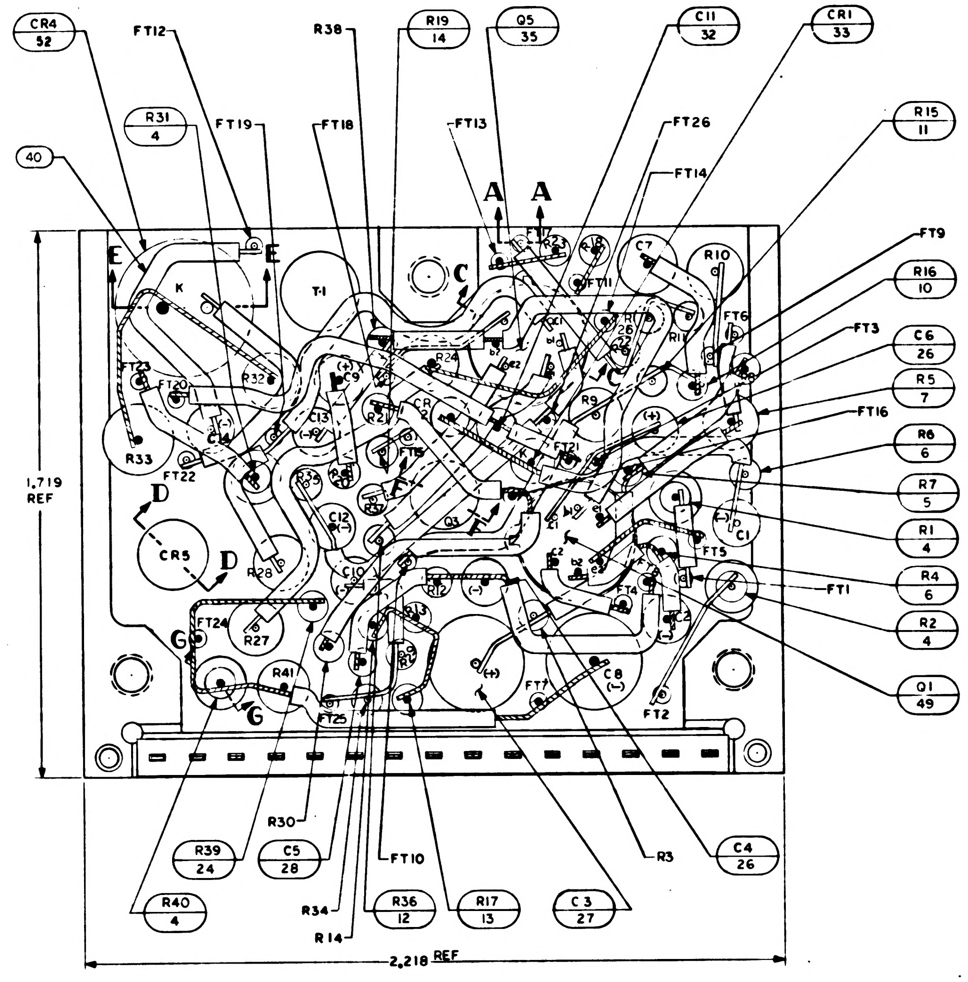
SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
1,560
1,540
C7 ARE WELDED
ECIAL LEVEL
OTE 5
C7 REF
2
1
SEE NOTE 14
4 PLACES
TP3 REF
TP1 REF
28°
32°
4-PLACES
TP2 REF
.154
.144 DIA
4 PLACES
TP4 REF
3
.000
.015 SEE NOTE 6
ENCAPSULATION LIMIT
.000
.015
38 SEE NOTE 10
.000
.030
47
.000
.015
SEE NOTE 14
SEE NOTE 6
45



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CR1 33
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FT18
FT13
FT26
FT14
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R15 11
A
A
FT9
R16 10
FT6
FT3
C6 26
R5 7
FT16
R6 6
R7 5
R1 4
R4 6
R2 4
Q1 49
FT1
E
E
C
K
T-1
R10
C7
R11
R24
R32
R9
FT23
FT20
FT21
R33
FT22
D
D
CR5
R28
C12
C13
Q3
FT24
G
G
R27
R41
FT25
FT7
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FT5
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FT2
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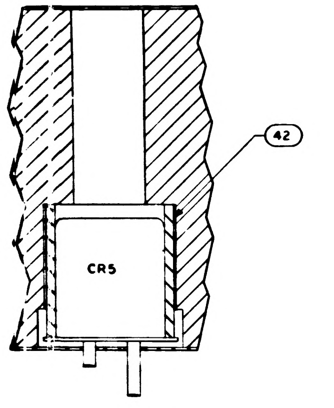
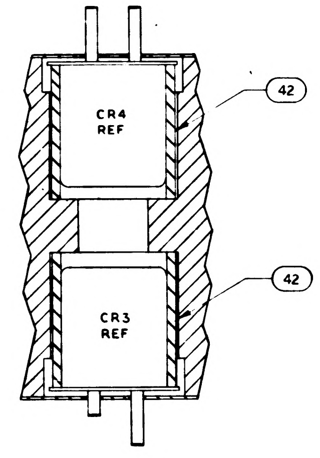
R3
C4 26
2,218 REF



SECTION D-D



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CR3 REF
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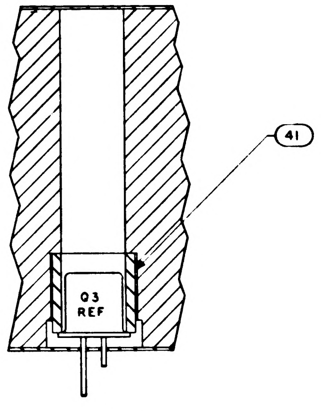
SECTION E-E



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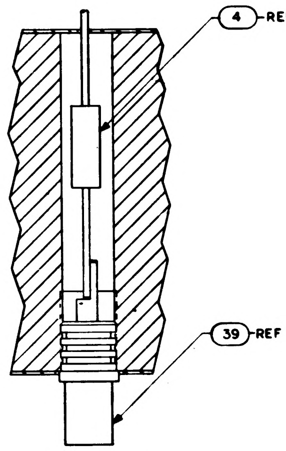

SECTION G-G
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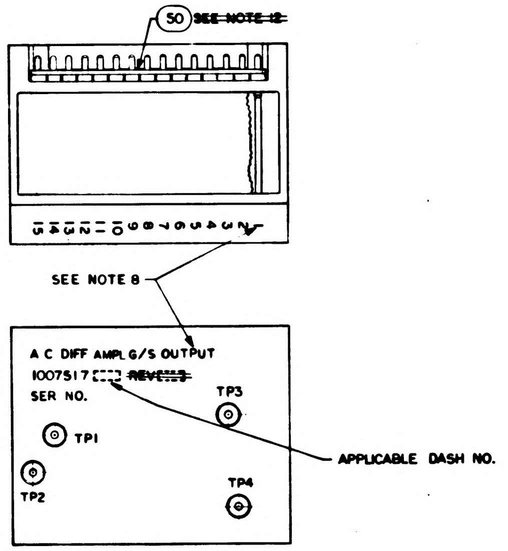
FOR FIND NO. 39 & FIND NO. 4



50 ~~SEE NOTE 12~~
15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
SEE NOTE 8
A C DIFF AMPL G/S OUTPUT
1007517 ~~REV~~
SER NO.
TP3
TP1
TP2
TP4
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

QUANTITY REQUIRED							
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			AR		1010848-2	WIRE, ELECTRICAL - NICKEL	53
			1		1010831-002	ZENER DIODE	52
			2		1010831-001	ZENER DIODE	51
			1		1008540-15	GASKET, CONNECTOR MINIATURE	50
			2		1010376-2	TRANSISTOR	49
			X		1010032	SCHEMATIC	REF
			~~AR~~		~~1006776-22~~	~~INSULATION SLEEVING~~	~~48~~
			AR		1006776-20	INSULATION SLEEVING	47
			~~1~~		~~1010290-2~~	~~DIODE~~	~~46~~
			15		1006775	INSULATOR, WRAPOST MALE MINAT	45
			~~AR~~		~~1006757-8~~	~~WIRE ELEC .020 DIA~~	~~44~~
			AR		1006757-1	WIRE ELEC .010 X .020	43
			3		1008025-3	INSULATOR BUSHING	42
			1		1008025-1	INSULATOR BUSHING	41
			AR		1006776-21	INSULATION SLEEVING	40
			4		1010292-2	TEST POINT	39
			15		1006782-4	CONTACT, WRAPOST MALE MINAT	38
			1		1010335	TRANSFORMER	37
			1		1010357-1	TRANSISTOR	36
			2		1010376-1	TRANSISTOR	35
			~~2~~		~~1010290-1~~	~~DIODE~~	~~34~~
			2		1010385	DIODE	33
			1		1006777-27	CAPACITOR	32
			2		1006755-69	CAPACITOR	31
			1		1006775-57	CAPACITOR	30
			1		1010264-13	CAPACITOR	29
			1		1006777-16	CAPACITOR	28
			2		1006755-83	CAPACITOR	27
			6		1006755-65	CAPACITOR	26
			1		1006760-27	RESISTOR, FIXED	25
			1		1006750-40	RESISTOR, FIXED	24
			2		1010369-96	RESISTOR, FIXED, COMP., INS	23
			1		1010312-16	RESISTOR	22
			1		1010312-14	RESISTOR, FIXED	21
			1		1006750-32	RESISTOR, FIXED	20
			1		1006750-73	RESISTOR, FIXED	19
			2		1010377-51	RESISTOR, FIXED	18
			1		1010377-108	RESISTOR, FIXED	17
			1		1006750-49	RESISTOR, FIXED	16
			1		1006750-60	RESISTOR, FIXED	15
			2		1010369-92	RESISTOR, FIXED COMP., INS.	14
			2		1006750-50	RESISTOR, FIXED	13
			4		1006750-8	RESISTOR, FIXED	12
			2		1010369-90	RESISTOR, FIXED, COMP., INS.	11
			4		1006750-66	RESISTOR, FIXED	10
			2		1010377-109	RESISTOR, FIXED	9
			1		1006750-70	RESISTOR, FIXED	8
			1		1010377-107	RESISTOR, FIXED	7
			2		1010369-97	RESISTOR, FIXED, COMP., INS.	6
			2		1006750-67	RESISTOR, FIXED	5
			5		1006750-56	RESISTOR, FIXED	4
			1		1008029-2	INSULATOR, BOTTOM	3
			1		1008029-1	INSULATOR, TOP	2
			1		1008035	HEATSINK	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —//— DECIMALS .XX ±.02 .XXX .005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN [illegible] DATE 17 Aug 64
CHECKED [illegible] 4 SEP 64
APPROVAL [illegible]
APPROVAL [illegible] 10/19/64
NASA APPROVAL [illegible] 10-20-64
MIT APPROVAL [illegible] 10/20/64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AC DIFFERENTIAL AMPLIFIER G/S OUTPUT ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007517
SCALE 5/1
WT
SHEET 1 OF 1

2H

2/1007517

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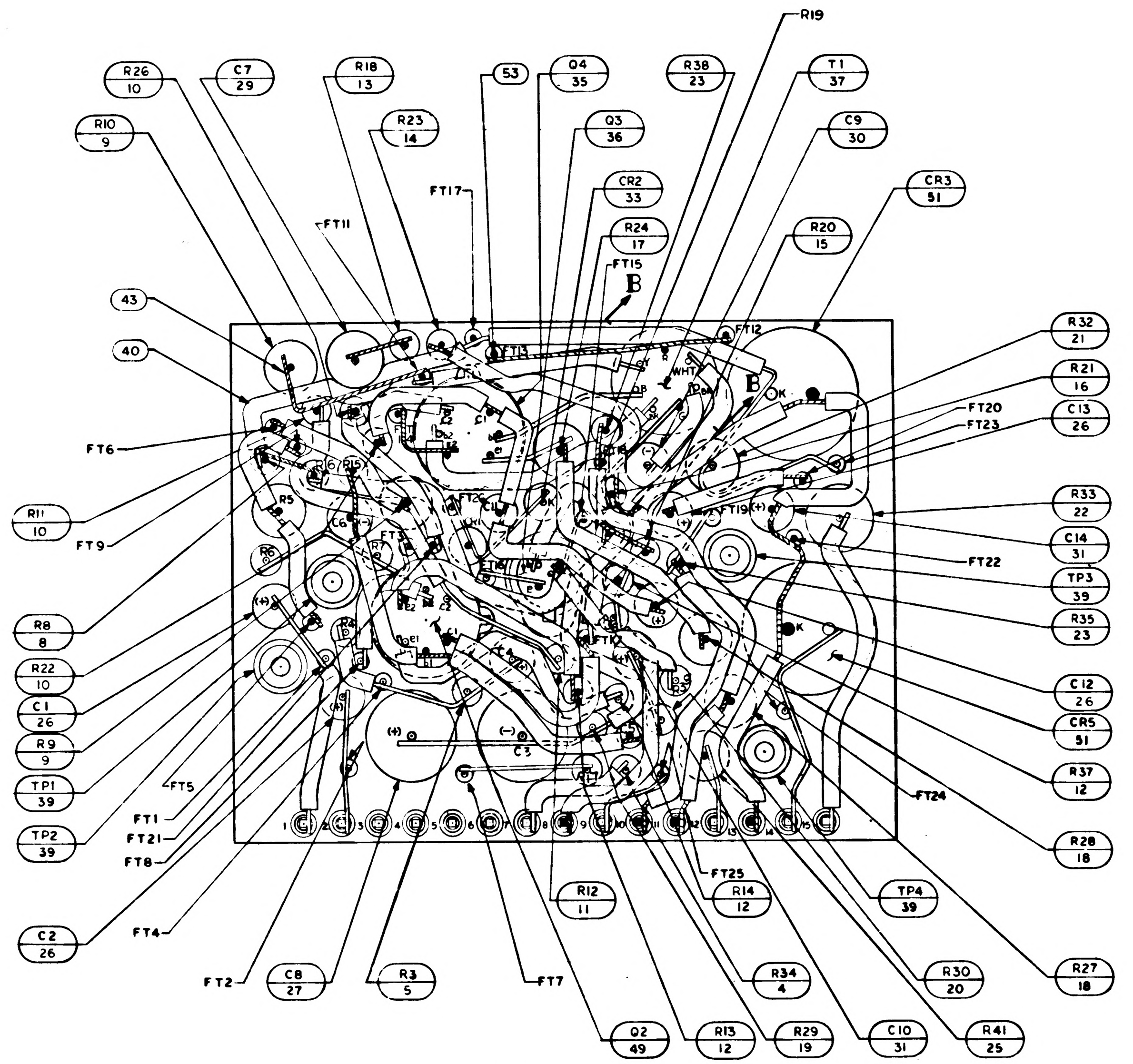
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C7 29
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Q4 35
R38 23
T1 37
R10 9
R23 14
Q3 36
C9 30
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CR2 33
CR3 51
FT11
R24 17
R20 15
FT15
B
43
40
FT12
B
R32 21
R21 16
FT20
FT23
C13 26
FT6
R11 10
FT9
R33 22
C14 31
FT22
TP3 39
R35 23
R8 8
R22 10
C1 26
R9 9
TP1 39
TP2 39
C12 26
CR5 51
R37 12
FT5
FT1
FT21
FT8
FT24
R28 18
FT25
R12 11
R14 12
TP4 39
C2 26
FT4
R34 4
R30 20
R27 18
FT2
C8 27
R3 5
FT7
Q2 49
R13 12
R29 19
C10 31
R41 25
K
WHT
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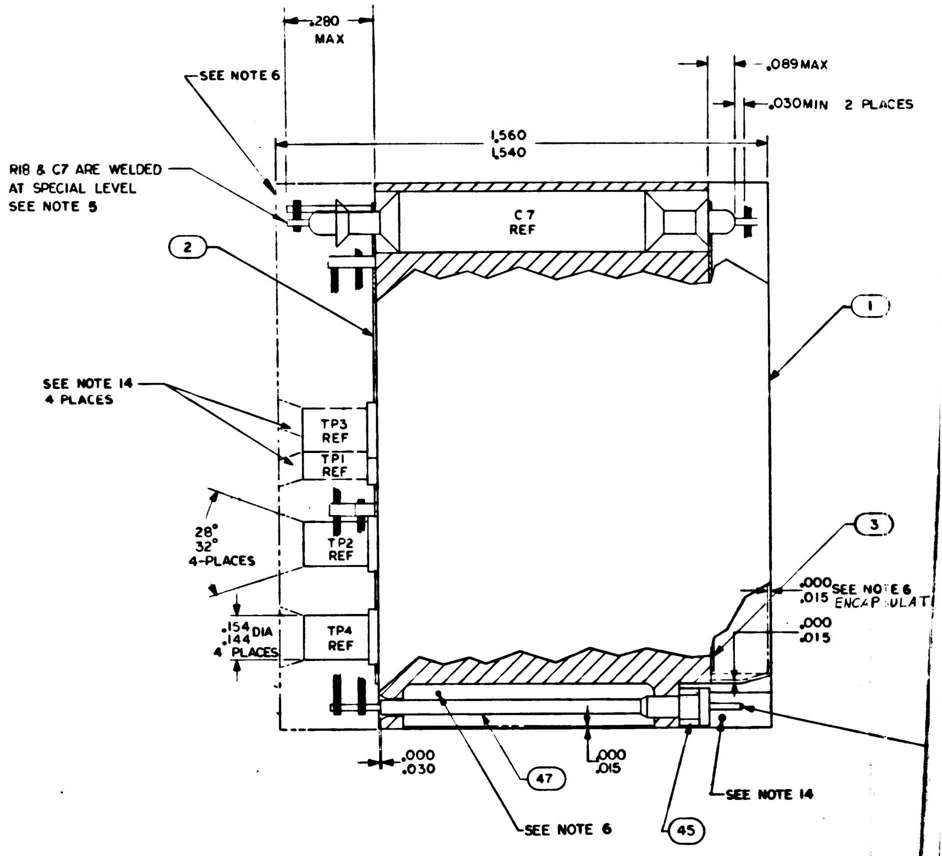
C3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.089MAX
.030MIN 2 PLACES
SEE NOTE 6
1.560
1.540
R18 & C7 ARE WELDED AT SPECIAL LEVEL SEE NOTE 5
C7 REF
2
1
SEE NOTE 14 4 PLACES
TP3 REF
TP1 REF
3
28°
32°
4-PLACES
TP2 REF
.000
.015
SEE NOTE 6 ENCAPSULAT
.154
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DIA 4 PLACES
TP4 REF
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.015
.000
.030
.000
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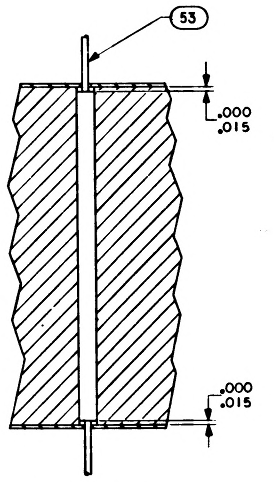
SEE NOTE 6
45
SEE NOTE 14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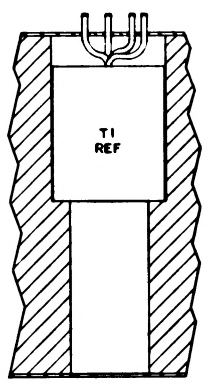
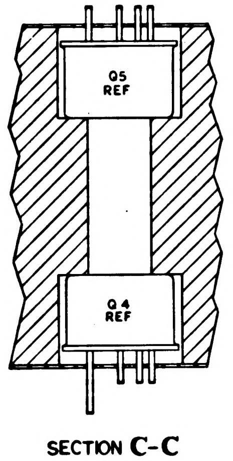
SECTION A-A



SECTION B-B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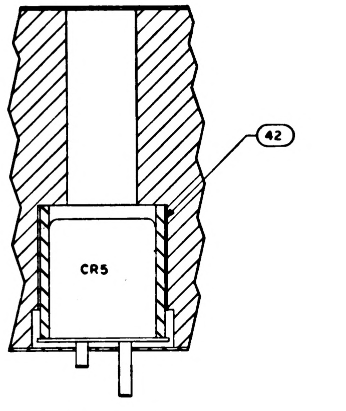
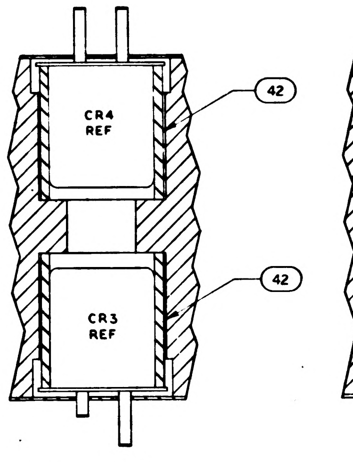
Q4 REF

SECTION C-C
2-PLACES
TYP INSTALLATION
FOR FIND NO. 35



SECTION D-D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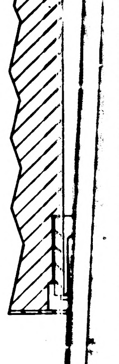
SECTION E-E



SEC

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ◒ DENOTES SPECIAL LEVEL
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM)
   UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSIONS BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. STAKE FIND NO. 4 THRU FIND NO. 37, FIND NO. 39, FIND NO. 41, FIND NO. 42 AND FIND NO. 46 PER ND 1002009, METHOD ~~H~~ J.
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.060 PER ND 1002009 (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023, CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATING SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR,
   C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR
   B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR
   E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR
10. MUST MEET REQUIREMENTS OF ND 1002136
11. PROCURE PER PS 1007017
12. ~~BOND FIND NO. 50 TO FIND NO. 45 PER ND1002237.~~

13. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
16. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, ~~TYPE I AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT~~, USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.

TABLE I

~~CONFIGURATION~~	~~BOND BETWEEN WAFER AND HEATSINK~~	~~TOP OF WAFER~~	~~HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE~~
~~WAFER AND FLAT HEATSINK.~~	~~100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~WAFER AND ADJACENT VERTICAL HEATSINK SURFACE.~~	~~CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE~~	~~100% OF AREA .25 FROM EXTERNAL MODULE SURFACE~~	~~N/A~~
~~HEATSINK FOAM CONTACT SURFACE PERIMETER.~~	~~N/A~~	~~N/A~~	~~.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE.~~

1007517 K

17/1007517

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 14???	12/[illegible]	[illegible]
B	REVISED PER TDRR ??05	[illegible]	[illegible]
C	REVISED PER TDRR 16832	4 MAR 65	JJJ EF
D	REVISED PER TDRR 17326	12 MAR 65	RS EF
E	REVISED PER TDRR 19402	JUN 65	JWP EF
F	REVISED PER TDRR 19433	3 JUN 65	JWP
G	REVISED PER TDRR 19500	8 JUN 65	EF
H	REVISED PER TDRR 20143	9 JUN 65	DRD
J	REVISED PER TDRR 22939	12 OCT 65	RGB
K	REVISED PER TDRR 23888	NOV 65	[illegible]
L	REVISED PER TDRR 26397	25 FEB 66	RP

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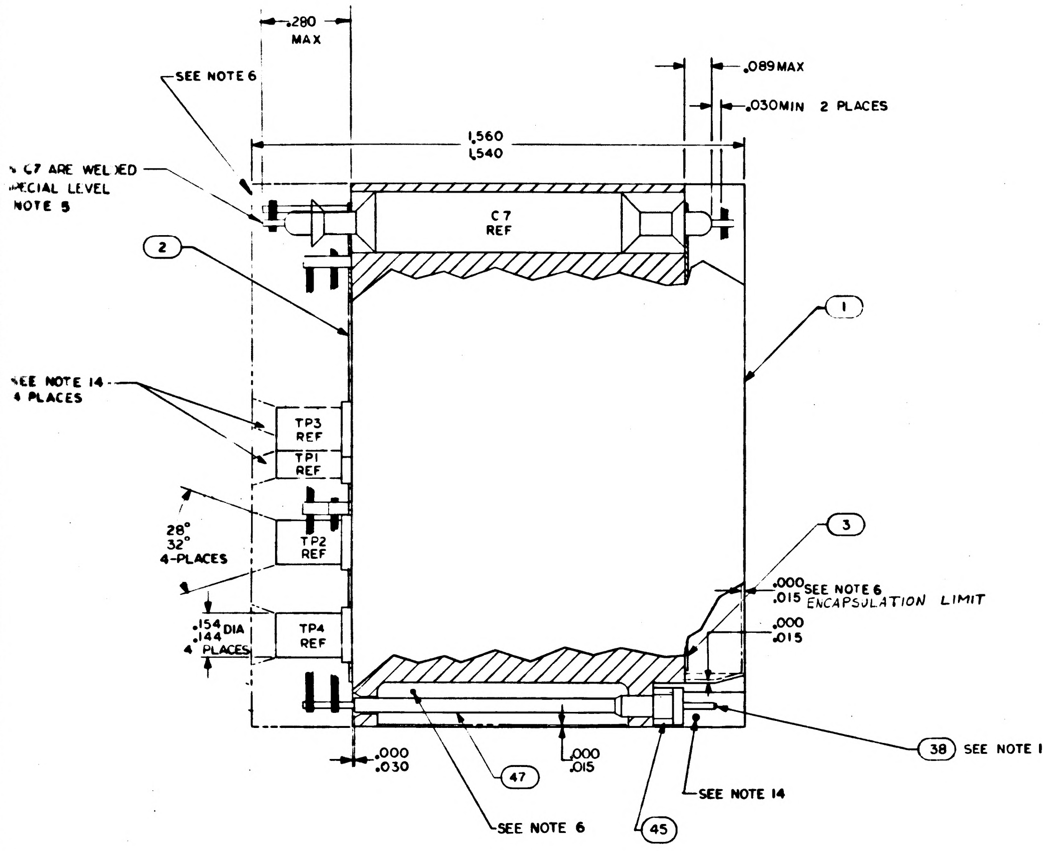
2	R2
3	R31
4	R40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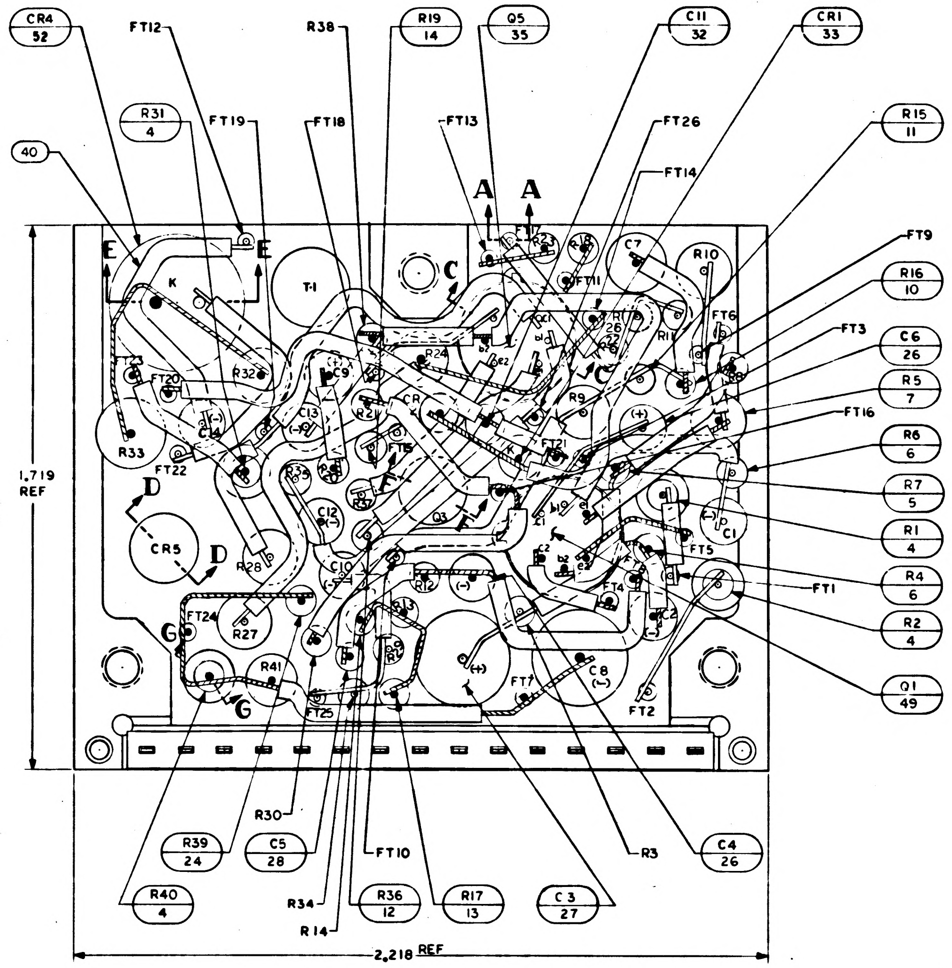
SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
1.560
1.540
C7 ARE WELDED
SPECIAL LEVEL
NOTE 5
C7 REF
2
1
SEE NOTE 14 4 PLACES
TP3 REF
TP1 REF
TP2 REF
TP4 REF
28°
32°
4-PLACES
.154 DIA
.144
4 PLACES
3
.000
.015 SEE NOTE 6 ENCAPSULATION LIMIT
.000
.015
.000
.030
.000
.015
47
38 SEE NOTE 10
SEE NOTE 14
SEE NOTE 6
45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R19 14
Q5 35
C11 32
CR1 33
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FT18
FT13
FT26
FT14
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A
A
E
E
FT9
R16 10
FT3
C6 26
R5 7
FT16
R6 6
R7 5
R1 4
R4 6
FT1
R2 4
Q1 49
1.719 REF
D
D
CR5
G
G
C
T-1
R33
FT20
FT22
FT24
R27
R41
FT25
FT7
FT2
FT5
C8
R39 24
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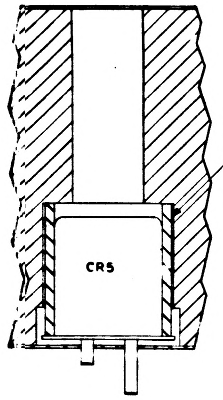
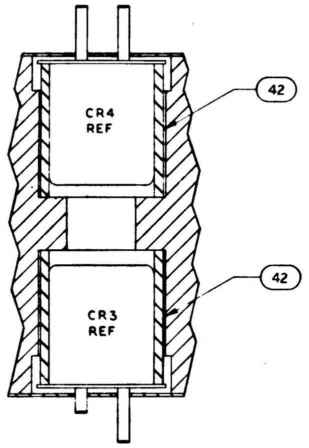
C3 27
2.218 REF



SECTION D-D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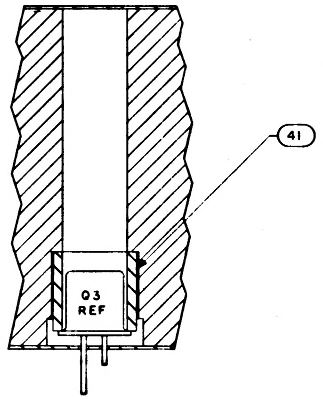
CR3 REF

SECTION E-E



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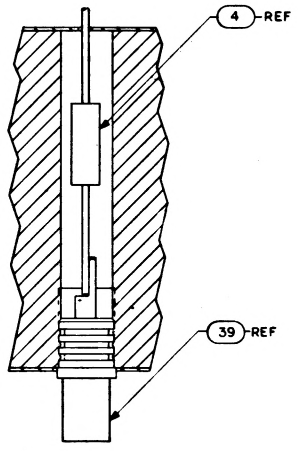
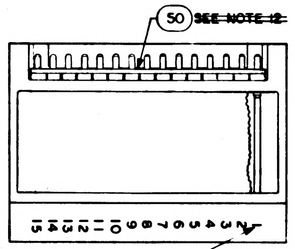


SECTION G-G
4-PLACES
TYP INSTALLATION
FOR FIND NO. 39 & FIND NO. 4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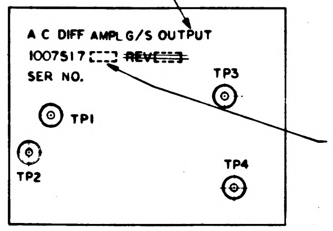
SEE NOTE 8


A C DIFF AMPL G/S OUTPUT
1007517 - ~~REV~~
SER NO.
TP1
TP2
TP3
TP4
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

		AR	—		SEE NOTE 19	MOISTUREPROOFING	54
		AR	AR		1010848-2	WIRE, ELECTRICAL - NICKEL	53
		1	1		1010831-002	ZENER DIODE	52
		2	2		1010831-001	ZENER DIODE	51
		1	1		1008540-15	GASKET, CONNECTOR MINIATURE	50
		2	2		1010376-2	TRANSISTOR	49
		X	X		1010032	SCHEMATIC	REF
			~~AR~~		~~1006776-22~~	~~INSULATION SLEEVING~~	48
		AR	AR		1006776-20	INSULATION SLEEVING	47
			~~1~~		~~1010290-2~~	~~DIODE~~	46
		15	15		1006775	INSULATOR, WRAPOST MALE MINAT	45
			~~AR~~		~~1006757-8~~	~~WIRE ELEC .020 DIA~~	44
		AR	AR		1006757-1	WIRE ELEC .010 X .020	43
		3	3		1008025-3	INSULATOR BUSHING	42
		1	1		1008025-1	INSULATOR BUSHING	41
		AR	AR		1006776-21	INSULATION SLEEVING	40
		4	4		1010292-2	TEST POINT	39
		15	15		1006782-4	CONTACT, WRAPOST MALE MINAT	38
		1	1		1010335	TRANSFORMER	37
		1	1		1010357-1	TRANSISTOR	36
		2	2		1010376-1	TRANSISTOR	35
			~~2~~		~~1010290-1~~	~~DIODE~~	34
		2	2		1010385	DIODE	33
		1	1		1006777-27	CAPACITOR	32
		2	2		1006755-69	CAPACITOR	31
		1	1		1006775-57	CAPACITOR	30
		1	1		1010264-13	CAPACITOR	29
		1	1		1006777-16	CAPACITOR	28
		2	2		1006755-83	CAPACITOR	27
		6	6		1006755-65	CAPACITOR	26
		1	1		1006760-27	RESISTOR, FIXED	25
		1	1		1006750-40	RESISTOR, FIXED	24
		2	2		1010369-96	RESISTOR, FIXED, COMP., INS	23
		1	1		1010312-16	RESISTOR	22
		1	1		1010312-14	RESISTOR, FIXED	21
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		1	1		1006750-73	RESISTOR, FIXED	19
		2	2		1010377-51	RESISTOR, FIXED	18
		1	1		1010377-108	RESISTOR, FIXED	17
		1	1		1006750-49	RESISTOR, FIXED	16
		1	1		1006750-60	RESISTOR, FIXED	15
		2	2		1010369-92	RESISTOR, FIXED COMP., INS.	14
		2	2		1006750-50	RESISTOR, FIXED	13
		4	4		1006750-8	RESISTOR, FIXED	12
		2	2		1010369-90	RESISTOR, FIXED, COMP., INS.	11
		4	4		1006750-66	RESISTOR, FIXED	10
		2	2		1010377-109	RESISTOR, FIXED	9
		1	1		1006750-70	RESISTOR, FIXED	8
		1	1		1010377-107	RESISTOR, FIXED	7
		2	2		1010369-97	RESISTOR, FIXED, COMP., INS.	6
		2	2		1006750-67	RESISTOR, FIXED	5
		5	5		1006750-56	RESISTOR, FIXED	4
		1	1		1008029-2	INSULATOR, BOTTOM	3
		1	1		1008029-1	INSULATOR, TOP	2
		1	1		1008035	HEATSINK	1
		021	011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

1007574		
1007573		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS .XX ±.02 .XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING
MATERIAL —//—
HEAT TREATMENT —//—
FINAL FINISH —//—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN [illegible] DATE 17 Aug 64
CHECKED [illegible] 4 SEP 64
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MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AC DIFFERENTIAL AMPLIFIER
G/S OUTPUT
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007517
SCALE 5/1
WT
SHEET 1 OF 1

1007517 L S-NO 1

2/1007517

2H

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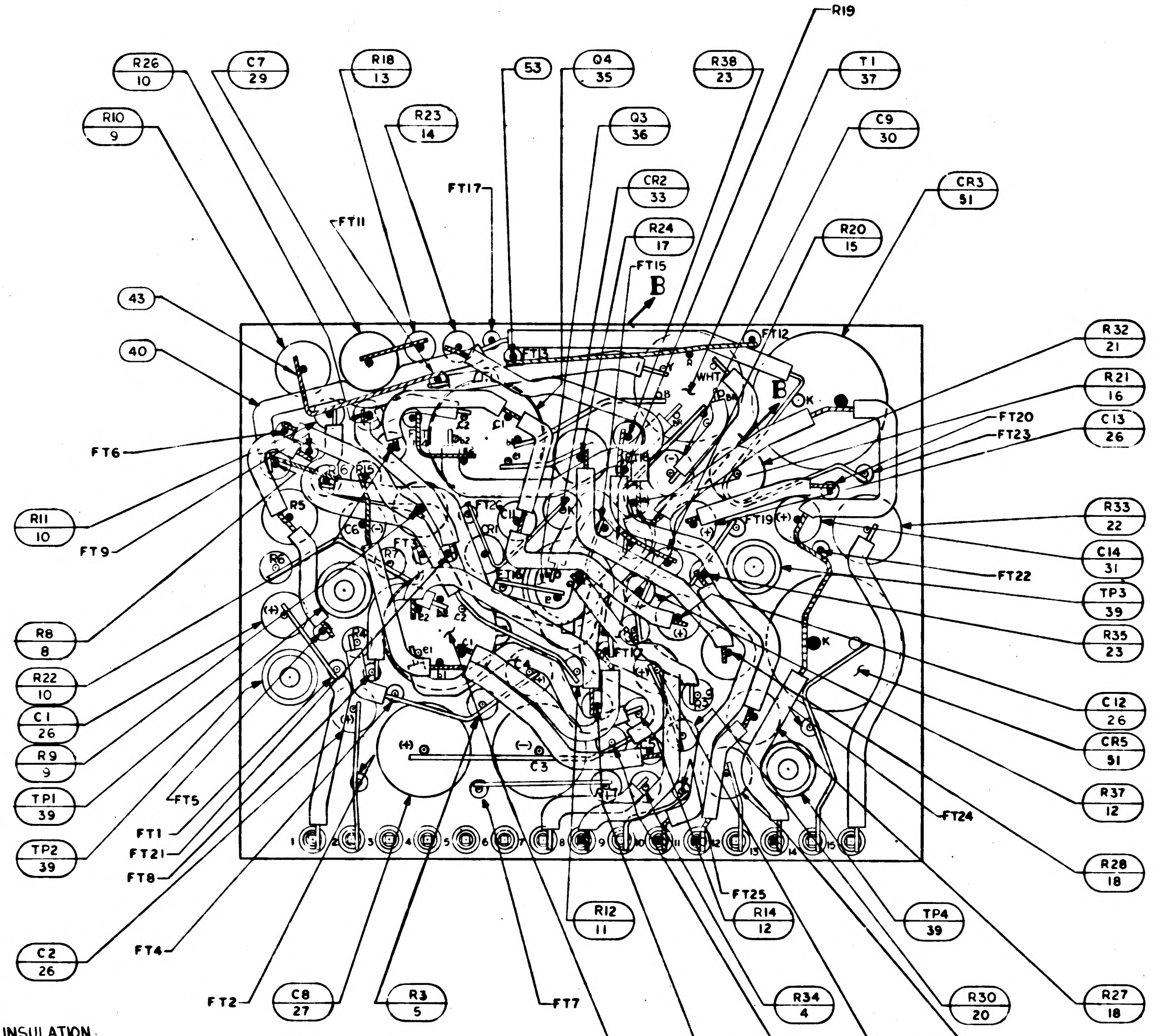
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FT17
FT11
R24 17
R20 15
FT15
B
43
FT12
R32 21
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R21 16
WHT
FT20
FT23
C13 26
FT6
R5
FT26
R33 22
R11 10
FT9
FT19
C14 31
FT22
TP3 39
R8 8
R35 23
R22 10
C1 26
C12 26
CR5 51
R9 9
C3
TP1 39
FT5
R37 12
FT1
FT21
TP2 39
FT24
FT8
R28 18
FT25
R12 11
R14 12
TP4 39
C2 26
FT4
R34 4
FT2
C8 27
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C10 31
R41 25
K
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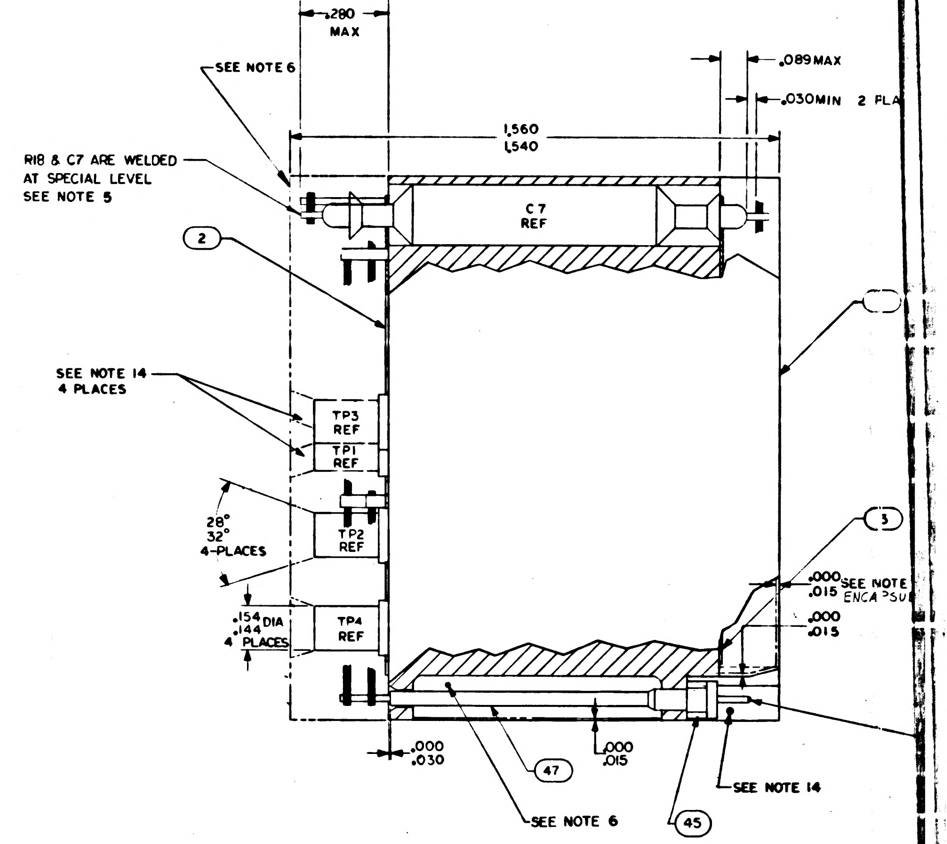
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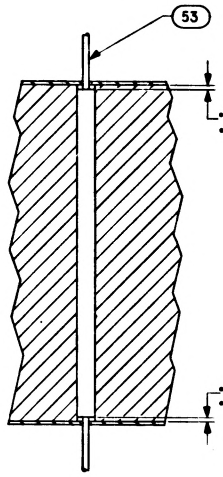
SEE NOTE 6
.089 MAX
.030 MIN 2 PLA
1.560
1.540
R18 & C7 ARE WELDED AT SPECIAL LEVEL SEE NOTE 5
C7 REF
2
SEE NOTE 14 4 PLACES
TP3 REF
TP1 REF
28°
32°
4-PLACES
TP2 REF
3
.000
.015
SEE NOTE
ENCA SU
.000
.015
.154
.144
DIA
4 PLACES
TP4 REF
.000
.030
47
.000
.015
SEE NOTE 14
SEE NOTE 6
45

19. MOISTUREPROOF PER ND 1002292 AS REQUIRED BY FIND NO. (54) USING INSULATION TAPE IN ACCORDANCE WITH SCD 1008866 AND POLYURETHANE COATING PER SCD 1008867 AFTER PAINTING AND STENCILLING.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ◑ DENOTES SPECIAL LEVEL
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSIONS BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. STAKE FIND NO. 4 THRU FIND NO. 37, FIND NO. 39, FIND NO. 41, FIND NO. 42 AND FIND NO. 46 PER ND 1002009, METHOD ~~H.~~ J.
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.060 PER ND 1002009 (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023, CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATING SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR,
   C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR
   B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR
   E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR
10. MUST MEET REQUIREMENTS OF ND 1002136
11. PROCURE PER PS 1007017
12. ~~BOND FIND NO. 50 TO FIND NO. 45 PER ND1002237.~~
13. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
15. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
16. ~~CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS AND APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL. ADHESIVE AND COATING MATERIAL PER ND1002187 TYPE II. APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.~~
17. CLEAN MODULE WHERE POSSIBLE BY DEGREASING WITH FREON AND ISO-PROPYL ALCOHOL PRIOR TO ENCAPSULATION.
18. EXCEPT FOR MODULE MOUNTING SURFACE, PAINT ALL SURFACES PER ND1002279, ~~TYPE II AFTER ENCAPSULATION, USING BLACK PAINT PER 1010729-4. CURE AT 140°F FOR EIGHT HOURS. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE FROM PAINT.~~ USING 1010992 PRIMER AND 1008809-4 PAINT. CONNECTOR PIN BLADES AND INSULATORS TO BE FREE OF PAINT.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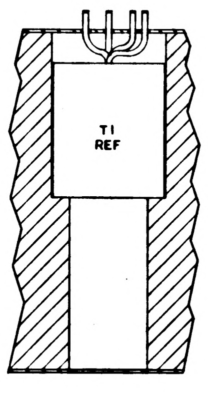
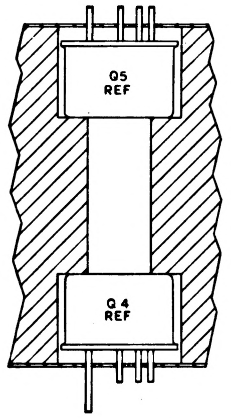
.000
.015
.000
.015

SECTION A-A



SECTION B-B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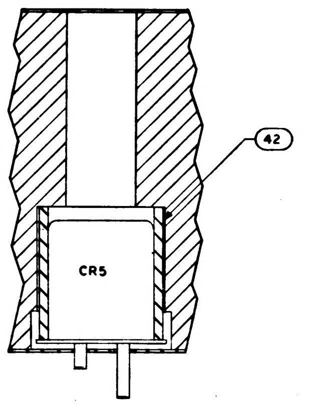
REF
Q4
REF

SECTION C-C
2-PLACES
TYP INSTALLATION
FOR FIND NO. 35



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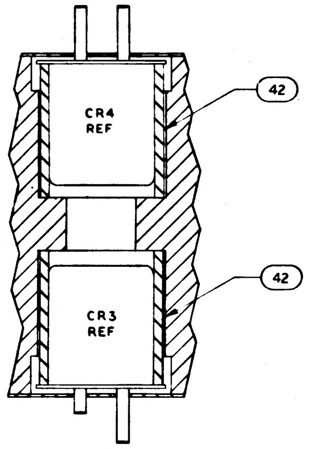
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CR3
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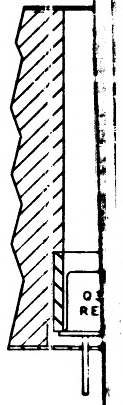
SECTION E-E



SEC TION

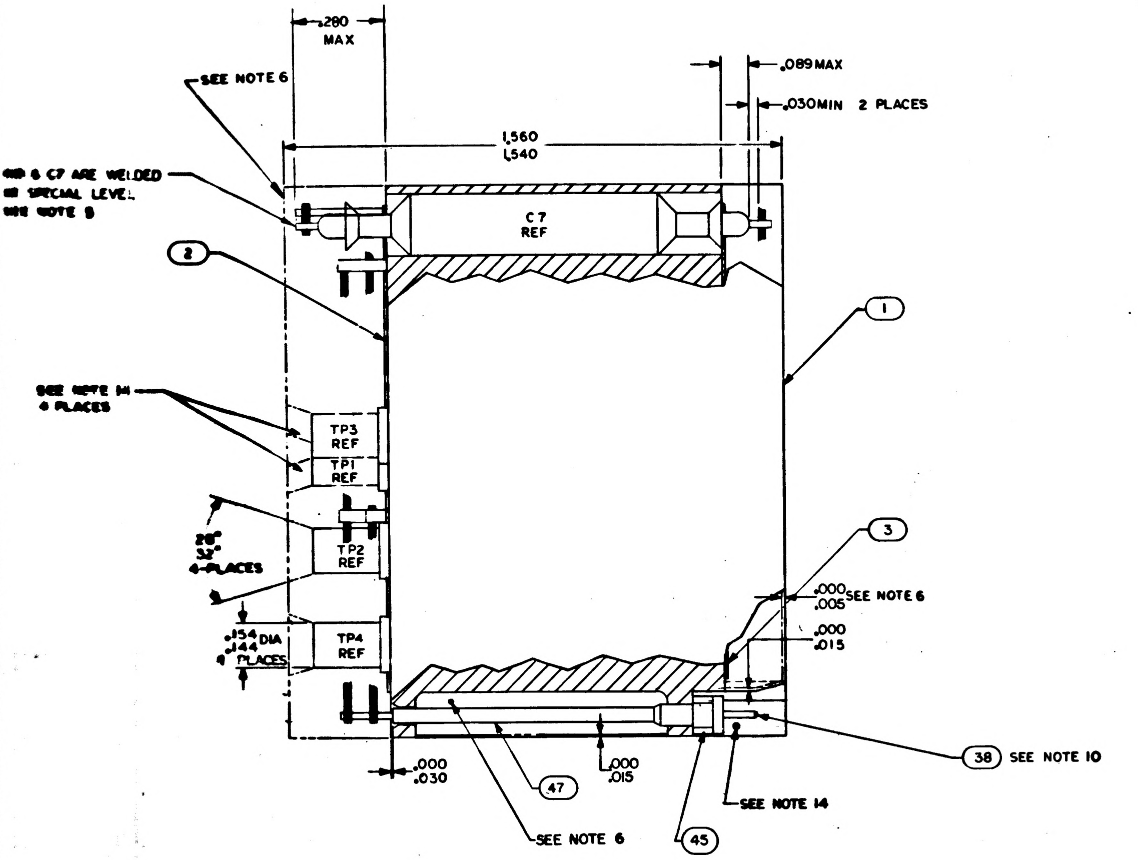
TABLE I

CONFIGURATION	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER AND FLAT HEATSINK.	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE.	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE.	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER.	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE.

1007517 L

17/1007517

REVISIONS 13640			
SYM	DESCRIPTION	DATE	APPROVAL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MAX
SEE NOTE 6
.089 MAX
.030 MIN 2 PLACES
1.560
1.540
C7
REF
CR6 & C7 ARE WELDED
IN SPECIAL LEVEL
SEE NOTE 5
2
1
SEE NOTE 14
4 PLACES
TP3
REF
TP1
REF
28°
32°
4-PLACES
TP2
REF
.154
.144 DIA
4 PLACES
TP4
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SEE NOTE 6
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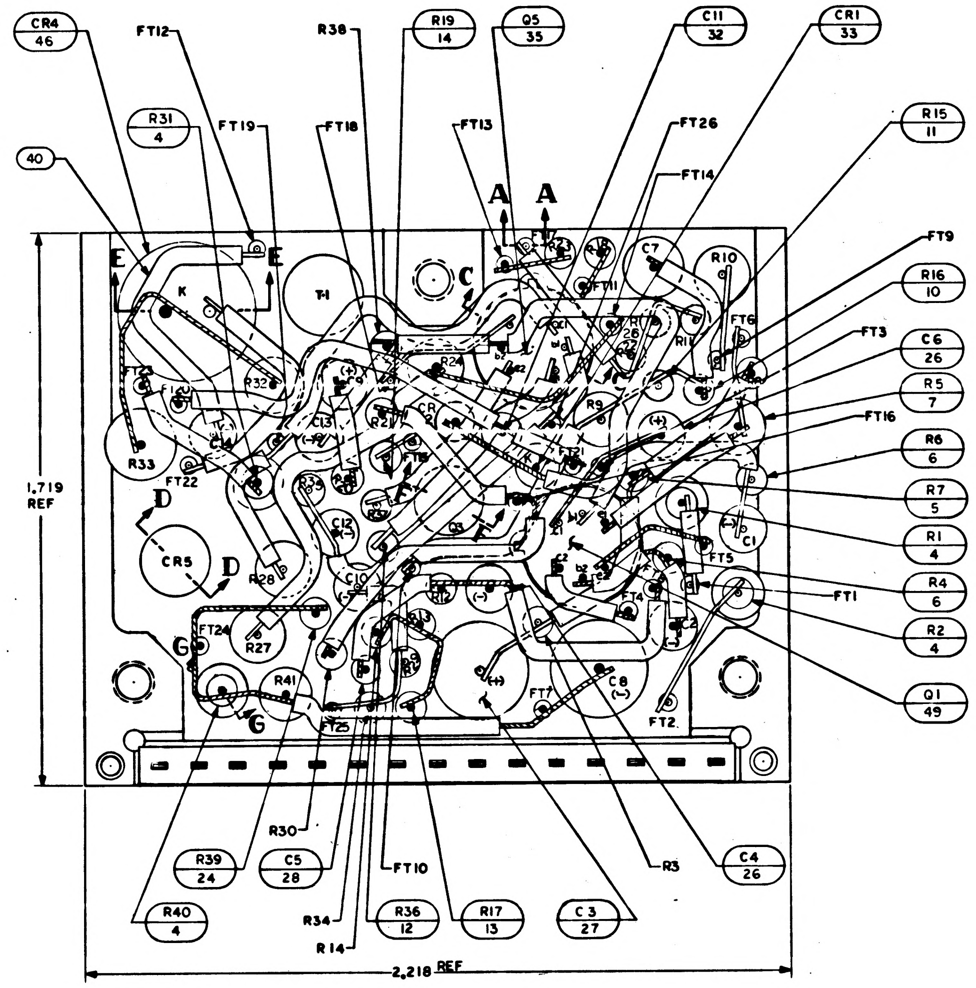
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FT16
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R7
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R1
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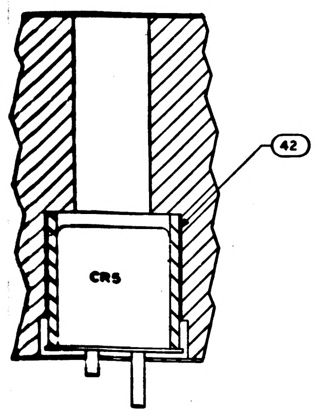
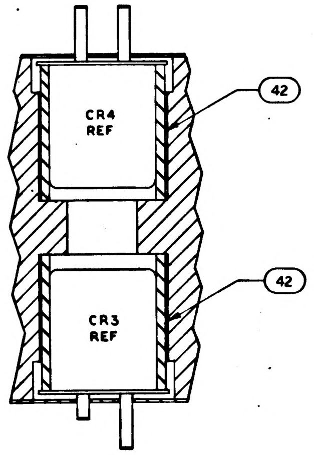
R4
6
R2
4
Q1
49
1.719
REF
R33
FT22
D
CR5
D
R28
R27
G
FT24
R41
G
C8
FT7
FT2
FT1
FT5
C1
C2
R39
24
R30
C5
28
FT10
R3
C4
26
R40
4
R34
R36
12
R17
13
C3
27
R14
2.218 REF

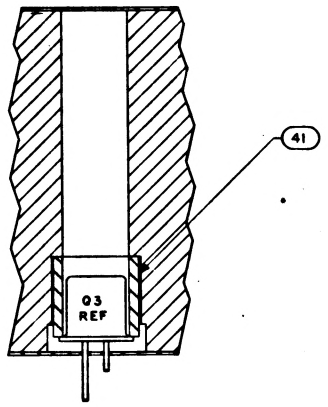
TP	COMPONENT
1	R1
2	R2
3	R31
4	R40



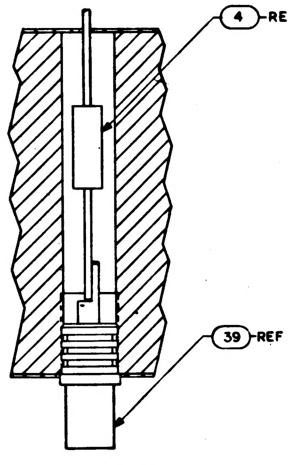
SECTION D-D


CR4
REF
42
CR3
REF
42

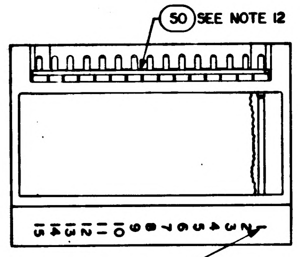
SECTION E-E

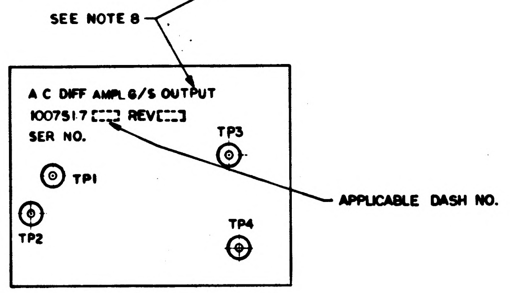


SECTION F-F



SECTION G-G
4-PLACES
TYP INSTALLATION
FOR FIND NO.39 & FIND NO.4


50 SEE NOTE 12


SEE NOTE 8
A C DIFF AMPL G/S OUTPUT
1007517 ☐ REV ☐
SER NO.
TP3
TP1
TP2
TP4
APPLICABLE DASH NO.

MARKING VIEW
SCALE 2/1

			QTY		PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			1		1008540-15	GASKET, CONNECTOR MINIATURE	50
			2		1010376-2	TRANSISTOR	49
			X		1010032	SCHEMATIC	REF
			AR		1006776-22	INSULATION SLEEVING	48
			AR		1006776-20	INSULATION SLEEVING	47
			1		1010290-2	DIODE	46
			15		1006775	INSULATOR, WRAPOST MALE MINAT	45
			AR		1006757-8	WIRE ELEC .020 DIA	44
			AR		1006757-1	WIRE ELEC .010 X .020	43
			3		1008025-3	INSULATOR BUSHING	42
			1		1008025-1	INSULATOR BUSHING	41
			AR		1006776-21	INSULATION SLEEVING	40
			4		1010292-2	TEST POINT	39
			15		1006782-4	CONTACT, WRAPOST MALE MINAT	38
			1		1010335	TRANSFORMER	37
			1		1010357-1	TRANSISTOR	36
			2		1010376-1	TRANSISTOR	35
			2		1010290-1	DIODE	34
			2		1010385	DIODE	33
			1		1006777-27	CAPACITOR	32
			2		1006755-69	CAPACITOR	31
			1		1006775-57	CAPACITOR	30
			1		1010264-13	CAPACITOR	29
			1		1006777-16	CAPACITOR	28
			2		1006755-83	CAPACITOR	27
			6		1006755-65	CAPACITOR	26
			1		1006760-27	RESISTOR, FIXED	25
			1		1006760-40	RESISTOR, FIXED	24
			2		1010369-96	RESISTOR, FIXED, COMP., INS	23
			1		1010312-16	RESISTOR	22
			1		1010312-14	RESISTOR, FIXED	21
			1		1006750-32	RESISTOR, FIXED	20
			1		1006750-73	RESISTOR, FIXED	19
			2		1010377-51	RESISTOR, FIXED	18
			1		1010377-108	RESISTOR, FIXED	17
			1		1006750-49	RESISTOR, FIXED	16
			1		1006750-60	RESISTOR, FIXED	15
			2		1010369-92	RESISTOR, FIXED COMP., INS.	14
			2		1006750-50	RESISTOR, FIXED	13
			4		1006750-8	RESISTOR, FIXED	12
			2		1010369-90	RESISTOR, FIXED, COMP., INS.	11
			4		1006750-66	RESISTOR, FIXED	10
			2		1010377-109	RESISTOR, FIXED	9
			1		1006750-70	RESISTOR, FIXED	8
			1		1010377-107	RESISTOR, FIXED	7
			2		1010369-97	RESISTOR, FIXED, COMP., INS.	6
			2		1006750-67	RESISTOR, FIXED	5
			5		1006750-56	RESISTOR, FIXED	4
			1		1008029-2	INSULATOR, BOTTOM	3
			1		1008029-1	INSULATOR, TOP	2
			1		1008035	HEATSINK	1
			OH	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007574		
1007573		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS .XX ±.02 .XXX .005 ANGLES ± ½°
DO NOT SCALE THIS DRAWING
MATERIAL //
HEAT TREATMENT //
FINAL FINISH //

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN DATE 11 Aug 64
CHECKED 4 SEP 64
APPROVAL
APPROVAL D. R. 10/8/64
NASA APPROVAL 10-20-64
MIT APPROVAL 10/20/64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AC DIFFERENTIAL AMPLIFIER G/S OUTPUT ASSEMBLY

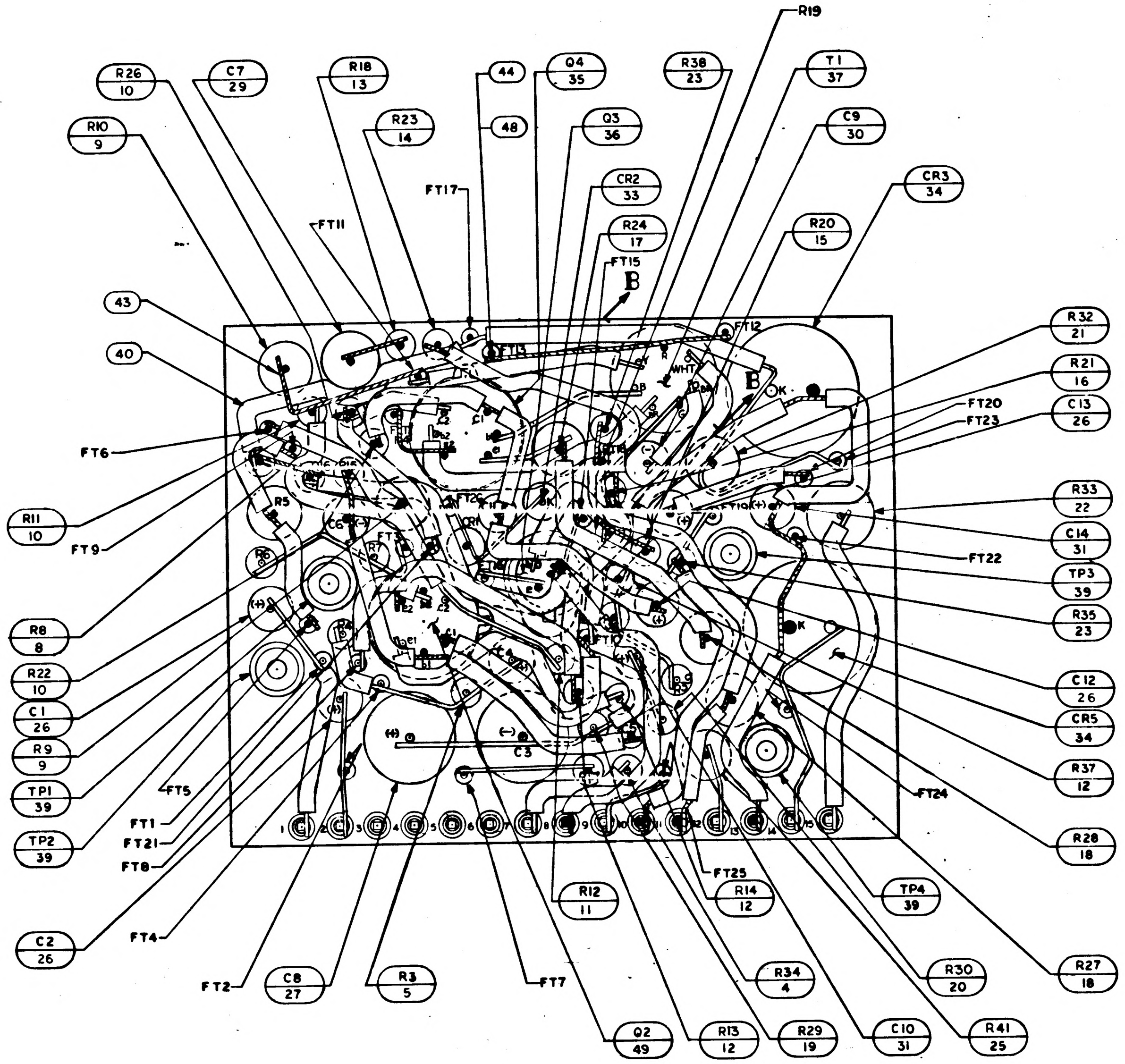
CODE IDENT NO.
SIZE J
NASA DRAWING NO. 1007517
SCALE 5/1
WT
SHEET 1 OF 1

1007517

F2

2-

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO


R19
R26 10
C7 29
R18 13
44
Q4 35
R38 23
T1 37
R10 9
R23 14
48
Q3 36
C9 30
CR2 33
CR3 34
FT17
FT11
R24 17
R20 15
FT15
B
43
40
FT12
R32 21
R21 16
FT20
FT23
C13 26
FT6
R5
C3
R33 22
R11 10
FT9
C14 31
FT22
TP3 39
R35 23
R8 8
R22 10
C1 26
R9 9
TP1 39
TP2 39
C12 26
CR5 34
R37 12
FT5
FT1
FT21
FT8
FT24
R28 18
FT25
R12 11
R14 12
TP4 39
C2 26
FT4
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FT7
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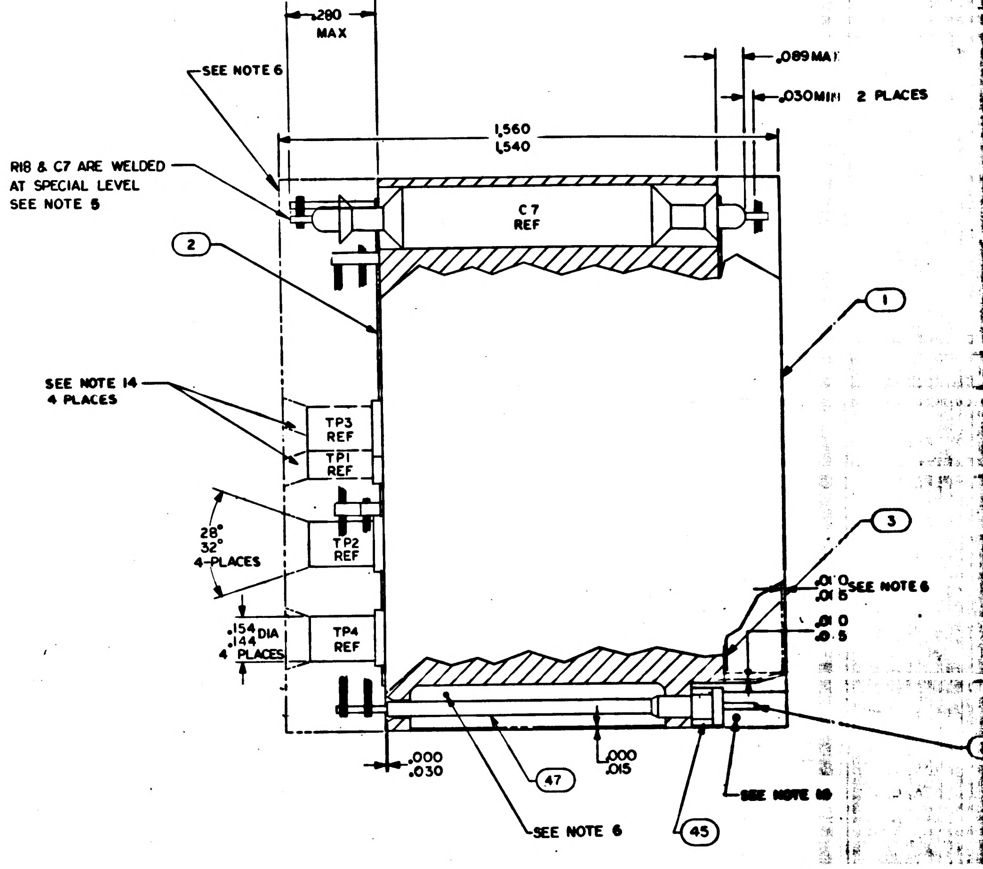
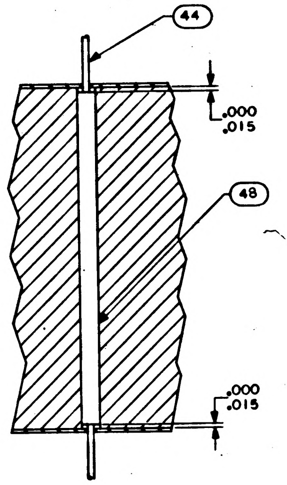
R13 12
R29 19
C10 31
R41 25

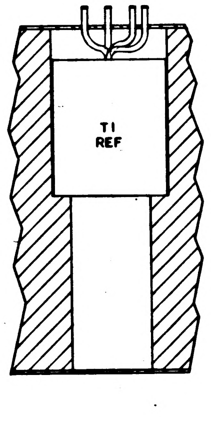

.280 MAX
.089 MAX
SEE NOTE 6
.030 MIN 2 PLACES
1.560
1.540
R18 & C7 ARE WELDED AT SPECIAL LEVEL SEE NOTE 5
C7 REF
2
1
SEE NOTE 14 4 PLACES
TP3 REF
TP1 REF
28°
32°
4-PLACES
TP2 REF
3
.010
.016
SEE NOTE 6
.010
.005
.154
.144
DIA 4 PLACES
TP4 REF
.000
.030
47
.000
.015
SEE NOTE 6
45
SEE NOTE 10

NOTES:

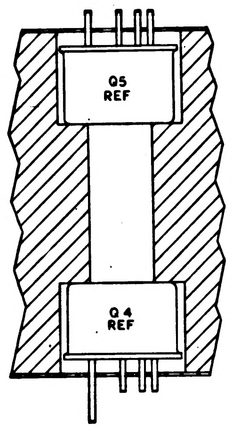
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ALL CONNECTIONS TO BE MADE BY WELDING PER ND 1002005
3. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING
4. BLACK DOT AND CROSSHATCHED WIRING INDICATES UPPER LEVEL WIRING
5. ◐ DENOTES SPECIAL LEVEL
6. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM) UNLESS OTHERWISE SPECIFIED, PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE, THE MAXIMUM DIMENSIONS BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING.
7. STAKE FIND NO. 4 THRU FIND NO. 37, FIND NO. 39, FIND NO. 41, FIND NO. 42 AND FIND NO. 46 PER ND 1002009, METHOD C
8. MARK PIN NUMBERS .100/.060 HIGH (WHITE) AND ALL OTHER CHARACTERS .140/.060 PER ND 1002009 (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023, CENTRALIZE AS SHOWN
9. ON ITEMS 2 AND 3
   BROKEN PATHS INDICATE INSULATING SLEEVING,
   K INDICATES CATHODE SIDE OF DIODE,
   FT ( ) INDICATES FEED THRU
   PLUS (+) INDICATES POSITIVE END OF CAPACITOR,
   C INDICATES COLLECTOR LEAD OF TRANSISTOR,
   B INDICATES BASE LEAD OF TRANSISTOR,
   E INDICATES EMITTER LEAD OF TRANSISTOR,
   C ( ) INDICATES COLLECTOR LEAD OF MULTI STAGE TRANSISTOR
   B ( ) INDICATES BASE LEAD OF MULTI STAGE TRANSISTOR
   E ( ) INDICATES EMITTER LEAD OF MULTI STAGE TRANSISTOR
10. MUST MEET REQUIREMENTS OF ND 1002136
11. PROCURE PER PS 1007017
12. BOND FIND NO. 50 TO FIND NO. 45 PER ND1002237.
13. UNLESS OTHERWISE SPECIFIED WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069
14. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND


44
48
.000
.015
.000
.015

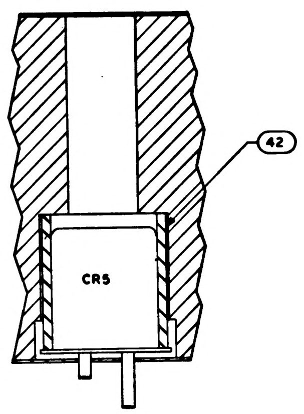
SECTION A-A



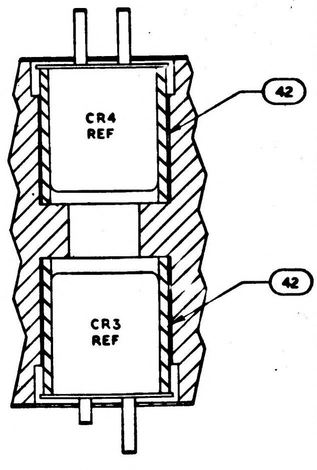
SECTION B-B


Q5 REF
Q4 REF

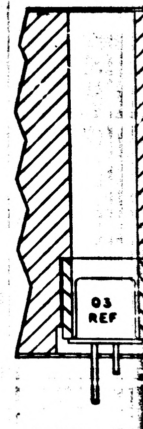
SECTION C-C
2-PLACES
TYP INSTALLATION FOR FIND NO. 35



SECTION D-D


42
CR4 REF
42
CR3 REF

SECTION E-E

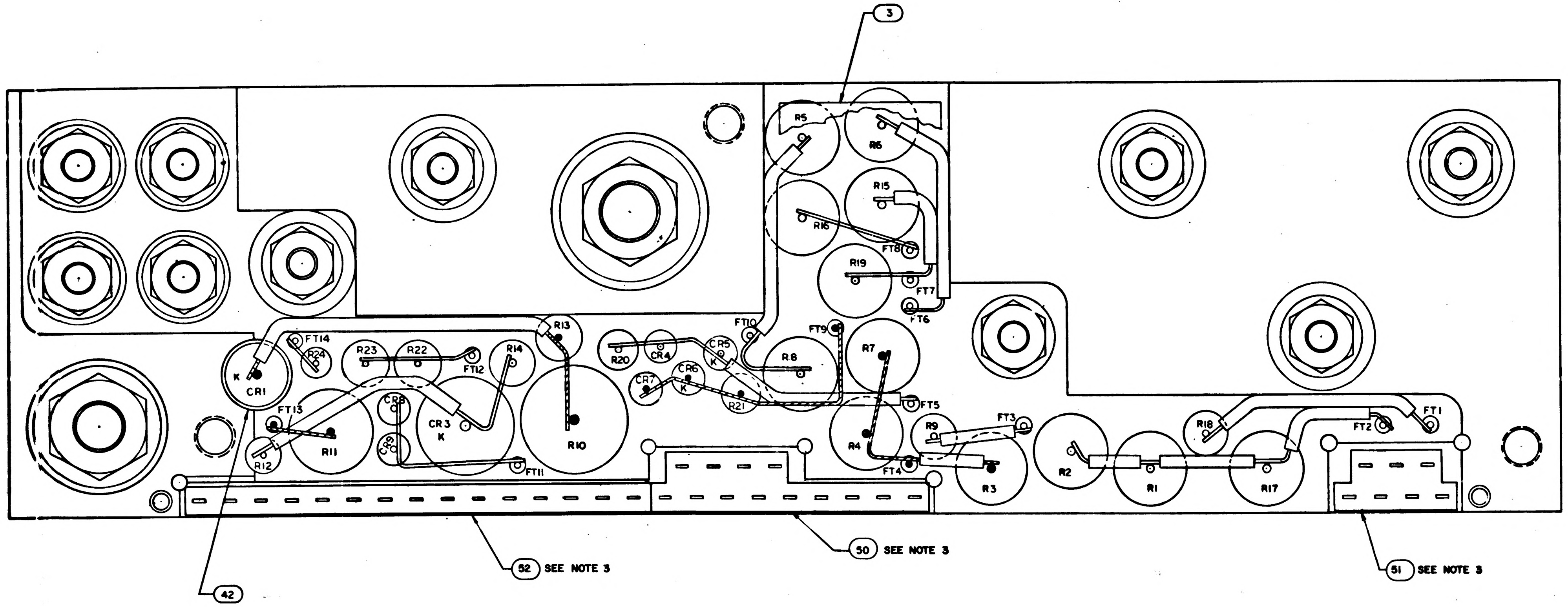


SECTION F

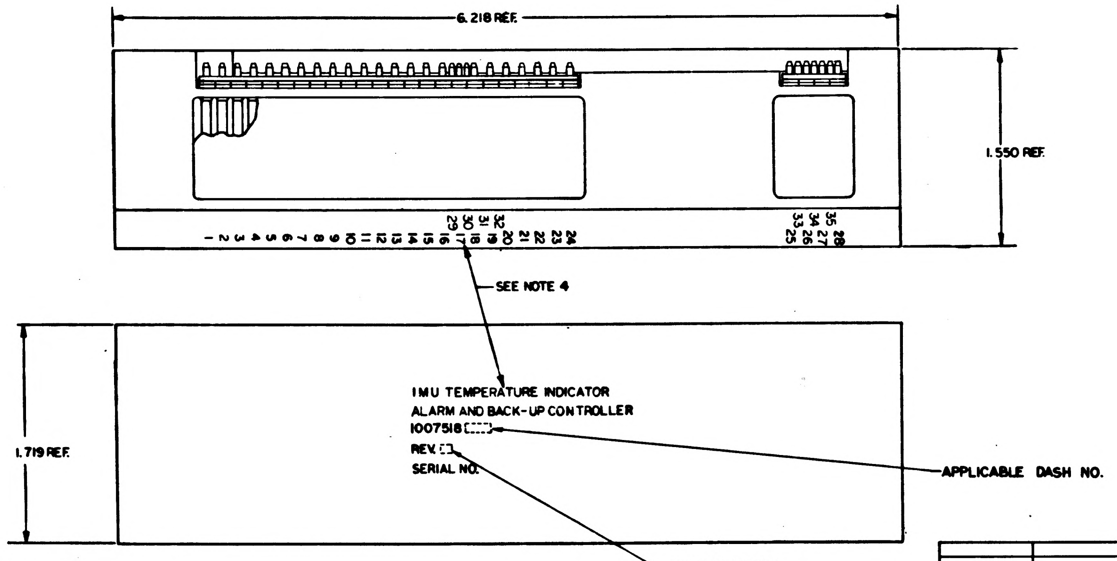
F-1

1007517

REVISIONS 13233			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 19584	1-8-64	WK



3
R5
R6
R15
R16
FT8
R19
FT7
FT6
FT10
FT9
R8
R7
FT5
R13
FT14
R24
R23
R22
R14
FT12
R20
CR4
CR5
K
CR6
K
CR7
K
R21
CR1
K
FT13
CR2
CR3
K
R11
R10
CR8
R12
FT11
R4
FT4
R9
FT3
R3
R2
R1
R18
R17
FT2
FT1
52 SEE NOTE 3
50 SEE NOTE 3
51 SEE NOTE 3
42



6.218 REF.
1.550 REF.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
29 30 31 32
33 34 35
25 26 27 28
SEE NOTE 4
1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007518
REV.
SERIAL NO.
APPLICABLE DASH NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

QUANTITY REQUIRED								
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.	
			1		1008540-15	GASKET, CONNECTOR-MINIATURE	52	
			✕		1010140	SCHEMATIC, ELECTRICAL		
			1		1008545	GASKET, CONNECTOR MINIATURE	51	
			1		1008546	GASKET, CONNECTOR MINIATURE	50	
			2		1010311- SEE NOTE 19	RESISTOR	49	
			2		1010377-237	RESISTOR	48	
			1		1008185	INSULATOR TOP, AMPL	47	
			AR		1006776-20	INSULATION SLEEVING	46	
			1		MS20341-10B	NUT HEX	45	
			1		MS20341-416B	NUT HEX	44	
			AR		1006757-8	WIRE ELECTRICAL .020 DIA.	43	
			AR		MIL-I-23053-8	INSULATION SLEEVING	42	
			AR		1006776-21	INSULATION SLEEVING	41	
			AR		1006757-1	WIRE ELECT. .010 X .020	40	
			35		1006782-5	CONTACT WRAPOST MALE	39	
			35		1006775	INSULATOR WRAPOST MALE	38	
			10		1008070-5	WASHER, FLAT	37	
			10		MS20341-4A	NUT-HEX	36	
			10		MS35338-78	WASHER, LOCK	35	
			1		1008021-1	BUSHING INSULATOR	34	
			1		1008021-2	BUSHING INSULATOR	33	
			1		1008020-2	WASHER FLAT	32	
			1		1008020-1	WASHER FLAT	31	
			1		1008024-1	WASHER INSULATOR	30	
			1		1008024-2	WASHER INSULATOR	29	
			1		1008024-4	WASHER INSULATOR	28	
			1		1008024-3	WASHER INSULATOR	27	
			1		1018900-011	AMPLIFIER	26	
			2		1000284	AMPLIFIER	25	
			2		1010353-1	RELAY	24	
			1		1010273-1	TRANSISTOR	23	
			6		1010362-3	DIODE	22	
			1		1010441-2	DIODE	21	
			1		1010331-20	DIODE	20	
			1		1010440-1	DIODE	19	
			✕		1010377 SEE NOTE 18	RESISTOR	18	A
							17	
			2		1010364-368	RESISTOR	16	
			1		1010364-44	RESISTOR	15	
			1		1010361-112	RESISTOR	14	
			1		1010452-167	RESISTOR	13	
			1		1010450-9	RESISTOR	12	
			1		1010604-22	RESISTOR	11	
			1		1010450-10	RESISTOR	10	
			2		1010450-12	RESISTOR	9	
			1		1010450-13	RESISTOR	8	
			1		1010450-14	RESISTOR	7	
			2		1010450-3	RESISTOR	6	
			2		1010450-2	RESISTOR	5	
			1		1010450-11	RESISTOR	4	
			1		1008074	INSULATOR BOTTOM	3	
			1		1008186	INSULATOR TOP	2	
			1		1007072	HEAT SINK	1	

LIST OF MATERIALS

1007518

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X ± DECIMALS XX ± .02 .XXX ± .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN S. Agne DATE 1 SEP 64
CHECKED A. Ulard 4 SEP 64
APPROVAL
APPROVAL 11/5/64
NASA APPROVAL 10-6-64
MIT APPROVAL W Kupfer 6 Oct 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

IMU TEMP INDICATOR ALARM AND BACK-UP CONTROLLER ASSEMBLY

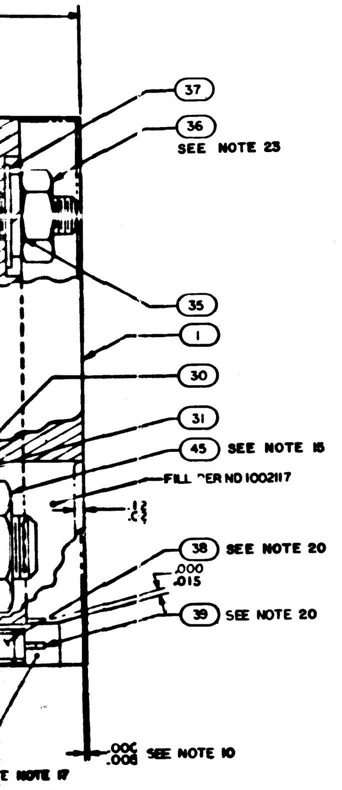
CODE IDENT NO. | SIZE J | NASA DRAWING NO. 1007518
SCALE 5:1 | WT | SHEET 1 OF 1

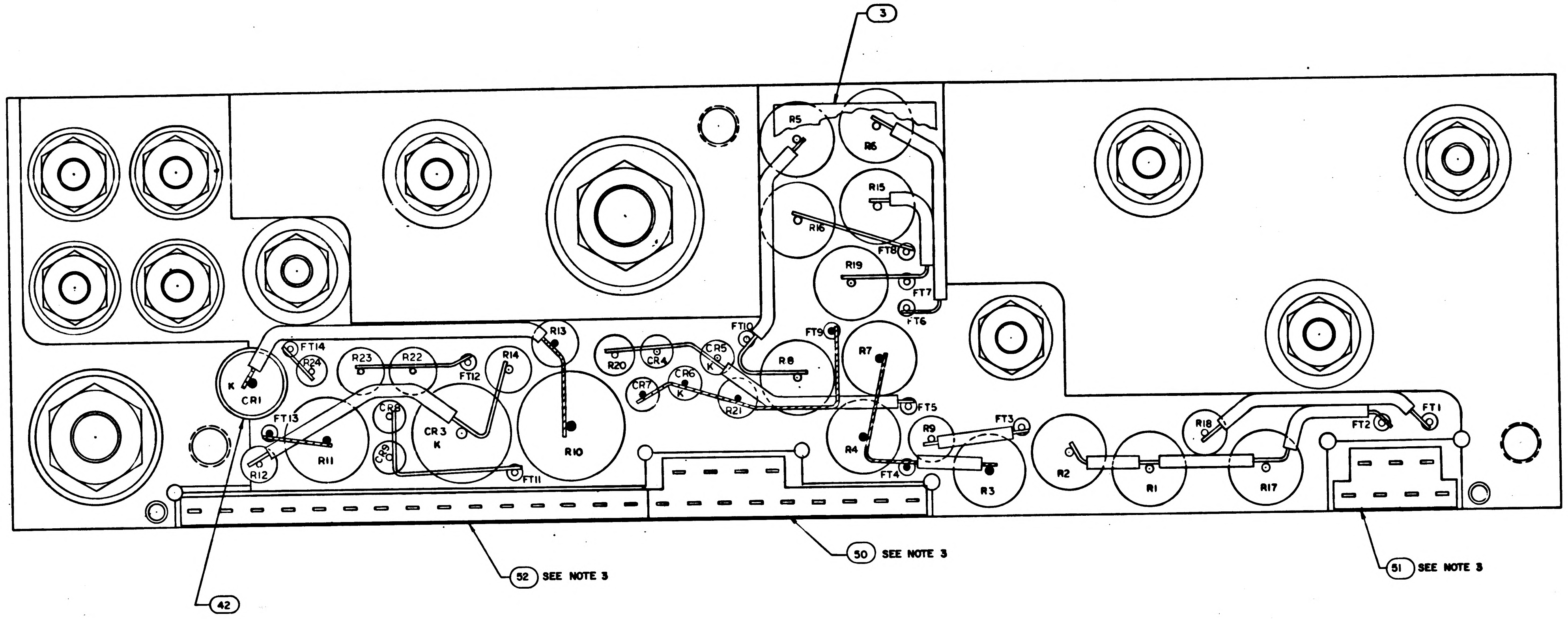
1007518 A

3A

F-3

A	REVISED PER


37
36 SEE NOTE 23
35
1
30
31
45 SEE NOTE 18
FILL PER NO 1002117
38 SEE NOTE 20
.000
.015
39 SEE NOTE 20
.00
.008 SEE NOTE 10
SEE NOTE 17


3
R5
R6
R15
R16
FT8
R19
FT7
FT6
FT10
FT9
R7
R8
CR5
K
R13
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R24
R23
R22
FT12
R14
R20
CR4
CR7
CR6
K
R21
K
CR1
FT13
CR8
CR3
K
CR9
R12
R11
FT11
R10
FT5
R9
FT3
R4
FT4
R3
R2
R1
R18
R17
FT2
FT1
42
52 SEE NOTE 3
50 SEE NOTE 3
51 SEE NOTE 3

14		R9 AND R18					
[illegible]	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE
-141	71	1010311-126	1000	1010311-177	3400	1010311-228	11500
-142	73	-127	1020	-178	3480	-229	11800
-143	75	-128	1050	-179	3570	-230	12100
-144	77	-129	1070	-180	3650	-231	12400
-145	79	-130	1100	-181	3740	-232	12700
-146	81	-131	1130	-182	3830	-233	13000
-147	83	-132	1150	-183	3920	-234	13300
-148	85	-133	1180	-184	4020	-235	13700
-149	87	-134	1210	-185	4120	-236	14000
-150	89	-135	1240	-186	4220	-237	14300
-151	91	-136	1270	-187	4320	-238	14700
-152	93	-137	1300	-188	4420	-239	15000
-153	95	-138	1330	-189	4530	-240	15400
-154	97	-139	1370	-190	4640	-241	15800
-155	99	-140	1400	-191	4750	-242	16200
-156	101	-141	1430	-192	4870	-243	16500
-157	103	-142	1470	-193	4990	-244	16900
-158	105	-143	1500	-194	5110	-245	17400
-159	107	-144	1540	-195	5230	-246	17800
-160	109	-145	1580	-196	5360	-247	18200
-161	111	-146	1620	-197	5490	-248	18700
-162	113	-147	1650	-198	5620	-249	19100
-163	115	-148	1690	-199	5760	-250	19600
-164	117	-149	1740	-200	5900	-251	20000
-165	119	-150	1780	-201	6040	-252	20500
-166	121	-151	1820	-202	6190	-253	21000
-167	123	-152	1870	-203	6340	-254	21500
-168	125	-153	1910	-204	6490	-255	22100
-169	127	-154	1960	-205	6650	-256	22600
-170	129	-155	2000	-206	6810	-257	23200
-171	131	-156	2050	-207	6980	-258	23700
-172	133	-157	2100	-208	7150	-259	24300
-173	135	-158	2150	-209	7320	-260	24900
-174	137	-159	2210	-210	7500	-261	25500
-175	139	-160	2260	-211	7680	-262	26100
-176	141	-161	2320	-212	7870	-263	26700
-177	143	-162	2370	-213	8060	-264	27400
-178	145	-163	2430	-214	8250	-265	28000
-179	147	-164	2490	-215	8450	-266	28700
-180	149	-165	2550	-216	8660	-267	29400
-181	151	-166	2610	-217	8870	-268	30100
-182	153	-167	2670	-218	9090		
-183	155	-168	2740	-219	9310		
-184	157	-169	2800	-220	9530		
-185	159	-170	2870	-221	9760		
-186	161	-171	2940	-222	10000		
-187	163	-172	3010	-223	10200		
-188	165	-173	3090	-224	10500		
-189	167	-174	3160	-225	10700		
-190	169	-175	3240	-226	11000		
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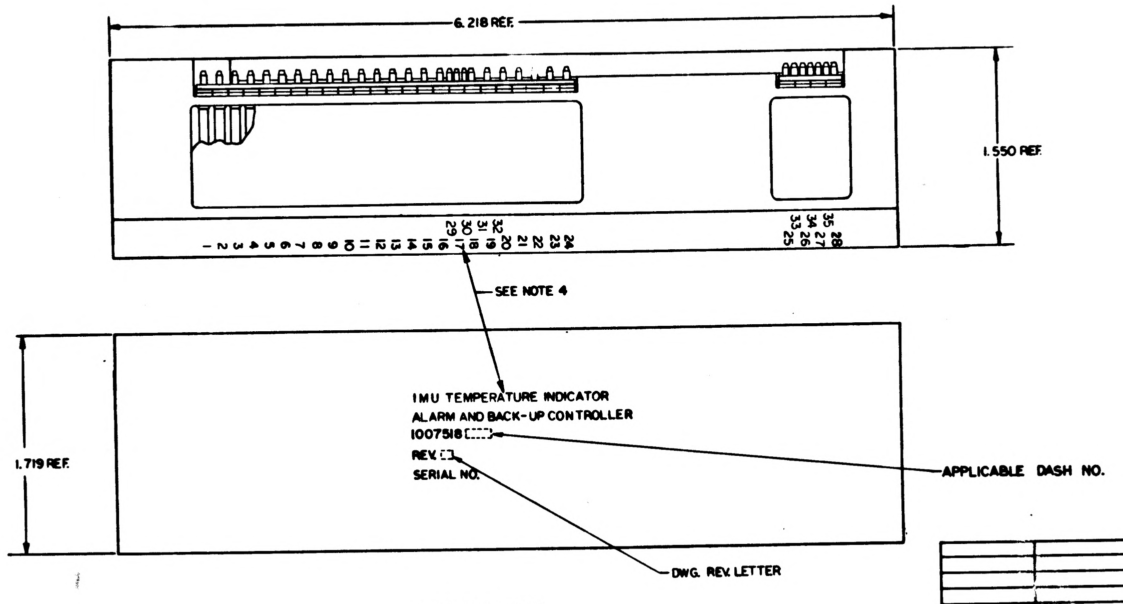
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1.550 REF.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
29 30 31 32
25 26 27 28
33 34 35
SEE NOTE 4
1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007518
REV.
SERIAL NO.
APPLICABLE DASH NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO.	LIST OF MATERIALS
			011			
			1		10085-0-15	GASKET, CON
			☒		1010140	SCHEMATIC, E
			1		1008545	GASKET, CON
			1		1008546	GASKET, CON
			2		1010311- SEE NOTE 19	RESISTOR
			2		1010377-237	RESISTOR
			1		1008185	INSULATOR T
			AR		1006776-20	INSULATION
			1		MS20341-108	NUT HEX
			1		MS20341-416B	NUT HEX
			AR		1006757-8	WIRE ELECTR
			AR		MIL-I-23053-8	INSULATION
			AR		1006776-21	INSULATION
			AR		1006757-1	WIRE ELECT.
			35		1006782-5	CONTACT WRA
			35		1006775	INSULATOR W
			10		1008070-5	WASHER, FLAT
			10		MS20341-4A	NUT-HEX
			10		MS35338-78	WASHER, LO
			1		1008021-1	BUSHING INS
			1		1008021-2	BUSHING INS
			1		1008020-2	WASHER FLA
			1		1008020-1	WASHER FLAT
			1		1008024-1	WASHER INS
			1		1008024-2	WASHER INS
			1		1008024-4	WASHER INS
			1		1008024-3	WASHER INS
			1		1018900-011	AMPLIFIER
			2		1000284	AMPLIFIER
			2		1010353-1	RELAY
			1		1010273-1	TRANSISTOR
			6		1010362-3	DIODE
			1		1010441-2	DIODE
			1		1010331-20	DIODE
			1		1010440-1	DIODE
			☒		1010377 SEE NOTE 18	RESISTOR
			2		1010364-368	RESISTOR
			1		1010364-44	RESISTOR
			1		1010361-112	RESISTOR
			1		1010452-167	RESISTOR
			1		1010450-9	RESISTOR
			1		1010604-22	RESISTOR
			1		1010450-10	RESISTOR
			2		1010450-12	RESISTOR
			1		1010450-13	RESISTOR
			1		1010450-14	RESISTOR
			2		1010450-3	RESISTOR
			2		1010450-2	RESISTOR
			1		1010450-11	RESISTOR
			1		1008074	INSULATOR
			1		1008186	INSULATOR
			1		1007072	HEAT SINK

1007577		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

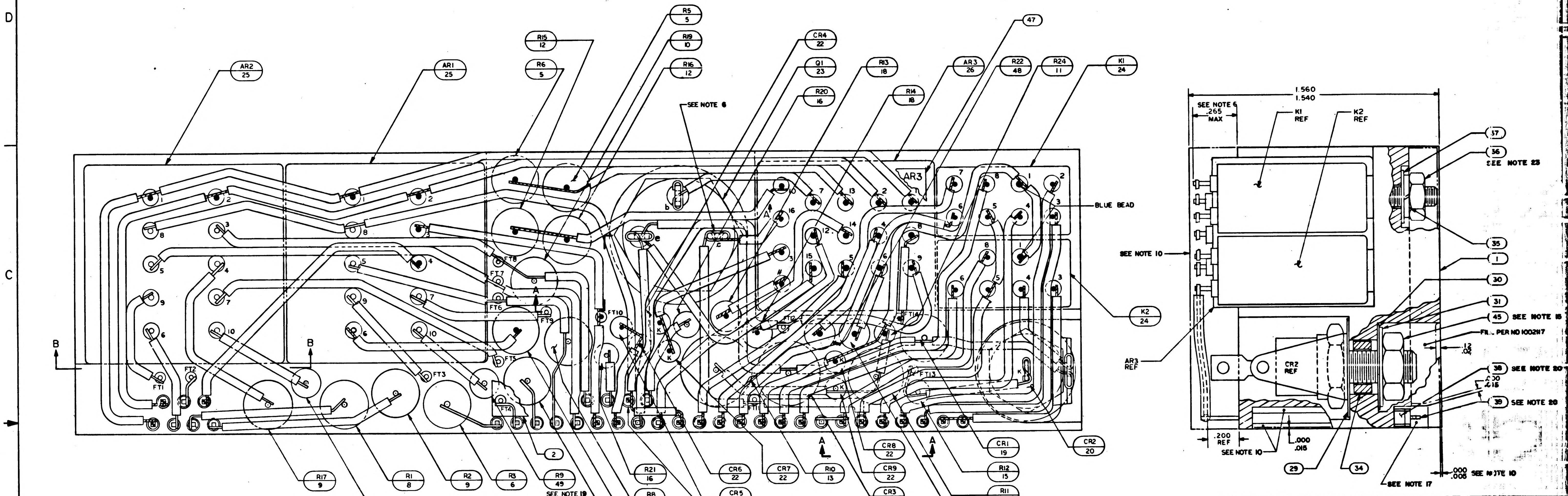
THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X ± DECIMALS XX ± .02 .XXX ± .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED
IMU TEMP
AND BAC
AS

CODE IDENT NO. SIZE J
SCALE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R6
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R5
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R19
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R16
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CR4
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Q1
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R20
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R13
18
R14
18
AR3
26
R22
48
R24
11
K1
24
47
SEE NOTE 6
AR3
BLUE BEAD
SEE NOTE 10
K2
24
AR3
REF
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FT1
FT2
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FT11
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FT13
FT14
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R17
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R18
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SEE NOTE 19
R1
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R2
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R3
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R9
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SEE NOTE 19
R21
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R8
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R7
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R4
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CR6
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CR5
22
SEE NOTE 21
CR7
22
R10
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CR8
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CR9
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CR3
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CR1
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R12
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R11
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R23
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CR2
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1.540
SEE NOTE 6
.265
MAX
K1
REF
K2
REF
37
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SEE NOTE 23
35
1
30
31
45 SEE NOTE 15
FILL PER ND 1002117
.12
.02
CR2
REF
38 SEE NOTE 20
.20
.15
39 SEE NOTE 20
.200
REF
SEE NOTE 10
.000
.015
29
34
SEE NOTE 17
.000
.005 SEE NOTE 10

R13				R14		R9 AND R1		
PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER
1010377-113	15	1010377-164	117	1010377-141	71	1010311-126	1000	1010311-177
-114	17	-165	119	-142	73	-127	1020	-178
-115	19	-166	121	-143	75	-128	1050	-179
-116	21	-167	123	-144	77	-129	1070	-180
-117	23	-168	125	-145	79	-130	1100	-181
-118	25	-169	127	-146	81	-131	1130	-182
-119	27	-170	129	-147	83	-132	1150	-183
-120	29	-171	131	-148	85	-133	1180	-184
-121	31	-172	133	-149	87	-134	1210	-185
-122	33	-173	135	-150	89	-135	1240	-186
-123	35	-174	137	-151	91	-136	1270	-187
-124	37	-175	139	-152	93	-137	1300	-188
-125	39	-176	141	-153	95	-138	1330	-189
-126	41	-177	143	-154	97	-139	1370	-190
-127	43	-178	145	-155	99	-140	1400	-191
-128	45	-179	147	-156	101	-141	1430	-192
-129	47	-180	149	-157	103	-142	1470	-193
-130	49	-181	151	-158	105	-143	1500	-194
-131	51	-182	153	-159	107	-144	1540	-195
-132	53	-183	155	-160	109	-145	1580	-196
-133	55	-184	157	-161	111	-146	1620	-197
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-139	67	-190	169	-167	123	-152	1870	-203
-140	69	-191	171	-168	125	-153	1910	-204
-141	71	-192	173	-169	127	-154	1960	-205
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-143	75	-194	177	-171	131	-156	2050	-207
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-145	79	-196	181	-173	135	-158	2150	-209
-146	81	-197	183	-174	137	-159	2210	-210
-147	83	-198	185	-175	139	-160	2260	-211
-148	85	-199	187	-176	141	-161	2320	-212
-149	87	-200	189	-177	143	-162	2370	-213
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-152	93	-203	195	-180	149	-165	2550	-216
-153	95	-204	197	-181	151	-166	2610	-217
-154	97	-205	199	-182	153	-167	2670	-218
-155	99	-206	201	-183	155	-168	2740	-219
-156	101			-184	157	-169	2800	-220
-157	103			-185	159	-170	2870	-221
-158	105			-186	161	-171	2940	-222
-159	107			-187	163	-172	3010	-223
-160	109			-188	165	-173	3090	-224
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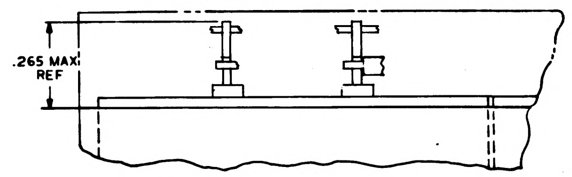
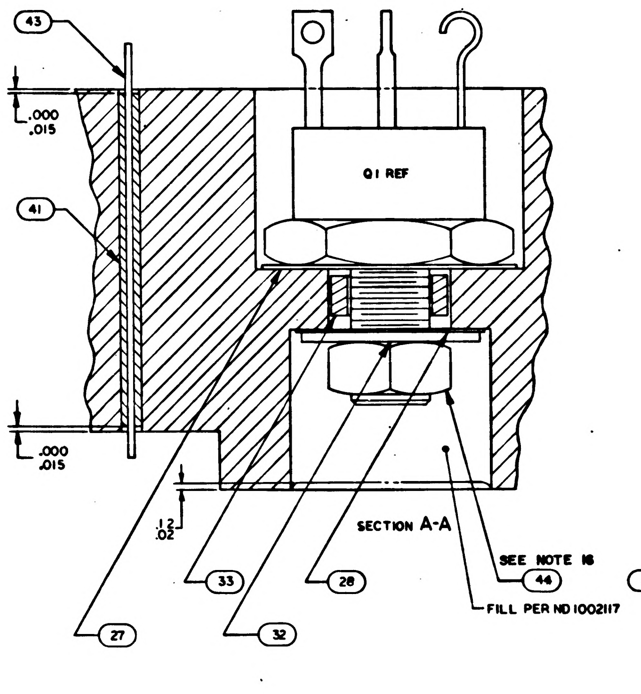


SECTION B-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
3. BOND FIND NO. 50,51 & 52 TO FIND NO. 38 PER ND 1002237.
4. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
5. ALL CONNECTIONS MADE BY WELDING TO BE PER ND 1002005.
6. SOLDER PER ND 1002071.
7. CHECKERED INDICATES INTERMEDIATE LEVEL WIRING
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
9. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
10. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE. THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
11.
12. PROCURE PER PS 1007162.
13. AR DENOTES AS REQUIRED
14. K DENOTES CATHODE SIDE OF DIODE
15. MOUNTING TORQUE FOR FIND NO. 20 TO BE 10/15 INCH POUNDS
16. MOUNTING TORQUE FOR FIND NO. 23 TO BE 22/26 INCH POUNDS
17. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
18. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007162 PART TO BE SELECTED FROM CHART.
19. R9 AND R18 TO BE SELECTED AT ASSEMBLY, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER. RANGE OF VALUES (OHMS) SHOWN ON CHART.
20. ASSEMBLE FIND NO. 38 AND 39 PER ND 1002136
21. LEAD FROM AR1-8 TERMINATES AT LOWER WELD CONNECTION OF PIN 30. UPPER LEAD TIES PINS 15 AND 30 TO FT12
22. ALL ELECTRICAL COMPONENTS WHICH ARE NOT STUD MOUNTED AND ALL FEED THRUS TO BE CENTRALIZED AND CEMENTED PER ND 1002009. METHOD C
23. TORQUE TO 4 ± 1 IN. LB. FOR ASSY OF ITEM 24, 25, AND 26.


43
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.015
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Q1 REF
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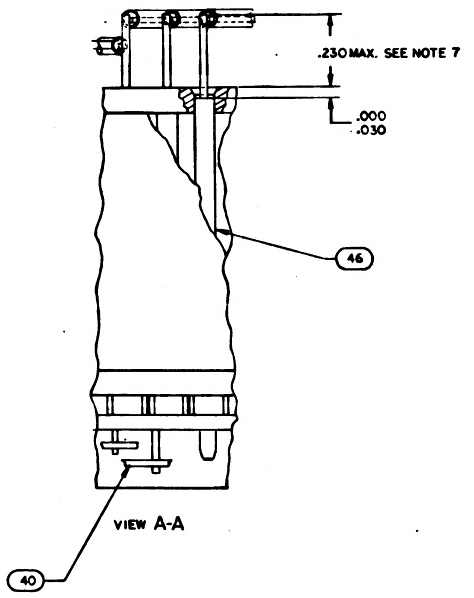
SEE NOTE 16
44
FILL PER ND 1002117

SECTION A-A


.230 MAX. SEE NOTE 7
.000
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VIEW A-A

REVISIONS 19333			
SYM	DESCRIPTION	DATE	APPROVAL
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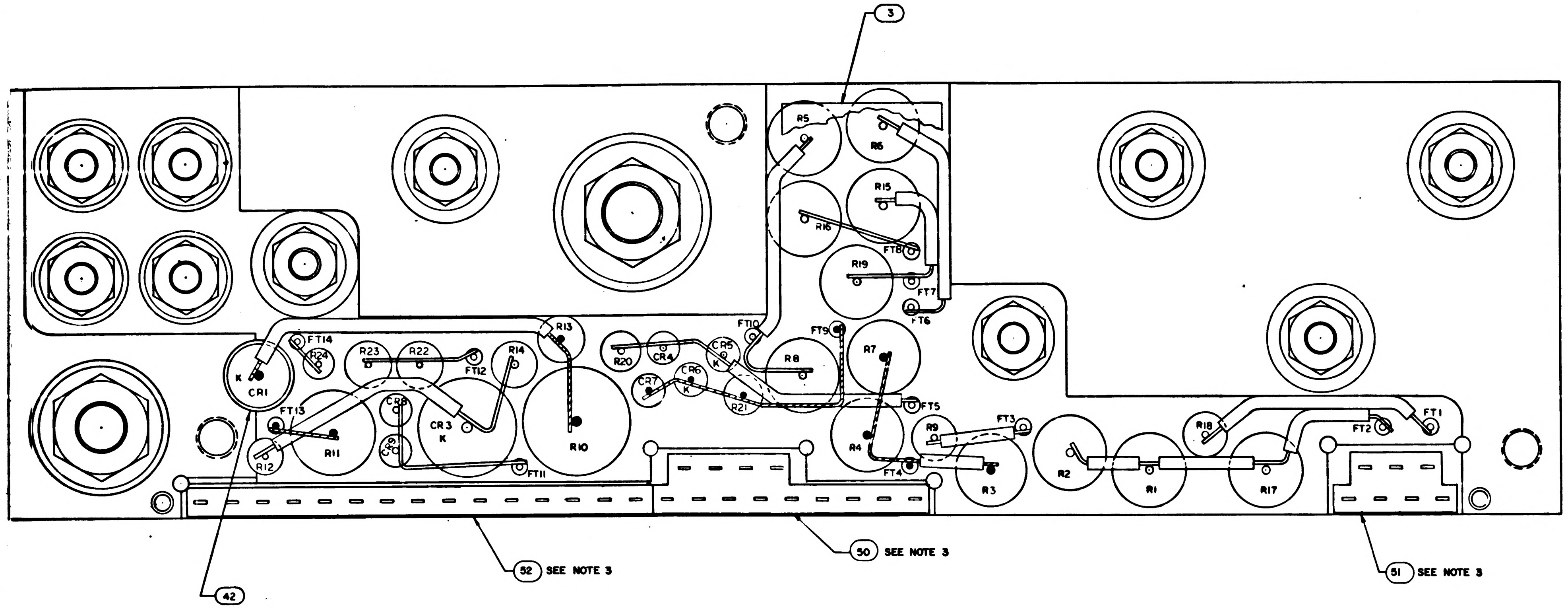
B	REVISED PER TDRR 17336		GV EF



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CR3
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R20
CR4
CR7
CR6
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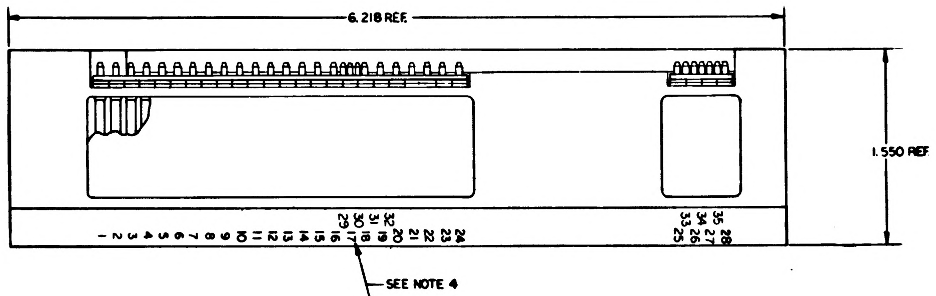
52 SEE NOTE 3
50 SEE NOTE 3
51 SEE NOTE 3



6.218 REF.
1.550 REF
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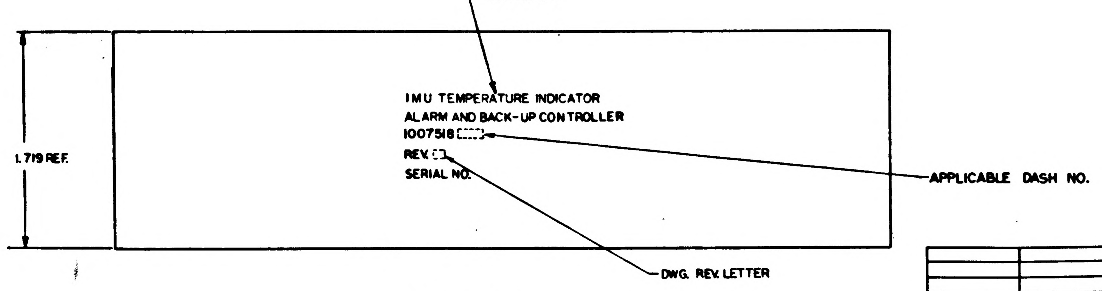
SEE NOTE 4



1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007518
REV.
SERIAL NO.
APPLICABLE DASH NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			1		1008540-15	GASKET, CONNECTOR-MINIATURE	52
			X		1010140	SCHEMATIC, ELECTRICAL	
			1		1008545	GASKET, CONNECTOR MINIATURE	51
			1		1008546	GASKET, CONNECTOR MINIATURE	50
			2		1010311- SEE NOTE 19	RESISTOR	49
			2		1010377-237	RESISTOR	48
			1		1008185	INSULATOR TOP, AMPL	47
			AR		1006776-20	INSULATION SLEEVING	46
			1		MS20341-10B	NUT HEX	45
			1		MS20341-416B	NUT HEX	44
			AR		1006757-8	WIRE ELECTRICAL .020 DIA.	43
			AR		MIL-I-23053-8	INSULATION SLEEVING	42
			AR		1006776-21	INSULATION SLEEVING	41
			AR		1006757-1	WIRE ELECT. .010 X .020	40
			35		1006782-5	CONTACT WRAPOST MALE	39
			35		1006775	INSULATOR WRAPOST MALE	38
			10		1008070-5	WASHER, FLAT	37
			10		MS20341-4A	NUT-HEX	36
			10		MS35338-78	WASHER, LOCK	35
			1		1008021-1	BUSHING INSULATOR	34
			1		1008021-2	BUSHING INSULATOR	33
			1		1008020-2	WASHER FLAT	32
			1		1008020-1	WASHER FLAT	31
			1		1008024-1	WASHER INSULATOR	30
			1		1008024-2	WASHER INSULATOR	29
			1		1008024-4	WASHER INSULATOR	28
			1		1008024-3	WASHER INSULATOR	27
			1		1018900-011	AMPLIFIER	26
			2		1000284	AMPLIFIER	25
			2		1010353-1	RELAY	24
			1		1010273-1	TRANSISTOR	23
			6		1010362-3	DIODE	22
			1		1010441-2	DIODE	21
			1		1010331-20	DIODE	20
			1		1010440-1	DIODE	19
			X		1010377 SEE NOTE 18	RESISTOR	18
							17
			2		1010364-368	RESISTOR	16
			1		1010364-44	RESISTOR	15
			1		1010361-112	RESISTOR	14
			1		1010452-167	RESISTOR	13
			1		1010450-9	RESISTOR	12
			1		1010604-22	RESISTOR	11
			1		1010450-10	RESISTOR	10
			2		1010450-12	RESISTOR	9
			1		1010450-13	RESISTOR	8
			1		1010450-14	RESISTOR	7
			2		1010450-3	RESISTOR	6
			2		1010450-2	RESISTOR	5
			1		1010450-11	RESISTOR	4
			1		1008074	INSULATOR BOTTOM	3
			1		1008186	INSULATOR TOP	2
			1		1007072	HEAT SINK	1
QUANTITY REQUIRED					LIST OF MATERIALS		

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ±
DECIMALS XX ± .02 .XXX ± .005
ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN S. Ayre DATE 1 SEP 64
CHECKED A. Wood 4 SEP 64
APPROVAL
APPROVAL 10/5/64
NASA APPROVAL 10-6-64
MIT APPROVAL W Kupfer 6 Oct 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

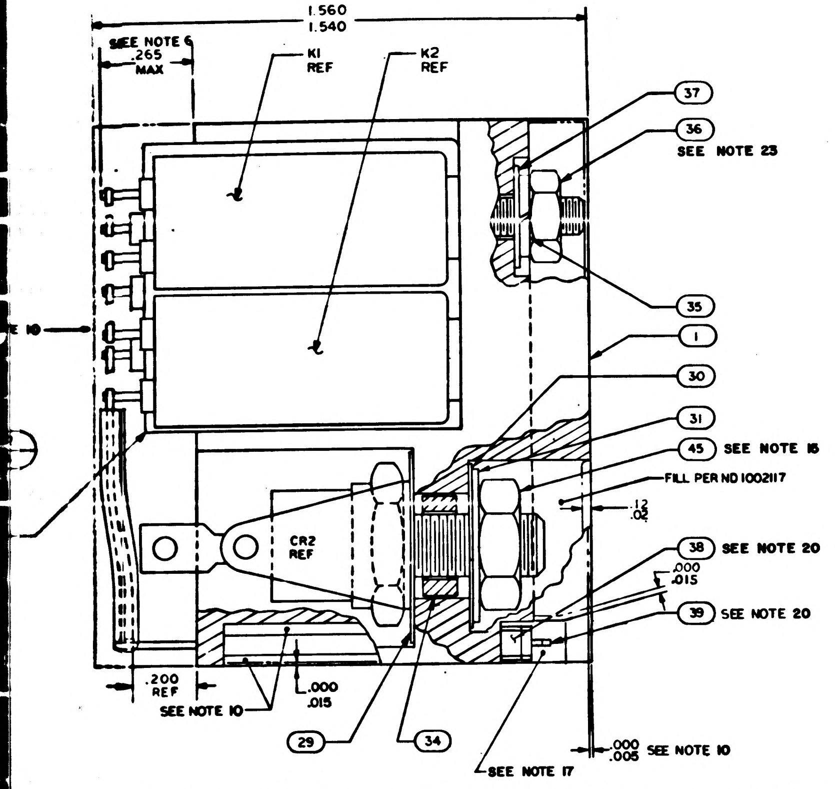
IMU TEMP INDICATOR ALARM AND BACK-UP CONTROLLER ASSEMBLY

CODE IDENT NO.
SIZE J
NASA DRAWING NO 1007518
SCALE 5:1
WT
SHEET 1 OF 1

1007518 B

3/4

3-4-1007518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SEE NOTE 6
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FILL PER NO 1002117
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39 SEE NOTE 20
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SEE NOTE 10
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SEE NOTE 17
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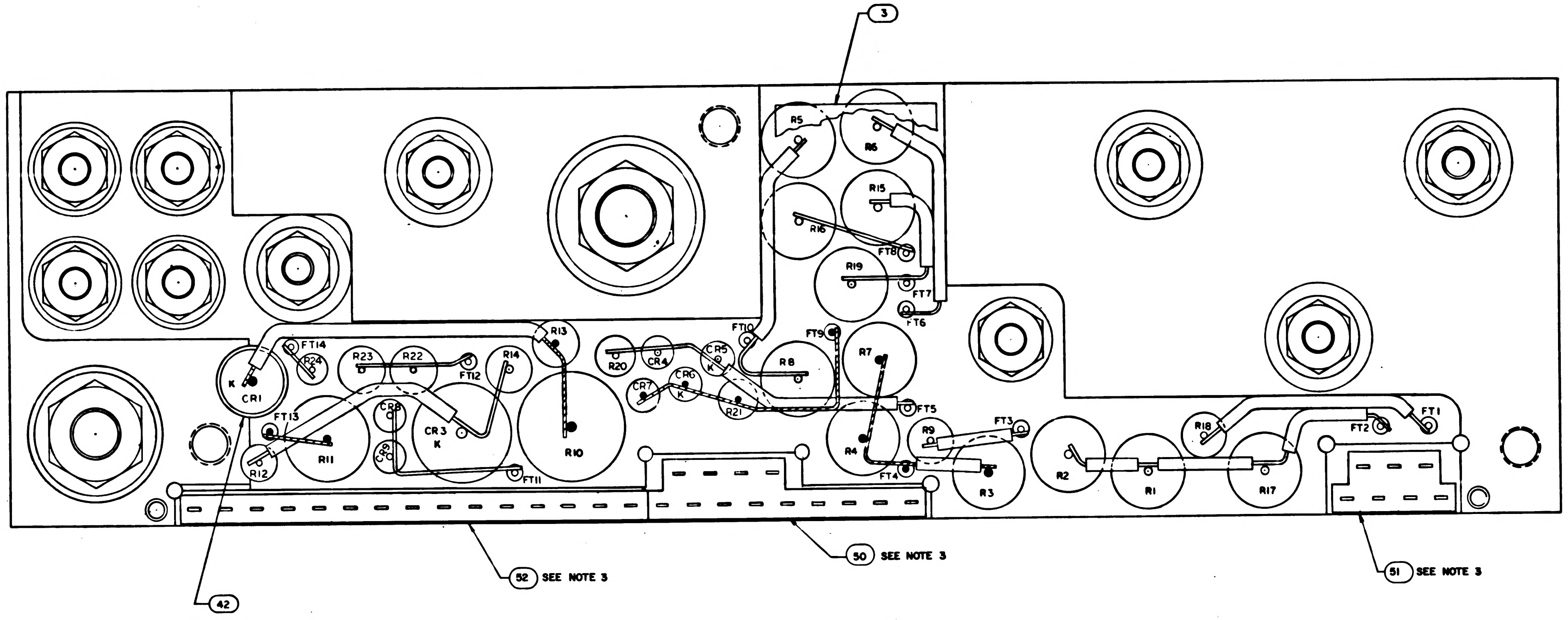
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R11
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FT11
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R18
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42
52 SEE NOTE 3
50 SEE NOTE 3
51 SEE NOTE 3

R13				R14		R9 AND R18					
PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE
1010377-113	15	1010377-164	117	1010377-141	71	1010311-126	1000	1010311-177	3400	1010311-228	11500
-114	17	-165	119	-142	73	-127	1020	-178	3480	-229	11800
-115	19	-166	121	-143	75	-128	1050	-179	3570	-230	12100
-116	21	-167	123	-144	77	-129	1070	-180	3650	-231	12400
-117	23	-168	125	-145	79	-130	1100	-181	3740	-232	12700
-118	25	-169	127	-146	81	-131	1130	-182	3830	-233	13000
-119	27	-170	129	-147	83	-132	1150	-183	3920	-234	13300
-120	29	-171	131	-148	85	-133	1180	-184	4020	-235	13700
-121	31	-172	133	-149	87	-134	1210	-185	4120	-236	14000
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-142	73	-193	175	-170	129	-155	2000	-206	6810	-257	23200
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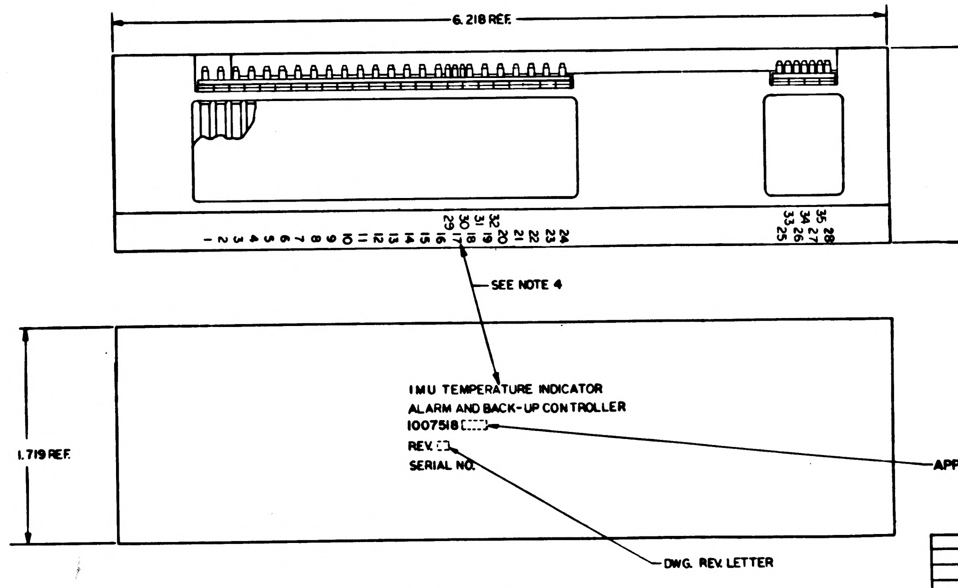
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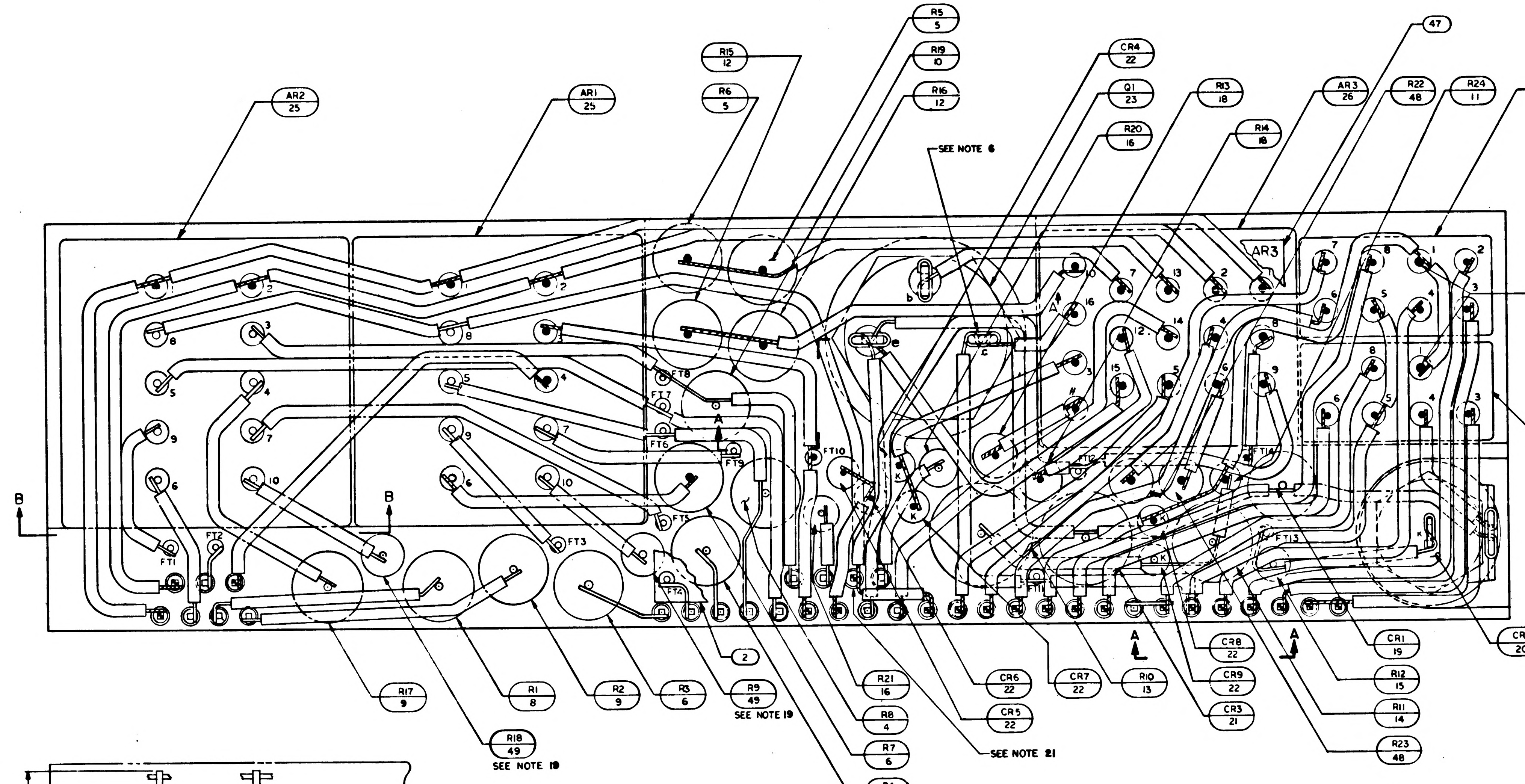
SEE NOTE 4
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007518
REV.
SERIAL NO.
1.719 REF.
APPLICABLE DASH NO.
DWG. REV LETTER

MARKING VIEW
SCALE 2:1

007577
NEXT ASSY
USED
APPLICATION
THE ASSEMBLY PART NUMBER AND THE DASH

1007518 B

2/1007518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AR1 25
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R6 5
R5 5
R19 10
R16 12
CR4 22
Q1 23
R20 16
SEE NOTE 6
R13 18
R14 18
AR3 26
R22 48
R24 11
K1 24
47
AR3
BLUE BEAD
FT1
FT2
FT3
FT4
FT5
FT6
FT7
FT8
FT9
FT10
FT11
FT12
FT13
FT14
B
A
K
R17 9
R18 49
SEE NOTE 19
R1 8
R2 9
R3 6
R9 49
SEE NOTE 19
2
R21 16
R8 4
R7 6
R4 7
CR6 22
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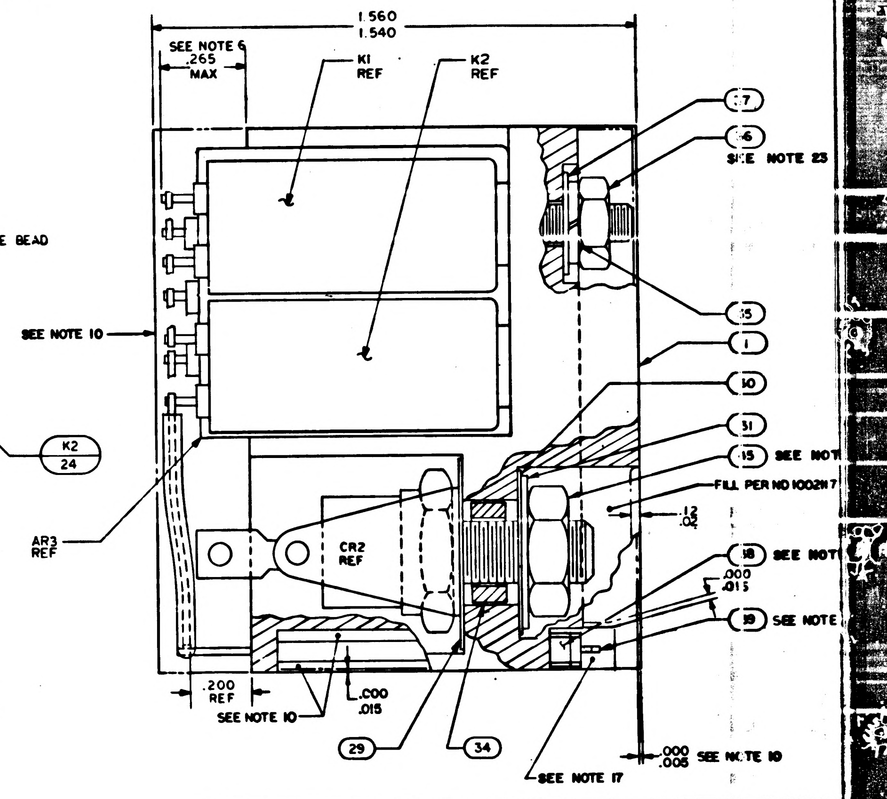
CR2 20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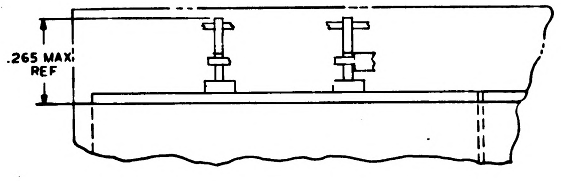
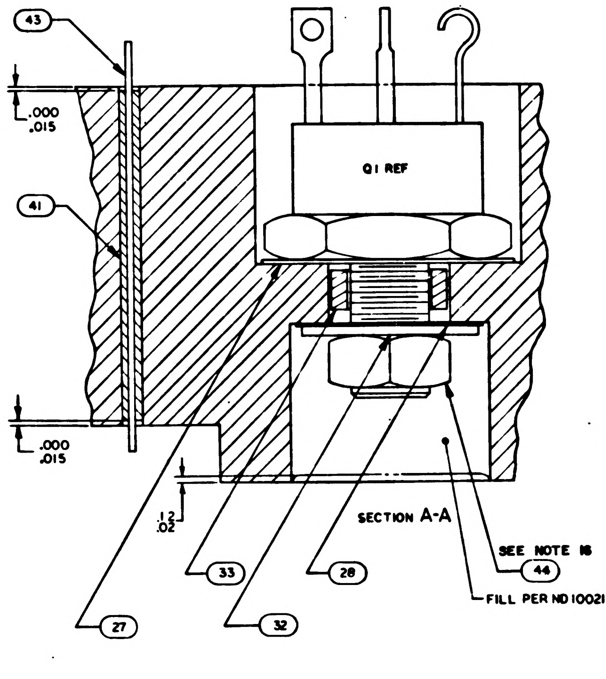
1.540
SEE NOTE 6
.265 MAX
K1 REF
K2 REF
7
6
SEE NOTE 23
15
1
10
31
15 SEE NOTE
FILL PER ND1002117
.12
.02
18 SEE NOTE
.000
.015
19 SEE NOTE
SEE NOTE 10
K2 24
AR3 REF
CR2 REF
.200 REF
SEE NOTE 10
.000
.015
29
34
SEE NOTE 17
.000
.005
SEE NOTE 10



SECTION B-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
3. BOND FIND NO. 50,51 & 52 TO FIND NO. 38 PER ND1002237.
4. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
5. ALL CONNECTIONS MADE BY WELDING TO BE PER ND 1002005.
6. SOLDER PER ND 1002071.
7. CHECKERED INDICATES INTERMEDIATE LEVEL WIRING
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
9. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
10. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE. THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
11.
12. PROCURE PER PS 1007162.
13. AR DENOTES AS REQUIRED
14. K DENOTES CATHODE SIDE OF DIODE
15. MOUNTING TORQUE FOR FIND NO. 20 TO BE 10/15 INCH POUNDS
16. MOUNTING TORQUE FOR FIND NO. 23 TO BE 22/26 INCH POUNDS
17. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
18. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007162 PART TO BE SELECTED FROM CHART.
19. R9 AND R18 TO BE SELECTED AT ASSEMBLY, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER. RANGE OF VALUES (OHMS) SHOWN ON CHART.
20. ASSEMBLE FIND NO. 38 AND 39 PER ND 1002136
21. LEAD FROM AR1-8 TERMINATES AT LOWER WELD CONNECTION OF PIN 30. UPPER LEAD TIES PINS 15 AND 30 TO FT12
22. ALL ELECTRICAL COMPONENTS WHICH ARE NOT STUD MOUNTED AND ALL FEED THRUS TO BE CENTRALIZED AND CEMENTED PER ND 1002009. METHOD C
23. TORQUE TO 4 ± 1 IN. LB. FOR ASSY OF ITEM 24, 25, AND 26.
24. BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.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Q1 REF
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.02
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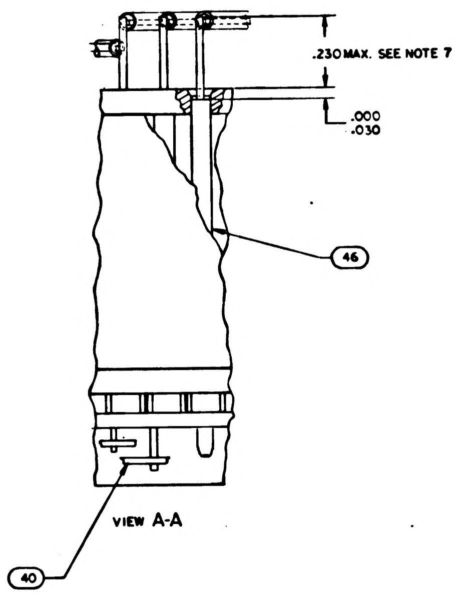
SEE NOTE 16
44
FILL PER ND1002117

SECTION A-A


.230 MAX. SEE NOTE 7
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VIEW A-A

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-115	19	-166	121	-143	75	-128	1050	
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-122	33	-173	135	-150	89	-135	1240	
-123	35	-174	137	-151	91	-136	1270	
-124	37	-175	139	-152	93	-137	1300	
-125	39	-176	141	-153	95	-138	1330	
-126	41	-177	143	-154	97	-139	1370	
-127	43	-178	145	-155	99	-140	1400	
-128	45	-179	147	-156	101	-141	430	
-129	47	-180	149	-157	103	-142	1470	
-130	49	-181	151	-158	105	-143	1500	
-131	51	-182	153	-159	107	-144	1540	
-132	53	-183	155	-160	109	-145	1580	
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-134	57	-185	159	-162	113	-147	1650	
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-139	67	-190	169	-167	123	-152	1870	
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-142	73	-193	175	-170	129	-155	2000	
-143	75	-194	177	-171	131	-156	2050	
-144	77	-195	179	-172	133	-157	2100	
-145	79	-196	181	-173	135	-158	2150	
-146	81	-197	183	-174	137	-159	2210	
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-161	111			-189	167	-174	3160	
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REVISIONS 19333			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 9584	12/8/64	WK
B	REVISED PER DRR 17336	4 MAR 65	GM / EF
C	REVISED PER TDRR 19396	2 JUNE 65	LGC / MEM

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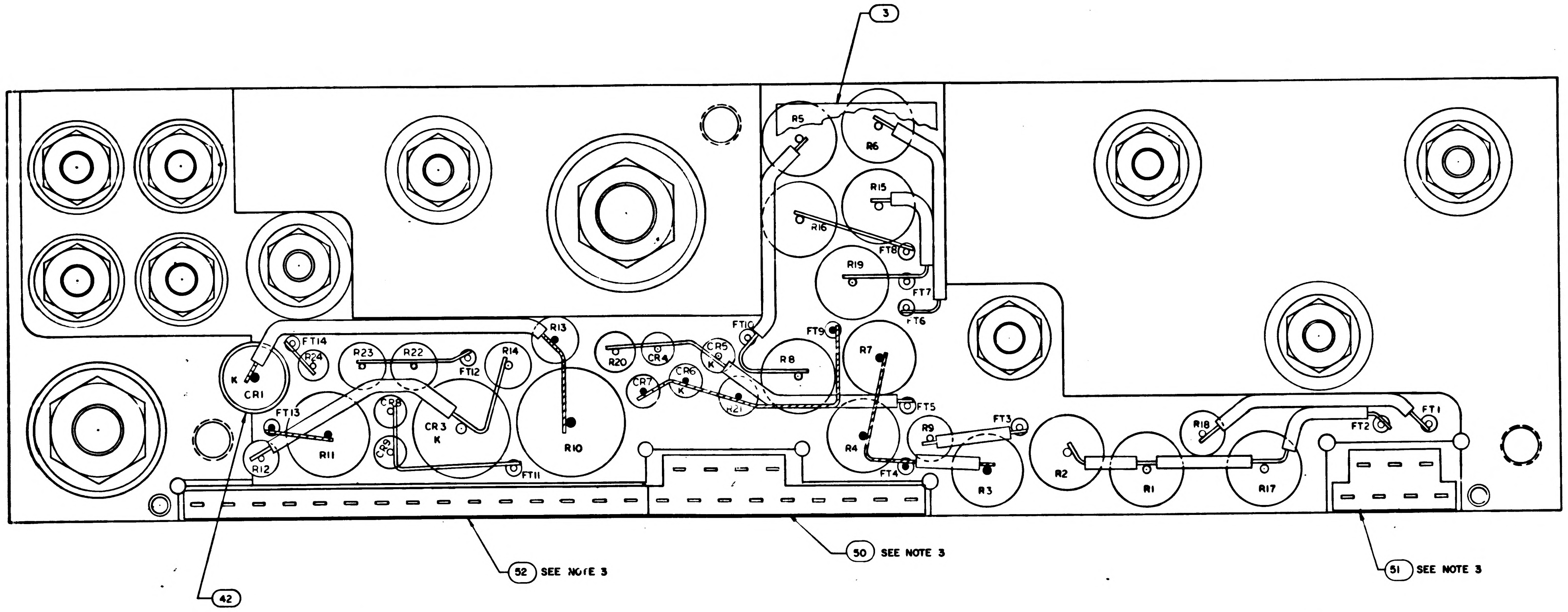
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R6
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FT8
FT7
FT6
FT10
FT9
R8
R7
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K
CR6
K
CR4
R20
CR7
R21
FT5
R9
FT3
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FT4
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R17
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FT2
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R23
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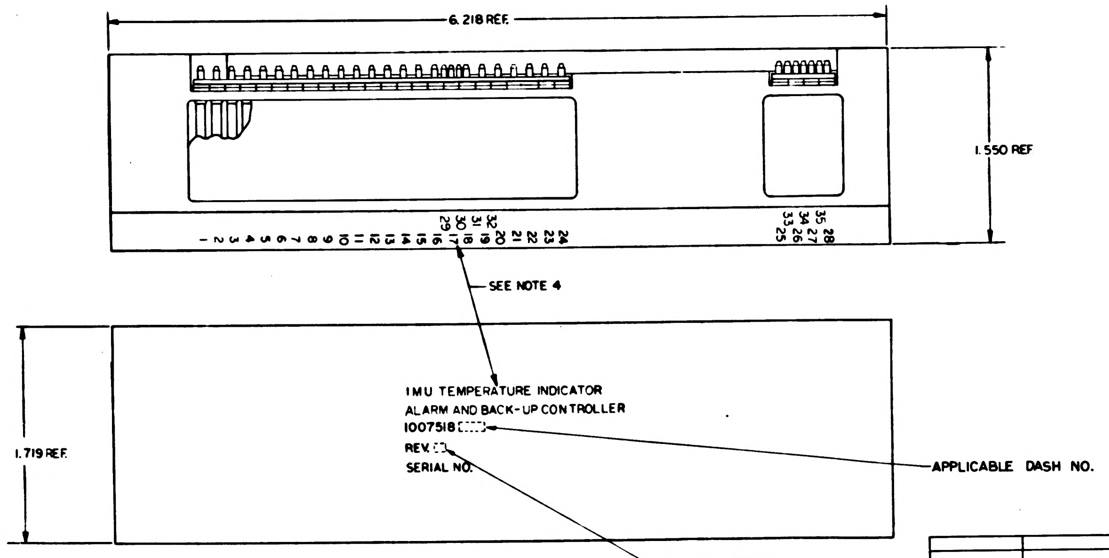
FT14
FT12
K
CR1
FT13
R11
CR8
CR3
K
R10
R12
FT11
42
52 SEE NOTE 3
50 SEE NOTE 3
51 SEE NOTE 3

TABLE I

CONFIGURATION	MATERIAL	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER AT PERIMETER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	ADHESIVE	.12 MIN 100% OF PERIMETER .25 MIN 80% OF PERIMETER	.25 MIN 100% OF PERIMETER	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	ADHESIVE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	.25 MIN 100% OF PERIMETER	
HEATSINK FOAM CONTACT SURFACE	PRIMER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 TO .06 OF EXTERNAL EDGE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1.550 REF
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29 30 31 32
33 34 35
25 26 27 28
SEE NOTE 4
1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007518
REV.
SERIAL NO.
APPLICABLE DASH NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

QUANTITY REQUIRED 011	EFFECTIVITY	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1		1008540-15	GASKET, CONNECTOR-MINIATURE	52
X		1010140	SCHEMATIC, ELECTRICAL	
1		1008545	GASKET, CONNECTOR MINIATURE	51
1		1008546	GASKET, CONNECTOR MINIATURE	50
2		1010311- SEE NOTE 19	RESISTOR	49
2		1010377-237	RESISTOR	48
1		1008185	INSULATOR TOP, AMPL	47
AR		1006776-20.	INSULATION SLEEVING	46
1		MS20341-10B	NUT HEX	45
1		MS20341-416B	NUT HEX	44
AR		1006757-8	WIRE ELECTRICAL .020 DIA.	43
AR		MIL-I-23053-8	INSULATION SLEEVING	42
AR		1006776-21	INSULATION SLEEVING	41
AR		1006757-1	WIRE ELECT. .010 X .020	40
35		1006782-5	CONTACT WRAPOST MALE	39
35		1006775	INSULATOR WRAPOST MALE	38
10		1008070-5	WASHER, FLAT	37
10		MS20341-4A	NUT-HEX	36
10		MS35338-78	WASHER, LOCK	35
1		1008021-1	BUSHING INSULATOR	34
1		1008021-2	BUSHING INSULATOR	33
1		1008020-2	WASHER FLAT	32
1		1008020-1	WASHER FLAT	31
1		1008024-1	WASHER INSULATOR	30
1		1008024-2	WASHER INSULATOR	29
1		1008024-4	WASHER INSULATOR	28
1		1008024-3	WASHER INSULATOR	27
1		1018900 011	AMPLIFIER	26
2		1000284	AMPLIFIER	25
2		1010353-1	RELAY	24
1		1010273-1	TRANSISTOR	23
6		1010362-3	DIODE	22
1		1010441-2	DIODE	21
1		1010331-20	DIODE	20
1		1010440-1	DIODE	19
X		1010377 SEE NOTE 18	RESISTOR	18
				17
2		1010364-368	RESISTOR	16
1		1010364-44	RESISTOR	15
1		1010361-112	RESISTOR	14
1		1010452-167	RESISTOR	13
1		1010450-9	RESISTOR	12
1		1010604-22	RESISTOR	11
1		1010450-10	RESISTOR	10
2		1010450-12	RESISTOR	9
1		1010450-13	RESISTOR	8
1		1010450-14	RESISTOR	7
2		1010450-3	RESISTOR	6
2		1010450-2	RESISTOR	5
1		1010450-11	RESISTOR	4
1		1008074	INSULATOR BOTTOM	3
1		1008186	INSULATOR TOP	2
1		1007072	HEAT SINK	1

LIST OF MATERIALS

1007518 C

NEXT ASSY	USED ON	APPLICABLE DASH NO.
1007577		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X DECIMALS XX ±.02 .XXX ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN S Agne DATE 1 SEP 64
CHECKED W Udond 4 SEP 64
APPROVAL
APPROVAL D. R. Test 10/5/64
NASA APPROVAL 10-6-64
MIT APPROVAL W Kupfer 6 Oct 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

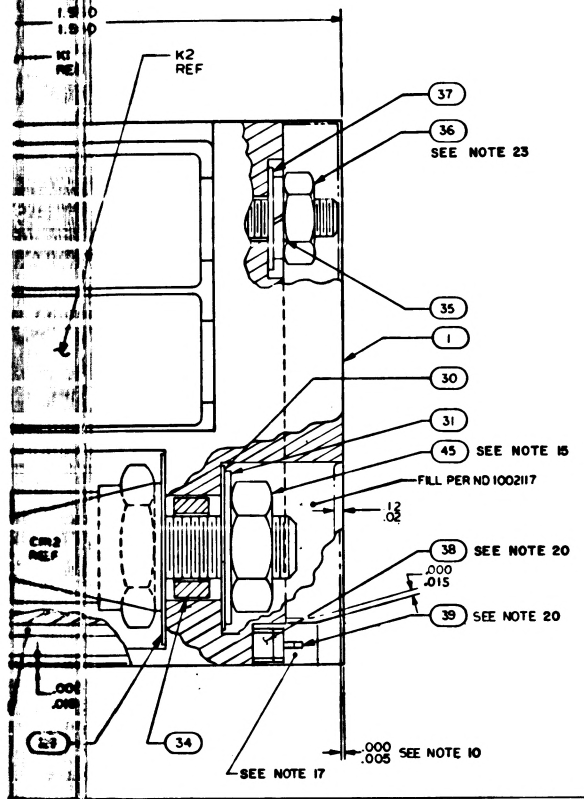
IMU TEMP INDICATOR ALARM AND BACK-UP CONTROLLER ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 1007518
SCALE 5:1
WT
SHEET 1 OF 1

1007518	REV C

3H

3/1007518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45 SEE NOTE 15
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39 SEE NOTE 20
CR2 REF
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SEE NOTE 17
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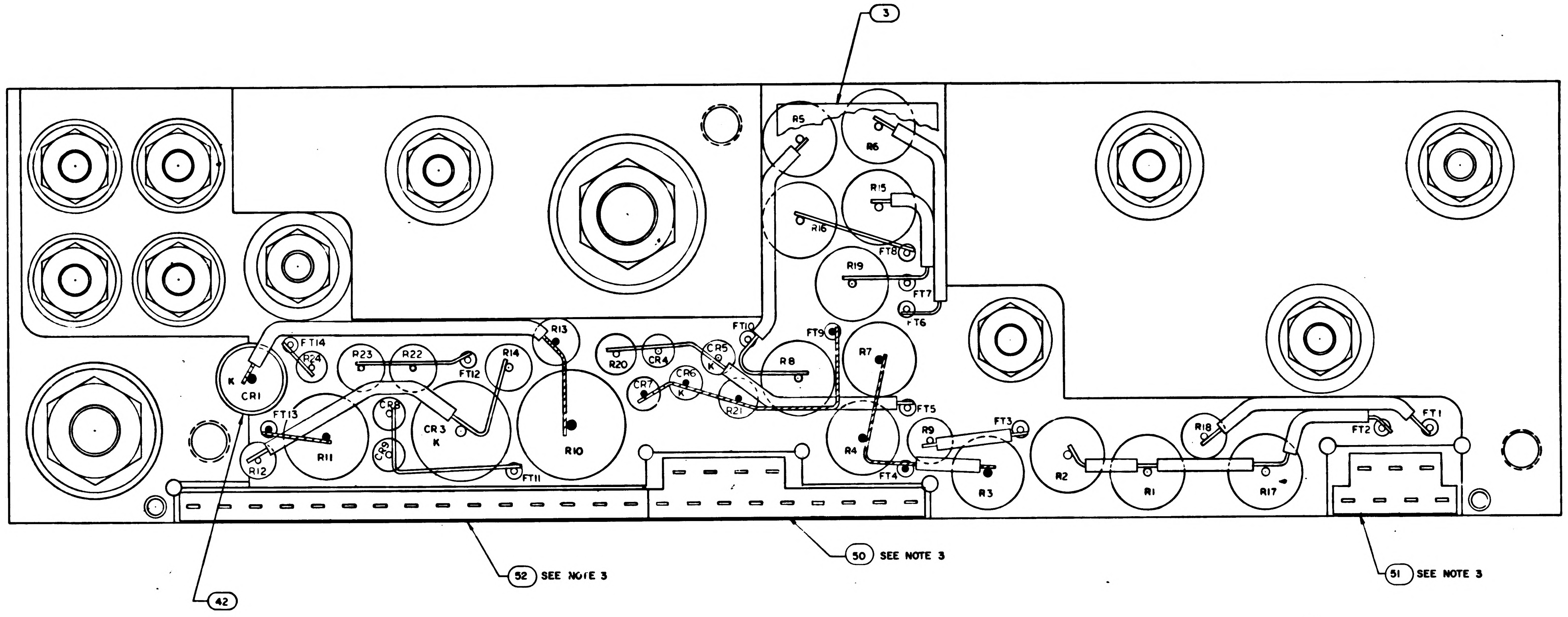
.005 SEE NOTE 10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R8
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R17
R18
FT2
FT1
42
52 SEE NOTE 3
50 SEE NOTE 3
51 SEE NOTE 3

R13		R14		R9 AND R18					
PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE
1010377-164	117	1010377-141	71	1010311-126	1000	1010311-177	3400	1010311-228	11500
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-166	121	-143	75	-128	1050	-179	3570	-230	12100
-167	123	-144	77	-129	1070	-180	3650	-231	12400
-168	125	-145	79	-130	1100	-181	3740	-232	12700
-169	127	-146	81	-131	1130	-182	3830	-233	13000
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-171	131	-148	85	-133	1180	-184	4020	-235	13700
-172	133	-149	87	-134	1210	-185	4120	-236	14000
-173	135	-150	89	-135	1240	-186	4220	-237	14300
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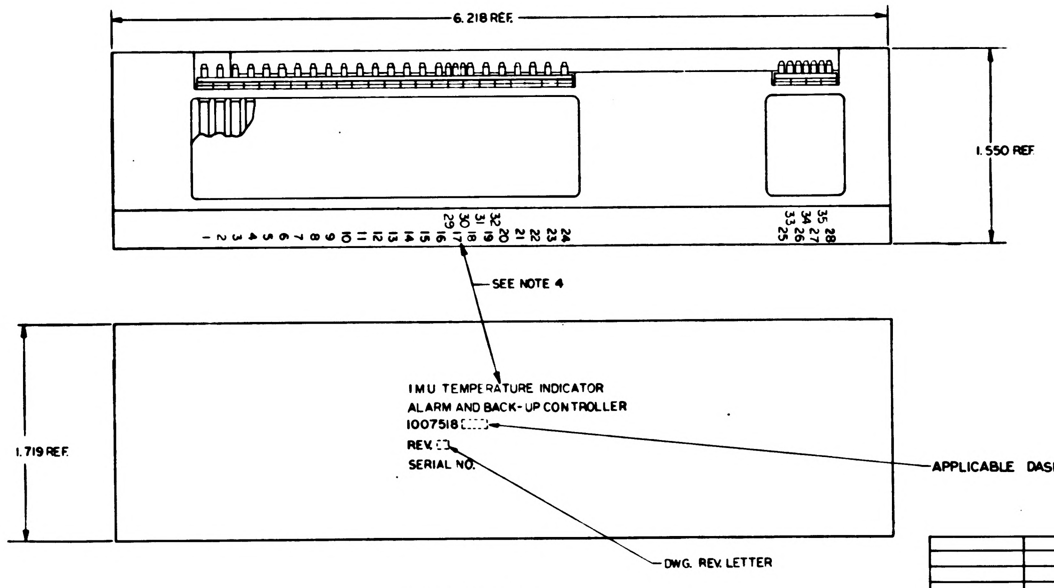
-185	159	-162	113	-147	1650	-198	5620	-249	19100
-186	161	-163	115	-148	1690	-199	5760	-250	19600
-187	163	-164	117	-149	1740	-200	5900	-251	20000
-188	165	-165	119	-150	1780	-201	6040	-252	20500
-189	167	-166	121	-151	1820	-202	6190	-253	21000
-190	169	-167	123	-152	1870	-203	6340	-254	21500
-191	171	-168	125	-153	1910	-204	6490	-255	22100
-192	173	-169	127	-154	1960	-205	6650	-256	22600
-193	175	-170	129	-155	2000	-206	6810	-257	23200
-194	177	-171	131	-156	2050	-207	6980	-258	23700
-195	179	-172	133	-157	2100	-208	7150	-259	24300
-196	181	-173	135	-158	2150	-209	7320	-260	24900
-197	183	-174	137	-159	2210	-210	7500	-261	25500
-198	185	-175	139	-160	2260	-211	7680	-262	26100
-199	187	-176	141	-161	2320	-212	7870	-263	26700
-200	189	-177	143	-162	2370	-213	8060	-264	27400
-201	191	-178	145	-163	2430	-214	8250	-265	28000
-202	193	-179	147	-164	2490	-215	8450	-266	28700
-203	195	-180	149	-165	2550	-216	8660	-267	29400
-204	197	-181	151	-166	2610	-217	8870	-268	30100
-205	199	-182	153	-167	2670	-218	9090		
-206	201	-183	155	-168	2740	-219	9310		
		-184	157	-169	2800	-220	9530		
		-185	159	-170	2870	-221	9760		
		-186	161	-171	2940	-222	10000		
		-187	163	-172	3010	-223	10200		
		-188	165	-173	3090	-224	10500		
		-189	167	-174	3160	-225	10700		
		-190	169	-175	3240	-226	11000		
		-191	171	-176	3320	-227	11300		

TABLE I

CONFIGURATION	MATERIAL	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER AT PERIMETER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	ADHESIVE	.12 MIN 100% OF PERIMETER .25 MIN 80% OF PERIMETER	.25 MIN 100% OF PERIMETER	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	ADHESIVE	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	.25 MIN 100% OF PERIMETER	
HEATSINK FOAM CONTACT SURFACE	PRIMER	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 TO .06 OF EXTERNAL EDGE


6.218 REF
1.550 REF
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
29 30 31 32
25 26 27 28
33 34 35
SEE NOTE 4
1.719 REF
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007518
REV.
SERIAL NO.
APPLICABLE DASH NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

1007577		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

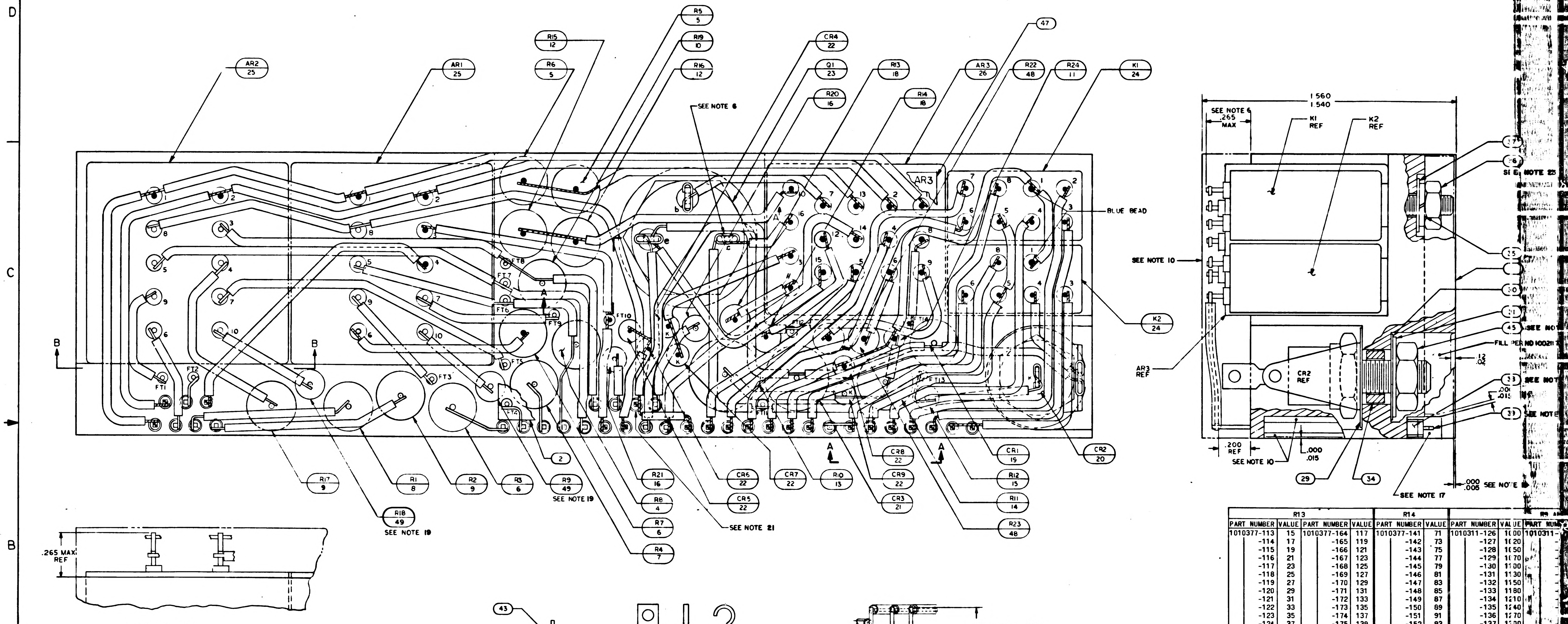
QUANTITY REQUIRED

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS
.XX ± .02
.XXX ± .005
DO NOT SCALE THIS DRAWING

MATERIAL

HEAT TREATMENT

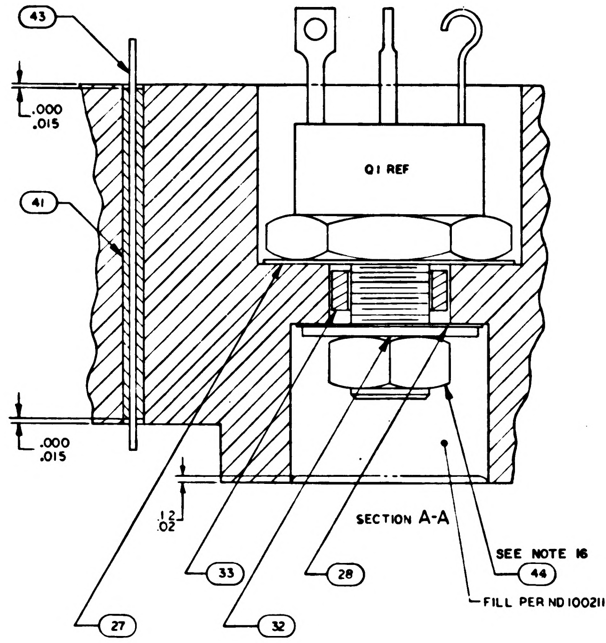
FINAL FINISH


AR2 25
AR1 25
R15 12
R6 5
R5 5
R19 10
R16 12
CR4 22
Q1 23
R20 16
R13 18
R14 18
AR3 26
R22 48
R24 11
K1 24
47
SEE NOTE 6
BLUE BEAD
AR3
K2 24
FT1
FT2
FT3
FT4
FT5
FT6
FT7
FT8
FT9
FT10
FT11
FT13
FT14
B
A
R17 9
R18 49
SEE NOTE 19
R1 8
R2 9
R3 6
2
R9 49
SEE NOTE 19
R21 16
R8 4
R7 6
R4 7
CR6 22
CR5 22
SEE NOTE 21
CR7 22
R10 13
CR8 22
CR9 22
CR3 21
CR1 19
R12 15
R11 14
R23 48
CR2 20
1.560
1.540
SEE NOTE 6
.265 MAX
K1 REF
K2 REF
SEE NOTE 10
AR3 REF
CR2 REF
37
36
SEE NOTE 23
35
30
31
45
SEE NOTE
FILL PER ND 1002117
12 .04
33
SEE NOTE
.000 .015
39
SEE NOTE
.200 REF
SEE NOTE 10
.000 .015
29
34
SEE NOTE 17
.000 .005 SEE NOTE
.265 MAX REF

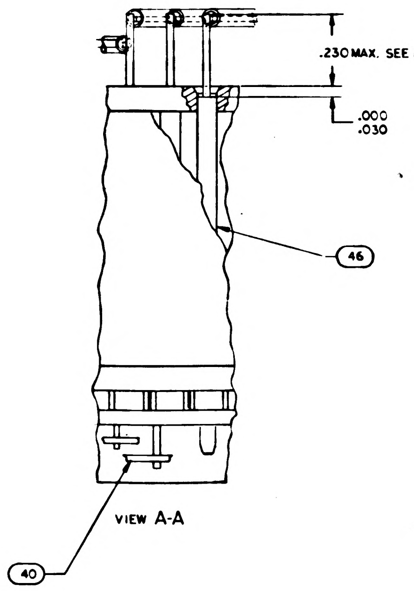
SECTION B-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
3. BOND FIND NO. 50,51 & 52 TO FIND NO. 38 PER ND1002237.
4. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
5. ALL CONNECTIONS MADE BY WELDING TO BE PER ND 1002005.
6. SOLDER PER ND 1002071.
7. CHECKERED INDICATES INTERMEDIATE LEVEL WIRING
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
9. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
10. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE. THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
11.
12. PROCURE PER PS 1007162.
13. AR DENOTES AS REQUIRED
14. K DENOTES CATHODE SIDE OF DIODE
15. MOUNTING TORQUE FOR FIND NO. 20 TO BE 10/15 INCH POUNDS
16. MOUNTING TORQUE FOR FIND NO. 23 TO BE 22/26 INCH POUNDS
17. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
18. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007162 PART TO BE SELECTED FROM CHART.
19. R9 AND R18 TO BE SELECTED AT ASSEMBLY, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER. RANGE OF VALUES (OHMS) SHOWN ON CHART.
20. ASSEMBLE FIND NO. 38 AND 39 PER ND 1002136
21. LEAD FROM AR1-8 TERMINATES AT LOWER WELD CONNECTION OF PIN 30. UPPER LEAD TIES PINS 15 AND 30 TO FT12
22. ALL ELECTRICAL COMPONENTS WHICH ARE NOT STUD MOUNTED AND ALL FEED THRUS TO BE CENTRALIZED AND CEMENTED PER ND 1002009. METHOD C
23. TORQUE TO 4 ± 1 IN. LB. FOR ASSY OF ITEM 24, 25, AND 26.
24. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
25. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS & APPLICATION OF PRIMER BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL. ADHESIVE & COATING MATERIAL PER ND 1002187 TYPE I. PRIMER TO CONSIST OF SIX PARTS BY VOLUME OF 1012504-1 & ONE PART BY VOLUME OF 1012504-2. APPLY MATERIAL & PRIMER AS INDICATED IN TABLE I.


43
.000 .015
Q1 REF
41
.000 .015
12 .02
27
33
28
32
SEE NOTE 16
44
FILL PER ND 1002117

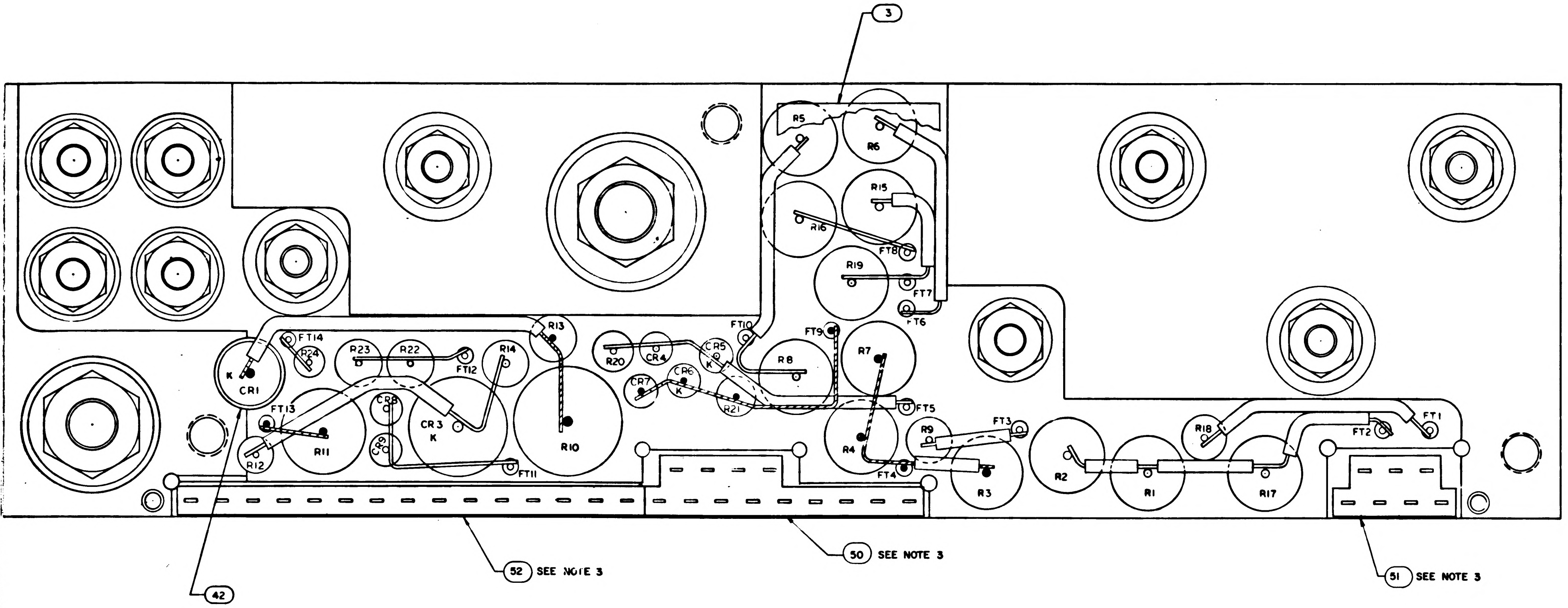
SECTION A-A


.230 MAX. SEE NOTE 7
.000 .030
46
40

VIEW A-A

R13				R14		R9 A		
PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUM
1010377-113	15	1010377-164	117	1010377-141	71	1010311-126	1000	1010311-
-114	17	-165	119	-142	73	-127	1020	-
-115	19	-166	121	-143	75	-128	1050	-
-116	21	-167	123	-144	77	-129	1070	-
-117	23	-168	125	-145	79	-130	1100	-
-118	25	-169	127	-146	81	-131	1130	-
-119	27	-170	129	-147	83	-132	1150	-
-120	29	-171	131	-148	85	-133	1180	-
-121	31	-172	133	-149	87	-134	1210	-
-122	33	-173	135	-150	89	-135	1240	-
-123	35	-174	137	-151	91	-136	1270	-
-124	37	-175	139	-152	93	-137	1300	-
-125	39	-176	141	-153	95	-138	1330	-
-126	41	-177	143	-154	97	-139	1370	-
-127	43	-178	145	-155	99	-140	1400	-
-128	45	-179	147	-156	101	-141	1430	-
-129	47	-180	149	-157	103	-142	1470	-
-130	49	-181	151	-158	105	-143	1500	-
-131	51	-182	153	-159	107	-144	1540	-
-132	53	-183	155	-160	109	-145	1580	-
-133	55	-184	157	-161	111	-146	1620	-
-134	57	-185	159	-162	113	-147	1650	-
-135	59	-186	161	-163	115	-148	1690	-
-136	61	-187	163	-164	117	-149	1740	-
-137	63	-188	165	-165	119	-150	1790	-
-138	65	-189	167	-166	121	-151	1820	-
-139	67	-190	169	-167	123	-152	1870	-
-140	69	-191	171	-168	125	-153	1910	-
-141	71	-192	173	-169	127	-154	1960	-
-142	73	-193	175	-170	129	-155	2000	-
-143	75	-194	177	-171	131	-156	2050	-
-144	77	-195	179	-172	133	-157	2100	-
-145	79	-196	181	-173	135	-158	2150	-
-146	81	-197	183	-174	137	-159	2210	-
-147	83	-198	185	-175	139	-160	2260	-
-148	85	-199	187	-176	141	-161	2320	-
-149	87	-200	189	-177	143	-162	2370	-
-150	89	-201	191	-178	145	-163	2430	-
-151	91	-202	193	-179	147	-164	2490	-
-152	93	-203	195	-180	149	-165	2550	-
-153	95	-204	197	-181	151	-166	2610	-
-154	97	-205	199	-182	153	-167	2670	-
-155	99	-206	201	-183	155	-168	2740	-
-156	101			-184	157	-169	2800	-
-157	103			-185	159	-170	2870	-
-158	105			-186	161	-171	2940	-
-159	107			-187	163	-172	3010	-
-160	109			-188	165	-173	3090	-
-161	111			-189	167	-174	3160	-
-162	113			-190	169	-175	3240	-
-163	115			-191	171	-176	3320	-

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 9584	64	WK
B	REVISED PER TDRR 17336	MAR 65	GM EF
C	REVISED PER TDRR 19396	2 JUNE 68	LGC MEM
D	REVISED PER TDRR 19434	3 JUL 68	JW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R5
R6
R15
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FT8
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R23
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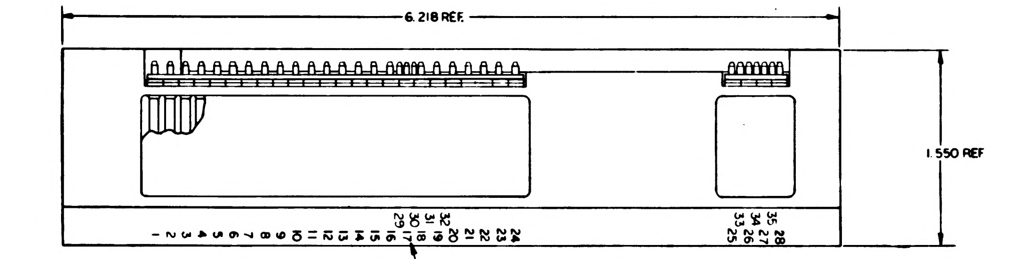
R20
CR4
FT10
FT9
CR5
R8
R7
CR6
CR7
K
CR1
CR2
CR3
FT13
R11
R10
R21
FT5
R4
R9
FT3
FT4
R3
R2
R1
R18
R17
FT2
FT1
R12
FT11
42
52 SEE NOTE 3
50 SEE NOTE 3
51 SEE NOTE 3

TABLE I

CONFIGURATION	~~MATERIAL~~	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	~~ADHESIVE~~	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	~~ADHESIVE~~	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	~~PRIMER~~	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE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1.550 REF
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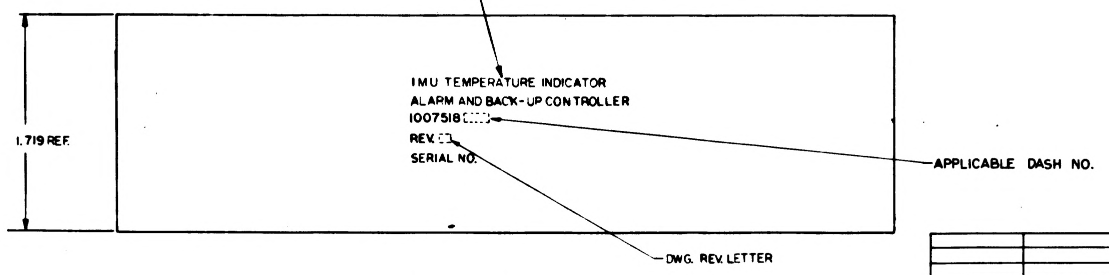
25 26 27 28 29 30 31 32 33 34 35
SEE NOTE 4


1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007518-
REV.
SERIAL NO.
APPLICABLE DASH NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

QUANTITY REQUIRED				EFFECTIVITY	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
			011				
			1		1008540-15	GASKET, CONNECTOR-MINIATURE	52
			X		1010140	SCHEMATIC, ELECTRICAL	
			1		1008545	GASKET, CONNECTOR MINIATURE	51
			1		1008546	GASKET, CONNECTOR MINIATURE	50
			2		1010311- SEE NOTE 19	RESISTOR	49
			2		1010377-237	RESISTOR	48
			1		1008185	INSULATOR TOP, AMPL	47
			AR		1006776-20	INSULATION SLEEVING	46
			1		MS20341-10B	NUT HEX	45
			1		MS20341-416B	NUT HEX	44
			AR		1006757-8	WIRE ELECTRICAL .020 DIA.	43
			AR		MIL-I-23053-8	INSULATION SLEEVING	42
			AR		1006776-21	INSULATION SLEEVING	41
			AR		1006757-1	WIRE ELECT. .010 X .020	40
			35		1006782-5	CONTACT WRAPOST MALE	39
			35		1006775	INSULATOR WRAPOST MALE	38
			10		1008070-5	WASHER, FLAT	37
			10		MS20341-4A	NUT-HEX	36
			10		MS35338-78	WASHER, LOCK	35
			1		1008021-1	BUSHING INSULATOR	34
			1		1008021-2	BUSHING INSULATOR	33
			1		1008020-2	WASHER FLAT	32
			1		1008020-1	WASHER FLAT	31
			1		1008024-1	WASHER INSULATOR	30
			1		1008024-2	WASHER INSULATOR	29
			1		1008024-4	WASHER INSULATOR	28
			1		1008024-3	WASHER INSULATOR	27
			1		1018900 -11	AMPLIFIER	26
			2		1000284	AMPLIFIER	25
			2		1010353-1	RELAY	24
			1		1010273-1	TRANSISTOR	23
			6		1010362-3	DIODE	22
			1		1010441-2	DIODE	21
			1		1010331-20	DIODE	20
			1		1010440-1	DIODE	19
			X		1010377 SEE NOTE 18	RESISTOR	18
							17
			2		1010364-368	RESISTOR	16
			1		1010364-44	RESISTOR	15
			1		1010361-112	RESISTOR	14
			1		1010452-167	RESISTOR	13
			1		1010450-9	RESISTOR	12
			1		1010604-22	RESISTOR	11
			1		1010450-10	RESISTOR	10
			2		1010450-12	RESISTOR	9
			1		1010450-13	RESISTOR	8
			1		1010450-14	RESISTOR	7
			2		1010450-3	RESISTOR	6
			2		1010450-2	RESISTOR	5
			1		1010450-11	RESISTOR	4
			1		1008074	INSULATOR BOTTOM	3
			1		1008186	INSULATOR TOP	2
			1		1007072	HEAT SINK	1

LIST OF MATERIALS

NEXT ASSY	USED ON	APPLICABLE DASH NO
1007577		

APPLICATION

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X
DECIMALS .XX ± .02 .XXX ± .005
ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN S Agne DATE 1 SEP 64
CHECKED W Udorch 4 SEP 64
APPROVAL
APPROVAL 10/5/64
NASA APPROVAL
MIT APPROVAL W Kupfer 6 Oct 64

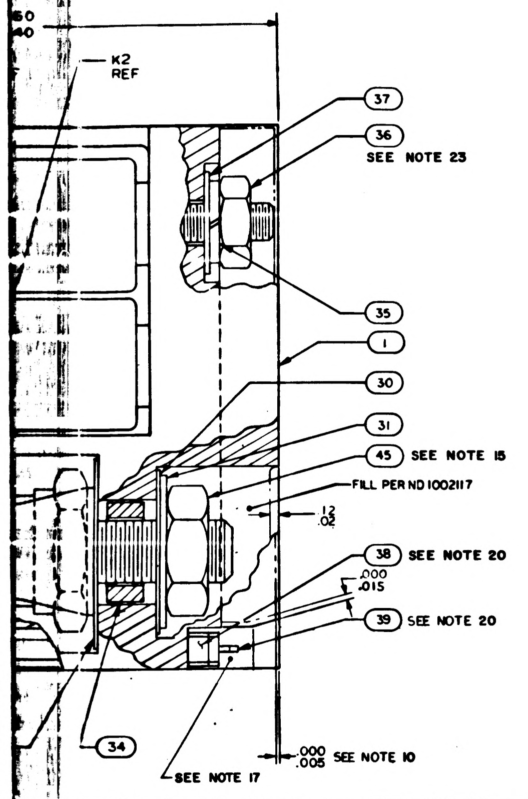
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

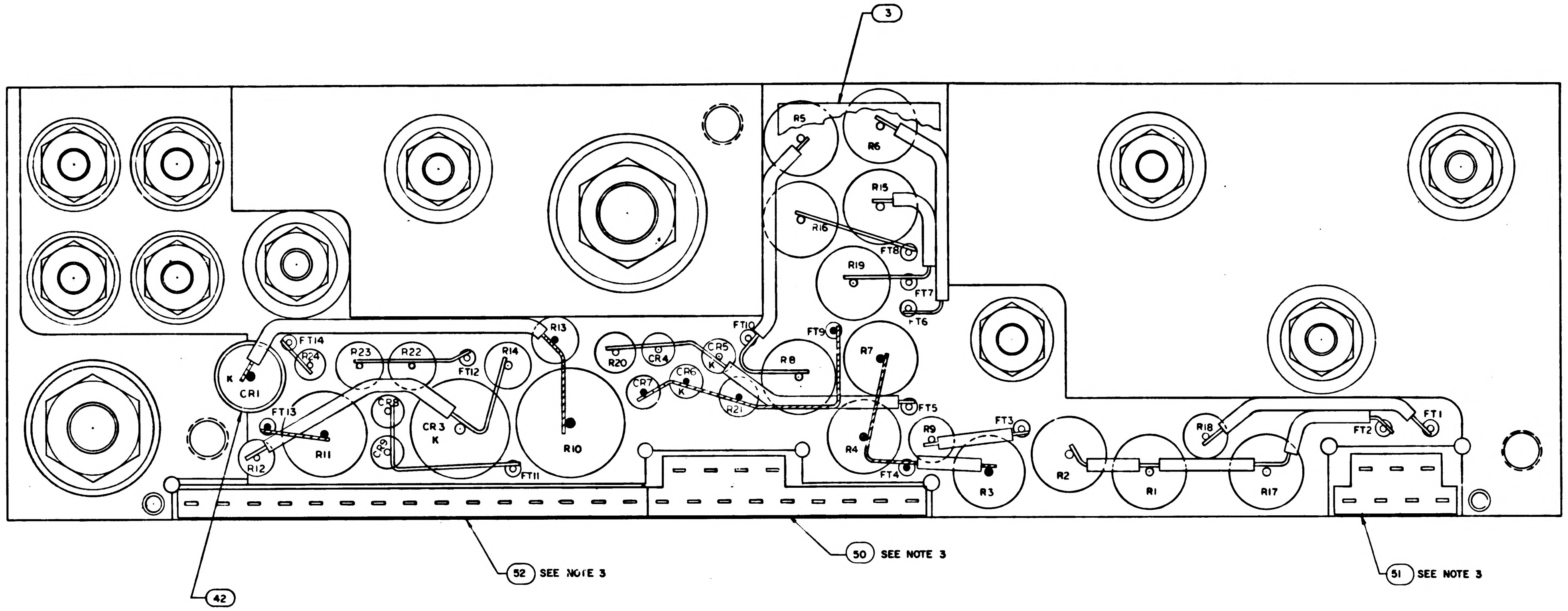
IMU TEMP INDICATOR ALARM AND BACK-UP CONTROLLER ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 1007518 -
SCALE 5:1
WT
SHEET 1 OF 1

1007518 D

34


60
40
K2
REF
37
36
SEE NOTE 23
35
1
30
31
45 SEE NOTE 15
FILL PER ND 1002117
.12
.02
38 SEE NOTE 20
.000
.015
39 SEE NOTE 20
34
SEE NOTE 17
.000
.005 SEE NOTE 10


3
R5
R6
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K
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CR7
R21
K
CR1
FT13
R12
R11
CR8
CR9
CR3
K
FT11
R10
R4
FT4
R9
FT3
R3
R2
R1
R18
FT2
FT1
R17
52 SEE NOTE 3
50 SEE NOTE 3
51 SEE NOTE 3
42

		R14		R9 AND R18					
NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE
77-164	117	1010377-141	71	1010311-126	1000	1010311-177	3400	1010311-228	11500
-165	119	-142	73	-127	1020	-178	3480	-229	11800
-166	121	-143	75	-128	1050	-179	3570	-230	12100
-167	123	-144	77	-129	1070	-180	3650	-231	12400
-168	125	-145	79	-130	1100	-181	3740	-232	12700
-169	127	-146	81	-131	1130	-182	3830	-233	13000
-170	129	-147	83	-132	1150	-183	3920	-234	13300
-171	131	-148	85	-133	1180	-184	4020	-235	13700
-172	133	-149	87	-134	1210	-185	4120	-236	14000
-173	135	-150	89	-135	1240	-186	4220	-237	14300
-174	137	-151	91	-136	1270	-187	4320	-238	14700
-175	139	-152	93	-137	1300	-188	4420	-239	15000
-176	141	-153	95	-138	1330	-189	4530	-240	15400
-177	143	-154	97	-139	1370	-190	4640	-241	15800
-178	145	-155	99	-140	1400	-191	4750	-242	16200
-179	147	-156	101	-141	1430	-192	4870	-243	16500
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-181	151	-158	105	-143	1500	-194	5110	-245	17400
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-184	157	-161	111	-146	1620	-197	5490	-248	18700
-185	159	-162	113	-147	1650	-198	5620	-249	19100
-186	161	-163	115	-148	1690	-199	5760	-250	19600
-187	163	-164	117	-149	1740	-200	5900	-251	20000
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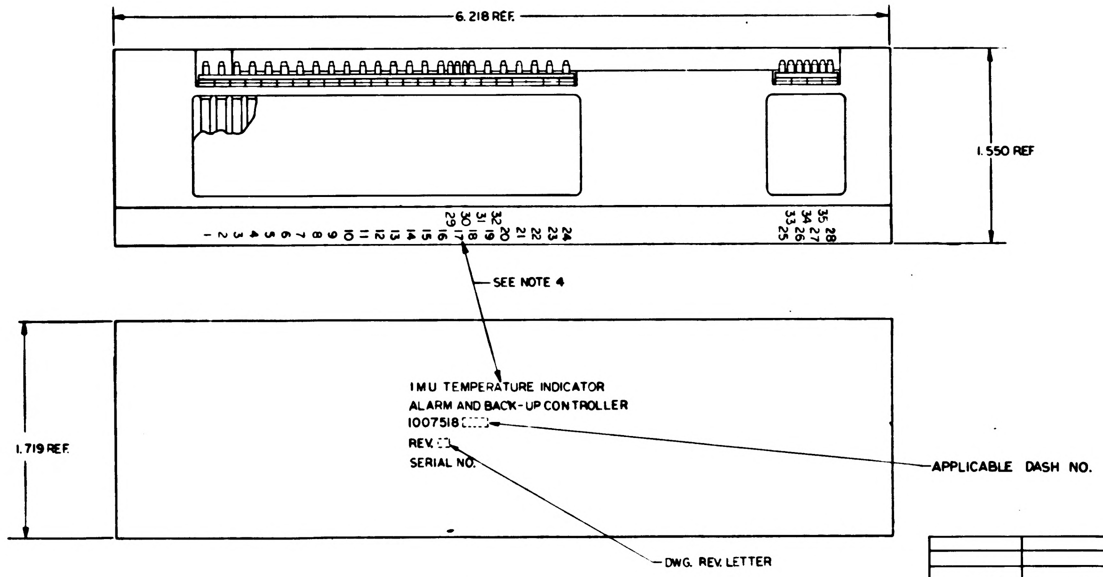
-192	173	-169	127	-154	1960	-205	6650	-256	22600
-193	175	-170	129	-155	2000	-206	6810	-257	23200
-194	177	-171	131	-156	2050	-207	6980	-258	23700
-195	179	-172	133	-157	2100	-208	7150	-259	24300
-196	181	-173	135	-158	2150	-209	7320	-260	24900
-197	183	-174	137	-159	2210	-210	7500	-261	25500
-198	185	-175	139	-160	2260	-211	7680	-262	26100
-199	187	-176	141	-161	2320	-212	7870	-263	26700
-200	189	-177	143	-162	2370	-213	8060	-264	27400
-201	191	-178	145	-163	2430	-214	8250	-265	28000
-202	193	-179	147	-164	2490	-215	8450	-266	28700
-203	195	-180	149	-165	2550	-216	8660	-267	29400
-204	197	-181	151	-166	2610	-217	8870	-268	30100
-205	199	-182	153	-167	2670	-218	9090		
-206	201	-183	155	-168	2740	-219	9310		
		-184	157	-169	2800	-220	9530		
		-185	159	-170	2870	-221	9760		
		-186	161	-171	2940	-222	10000		
		-187	163	-172	3010	-223	10200		
		-188	165	-173	3090	-224	10500		
		-189	167	-174	3160	-225	10700		
		-190	169	-175	3240	-226	11000		
		-191	171	-176	3320	-227	11300		

TABLE I

CONFIGURATION	~~MATERIAL~~	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	~~ADHESIVE~~	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE. 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	~~ADHESIVE~~	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03±.03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	~~PRIMER~~	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03±.03 OF EXTERNAL EDGE


6.218 REF.
1.550 REF
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
29 30 31 32
33 34 35 25 26 27 28
SEE NOTE 4
1.719 REF.
APPLICABLE DASH NO.
DWG. REV. LETTER

IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007518
REV.
SERIAL NO.

MARKING VIEW
SCALE 2:1

			1			1008
			X			1010
			1			1008
			1			1008
			2			1010
			2			1010
			1			1008
			AR			1006
			1			MS20
			1			MS20
			AR			1006
			AR			MIL-
			AR			1008
			AR			1006
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			0			MS20
			0			MS35
			1			1008
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			1			1008
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			1			1008
			1			1008
			1			1008
			1			1018
			2			1000
			2			1010
			1			1010
			6			1010
			1			1010
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			1			1010
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			2			1010
			2			101
			1			101
			1			100
			1			[illegible]
			1			1007
			011	EFFECTIVITY		
QUANTITY REQUIRED						

1007577		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X
DECIMALS XX ± .02 .XXX ± .005
ANGLES ± 1°
DO NOT SCALE THIS DRAWING

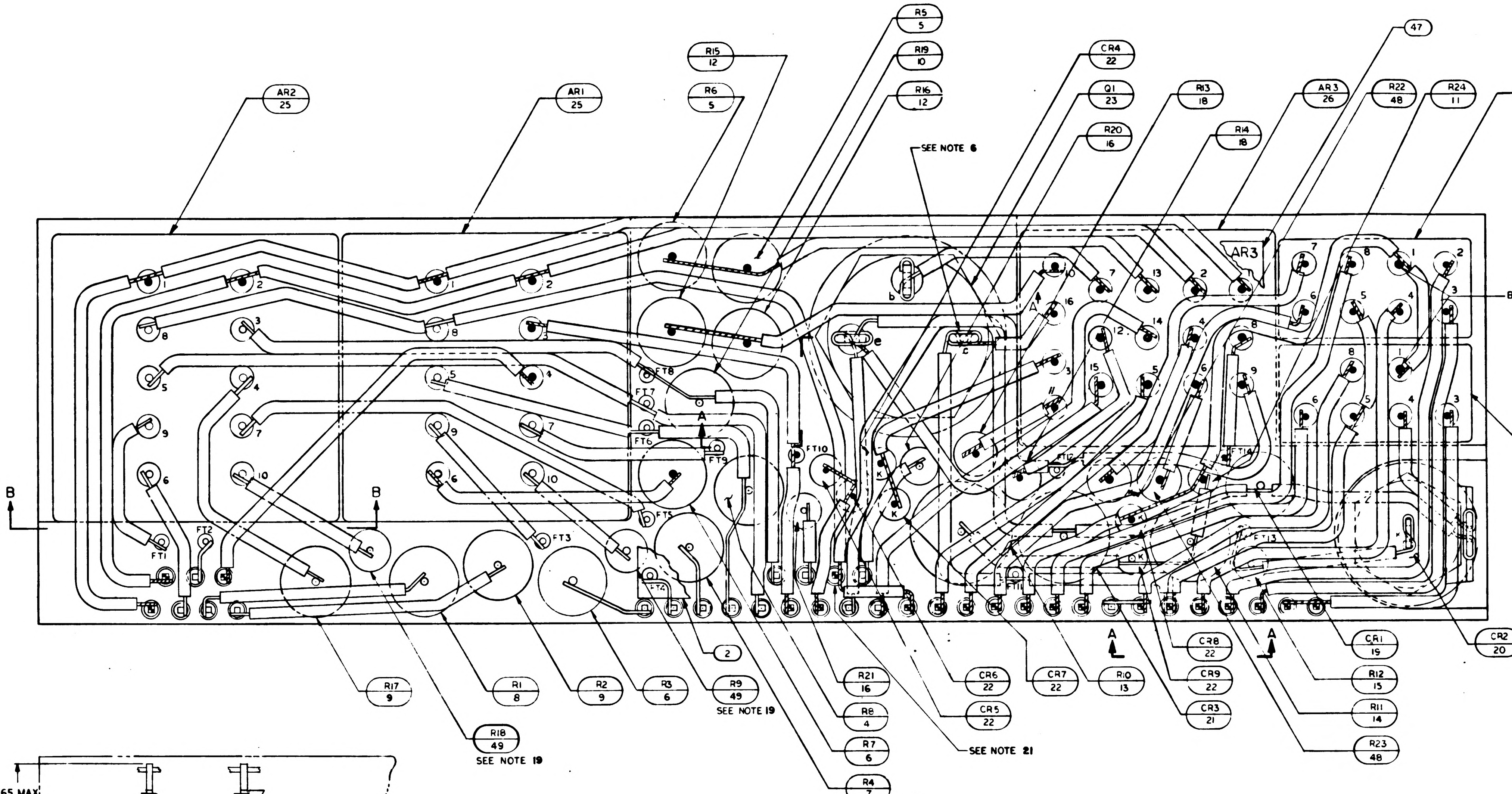
MATERIAL

HEAT TREATMENT

FINAL FINISH

INSTRUME

DRAWN S. [illegible]
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL



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AR1 25
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R6 5
R5 5
R19 10
R16 12
CR4 22
Q1 23
R20 16
R13 18
R14 18
AR3 26
R22 48
R24 11
K1 24
47
SEE NOTE 6
AR3
BLUE BEAD
K2 24
CR2 20
CR1 19
R12 15
R11 14
R23 48
CR8 22
CR9 22
CR3 21
R10 13
CR7 22
CR6 22
CR5 22
SEE NOTE 21
R21 16
R8 4
R7 6
R4 7
R9 49
SEE NOTE 19
2
R3 6
R2 9
R1 8
R17 9
R18 49
SEE NOTE 19
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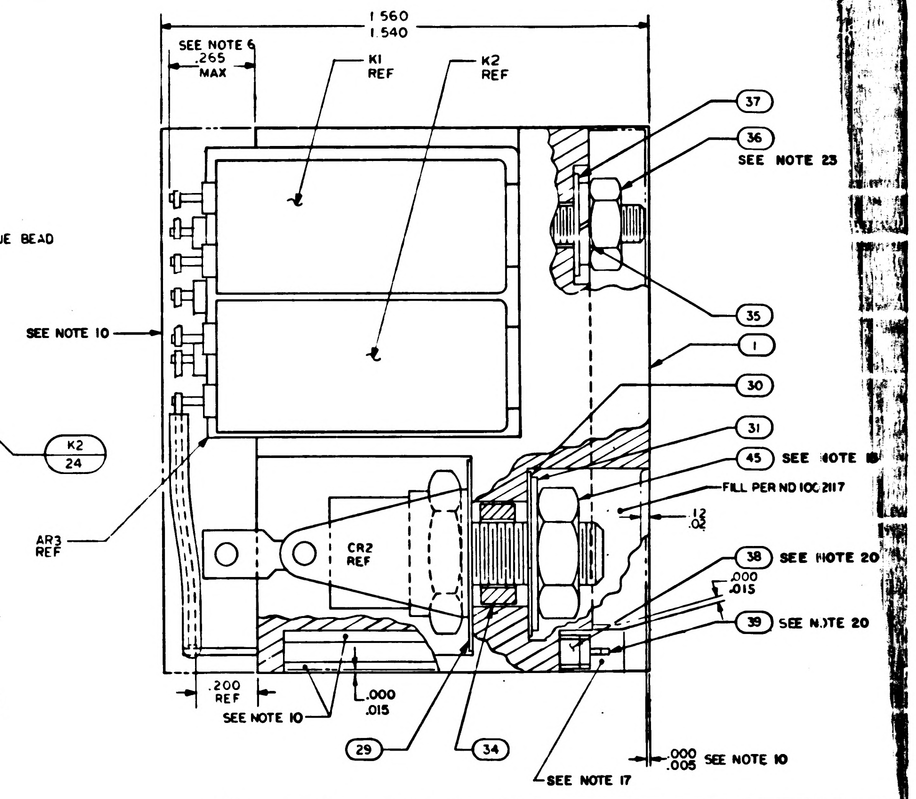
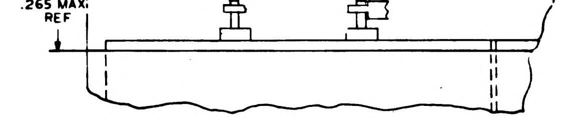


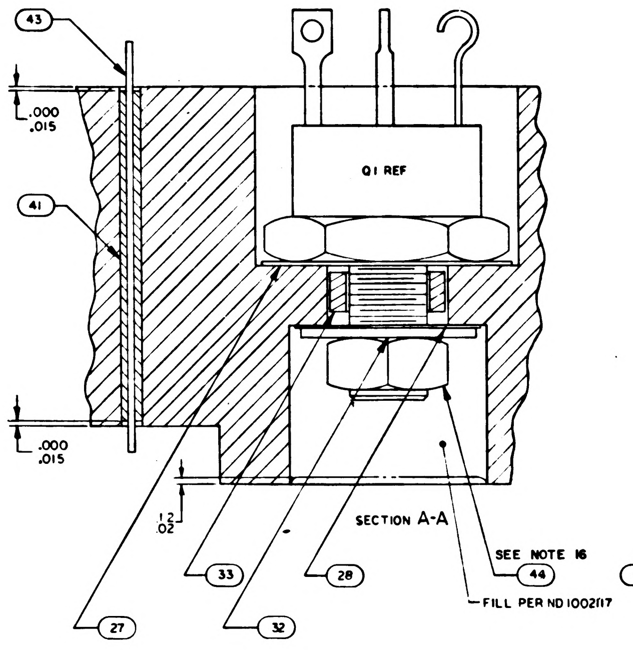
1.560
1.540
SEE NOTE 6
.265 MAX
K1 REF
K2 REF
37
36
SEE NOTE 23
SEE NOTE 10
35
1
30
31
45 SEE NOTE 18
FILL PER ND 1002187
.12
.02
AR3 REF
CR2 REF
38 SEE NOTE 20
.000
.015
39 SEE NOTE 20
.200 REF
SEE NOTE 10
.000
.015
29
34
SEE NOTE 17
.000
.005 SEE NOTE 10



SECTION B-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
3. BOND FIND NO. 50,51 & 52 TO FIND NO. 38 PER ND 1002237.
4. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
5. ALL CONNECTIONS MADE BY WELDING TO BE PER ND 1002005.
6. SOLDER PER ND 1002071.
7. CHECKERED INDICATES INTERMEDIATE LEVEL WIRING
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
9. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
10. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE. THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
11.
12. PROCURE PER PS 1007162.
13. AR DENOTES AS REQUIRED
14. K DENOTES CATHODE SIDE OF DIODE
15. MOUNTING TORQUE FOR FIND NO. 20 TO BE 10/15 INCH POUNDS
16. MOUNTING TORQUE FOR FIND NO. 23 TO BE 22/26 INCH POUNDS
17. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
18. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007162 PART TO BE SELECTED FROM CHART.
19. R9 AND R18 TO BE SELECTED AT ASSEMBLY, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER. RANGE OF VALUES (OHMS) SHOWN ON CHART.
20. ASSEMBLE FIND NO. 38 AND 39 PER ND 1002136
21. LEAD FROM AR1-8 TERMINATES AT LOWER WELD CONNECTION OF PIN 30. UPPER LEAD TIES PINS 15 AND 30 TO FT12
22. ALL ELECTRICAL COMPONENTS WHICH ARE NOT STUD MOUNTED AND ALL FEED THRUS TO BE CENTRALIZED AND CEMENTED PER ND 1002009. METHOD C
23. TORQUE TO 4 ± 1 IN. LB. FOR ASSY OF ITEM 24, 25, AND 26.
24. ~~BOND A .25 MIN. WIDE PERIMETER OF THE TOP AND BOTTOM INSULATORS TO THE HEATSINK AND COAT A .25 MIN. WIDE PERIMETER ON THE OUTSIDE SURFACE OF THE INSULATORS PER ND 1002187 TYPE I.~~
25. CLEAN MODULE WHERE POSSIBLE PRIOR TO BONDING OF WAFER BOARDS & APPLICATION OF COATING MATERIAL BY DEGREASING WITH FREON & ISO-PROPYL ALCOHOL. ADHESIVE & COATING MATERIAL PER ND 1002187 TYPE II APPLY MATERIAL AND COATING AS INDICATED IN TABLE I.



43
.000
.015
41
Q1 REF
.000
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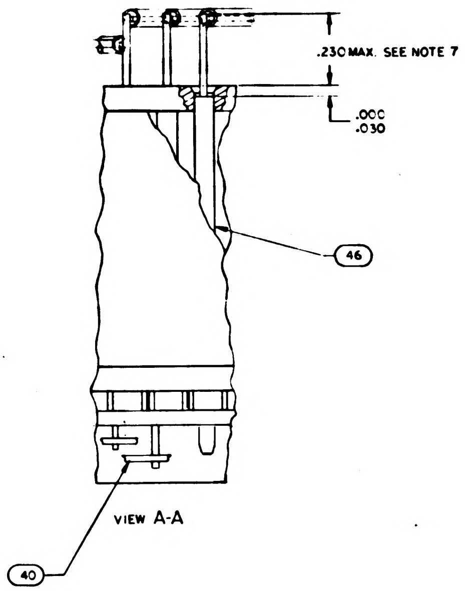
SEE NOTE 16
44
FILL PER ND 1002117
27
32

SECTION A-A



.230 MAX. SEE NOTE 7
.000
.030
46
40

VIEW A-A

R13				R14		R9 AND R18			
PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VAL
1010377-113	15	1010377-164	117	1010377-141	71	1010311-126	1000	1010311-177	34
-114	17	-165	119	-142	73	-127	1020	-178	34
-115	19	-166	121	-143	75	-128	1050	-179	35
-116	21	-167	123	-144	77	-129	1070	-180	36
-117	23	-168	125	-145	79	-130	1100	-181	37
-118	25	-169	127	-146	81	-131	1130	-182	38
-119	27	-170	129	-147	83	-132	1150	-183	39
-120	29	-171	131	-148	85	-133	1180	-184	40
-121	31	-172	133	-149	87	-134	1210	-185	41
-122	33	-173	135	-150	89	-135	1240	-186	42
-123	35	-174	137	-151	91	-136	1270	-187	43
-124	37	-175	139	-152	93	-137	1300	-188	44
-125	39	-176	141	-153	95	-138	1330	-189	45
-126	41	-177	143	-154	97	-139	1370	-190	46
-127	43	-178	145	-155	99	-140	1400	-191	47
-128	45	-179	147	-156	101	-141	1430	-192	48
-129	47	-180	149	-157	103	-142	1470	-193	49
-130	49	-181	151	-158	105	-143	1500	-194	51
-131	51	-182	153	-159	107	-144	1540	-195	52
-132	53	-183	155	-160	109	-145	1580	-196	53
-133	55	-184	157	-161	111	-146	1620	-197	54
-134	57	-185	159	-162	113	-147	1650	-198	56
-135	59	-186	161	-163	115	-148	1690	-199	57
-136	61	-187	163	-164	117	-149	1740	-200	59
-137	63	-188	165	-165	119	-150	1780	-201	60
-138	65	-189	167	-166	121	-151	1820	-202	61
-139	67	-190	169	-167	123	-152	1870	-203	63
-140	69	-191	171	-168	125	-153	1910	-204	64
-141	71	-192	173	-169	127	-154	1960	-205	66
-142	73	-193	175	-170	129	-155	2000	-206	68
-143	75	-194	177	-171	131	-156	2050	-207	69
-144	77	-195	179	-172	133	-157	2100	-208	71
-145	79	-196	181	-173	135	-158	2150	-209	73
-146	81	-197	183	-174	137	-159	2210	-210	75
-147	83	-198	185	-175	139	-160	2260	-211	76
-148	85	-199	187	-176	141	-161	2320	-212	78
-149	87	-200	189	-177	143	-162	2370	-213	80
-150	89	-201	191	-178	145	-163	2430	-214	82
-151	91	-202	193	-179	147	-164	2490	-215	84
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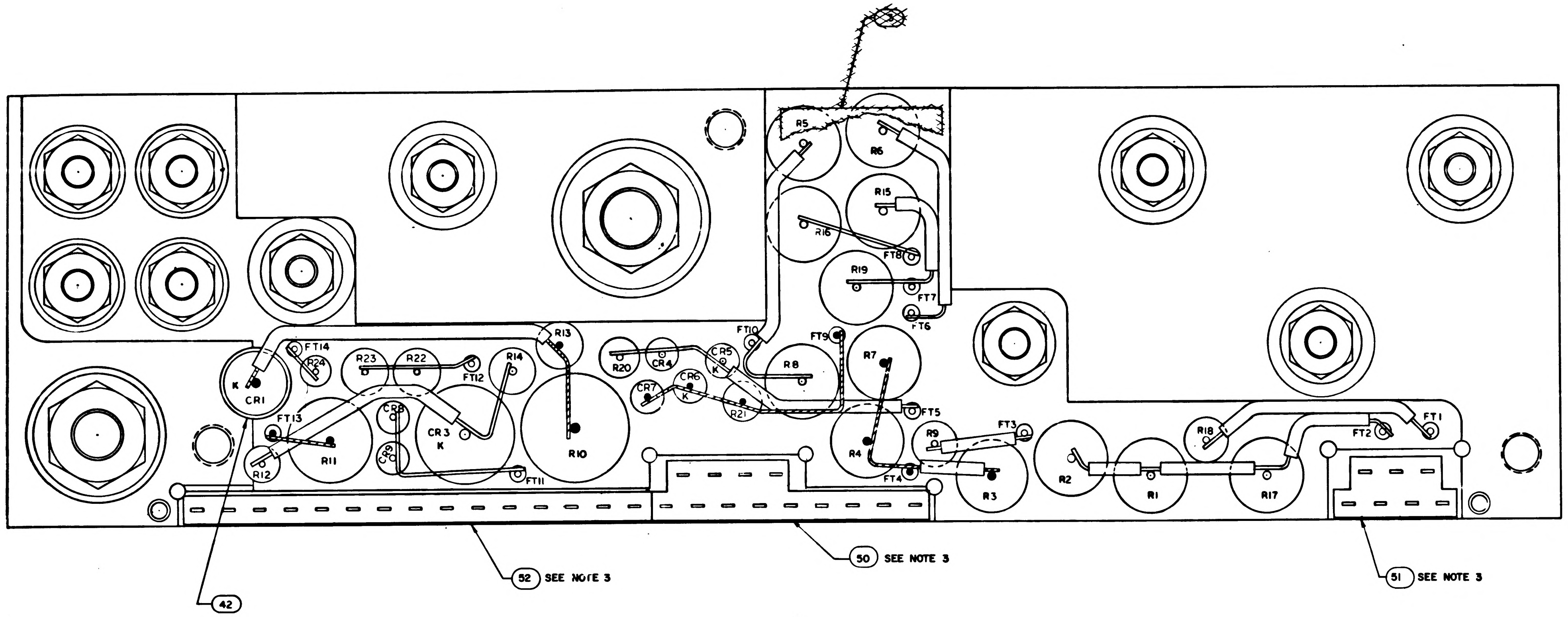
-153	95	-204	197	-181	151	-166	2610	-217	88
-154	97	-205	199	-182	153	-167	2670	-218	90
-155	99	-206	201	-183	155	-168	2740	-219	93
-156	101			-184	157	-169	2800	-220	95
-157	103			-185	159	-170	2870	-221	97
-158	105			-186	161	-171	2940	-222	10
-159	107			-187	163	-172	3010	-223	10
-160	109			-188	165	-173	3090	-224	10
-161	111			-189	167	-174	3160	-225	1
-162	113			-190	169	-175	3240	-226	11
-163	115			-191	171	-176	3320	-227	11

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TURR ,9584	14 Jul 64	WK
B	REVISED PER TDRR 17336	12-MAR 65	GM EF
C	REVISED PER TDRR 19396	2 JUNE 65	LGC MEM
D	REVISED PER TDRR 19434	3 Jul 65	[illegible]
E	REVISED PER TDRR 19501	10 JUN 65	EF



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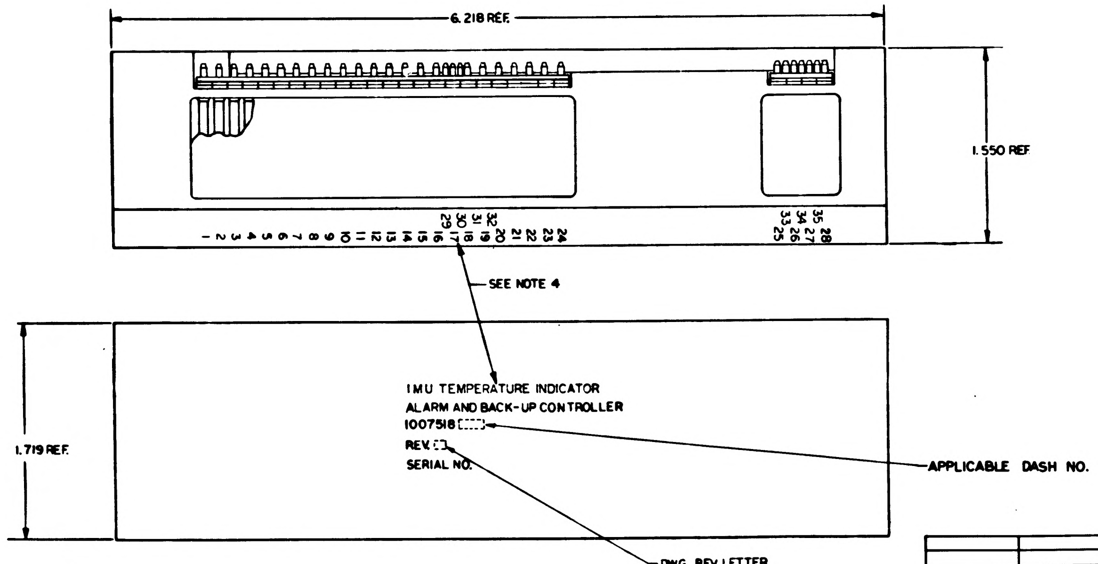
42
52 SEE NOTE 3
50 SEE NOTE 3
51 SEE NOTE 3

TABLE I

CONFIGURATION	~~MATERIAL~~	BOND BETWEEN WAFER AND HEATSINK	TOP OF WAFER	HEATSINK-FOAM CONTACT SURFACE ADJACENT TO HEATSINK EXTERNAL SURFACE
WAFER & FLAT HEATSINK	~~ADHESIVE~~	100% OF AREA .12 FROM EXTERNAL HEATSINK SURFACE, 80% OF AREA .25 FROM EXTERNAL HEATSINK SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
WAFER AND ADJACENT VERTICAL HEATSINK SURFACE	~~ADHESIVE~~	CORNER FILLET AND VERTICAL SURFACE TO WITHIN .03 ± .03 OF EXTERNAL SURFACE	100% OF AREA .25 FROM EXTERNAL MODULE SURFACE	N/A
HEATSINK FOAM CONTACT SURFACE PERIMETER	~~PRIMER~~	N/A	N/A	.25 MIN WIDTH OR TOTAL AVAILABLE ON 90% OF PERIMETER TO WITHIN .03 ± .03 OF EXTERNAL EDGE



6.218 REF.
1.550 REF
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29 30 31 32
33 34 35 25 26 27 28
SEE NOTE 4
1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007518 [ ]
REV. [ ]
SERIAL NO.
APPLICABLE DASH NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

			1		1008540-15	GASKET, CONNECTOR-MINIATURE	52
			X		1010140	SCHEMATIC, ELECTRICAL	
			1		1008545	GASKET, CONNECTOR MINIATURE	51
			1		1008546	GASKET, CONNECTOR MINIATURE	50
			2		1010311- SEE NOTE 19	RESISTOR	49
			2		1010377-237	RESISTOR	48
			1		1008185	INSULATOR TOP, AMPL	47
			AR		1006776-20	INSULATION SLEEVING	46
			1		MS20341-10B	NUT HEX	45
			1		MS20341-416B	NUT HEX	44
			AR		1006757-8	WIRE ELECTRICAL .020 DIA.	43
			AR		MIL-I-23053-8	INSULATION SLEEVING	42
			AR		1006776-21	INSULATION SLEEVING	41
			AR		1006757-1	WIRE ELECT. .010 X .020	40
			35		1006782-5	CONTACT WRAPOST MALE	39
			35		1006775	INSULATOR WRAPOST MALE	38
			10		1008070-5	WASHER, FLAT	37
			10		MS20341-4A	NUT-HEX	36
			10		MS35338-78	WASHER, LOCK	35
			1		1008021-1	BUSHING INSULATOR	34
			1		1008021-2	BUSHING INSULATOR	33
			1		1008020-2	WASHER FLAT	32
			1		1008020-1	WASHER FLAT	31
			1		1008024-1	WASHER INSULATOR	30
			1		1008024-2	WASHER INSULATOR	29
			1		1008024-4	WASHER INSULATOR	28
			1		1008024-3	WASHER INSULATOR	27
			1		1018900-011	AMPLIFIER	26
			2		1000284	AMPLIFIER	25
			2		1010353-1	RELAY	24
			1		1010273-1	TRANSISTOR	23
			6		1010362-3	DIODE	22
			1		1010441-2	DIODE	21
			1		1010331-20	DIODE	20
			1		1010440-1	DIODE	19
			X		1010377 SEE NOTE 18	RESISTOR	18
							17
			2		1010364-368	RESISTOR	16
			1		1010364-44	RESISTOR	15
			1		1010361-112	RESISTOR	14
			1		1010452-167	RESISTOR	13
			1		1010450-9	RESISTOR	12
			1		1010604-22	RESISTOR	11
			1		1010450-10	RESISTOR	10
			2		1010450-12	RESISTOR	9
			1		1010450-13	RESISTOR	8
			1		1010450-14	RESISTOR	7
			2		1010450-3	RESISTOR	6
			2		1010450-2	RESISTOR	5
			1		1010450-11	RESISTOR	4
			~~1~~		~~1008074~~	~~INSULATOR BOTTOM~~	3
			1		1008186	INSULATOR TOP	2
			1		1007072	HEAT SINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

1007518 E

1007577		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X DECIMALS XX ± .02 .XXX ± .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
Contract NAS 9-497
DRAWN S. Agne DATE 1 SEP 64
CHECKED A. Udand 4 SEP 64
APPROVAL [illegible]
APPROVAL D. B. Test 10/5/64
NASA APPROVAL 10-6-6
MIT APPROVAL W Kupfer 6 Oct 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

IMU TEMP INDICATOR ALARM AND BACK-UP CONTROLLER ASSEMBLY

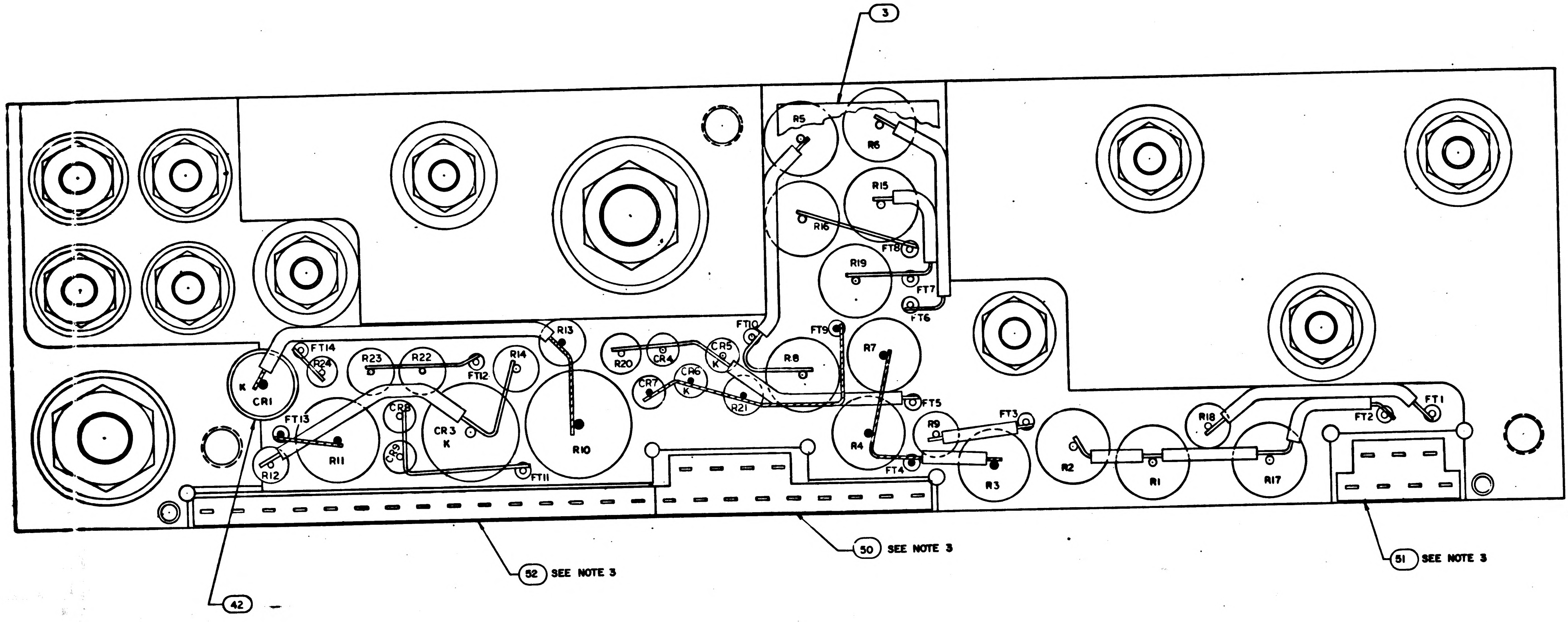
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 1007518
SCALE 5:1
WT
SHEET 1 OF 1

34

1007518 REV E

3/1007518

REVISIONS 13233			
SYM	DESCRIPTION	DATE	APPROVAL



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FT12
K
CR1
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CR8
CR3
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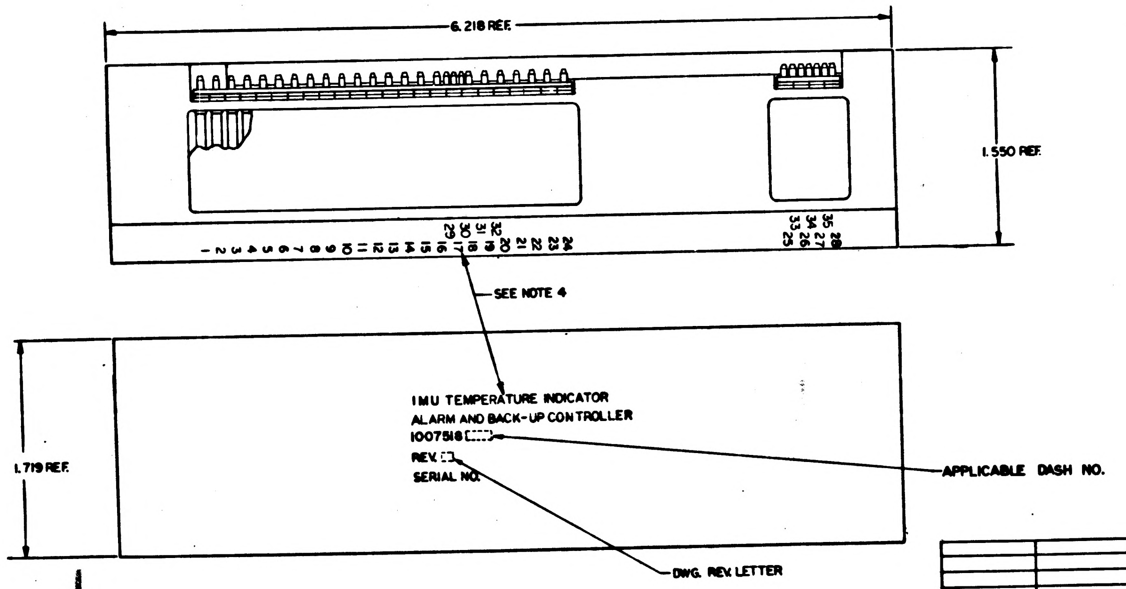
42
52 SEE NOTE 3
50 SEE NOTE 3
51 SEE NOTE 3



6.218 REF.
1.550 REF.
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29 30 31 32
33 34 35 25 26 27 28
SEE NOTE 4
1.719 REF.
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007518
REV.
SERIAL NO.
APPLICABLE DASH NO.
DWG. REV. LETTER

MARKING VIEW
SCALE 2:1

			1		1008540-15	GASKET, CONNECTOR-MINIATURE	52
			X		1010140	SCHEMATIC, ELECTRICAL	
			1		1008545	GASKET, CONNECTOR MINIATURE	51
			1		1008546	GASKET, CONNECTOR MINIATURE	50
			2		1010311- SEE NOTE 19	RESISTOR	49
			2		1010377-237	RESISTOR	48
			1		1008185	INSULATOR TOP, AMPL	47
			AR		1006776-20	INSULATION SLEEVING	46
			1		MS20341-108	NUT HEX	45
			1		MS20341-416B	NUT HEX	44
			AR		1006757-8	WIRE ELECTRICAL .020 DIA.	43
			AR		MIL-I-23053-8	INSULATION SLEEVING	42
			AR		1006776-21	INSULATION SLEEVING	41
			AR		1006757-1	WIRE ELECT. .010 X .020	40
			35		1006782-5	CONTACT WRAPOST MALE	39
			35		1006775	INSULATOR WRAPOST MALE	38
			10		1008070-5	WASHER, FLAT	37
			10		MS20341-4A	NUT-HEX	36
			10		MS35338-78	WASHER, LOCK	35
			1		1008021-1	BUSHING INSULATOR	34
			1		1008021-2	BUSHING INSULATOR	33
			1		1008020-2	WASHER FLAT	32
			1		1008020-1	WASHER FLAT	31
			1		1008024-1	WASHER INSULATOR	30
			1		1008024-2	WASHER INSULATOR	29
			1		1008024-4	WASHER INSULATOR	28
			1		1008024-3	WASHER INSULATOR	27
			1		1018900	AMPLIFIER	26
			2		1000284	AMPLIFIER	25
			2		1010353-1	RELAY	24
			1		1010273-1	TRANSISTOR	23
			6		1010362-3	DIODE	22
			1		1010441-2	DIODE	21
			1		1010331-20	DIODE	20
			1		1010440-1	DIODE	19
			X		1010377 SEE NOTE 18	RESISTOR	18
							17
			2		1010364-368	RESISTOR	16
			1		1010364-44	RESISTOR	15
			1		1010361-112	RESISTOR	14
			1		1010452-167	RESISTOR	13
			1		1010450-9	RESISTOR	12
			1		1010604-22	RESISTOR	11
			1		1010450-10	RESISTOR	10
			2		1010450-12	RESISTOR	9
			1		1010450-13	RESISTOR	8
			1		1010450-14	RESISTOR	7
			2		1010450-3	RESISTOR	6
			2		1010450-2	RESISTOR	5
			1		1010450-11	RESISTOR	4
			1		1008074	INSULATOR BOTTOM	3
			1		1008186	INSULATOR TOP	2
			1		1007072	HEAT SINK	1
			011	EFFECTIVITY	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
QUANTITY REQUIRED					LIST OF MATERIALS		

1007518

1007577		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS X ± DECIMALS .XX ± .02 .XXX ± .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

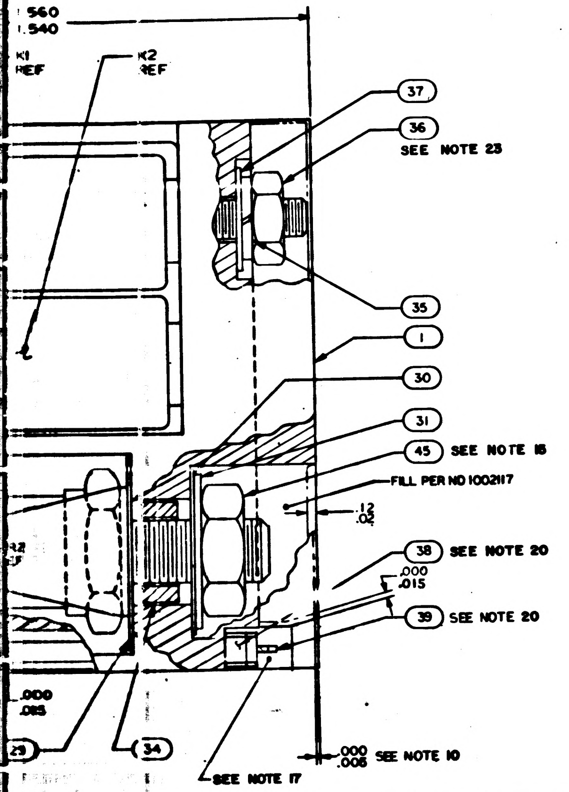
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
Contract NAS 9-497
DRAWN DATE 1 SEP 64
CHECKED 4 SEP 64
APPROVAL
APPROVAL
NASA APPROVAL W. J. Rhine 10-6-64
MIT APPROVAL 6 Oct 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

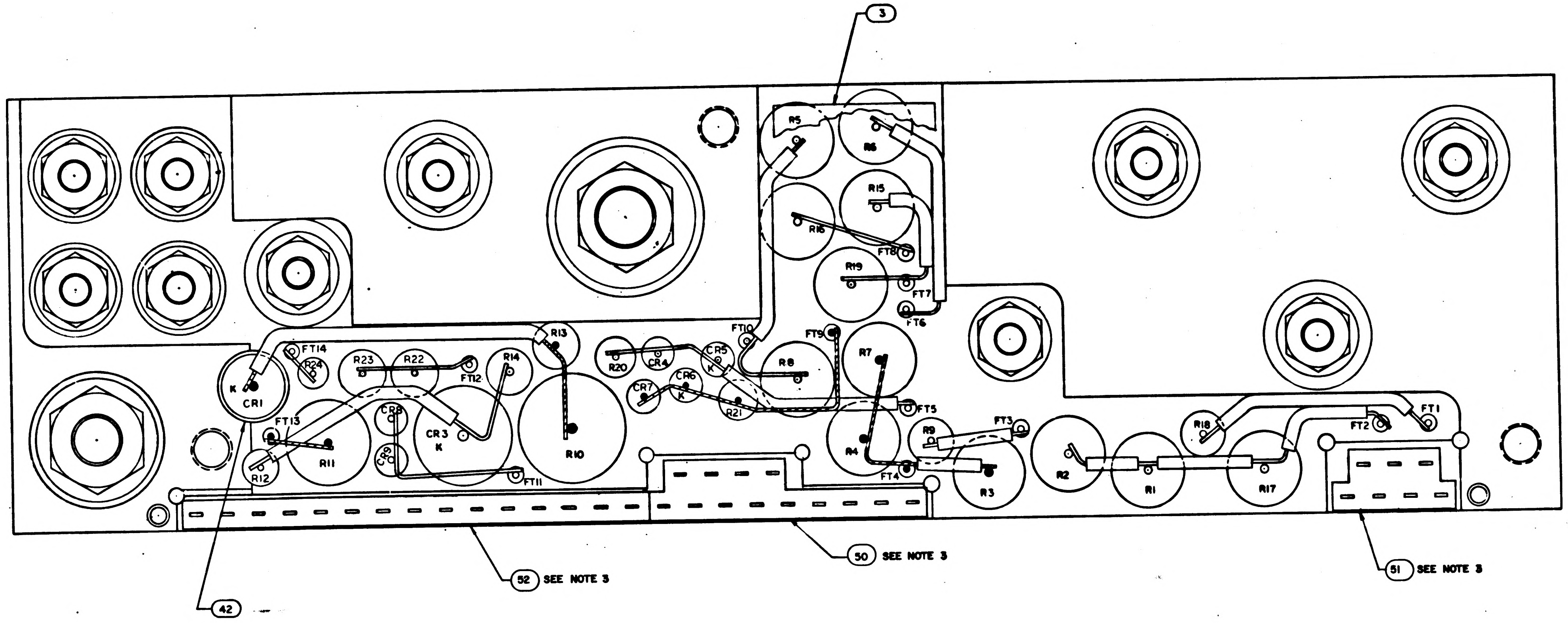
IMU TEMP INDICATOR ALARM AND BACK-UP CONTROLLER ASSEMBLY

CODE IDENT NO. | SIZE J | NASA DRAWING NO. 1007518
SCALE 5:1 | WT | SHEET 1 OF 1

5 4 3 2



1.560
1.540
K1 REF
K2 REF
37
36
SEE NOTE 23
35
1
30
31
45 SEE NOTE 16
FILL PER ND 1002117
.12
.02
38 SEE NOTE 20
.000
.015
39 SEE NOTE 20
.000
.015
29
34
SEE NOTE 17
.000
.005 SEE NOTE 10



3
R5
R6
R15
R16
R19
FT8
FT7
FT6
FT10
FT9
R13
FT14
R24
R23
R22
R14
FT12
R20
CR4
CR5
K
R8
R7
K
CR1
FT13
CR8
CR7
CR6
K
R21
FT5
R9
FT3
R18
FT2
FT1
R12
R11
CR3
K
R10
FT11
R4
FT4
R3
R2
R1
R17
42
52 SEE NOTE 3
50 SEE NOTE 3
51 SEE NOTE 3

3		R14		R9 AND R18					
PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE
1010377-164	117	1010377-141	71	1010311-126	1000	1010311-177	3400	1010311-228	11500
-165	119	-142	73	-127	1020	-178	3480	-229	11800
-166	121	-143	75	-128	1050	-179	3570	-230	12100
-167	123	-144	77	-129	1070	-180	3650	-231	12400
-168	125	-145	79	-130	1100	-181	3740	-232	12700
-169	127	-146	81	-131	1130	-182	3830	-233	13000
-170	129	-147	83	-132	1150	-183	3920	-234	13300
-171	131	-148	85	-133	1180	-184	4020	-235	13700
-172	133	-149	87	-134	1210	-185	4120	-236	14000
-173	135	-150	89	-135	1240	-186	4220	-237	14300
-174	137	-151	91	-136	1270	-187	4320	-238	14700
-175	139	-152	93	-137	1300	-188	4420	-239	15000
-176	141	-153	95	-138	1330	-189	4530	-240	15400
-177	143	-154	97	-139	1370	-190	4640	-241	15800
-178	145	-155	99	-140	1400	-191	4750	-242	16200
-179	147	-156	101	-141	1430	-192	4870	-243	16500
-180	149	-157	103	-142	1470	-193	4990	-244	16900
-181	151	-158	105	-143	1500	-194	5110	-245	17400
-182	153	-159	107	-144	1540	-195	5230	-246	17800
-183	155	-160	109	-145	1580	-196	5360	-247	18200
-184	157	-161	111	-146	1620	-197	5490	-248	18700
-185	159	-162	113	-147	1650	-198	5620	-249	19100
-186	161	-163	115	-148	1690	-199	5760	-250	19600
-187	163	-164	117	-149	1740	-200	5900	-251	20000
-188	165	-165	119	-150	1780	-201	6040	-252	20500
-189	167	-166	121	-151	1820	-202	6190	-253	21000
-190	169	-167	123	-152	1870	-203	6340	-254	21500
-191	171	-168	125	-153	1910	-204	6490	-255	22100
-192	173	-169	127	-154	1960	-205	6650	-256	22600
-193	175	-170	129	-155	2000	-206	6810	-257	23200
-194	177	-171	131	-156	2050	-207	6980	-258	23700
-195	179	-172	133	-157	2100	-208	7150	-259	24300
-196	181	-173	135	-158	2150	-209	7320	-260	24900
-197	183	-174	137	-159	2210	-210	7500	-261	25500
-198	185	-175	139	-160	2260	-211	7680	-262	26100
-199	187	-176	141	-161	2320	-212	7870	-263	26700
-200	189	-177	143	-162	2370	-213	8060	-264	27400
-201	191	-178	145	-163	2430	-214	8250	-265	28000
-202	193	-179	147	-164	2490	-215	8450	-266	28700
-203	195	-180	149	-165	2550	-216	8660	-267	29400
-204	197	-181	151	-166	2610	-217	8870	-268	30100
-205	199	-182	153	-167	2670	-218	9090		
-206	201	-183	155	-168	2740	-219	9310		
		-184	157	-169	2800	-220	9530		
		-185	159	-170	2870	-221	9760		
		-186	161	-171	2940	-222	10000		
		-187	163	-172	3010	-223	10200		
		-188	165	-173	3090	-224	10500		
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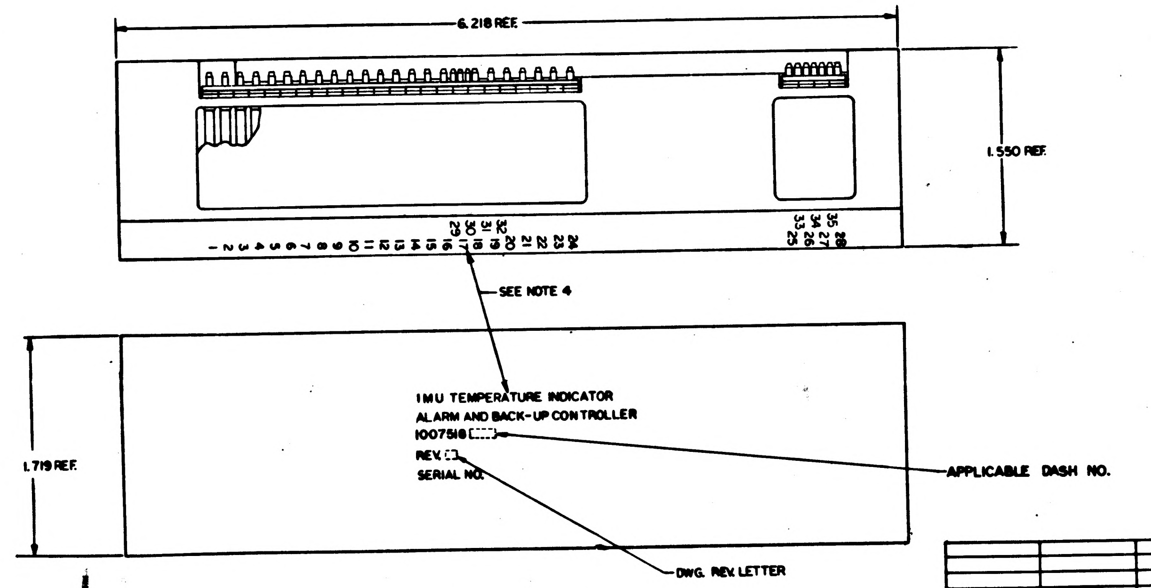


6.218 REF
1.550 REF
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
29 30 31 32
35 34 33
28 27 26 25
SEE NOTE 4
IMU TEMPERATURE INDICATOR
ALARM AND BACK-UP CONTROLLER
1007518
REV.
SERIAL NO.
APPLICABLE DASH NO.
DWG. REV. LETTER
1.719 REF

MARKING VIEW
SCALE 2:1

MASTER

1		100884
☒		101014
1		100854
1		100851
2		[illegible]
2		[illegible]
1		[illegible]
AR		[illegible]
1		MS2034
1		MS2034
AR		100675
AR		MIL-I-
AR		[illegible]
AR		100675
35		100678
35		100671
10		100801
10		MS2034
10		MS3533
1		100802
1		10080
1		10080
1		10080
1		10080
1		10080
1		10080
1		10080
1		10189
2		10002
2		10103
1		10102
6		10103
1		10104
1		[illegible]
1		[illegible]
☒		10103
2		10103
1		10103
1		10103
1		[illegible]
1		1010
1		1010
1		1010
2		1010
1		1010
1		[illegible]
2		[illegible]
2		[illegible]
1		[illegible]
1		100
1		100
1		100
ON	EFFECTIVITY	

QUANTITY REQUIRED

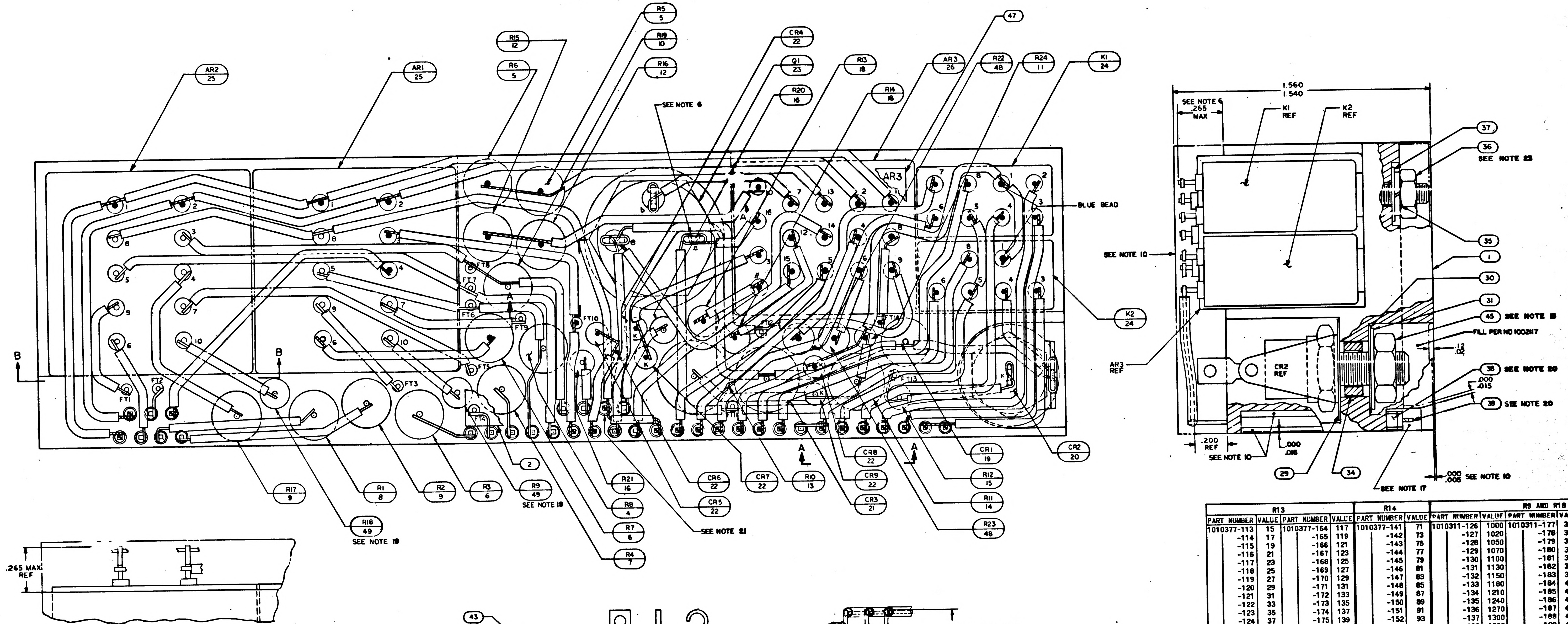
1007577		
NEXT ASSY	USED ON	APPLICABLE DASH NO.
APPLICATION		

THE ASSEMBLY PART NUMBER IS THE DRAWING NUMBER AND THE DASH NUMBER THAT APPLIES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
X ± XX ± .0[illegible] ± 6°
.XXX ± .0[illegible]5
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

1007518

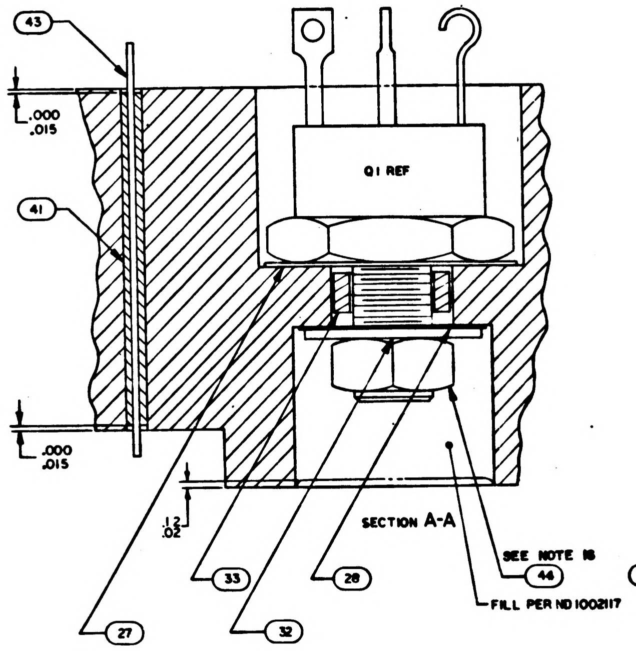
5 4 2


AR2 25
AR1 25
R15 12
R6 5
R5 5
R19 10
R16 12
CR4 22
Q1 23
R20 16
R13 18
R14 18
AR3 26
R22 48
R24 11
K1 24
47
SEE NOTE 6
AR3
BLUE BEAD
SEE NOTE 10
K2 24
B
A
FT1
FT2
FT3
FT4
FT5
FT6
FT7
FT8
FT9
FT10
FT11
FT12
FT13
FT14
K
R17 9
R18 49
SEE NOTE 19
R1 8
R2 9
R3 6
2
R9 49
SEE NOTE 19
R21 16
R8 4
R7 6
R4 7
CR6 22
CR5 22
SEE NOTE 21
CR7 22
R10 13
CR8 22
CR9 22
CR3 21
CR1 19
R12 15
R11 14
R23 48
CR2 20
1.560
1.540
SEE NOTE 6
.265 MAX
K1 REF
K2 REF
37
36 SEE NOTE 23
35
1
30
31
45 SEE NOTE 15
FILL PER ND 1002117
.12
.04
38 SEE NOTE 20
.000
.015
39 SEE NOTE 20
AR3 REF
CR2 REF
.200 REF
SEE NOTE 10
.000
.016
29
34
SEE NOTE 17
.000
.005 SEE NOTE 10
.265 MAX REF

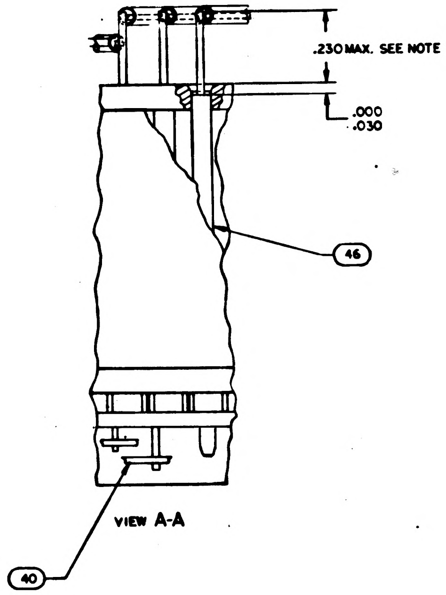
SECTION B-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. UNLESS OTHERWISE SPECIFIED, WIRING SHALL MEET THE REQUIREMENTS OF ND 1002069.
3. BOND FIND NO. 50,51 & 52 TO FIND NO. 38 PER ND1002237.
4. MARK PIN NUMBERS .060/.100 HIGH (WHITE) AND ALL OTHER CHARACTERS .100/.140 HIGH (WHITE) PER ND 1002019 AND SERIALIZE PER ND 1002023. CENTRALIZE AS SHOWN.
5. ALL CONNECTIONS MADE BY WELDING TO BE PER ND 1002005.
6. SOLDER PER ND 1002071.
7. CHECKERED INDICATES INTERMEDIATE LEVEL WIRING
8. WHITE DOT AND CLEAR WIRING INDICATES LOWER LEVEL WIRING.
9. BLACK DOT AND CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING.
10. ENCAPSULATE MODULE PER ND 1002002 (BLACK POLYURETHANE FOAM). UNLESS OTHERWISE SPECIFIED PERIPHERAL ENCAPSULANT DIMENSIONS MAY EXCEED THE NOMINAL HEATSINK WIDTH AND LENGTH DIMENSIONS BY A MAXIMUM OF .005. WHEN THE HEATSINK OUTLINE EXCEEDS THE ENCAPSULANT OUTLINE. THE MAXIMUM DIMENSION BETWEEN ANY HEATSINK SURFACE AND ITS RESPECTIVE ENCAPSULANT SURFACE SHALL NOT EXCEED .015. REMOVE ALL FLASHING
11.
12. PROCURE PER PS 1007162.
13. AR DENOTES AS REQUIRED
14. K DENOTES CATHODE SIDE OF DIODE
15. MOUNTING TORQUE FOR FIND NO. 20 TO BE 10/15 INCH POUNDS
16. MOUNTING TORQUE FOR FIND NO. 23 TO BE 22/26 INCH POUNDS
17. INDICATED AREAS TO BE FREE OF ENCAPSULATING COMPOUND
18. VALUE TO BE DETERMINED BY ELECTRICAL TEST PER ATP 1007162 PART TO BE SELECTED FROM CHART.
19. R9 AND R18 TO BE SELECTED AT ASSEMBLY, PART NO. AND DASH NO. AS MARKED ON AMPLIFIER. RANGE OF VALUES (OHMS) SHOWN ON CHART.
20. ASSEMBLE FIND NO. 38 AND 39 PER ND 1002136
21. LEAD FROM AR1-8 TERMINATES AT LOWER WELD CONNECTION OF PIN 30. UPPER LEAD TIES PINS 15 AND 30 TO FT12
22. ALL ELECTRICAL COMPONENTS WHICH ARE NOT STUD MOUNTED AND ALL FEED THRUS TO BE CENTRALIZED AND CEMENTED PER ND 1002009. METHOD C
23. TORQUE TO 4 ± 1 IN. LB. FOR ASSY OF ITEM 24, 25, AND 26.


43
.000
.015
41
Q1 REF
.000
.015
.12
.02
33
28
32
27
SEE NOTE 16
44
FILL PER ND1002117

SECTION A-A


.230 MAX. SEE NOTE 7
.000
.030
46
40

VIEW A-A

R13				R14		R9 AND R18			
PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE	PART NUMBER	VALUE
1010377-113	15	1010377-164	117	1010377-141	71	1010311-126	1000	1010311-177	3400
-114	17	-165	119	-142	73	-127	1020	-178	3480
-115	19	-166	121	-143	75	-128	1050	-179	3570
-116	21	-167	123	-144	77	-129	1070	-180	365
-117	23	-168	125	-145	79	-130	1100	-181	3740
-118	25	-169	127	-146	81	-131	1130	-182	383
-119	27	-170	129	-147	83	-132	1150	-183	392
-120	29	-171	131	-148	85	-133	1180	-184	402
-121	31	-172	133	-149	87	-134	1210	-185	412
-122	33	-173	135	-150	89	-135	1240	-186	422
-123	35	-174	137	-151	91	-136	1270	-187	432
-124	37	-175	139	-152	93	-137	1300	-188	442
-125	39	-176	141	-153	95	-138	1330	-189	453
-126	41	-177	143	-154	97	-139	1370	-190	464
-127	43	-178	145	-155	99	-140	1400	-191	475
-128	45	-179	147	-156	101	-141	1430	-192	487
-129	47	-180	149	-157	103	-142	1470	-193	499
-130	49	-181	151	-158	105	-143	1500	-194	511
-131	51	-182	153	-159	107	-144	1540	-195	523
-132	53	-183	155	-160	109	-145	1580	-196	536
-133	55	-184	157	-161	111	-146	1620	-197	549
-134	57	-185	159	-162	113	-147	1650	-198	562
-135	59	-186	161	-163	115	-148	1690	-199	57
-136	61	-187	163	-164	117	-149	1740	-200	59
-137	63	-188	165	-165	119	-150	1780	-201	604
-138	65	-189	167	-166	121	-151	1820	-202	619
-139	67	-190	169	-167	123	-152	1870	-203	634
-140	69	-191	171	-168	125	-153	1910	-204	649
-141	71	-192	173	-169	127	-154	1960	-205	665
-142	73	-193	175	-170	129	-155	2000	-206	681
-143	75	-194	177	-171	131	-156	2050	-207	698
-144	77	-195	179	-172	133	-157	2100	-208	715
-145	79	-196	181	-173	135	-158	2150	-209	732
-146	81	-197	183	-174	137	-159	2210	-210	75
-147	83	-198	185	-175	139	-160	2260	-211	76
-148	85	-199	187	-176	141	-161	2320	-212	787
-149	87	-200	189	-177	143	-162	2370	-213	80
-150	89	-201	191	-178	145	-163	2430	-214	82
-151	91	-202	193	-179	147	-164	2490	-215	84
-152	93	-203	195	-180	149	-165	2550	-216	86
-153	95	-204	197	-181	151	-166	2610	-217	887
-154	97	-205	199	-182	153	-167	2670	-218	90
-155	99	-206	201	-183	155	-168	2740	-219	931
-156	101			-184	157	-169	2800	-220	95
-157	103			-185	159	-170	2870	-221	97
-158	105			-186	161	-171	2940	-222	100
-159	107			-187	163	-172	3010	-223	102
-160	109			-188	165	-173	3090	-224	105
-161	111			-189	167	-174	3160	-225	107
-162	113			-190	169	-175	3240	-226	110
-163	115			-191	171	-176	3320	-227	11